

# **Draft Supplemental Recirculated Environmental Impact Report**

**SCH# 2014041005**

**Volume 6**  
***Volume 2 Appendix A through Appendix E.1 (Part 1) of  
the Previously Circulated DEIR***

**GRAPEVINE SPECIFIC AND COMMUNITY PLAN (2019)**  
**Tejon Ranchcorp**

Specific Plan Amendment No. 157, Map 500  
General Plan Amendment No. 9, Map 202  
General Plan Amendment No. 10, Map 202  
General Plan Amendment No. 4, Map 218R  
General Plan Amendment No. 5, Map 218R  
General Plan Amendment No. 11, Map 219  
General Plan Amendment No. 12, Map 219  
Special Plan No. 2, Map 202  
Special Plan No. 3, Map 218R  
Special Plan No. 3, Map 219  
Zone Change Case No. 18, Map 202  
Zone Change Case No. 3, Map 218R  
Zone Change Case No. 14, Map 219  
Agricultural Preserve #19 - Exclusion



Kern County  
Planning and Natural Resources Department  
Bakersfield, California

August 2019

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Zone Change Case No. 18, Map 202  
Zone Change Case No. 3, Map 218R  
Zone Change Case No. 14, Map 219  
Agricultural Preserve #19 - Exclusion

Kern County Planning and Natural Resources Department  
2700 "M" Street, Suite 100  
Bakersfield, CA 93301-2370  
(661) 862-8600

*Technical Assistance by:*  
Ecology and Environment, Inc.  
One Embarcadero Center Suite 500  
San Francisco, CA 94111  
(415) 398-5326

August 2019



# **Draft Environmental Impact Report**

**SCH# 2014041005**

***Volume 2  
Appendix A through Appendix E.1 (Part 1)***

## **GRAPEVINE SPECIFIC AND COMMUNITY PLAN PROJECT Tejon Ranchcorp**

Specific Plan Amendment No. 155, Map 500  
General Plan Amendment No. 6, Map 202  
General Plan Amendment No. 7, Map 202  
General Plan Amendment No. 2, Map 218R  
General Plan Amendment No. 3, Map 218R  
General Plan Amendment No. 8, Map 219  
General Plan Amendment No. 9, Map 219  
Special Plan No. 1, Map 202  
Special Plan No. 2, Map 218R  
Special Plan No. 2, Map 219  
Zone Change Case No. 16, Map 202  
Zone Change Case No. 2, Map 218R  
Zone Change Case No. 13, Map 219  
Agricultural Preserve #19 - Exclusion



Kern County  
Planning and Natural Resources Department  
Bakersfield, California

May 2016

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***Volume 2  
Appendix A through Appendix E.1 (Part 1)***

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Agricultural Preserve #19 - Exclusion

Kern County Planning and Natural Resources Department  
2700 "M" Street, Suite 100  
Bakersfield, CA 93301-2370  
(661) 862-8600

*Technical Assistance by:*  
Kimley-Horn and Associates  
555 Capitol Mall, Suite 300  
Sacramento, CA 95814  
(916) 858-5800

May 2016

# Appendices

## **NOTE TO REVIEWER OF ELECTRONIC FILES:**

To assist you in reviewing this electronic document, “bookmarks” and/or “links” have been provided for easier navigation between sections. When available, bookmarks are located in the panel to the left. Links are highlighted in **BLUE** in the Table of Contents. Clicking on either the bookmarks or links will take you to the selected item. This document may consist of multiple linked PDF files. If saving this document to your computer, you must save all corresponding files to a directory on your hard drive to maintain the manner in which these PDF documents are linked.

[Appendix A Grapevine Project Notice of Preparation / Initial Study and Comment Letters](#)

[Appendix B Grapevine Specific and Community Plan](#)

[Appendix C Grapevine Special Plan](#)

[Appendix D Grapevine Agricultural Resources Technical Report](#)

[Appendix E.1 Air Quality/Climate Change Study \(Part 1\)](#)

Air Quality and Greenhouse Gas Emissions Analysis Technical Report

Appendix A – Detailed Assumptions and Estimated Emissions Tables

Appendix B Construction Emissions – CalEEMod Output (pages 1 through 426)

Appendix A

**Grapevine Project**

**Notice of Preparation/Initial Study**

**and Comment Letters**

**PLANNING AND COMMUNITY  
DEVELOPMENT DEPARTMENT**

**Lorelei H. Oviatt, AICP, Director**

2700 "M" STREET, SUITE 100

BAKERSFIELD, CA 93301-2323

Phone: (661) 862-8600

FAX: (661) 862-8601 TTY Relay 1-800-735-2929

E-Mail: [planning@co.kern.ca.us](mailto:planning@co.kern.ca.us)

Web Address: [www.co.kern.ca.us/planning](http://www.co.kern.ca.us/planning)



**DEVELOPMENT SERVICES AGENCY**

Planning and Community Development  
Engineering, Surveying and Permit Services  
Roads Department

**NOTICE OF PREPARATION**

**DATE:** April 1, 2014

**To:** See Attached Mailing List

**FROM:** Kern County Planning and Community  
Development Department  
Attn: Jacquelyn Kitchen  
2700 "M" Street, Suite 100  
Bakersfield, CA 93301  
(661) 862-8619; [KitchenJ@co.kern.ca.us](mailto:KitchenJ@co.kern.ca.us)

**SUBJECT: NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT**

The Kern County Planning and Community Development Department as Lead Agency (per CEQA Guidelines Section 15052) has required that an Environmental Impact Report (per CEQA Guidelines Section 15161) be prepared for the project identified below. The Planning and Community Development Department solicits the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval of projects.

Due to the limits mandated by State law, your response must be received by **May 1, 2014 at 5pm**. In addition, comments can be submitted at a **scoping meeting** that will be held at the Kern County Planning and Community Development Department on **April 24, 2014 at 1:30pm** at the address shown above.

**PROJECT TITLE:** EIR 04-14: Grapevine Specific and Community Plan by Tejon Grapevine, LLC (PP14108): GPA 6, Map 202; GPA 7, Map 202; GPA 2, Map 218R; GPA 3, Map 218R; GPA 8, Map 219; GPA 9, Map 219; SP 1, Map 202; SP 2, Map 218R; SP 2, Map 219; ZCC 16, Map 202; ZCC 2, Map 218R; ZCC 13, Map 219; Agricultural Preserve No. 19 Exclusion; Vacation 3 098 202; Vacation 3 098 218R; Vacation 3 098 219.

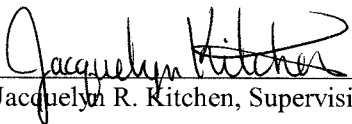
**PROJECT LOCATION:** The project is located approximately 13 miles south of Bakersfield city limits, east and west of Interstate 5 at the Grapevine interchange, and adjacent to Laval and Gibson Roads, at the southern end of the San Joaquin Valley area of Kern County, California. The site is located within portions of T.11.N., R.19.W.; T.10.N., R.18.W.; and T.10.N., R.19.W., in in the East San Bernardino Base and Meridian.

**PROJECT DESCRIPTION:** The proposed project is both a Specific and Community Plan that encompasses approximately 8,010 acres of the 15,644 acre Grapevine Planning Area in southwestern Kern County, California. The project includes up to 12,000 residences (including single-family and multi-family units) and up to 10,748,400 square-feet of commercial development. The commercial development could include a mix of uses, including: regional and neighborhood service retail, office, institutional, education, hospitality, medical and industrial uses. In addition, the project would provide parks, public and private recreational amenities, schools, public services, helipad(s), a transit center/ park and ride, and water and waste water treatment facilities. Portions of the site would be left as open space, particularly along the southern edge of the California Aqueduct and the foothills of the Tehachapi Mountains; in areas that have previously been identified as wildlife corridors. Access to the project would be taken from I-5 at the Laval Road and the Grapevine interchanges. A new future interchange is proposed to eventually replace the existing Grapevine interchange. The new interchange would be located between the existing Grapevine interchange and the California Highway Patrol Grapevine Inspection Facility.

Signature:

Name:

By:

 4/1/14  
Jacquelyn R. Kitchen, Supervising Planner

Todd Taylor, Planner I

GPA #6, 7; SPA #1; ZCC #,16 Map #202  
& various others  
WO #PP14108  
I:\WP\LABELS\eir04-14tt.nop.docx  
Sc 03/28/14

Bakersfield City Public Works Dept  
1501 Truxtun Avenue  
Bakersfield, CA 93301

City of Arvin  
P.O. Box 548  
Arvin, CA 93203

Bakersfield City Planning Dept  
1715 Chester Avenue  
Bakersfield, CA 93301

City of Maricopa  
P.O. Box 548  
Maricopa, CA 93252

California City Planning Dept  
21000 Hacienda Blvd.  
California City, CA 93515

Delano City Planning Dept  
P.O. Box 3010  
Delano, CA 93216

City of Shafter  
336 Pacific Avenue  
Shafter, CA 93263

City of McFarland  
401 West Kern Avenue  
McFarland, CA 93250

City of Ridgecrest  
100 West California Avenue  
Ridgecrest, CA 93555

City of Taft  
Planning & Building  
209 East Kern Street  
Taft, CA 93268

Sierra Club/Kern Kaweah Chapter

\*\*\*PUT IN BUCKET\*\*\*

Kern County Roads Department

City of Tehachapi  
115 South Robinson Street  
Tehachapi, CA 93561-1722

City of Wasco  
764 E Street  
Wasco, CA 93280

Inyo County Planning Dept  
P.O. Drawer "L"  
Independence, CA 93526

Kings County Planning Agency  
1400 West Lacey Blvd, Bldg 6  
Hanford, CA 93230

Los Angeles Co Reg Planning Dept  
320 West Temple Street  
Los Angeles, CA 90012

San Bernardino Co Planning Dept  
385 North Arrowhead Avenue, 1st Floor  
San Bernardino, CA 92415-0182

San Luis Obispo Co Planning Dept  
Planning and Building  
976 Osos Street  
San Luis Obispo, CA 93408

Santa Barbara Co Resource Mgt Dept  
123 East Anapamu Street  
Santa Barbara, CA 93101

Tulare County Planning & Dev Dept  
5961 South Mooney Boulevard  
Visalia, CA 93291

Ventura County RMA Planning Div  
800 South Victoria Avenue, L1740  
Ventura, CA 93009-1740

U.S. Bureau of Land Management  
Caliente/Bakersfield  
3801 Pegasus Drive  
Bakersfield, CA 93308-6837

China Lake Naval Weapons Center  
Tim Fox, RLA - Comm Plans & Liaison  
429 E Bowen, Building 981  
Mail Stop 4001  
China Lake, CA 93555

Edwards AFB, Sustainability Office  
412 TW/XPO, Bldg 2750, Rm 204-38  
195 East Popson Avenue  
Edwards AFB, CA 93524

Federal Aviation Administration  
Western Reg Office/  
Airport Div - Room 3000  
15000 Aviation Boulevard  
Lawndale, CA 90261

U. S. Fish & Wildlife Service  
Division of Ecological Services  
2800 Cottage Way #W-2605  
Sacramento, CA 95825-1846

U.S. Forest Service  
Los Padres National Forest  
6755 Hollister Avenue, Suite 150  
Goleta, CA 93117

Environmental Protection Agency  
Region IX Office  
75 Hawthorn Street  
San Francisco, CA 94105

U.S. Dept of Agriculture/NRCS  
5000 California Avenue, Ste 100  
Bakersfield, CA 93309-0711

U.S. Army Corps of Engineers  
Regulatory Division  
1325 "J" Street, #1350  
Sacramento, CA 95814-2920

U.S. Postal Service  
Address Management Systems  
28201 Franklin Parkway  
Santa Clarita, CA 91383-9321

State Air Resources Board  
Stationary Resource Division  
P.O. Box 2815  
Sacramento, CA 95812

So. San Joaquin Valley Arch Info Ctr  
California State University of Bkfd  
9001 Stockdale Highway  
Bakersfield, CA 93311

Caltrans/Dist 6  
Planning/Land Bank Bldg.  
P.O. Box 12616  
Fresno, CA 93778

Caltrans/Dist 9  
Planning Department  
500 South Main Street  
Bishop, CA 93514

State Clearinghouse  
Office of Planning and Research  
1400 10th Street, Room 222  
Sacramento, CA 95814

State Dept of Conservation  
Director's Office  
801 "K" Street, MS 24-01  
Sacramento, CA 95814-3528

State Dept of Conservation  
Division of Oil & Gas  
4800 Stockdale Highway, Ste 108  
Bakersfield, CA 93309

State Dept of Conservation  
Division of Oil & Gas  
801 "K" Street, MS 20-20  
Sacramento, CA 95814-3530

Office of the State Geologist  
Headquarters  
801 "K" Street, MS 12-30  
Sacramento, CA 95814

State Dept of Conservation  
Office of Land Conservation  
801 "K" Street, MS 18-01  
Sacramento, CA 95814

State Dept of Conservation  
Office of Mine Reclamation  
801 "K" Street MS 09-06  
Sacramento, CA 95814-3529

California Energy Commission  
James W. Reed, Jr.  
1516 Ninth Street  
Mail Stop 17  
Sacramento, CA 95814

California Fish & Wildlife  
1234 East Shaw Avenue  
Fresno, CA 93710

California Highway Patrol  
Planning & Analysis Division  
P.O. Box 942898  
Sacramento, CA 94298-0001

State Office of Historical Pres  
Attention Susan Stratton  
P.O. Box 942896  
Sacramento, CA 95296-0001

Integrated Waste Management  
P.O. Box 4025, MS #15  
Sacramento, CA 95812-4025

State Dept of Parks & Recreation  
Tehachapi District  
Angeles District - Mohave Desert Sector  
15701 E. Avenue M  
Lancaster, CA 93535

Calif. Dept of Public Health  
Drinking Water Field Operations  
4925 Commerce Drive, Suite 120  
Bakersfield, CA 93309

California Regional Water Quality  
Control Board/Central Valley Region  
1685 E Street  
Fresno, CA 93706-2020

State Dept of Toxic Substance Control  
Environmental Protection Agency  
1515 Tollhouse Road  
Clovis, CA 93612

State Dept of Water Resources  
San Joaquin Dist.  
3374 East Shields Avenue, Room A-7  
Fresno, CA 93726

State Dept of Water Resources  
Div. Land & Right-of-Way  
P.O. Box 942836  
Sacramento, CA 94236

CalRecycle  
Dept of Resources, Recycling, and  
Recovery  
1001 "I" Street  
Sacramento, CA 95812

Kern County  
Agriculture Department

Kern County Airports Department

Kern County Administrative Officer

Kern County Engineering, Surveying,  
& Permit Svs/Survey

Kern County  
Env Health Services Department

Kern County Fire Dept  
Benny Wofford

Kern County Fire Dept  
Dave Goodell

Kern County Library/Beale  
Local History Room

Kern County Library/Beale  
Sherry Gomez

Kern County Library  
Frazier Park Branch  
3015 Mount Pinos Way  
Frazier Park, CA 93225

Kern County Parks & Recreation

Development Services Agency  
Special Projects/Fiscal Analysis

Kern County Sheriff's Dept  
Administration

Kern County Engineering, Surveying,  
and Permit Services  
Department/Floodplain Management

Kern County  
Waste Management Department

Mountain Communities Municipal  
Advisory Council  
P.O. Box 1902  
Frazier Park, CA 93225

El Tejon Unified School Dist  
P.O. Box 876  
Lebec, CA 93243

Kern High School Dist  
5801 Sundale Avenue  
Bakersfield, CA 93309

Arvin High School  
900 Varsity Street  
Arvin, CA 93203

General Shafter School Dist  
1316 Shafter Road, RR 7  
Bakersfield, CA 93313

Kern County Superintendent of Schools  
Attention Mary Baker  
1300 17th Street  
Bakersfield, CA 93301

KernCOG  
1401 19th Street - Suite 300  
Bakersfield, CA 93301

Local Agency Formation Comm/LAFCO  
5300 Lennox Avenue, Suite 303  
Bakersfield, CA 93309

Tejon-Castaic Water Dist  
P.O. Box 1000  
Lebec, CA 93243

Kern County Water Agency  
P.O. Box 58  
Bakersfield, CA 93302-0058

Bear Mountain Rec & Parks Dist  
P.O. Box 658  
Lamont, CA 93241

East Kern Air Pollution  
Control District

San Joaquin Valley  
Air Pollution Control District  
1990 East Gettysburg Avenue  
Fresno, CA 93726

Golden Empire Transit  
1830 Golden State Avenue  
Bakersfield, CA 93301

Kern Mosquito Abatement Dist  
4705 Allen Road  
Bakersfield, CA 93314

West Side Mosquito  
Abatement Dist.  
P.O. Box 205  
Taft, CA 93268

Wheeler Ridge-Maricopa Water Dist  
12109 Highway 166  
Bakersfield, CA 93313-9630

Adams, Broadwell, Joseph & Cardozo  
Attention: Janet M. Laurain  
601 Gateway Boulevard, Suite 1000  
South San Francisco, CA 94080



AT&T California  
OSP Engineering/Right-of-Way  
4540 California Avenue, 4th Floor  
Bakersfield, CA 93309

Kern Audubon Society  
P.O. Box 3581  
Bakersfield, CA 93385

Los Angeles Audubon  
926 Citrus Avenue  
Los Angeles, CA 90036-4929

Center on Race, Poverty  
& the Environmental  
47 Kearny Street, Suite 804  
San Francisco, CA 94108-5528

Center on Race, Poverty  
& the Environmental/  
CA Rural Legal Assistance Foundation  
1012 Jefferson Street  
Delano, CA 93215

Communities for a Better Environment  
1904 Franklin Street, Suite 600  
Oakland, CA 94612-2922

Defenders of Wildlife/  
Cynthia Wilkerson, M.S.  
California Representative  
1303 "J" Street, Suite 270  
Sacramento, CA 95814

California Farm Bureau  
2300 River Plaza Drive, NRED  
Sacramento, CA 95833

Native American Heritage Council  
of Kern County/Fay Van Horn  
P.O. Box 1507  
Bakersfield, CA 93302

Pacific Gas & Electric Co  
Land Dept  
1918 "H" Street  
Bakersfield, CA 93301

Pacific Gas & Electric Co  
Land Projects  
650 "O" Street, First Floor  
Fresno, CA 93760-0001

U.S. Navy  
Attn: Steve Chung  
Regional Community & Liaison Officer  
1220 Pacific Highway  
San Diego, CA 92132-5190

Southern California Edison  
P.O. Box 410  
Long Beach, CA 90801

Southern California Gas Co  
1510 North Chester Avenue  
Bakersfield, CA 93308

Southern California Gas Co  
Transportation Dept  
9400 Oakdale Avenue  
Chatsworth, CA 91313-6511

Verizon California, Inc.  
Attention Engineering Department  
520 South China Lake Boulevard  
Ridgecrest, CA 93555

Chumash Council of Bakersfield  
2421 "O" Street  
Bakersfield, CA 93301-2441

David Laughing Horse Robinson  
P.O. Box 20849  
Bakersfield, CA 93390

Kern Valley Indian Council  
Attn: Robert Robinson, Chairperson  
P.O. Box 401  
Weldon, CA 93283

Kern Valley Indian Council  
Historic Preservation Office  
P.O. Box 401  
Weldon, CA 93283

Santa Rosa Rancheria  
Clarence Atwell, Chairperson  
P.O. Box 8  
Lemoore, CA 93245

Tejon Indian Tribe  
Kathy Morgan, Chairperson  
1731 Hasti-acres Drive, Suite 108  
Bakersfield, CA 93309

Kitanemuk & Yowlumne Tejon Indians  
Chairperson  
115 Radio Street  
Bakersfield, CA 93305

Tubatulabals of Kern County  
Attn: Robert Gomez, Chairperson  
P.O. Box 226  
Lake Isabella, CA 93240

Tule River Indian Tribe  
Neal Peyron, Chairperson  
P.O. Box 589  
Porterville, CA 93258

San Fernando Band of Mission Indians  
Attn: John Valenzuela, Chairperson  
P.O. Box 221838  
Newhall, CA 91322

Bolthouse Properties  
Attn: Stephan DeBranch  
2000 Oak Street, Suite 250  
Bakersfield, CA 93301

Cuddy Valley Statistical  
11667 Steinhoff Road  
Frazier Park, CA 93222

Eric Anderson  
1309 Leisure Lane  
Frazier Park, CA 93225

Native American Heritage Council  
of Kern County/Fay Van Horn  
P.O. Box 1507  
Bakersfield, CA 93302

Janice Armstrong  
25101 Bear Valley Boulevard  
PMB 20  
Tehachapi, CA 93561

Joyce LoBasso  
P.O. Box 6003  
Bakersfield, CA 93386

LIUNA  
Attn: Arthur Izzo  
4399 Santa Anita Avenue, Suite 204  
El Monte, CA 91731

Mary Ann Lockhart  
P.O. GG  
Frazier Park, CA 93225

Metro Water Dist of So CA  
Ms. Rebecca De Leon  
Environmental Planning Team  
700 N. Alameda Street, US3-230  
Los Angeles, CA 90012

Nature Conservancy West Reg Office  
201 Mission Street, 4th Floor  
San Francisco, CA 94105

Thomas Roads Improvement Program  
PARSONS/Heather Ellison  
900 Truxtun Avenue, Suite 201  
Bakersfield, CA 93301

U.S. Marine Corps  
Attn: Patrick Christman  
Western Regional Environmental Officer  
Building 1164/Box 555246  
Camp Pendleton, CA 92055-5246

U.S. Air Force  
Attn: Steve Arenson  
Western Regional Environmental Officer  
50 Fremont Street, Suite 2450  
San Francisco, CA 94105-2230

U.S. Army  
Attn: Philip Crosbie, Chief  
Strategic Plans, S3, NTC  
P.O. Box 10172  
Fort Irwin, CA 92310

U.S. Army  
Attn: Tim Kilgannon, Region 9  
Coordinator  
Office of Strategic Integration  
721 - 19th Street, Room 427  
Denver, CO 80202

U.S. Fish & Wildlife/Forest Foothills  
Branch  
2800 Cottage Way; Rm. W-2605  
Sacramento, CA 95825

## Notice of Completion & Environmental Document Transmittal

Mail to: State Clearinghouse, P. O. Box 3044, Sacramento, CA 95812-3044 (916) 445-0613  
For Hand Delivery/Street Address: 1400 Tenth Street, Sacramento, CA 95814

SCH # \_\_\_\_\_

**Project Title:** EIR 04-14; Grapevine Specific and Community Plan by Tejon Grapevine, LLC

Lead Agency: Kern County Planning Department

Contact Person: Jacquelyn R. Kitchen

Mailing Address: 2700 "M" Street Suite 100

Phone: (661) 862-8619

City: Bakersfield

Zip: 93301-2323

County: Kern

**Project Location:** County: Kern

City/Nearest Community: Lebec, Frazier Park, Wheeler Ridge, Mettler

Cross Streets: Grapevine interchange and Interstate 5

Zip Code: Multiple

Lat. / Long.: 34° 56' N / 118° 54' W

Total Acres: 8,010

Assessor's Parcel No.: Multiple

Section: Multiple

Twp.: Multiple

Range: Multiple

Base: SBB&M

Within 2 Miles: State Hwy #: Interstate 5

Waterways: California Aqueduct

Airports: Tejon Ag (private airstrip)

Railways: N/A

Schools: N/A

### Document Type:

CEQA: ☒ NOP  
☐ Early Cons  
☐ Neg Dec  
☐ Mit Neg Dec

☐ Draft EIR  
☐ Supplement/Subsequent EIR  
(Prior SCH No.) \_\_\_\_\_  
Other \_\_\_\_\_

NEPA: ☐ NOI  
☐ EA  
☐ Draft EIS  
☐ FONSI

Other: ☐ Joint Document  
☐ Final Document  
☐ Other \_\_\_\_\_

### Local Action Type:

☐ General Plan Update  
☒ General Plan Amendment  
☐ General Plan Element  
☒ Community Plan

☒ Specific Plan  
☐ Master Plan  
☐ Planned Unit Development  
☐ Site Plan

☒ Rezone  
☐ Prezone  
☐ Use Permit  
☐ Land Division (Subdivision, etc.)

☐ Annexation  
☐ Redevelopment  
☐ Coastal Permit  
☒ Other Vacations,  
Ag Exclusion

### Development Type:

☒ Residential: Units 12,000 Acres \_\_\_\_\_  
☒ Office: Sq.ft. 2,035,000 Acres \_\_\_\_\_ Employees \_\_\_\_\_  
☒ Commercial: Sq.ft. 1,580,000 Acres \_\_\_\_\_ Employees \_\_\_\_\_  
☒ Industrial: Sq.ft. 7,133,400 Acres \_\_\_\_\_ Employees \_\_\_\_\_  
☒ Educational 85 ac. (2 high schools, 2 middle schools, 7 elementary)  
☒ Recreational 145 ac.

☒ Water Facilities: Type On-Site Treatment Plant MGD  
☒ Transportation: Type Transit/Park and Ride  
☐ Mining: Mineral \_\_\_\_\_  
☐ Power: Type \_\_\_\_\_ MW  
☒ Waste Treatment: Type On-Site Wastewater Fac. MGD  
☐ Hazardous Waste: Type \_\_\_\_\_  
☐ Other: \_\_\_\_\_

### Project Issues Discussed in Document:

☒ Aesthetic/Visual  
☒ Agricultural Land  
☒ Air Quality  
☒ Archeological/Historical  
☒ Biological Resources  
☐ Coastal Zone  
☒ Drainage/Absorption  
☐ Economic/Jobs  
☐ Other \_\_\_\_\_  
☐ Fiscal  
☒ Flood Plain/Flooding  
☒ Forest Land/Fire Hazard  
☒ Geologic/Seismic  
☒ Minerals  
☒ Noise  
☒ Population/Housing Balance  
☒ Public Services/Facilities

☒ Recreation/Parks  
☒ Schools/Universities  
☐ Septic Systems  
☒ Sewer Capacity  
☒ Soil Erosion/Compaction/Grading  
☒ Solid Waste  
☒ Toxic/Hazardous  
☒ Traffic/Circulation

☒ Vegetation  
☒ Water Quality  
☒ Water Supply/Groundwater  
☒ Wetland/Riparian  
☒ Wildlife  
☒ Growth Inducing  
☒ Land Use  
☒ Cumulative Effects

**Present Land Use/Zoning/General Plan Designation:** Land Use: Vacant Grazing Land; Agriculture – Uncultivated Grape, and Almond; Oils Wells; Interstate 5; General Commercial. Zoning: A (Exclusive Agriculture); C-2 PD (General Commercial, Precise Development Combining); FPP (Floodplain Primary). General Plan Designation: 2.1 (Seismic Hazard); 2.2 (Landslide); 2.4 (Steep Slope); 2.5 (Flood Hazard); 4.3 (Specific Plan-Grapevine Commercial); 6.2 (General Commercial); 8.1 (Intensive Agriculture- Min. 20 Acre); 8.3 (Extensive Agriculture- Min. 20 Acre); 8.4 (Mineral and Petroleum- Min. 5 Acre).

**Project Description:** The proposed project is both a Specific and Community Plan that encompasses approximately 8,010 acres of the 15,644 acre Grapevine Planning Area in southwestern Kern County, California. The project includes up to 12,000 residences and 10,748,400 sq. ft. of commercial development; and the project would provide parks, public and private recreational amenities, schools, public services, helipad(s), a transit center/ park and ride, and water and waste water treatment facilities. Portions of the site would be left as open space, particularly along the southern edge of the California Aqueduct and the foothills of the Tehachapi Mountains; in areas that have previously been identified as wildlife corridors. Access to the site would be taken from I-5 at the Laval Road and the Grapevine interchanges. A new interchange is proposed to replace the existing Grapevine interchange.

Lead Agencies may recommend State Clearinghouse distribution by marking agencies below with and "X". If you have already sent your document to the agency please denote that with an "S".

**Local Public Review Period (to be filled in by lead agency)**

**Lead Agency (Complete if applicable):**

Signature of Lead Agency Representative: \_\_\_\_\_ Date: 04/01/2014

Authority cited: Section 21083, Public Resources Code. Reference: Section 21161, Public Resources Code.

## INITIAL STUDY/NOTICE OF PREPARATION

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### **Grapevine Specific and Community Plan by Tejon Grapevine, LLC**

General Plan Amendment No. 6, Map 202  
General Plan Amendment No. 7, Map 202  
General Plan Amendment No. 2, Map 218R  
General Plan Amendment No. 3, Map 218R  
General Plan Amendment No. 8, Map 219  
General Plan Amendment No. 9, Map 219  
Special Plan No. 1, Map 202  
Special Plan No. 2, Map 218R  
Special Plan No. 2, Map 219  
Zone Change Case No. 16, Map 202  
Zone Change Case No. 2, Map 218R  
Zone Change Case No. 13, Map 219  
Agricultural Preserve #19 - Exclusion  
Vacation 3 098 202  
Vacation 3 098 218R  
Vacation 3 098 219

(PP14108)

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### **LEAD AGENCY:**



Kern County Planning and Community Development Department  
2700 M Street, Suite 100  
Bakersfield, CA 93301-2370

*Primary Contact:*

*Ms. Jacquelyn Kitchen, Supervising Planner  
(661) 862-8619; KitchenJ@co.kern.ca.us*

*Secondary Contact:*

*Mr. Todd Taylor, Planner I  
(661) 862-5017; TTaylor@co.kern.ca.us*

**April 2014**



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## **1.0 PROJECT DESCRIPTION**

### **1.1 PROJECT LOCATION**

The Grapevine Specific and Community Plan Project (project) is located approximately 13 miles south of Bakersfield city limits, east and west of Interstate-5 (I-5) at the Grapevine interchange and adjacent to Laval and Gibson Roads, at the southern end of the San Joaquin Valley area of Kern County, California (Figure 1, Vicinity Map). The project area is located on 8,010 acres within the 15,644 acre Grapevine Planning Area owned by the Tejon Ranchcorp and is under Kern County permitting jurisdiction.

The project is generally bounded by the Tehachapi Mountains and Tejon Ranch conservation lands immediately to the south, east and west; with the Tejon Ranch Tecuya Creek Conservation Easement to the west; and the Tejon Ranch Commerce Center (TRCC) to the north. The nearest populated areas to the project site are the unincorporated communities of Lebec, Frazier Park, Wheeler Ridge, and Mettler, which are located approximately 3.2 miles south, 7.3 miles southwest, .5 miles northwest, and 4 miles northwest of the project site, respectively. The project is also located approximately 8 miles north of the County of Los Angeles.

The project is located within portions of T.11.N., R.19.W.; T.10.N., R.18.W.; and T.10.N., R.19.W., in S.B.B.&M.

### **1.2 ENVIRONMENTAL SETTING**

The proposed project is an irregularly shaped property that is composed of a series of discontinuous parcels located on 8,010 acres that is privately owned by the Tejon Ranchcorp. The project site is within the 15,644 acre Grapevine Planning Area identified in the Tejon Ranch Land Use and Conservation Agreement, a landmark agreement reached in 2008 with leading environmental organizations (including the Sierra Club, Natural Resources Defense Council, California Audubon Society, Endangered Habitats League, and Planning and Conservation League).

The project lies entirely within the boundaries of the Kern County General Plan (KCGP), and encompasses the Grapevine Commercial Specific Plan required area. The existing designations are listed in Table 1, below, and depicted in Figure 2, Existing General Plan, and Figure 4, Existing Zoning. The entire project is also subject to the provisions of the Kern County Zoning Ordinance and is zoned as specified in Table 1, below.

Land uses surrounding the project site are similarly zoned and characterized, with the exception of the approved and currently under development Tejon Industrial Complex East - Specific Plan, now commonly referred to as the Tejon Ranch Commerce Center. To the north of the project lies the Tejon Ranch Commerce Center. The California Aqueduct bisects a portion of the project site from west to east. The southern and eastern boundary of the project site is bounded by the Tehachapi Mountains and Tejon Ranch conservation lands. The Griffith Company's sand/gravel mine and the Pastoria Energy Plant also lie east of the project site. West of the project lies the Tejon Ranch Tecuya Creek Conservation Easement. I-5 bisects the project site from north to south. The four smaller areas of the project that lie to the north are generally bounded by Tejon Ranch Commerce Center, oil and gas extraction operations, and agricultural or undeveloped lands.

The site is generally characterized as a sparsely developed, rural area with the only development being the area immediately surrounding the I-5 Grapevine interchange that includes hospitality facilities and general commercial. Historically a large portion of the project site has been



uncultivated agriculture, mainly for grazing, with small portions now being used for almond and grape production. Oil wells are present sporadically throughout the majority of the project site; however, a large collection of wells are present in the four northern discontinuous areas of the project, which lie adjacent to Laval and Gibson Roads. Major gas, electric, and communications easements traverse the project site.

The project site ranges in elevation from approximately 898 feet to 2,186 feet above mean sea level (amsl) with the majority of the site being at the lower to mid-elevation range of approximately 1,000 feet to 1,400 feet amsl. The southern portion of the site is the steepest with the slope becoming less steep from the southwestern corner of the site to the northeast corner. The majority of the site is relatively flat. The southern end of the site extends from the valley floor approximately one-half mile into the adjacent San Emigdio and Tehachapi mountains. Tecuya, Grapevine, and Pastoria Canyons are the major local drainages. Tecuya, Grapevine, and Pastoria Creeks have formed large alluvial fans that extend northward across portions of the project site. The San Andreas and Garlock Faults intersect about 8 miles south of the site near Frazier Park. The Pleito and Wheeler Ridge Thrust Faults are located on the project site. The White Wolf Fault lies 6.5 miles to the north.

The project site includes approximately 500 acres of farmland subject to the California Farmland Mapping and Monitoring Program classifications: Prime Farmland - 120 acres, Farmland of Statewide Importance - 285 acres, and Unique Farmland - 114 acres. There are 19 parcels within the project boundary that are subject to a Williamson Act Land Use contract. The entire project site is also included within Agricultural Preserve No. 19, as is the standard practice in Kern County for any land that is zoned A (Exclusive Agriculture).

The project is not within the boundaries of any airport as identified in the Kern County Airport Land Use Compatibility Plan. The closest public airport is the Bakersfield Municipal Airport, which is located approximately 20 miles to the north from the northern most boundary of the project site. The closest private airport is the Tejon Ag airstrip, which is located adjacent to the four northern areas of the project.

The site lies within the San Joaquin Valley Air Basin (San Joaquin Valley Air Pollution Control District), the General Shafter Elementary and Kern County High School District, and the Central Valley Regional Water Quality Control Board. A majority of the site is within the Wheeler Ridge Maricopa Water Storage District (WRMWSD) which is a wholesale supplier of water. The site will be serviced by the Tejon-Castac Water District, a retail provider of water which treats both water and waste water.

The closest Kern County Fire Station is Fire Station No. 55, located 0.75 mile to the west at 5411 Dennis McCarthy Drive. Kern County Fire Station No. 56 is located 7 miles to the south at 1548 Golden State Highway. The closest Kern County Sheriff Substation to the project sites is located in Frazier Park and is 7 miles to the south at 617 Monterey Trail. The closest schools in proximity to the project are: El Tejon Middle School located 4.8 miles south of the project site; General Shafter Elementary, which serves grades kindergarten through 8<sup>th</sup> grade, located 13 miles north of the project site; and Arvin High School, which is located approximately 23 miles north of the project site.





**Table 1. Project Site and Surrounding Land Uses**

	Existing Land Use	Existing Map Code Designation	Existing Zoning Classification
<b>Project Site</b>	Vacant Grazing Land; Agriculture- Uncultivated Grape, and Almond; Oils Wells; Interstate- 5; General Commercial	2.1 (Seismic Hazard) 2.2 (Landslide) 2.4 (Steep Slope) 2.5 (Flood Hazard) 4.3 (Specific Plan- Grapevine Commercial) 6.2 (General Commercial) 8.1 (Intensive Agriculture- Min. 20 Acre) 8.3 (Extensive Agriculture- Min. 20 Acre) 8.4 (Mineral and Petroleum- Min. 5 Acre)	A (Exclusive Agriculture) C-2 PD (General Commercial, Precise Development Combining) FPP (Floodplain Primary)
<b>North</b>	Agriculture- Uncultivated and Active Crops, Tejon Ranch Commerce Center; California Aqueduct; Oils Wells; Interstate-5	2.5 (Flood Hazard) 4.1/ GI (Specific Plan/ Tejon Industrial Complex East- General Industrial) 7.1 (Light Industrial) 7.2 (Service Industrial) 8.1 (Intensive Agriculture- Min. 20 Acre) 8.3 (Extensive Agriculture- Min. 20 Acre) 8.4 (Mineral and Petroleum- Min. 5 Acre)	A (Exclusive Agriculture) C-2 PD (General Commercial, Precise Development Combining) M-1 PD (Light Industrial, Precise Development Combining) M-2 PD (Medium Industrial, Precise Development Combining) GI (Tejon Industrial Complex East)
<b>South</b>	Vacant Land; Tehachapi Mountains; Tejon Ranch Conservation Areas; Tejon Mountain Village Specific Plan; Interstate-5	2.2 (Landslide) 2.4 (Steep Slope) 4.1 (Specific Plan- Tejon Mountain Village) 8.3 (Extensive Agriculture- Min. 20 Acre)	A (Exclusive Agriculture)
<b>East</b>	Vacant Land; Agriculture- Uncultivated and Grape; Griffith Company's sand and gravel mine; Pastoria Energy Plant; Oil Wells	1.1 (State and Federal Land) 2.5 (Flood Hazard) 8.1 (Intensive Agriculture- Min. 20 Acre Parcel Size) 8.3 (Extensive Agriculture- Min. 20 Acre Parcel Size) 8.4 (Mineral and Petroleum- Min. 5 Acre Parcel Size)	A (Exclusive Agriculture)
<b>West</b>	Vacant Land; Agriculture- Uncultivated; San Emidio Specific Plan; Tejon Ranch Commerce Center; California Aqueduct; Oil Wells; Interstate-5	2.1 (Seismic Hazard) 2.5 (Flood Hazard) 3.1 (Parks and Recreation Areas) 3.2 (Educational Facilities) 4.1/ GI (Specific Plan/ Tejon Industrial Complex East- General Industrial) 5.2 (Residential- Max. 16 Units/ Net Acre) 5.3 (Residential- Max. 10 Units/ Net Acre) 6.3 (Highway Commercial) 7.1 (Light Industrial) 7.2 (Service Industrial) 8.3 (Extensive Agriculture- Min. 20 Acre) 4.1/ 8.5 (Specific Plan/ San Emidio- Resource Management (Min. 20 Acre )	A (Exclusive Agriculture) A-1 (Limited Agriculture) C-2 PD (General Commercial, Precise Development Combining) CH PD (Highway Commercial, Precise Development Combining) M-1 PD (Light Industrial, Precise Development Combining) M-2 PD (Medium Industrial, Precise Development Combining) GI (Tejon Industrial Complex East) FPP (Floodplain Primary) FPS (Floodplain Secondary Combining)



### 1.3 PROJECT DESCRIPTION

The proposed project is both a Specific and Community Plan that encompasses approximately 8,010 acres of the 15,644 acre Grapevine planning area in southwestern Kern County, California. The project includes the following elements:

- Approximately 4,778 acres of the project site would be developed as a residential community and employment center. The community would leverage and build upon the economic expansion and job growth that has occurred at the adjacent Tejon Ranch Commerce Center (TRCC).
- Approximately 3,232 acres (about 40% of the project site) would remain as exclusive agriculture, with grazing and open space as the predominant land uses.
- A series of walkable planning areas, each with a village center providing neighborhood-serving retail and office uses, schools, parks and a mix of housing (with net densities up to 16 and 29 dwelling units per net acre) would be developed on the 4,778 acres designated for development, and would be linked by bicycle and pedestrian trails, and served by transit. The new community would include:
  - Up to 12,000 residential units
  - Up to 10,748,400 million square feet of commercial land uses; composed of 650,000 square feet of village center commercial in six walkable neighborhoods, 2,035,000 square feet of office/research and development, 930,000 square feet of freeway oriented commercial and 7,133,400 square feet of primarily light industrial/warehouse.
  - A total of 85 acres of the project site has been set aside for schools (including two high schools, two middle schools, and seven elementary schools), and 145 acres for parks. Schools and parks are proposed as joint use facilities. Other public facilities, including a fire station, transit facility/park-and-ride, and water and wastewater treatment facilities are also proposed in this community. The project site may include a sheriff's substation.

The project site would be developed with a series of transit-oriented villages that would extend the range of economic development opportunities that currently exist in Tejon Ranch Commerce Center and would provide options for housing and services for the existing employees of both the project site and the adjacent Tejon Ranch Commerce Center.

The proposed land uses include up to 12,000 residences (range of single family and attached units) and 10,748,400 square foot of commercial development. The commercial development could include a mix of uses, including: regional and neighborhood service retail, office, institutional, education, hospitality, medical and industrial uses. In addition, the project would provide parks, public and private recreational amenities, schools, public services, helipad(s), a transit center/ park and ride, and water and waste water treatment facilities. The proposed land use plan would enable the continued development of oil and gas wells/ extraction facilities. Portions of the site would be left as open space, particularly along the southern edge of the California Aqueduct and the foothills of the Tehachapi Mountains; areas that have previously been identified as wildlife corridors.

Access to the site would be taken from I-5 at the Laval Road and the Grapevine interchanges. A new interchange is proposed to replace the existing Grapevine interchange. The new interchange would be located between the existing Grapevine interchange and the California Highway Patrol Grapevine Inspection Facility. The primary circulation within the project would extend from



these points of access. The roads within the project would be public. Water and sewer service would be provided by Tejon-Castac Water District.

The proposed project will be designed with sustainable land planning principles, including but not limited to: attractive, walkable neighborhoods; on and off-road pedestrian and bicycle circulations systems; planned transit connections; energy efficient construction; and avoidance of natural and cultural resources.

## **PROJECT COMPONENTS**

### **Adoption of General Plan Amendments (GPAs)**

The project proposes an amendment to the Kern County General Plan, which would change the existing General Plan map codes for the project site, as described above in Table 1, to General Plan Map Code 4.1, "Accepted County Plan." The project would also require amendments to the Circulation Element of the Kern County General Plan to address changes to the planned circulation system, including the elimination of the Collector and Arterial designations (Figure 4, Existing Circulation Element). Other amendments to the Kern County General Plan may be proposed, as appropriate, to comply with Appendix C of the General Plan - Specific Plan Requirements.

### **Adoption of the Grapevine Specific Plan and Community Plan (GPAs)**

The adoption of the proposed Grapevine Specific Plan would either incorporate existing General Plan map codes for the Specific Plan area or generate new map codes for the Specific Plan. Under the first option, a majority of the project site would have several General Plan map code designations, allowing for a mix of uses; under the second option new codes would be developed.

### **Adoption of Grapevine Special Plan (SPs)**

As discussed below, implementation of the proposed project would result in a change of zoning classification on the project site to the Grapevine Special Plan, as identified under Chapter 19.52 of the Kern County Zoning Ordinance. The Special Plan District provides for special reviews, procedures, and development standards that will implement the Grapevine Specific and Community Plan policies and provisions. Adoption of a Special Plan is required for implementation of the Grapevine Special Planning District Plan, which must be consistent with the General Plan and the Grapevine Specific Plan. The Grapevine Special Plan is a graphic and textual description of the project that would be adopted by ordinance. It includes all the standards and conditions approved in connection with the review of the site development plan. In the case of the Grapevine project, the Special Plan has identified a number of unique characteristics, including the following:

- Specialized zone classifications unique to the proposed development
- Caps that limit the amount of development allowed
- Variations to County ordinances and standards.

### **Amendment of County Zone Maps (ZCCs)**

The proposed project currently has zoning designations that are graphically shown on the following Kern County Zone Maps: 202, 218R and 219 (See Figure 3, Existing Zoning). To facilitate implementation of the Grapevine Specific Plan, the project proposes a change in zone classification on the project site to the Grapevine Special Plan, in accordance with Section 19.52, Special Planning District, of the Kern County Zoning Ordinance.



The purpose of the Grapevine Special Plan is to encourage and facilitate the creative and innovative use of land that may otherwise be limited or prohibited by the standard provisions of other parts of the Kern County Zoning Ordinance. The Grapevine Special Plan is designed to allow diversity in the relationship between buildings and open spaces so as to create unique, interesting physical environments that maximize walkability, provide housing opportunities proximate to support commercial, jobs, community services and usable open space while preserving the public health, safety, and welfare. All development in the Grapevine Special Plan area would be consistent with the County General Plan.

#### *Specialized Zone Classifications*

Four specialized zone classifications are proposed in the Grapevine Special Plan. All of the land within the project boundaries will be assigned one of these specialized zone classifications. Below is a brief description of each Special Planning zone classification.

- **Village Mixed Use (VMU).** This zone would serve as the Village Core and would provide a variety of compatible land uses including neighborhood serving retail, service-oriented commercial, office, and higher density residential uses.
- **Mixed Use (MU).** This zone would provide for a broader mix of land uses including a variety of residential uses, office, retail commercial, light industrial, warehouse, and other uses that are compatible with adjacent land uses.
- **Industrial (I).** This zone would provide for a variety of industrial park, research and development, manufacturing, warehouse, and other uses that are compatible with adjacent land uses.
- **Exclusive Agriculture (EA).** This zone would provide for a wide variety of agricultural uses, as well as nonagricultural uses and activities that are compatible with agricultural uses. Grazing and open space would be the predominant land uses.

The permitted uses in each of the four specialized zone categories within the Grapevine Special Plan will be specified in the proposed Plans.

#### **Exclusion from Agricultural Preserve No. 19 (Ag Exclusion)**

An agricultural preserve defines the boundary of an area within the County that meets the criteria for property owners to enter into Williamson Act land use contracts and Farmland Security Zone contracts. Only land within an agricultural preserve is eligible for such contracts. The Kern County Board of Supervisors has established policies which include criteria for inclusion into a preserve as land having a General Plan Resource designation (Map Codes 8.1, 8.2, 8.3, and 8.5), and having a zoning of A (Exclusive Agriculture). If approved, the requested General Plan map code designations would require the removal of project parcels from Ag Preserve 19.



### **Street Vacations**

Development of this project will include applications to vacate existing public access easements in order to facilitate the planned circulation within the project. All parcels are owned by the applicant and vacation of any public access easement would require the re-dedication of replacement public access easements per the proposed Circulation Element or dedication of private access easements to ensure continued legal access to affected parcels. Proposed vacations would not eliminate any existing legal access for any parcel.

### **Geologic Hazard Abatement District**

The project applicant proposes to form a geologic hazard abatement district (GHAD) to finance the acquisition, construction, operation, management, and maintenance of improvements related to controlling geologic hazards within the project area. A GHAD is a government district that is benefited by and subject to a special assessment to pay for improvements that prevent, mitigate, abate, or control geologic hazards or structural concerns partly or wholly caused by geologic hazards (California Public Resources Code Sections 26500–26601). The formation of the GHAD may be initiated by a petition signed by at least 10% of the landowners in a proposed district or by a resolution adopted by the County. The petition or resolution must be accompanied by a “plan of control” prepared by a certified engineering geologist that describes how applicable geologic hazards would be prevented, mitigated, abated, or controlled. The petition is subject to a public hearing by the Kern County Board of Supervisors, which would adopt a resolution to create the GHAD. The resolution would also appoint a board of directors consisting of either five landowners within the GHAD or the Board of Supervisors. California law provides that a GHAD may acquire, construct, operate, manage, or maintain improvements on public or private lands and finance the costs of these improvements by issuing bonds, obtaining financial or other assistance from any public or private source, and/or borrowing from a local agency, the state, or the federal government. Expenses incurred by a GHAD are reimbursed by assessments on land located within the district. The formation of the GHAD would not be subject to approval by the Local Agency Formation Commission (LAFCO).

### **Development Agreement**

Chapter 19.103 (Development Agreement) of the Kern County Zoning Ordinance provides for negotiation and consideration of a development agreement by the Kern County Board of Supervisors. The purpose of a development agreement is to assure applicants for a development project that, upon approval of a project, the applicant may proceed with the project in accordance with the policies, rules, regulations, and conditions of approval in effect at the time of approval. To obtain this assurance, the agreement includes contributions that provide a level of benefit to Kern County that exceeds the benefits normally derived from development projects. Development agreements are voluntary and require public notice and hearing.

The project applicant plans on submitting a development agreement for this project. This agreement shall be considered by the Planning Commission and Board of Supervisors in conjunction with the proposed project. The Development Agreement would be bound by all mitigation measures and design features included in any project approval.

## **1.4 PROJECT FACILITIES AND OPERATIONS**

This section summarizes the project’s proposed backbone infrastructure, including vehicular and non-vehicular circulation, water and sewer service, dry utilities, and drainage systems. The location and extent of project infrastructure would be defined, in part, as parcels are developed



over time. Some infrastructure improvements will occur off-site, such as the roadways connecting the project site to TRCC, and potential turnouts from the California Aqueduct. In addition, it is anticipated that oil and gas distribution lines would be located within the public street right-of-way. The following sections describe the conceptual backbone infrastructure systems that would serve the project.

### **Circulation**

The proposed project is planned as a residential community and employment center, featuring a series of compact neighborhoods linked by streets, bicycle and pedestrian trails that provide convenient access to grocery and drugstores, professional services, schools, and parks. The community would leverage and build upon the economic expansion and job growth that has occurred at TRCC. Road sections and circulation connections are designed to be consistent with this goal and to meet projected traffic demands, safety objectives, emergency vehicle needs and walkability objectives.

### **Access**

Access to the project would be from I-5 at the existing Grapevine and Laval Road interchanges. The existing Grapevine interchange is proposed to be relocated slightly to the north, and a new overcrossing of I-5 is proposed to be built at the time they are triggered by development. The circulation network is composed of two- and four-lane arterials, collector streets, and local streets organized in a grid pattern. There are two potential four-lane arterials that would cross over the California Aqueduct; one on the west side of I-5, which would connect Planning Area 2 (south of the Aqueduct) with existing TRCC (north of the Aqueduct). This crossing would occur west of the Specific Plan Area. The other crossing would connect Planning Area 3 (south of the Aqueduct) with Planning Area 6a and TRCC (north of the Aqueduct).

### **Trails**

The Grapevine project also includes a non-vehicular circulation system that would provide pedestrian, bicycle, equestrian, and multi-use trails along Grapevine Creek, Cattle Creek, the southern foothills, the open space adjacent to the California Aqueduct, and at other locations throughout the project site. Some of these trails would connect to on-street, Class 2 bike lanes. Alignments are conceptual and final alignment will be determined with each tentative tract map that covers the geography of the trail.

### **Exclusive Agriculture**

Approximately 40% of the project site would remain classified as Exclusive Agriculture with grazing and open space as the predominant land uses. Up to 20% of Exclusive Agriculture acreage may be disturbed for uses such as, but not limited to: trails, passive recreation, water quality retention/detention facilities, water tanks, telecommunications facilities, community gardens, parks, and agriculture.

### **Potable Water Supply and Distribution**

The project's potable water will be supplied by the TCWD, a California water district that currently serves the adjacent TRCC, and would consist of water delivered by the Kern County Water Agency (KCWA) under the terms of a 2001 water transfer agreement between KCWA, the Nickel Family LLC and certain other parties (the "Nickel Agreement"). The Nickel Agreement obligates KCWA to supply 10,000 acre-feet per year of potable water, with 100% annual reliability (the "Nickel Water") at the Tupman turnout (Reach 13b) along the California Aqueduct



located to the north of the project site. The Nickel Agreement also requires that KCWA use its best efforts to facilitate subsequent Nickel Water conveyance to other locations. The project has acquired rights to receive 6,693 acre-feet per year of the Nickel Water through approximately 2079, which will fully meet or exceed the project's annual potable water demand. Additional water sources, including local groundwater and water transfers, would be developed over time and as may be required for longer-term, future project use. TCWD would apply to the Kern County LAFCO to expand its existing service area to include the project site.

TCWD will be responsible for coordinating the Nickel Water delivery with KCWA from the Tupman turnout to a turnout(s) along the California Aqueduct adjacent to the project site. Once exiting the turnouts, the water would be piped to on-site water treatment plant(s) that would be constructed and operated to meet all applicable Safe Drinking Water Act and State Department of Health Services potable water standards and regulations. The treatment plant(s) would be expanded in phases to meet project demand.

The potable water system distribution pipelines and storage tanks would be sized to meet anticipated maximum day, peak hour, and fire flow requirements. The alignment of the potable water distribution system would generally follow the internal roadway system. TCWD will also secure and operate on-site or off-site water storage facilities with adequate capacity and conveyance system access as required to meet the project's daily potable water consumption requirements.

### **Wastewater Collection and Reclamation**

Wastewater system and sewer services would be provided by TCWD. On-site wastewater reclamation facilities (WRF) would be located at various locations within the project site. The WRF would treat project wastewater to tertiary sanitary levels that meet the requirements of Title 22 of the California Code of Regulations for unrestricted reuse. The wastewater collection system would consist of both gravity lines and lift stations with force mains. All facilities would be constructed in accordance with TCWD, Kern County Health Department, and the Central Valley Regional Water Quality Control Board (RWQCB) design requirements. The WRF will be designed to avoid wastewater discharges and will produce only tertiary-treated recycled water and bio-solids.

An existing wastewater disposal facility consisting of unlined basins currently serves existing commercial uses adjacent to the I-5 Grapevine interchange and is located to the east of the interchange. If feasible, the existing basins may be used on an interim basis during initial phases of the project while surplus capacity remains available and until other wastewater treatment facilities are constructed. The project will use wastewater treatment facilities at the TRCC if capacity is available. Once the new WRF facilities are constructed by the project, the existing Grapevine interchange wastewater disposal facility will be decommissioned and wastewater generated by the existing interchange commercial uses will be treated by the WRF.

Recycled water supplied by the WRF would be piped through a non-potable water distribution system for various uses within the site, primarily for common-area landscape irrigation. The non-potable water distribution system would include pump stations and storage tanks, and may also include on-site storage ponds or lakes that will store surplus recycled water when production exceeds non-potable water demands (e.g., in the winter months when irrigation demands are low).

In addition to tertiary-treated recycled water, the WRF would produce and treat residual solid waste as a component of the on-site wastewater treatment process. The residual wastewater treatment solids may be pelletized and sold, or subject to disposal in accordance with all applicable laws and regulations, including Kern County ordinance and policies.



The wastewater collection system would be sized to meet peak flow requirements and the non-potable water distribution system would be sized to meet anticipated maximum irrigation demand. The alignment of both systems would generally follow the internal roadway system.

### **Drainage**

The proposed drainage system for the project is designed to maintain, to the maximum extent possible, existing drainages in their natural state consistent with public safety requirements. Grapevine Creek and Cattle Creek (tributary) watercourses will be maintained in permanently preserved open space areas buffered from development. The existing Pastoria Creek, Cattle Creek, and Live Oak Watercourse will be avoided by the project. Road crossings over Grapevine or Cattle Creek will be constructed with culverts, boxes, arched culverts, or bridges that are sufficient to accommodate anticipated flows and to maintain or enhance existing biological functions and values while protecting roadways, adjacent properties, and drainage hydrology. Drainage crossings would be designed to meet applicable Kern County Drainage Development Standards and Kern County Stormwater Ordinance (Chapter 14.26 of the Ordinance Code of Kern County) requirements, except where crossing would be designed to provide an equivalent or greater level of protection as proposed in the Grapevine Special Plan.

Portions of the project site, primarily to the east and west of Grapevine Creek, have been mapped by the Federal Emergency Management Agency (FEMA) as being located within a 100-year flood risk zone. The project will utilize berms and other appropriate measures to reduce the extent of these areas in certain locations, and will request that FEMA amend the applicable flood risk maps to reflect the proposed improvements.

Water quality would be managed through the use of community and neighborhood water quality basins, roadside bioswales and other on-site measures that implement low-impact development designs and practices. The project will comply with applicable water quality objectives for designated surface and ground water beneficial uses and meet the requirements of the general permit for small municipal separate storm sewer systems adopted by the State Water Resources Control Board in February 2013. Post-construction hydrology, including flow rates and durations, will be managed to protect applicable biological functions and values, including the preserved watercourses and aquatic habitats within the project.

### **Dry Utilities**

Dry utilities include gas, electricity, phone, and cable services. Gas service would be provided by natural gas pipelines and distribution facilities. New electricity, phone, and cable service transmission lines for the project generally would be placed within, alongside, or beneath existing roads or the proposed road network for the site. Utility lines will be placed underground. Telecommunication facilities, including microwave and cellular facilities, would be screened to the maximum extent possible. The location of facilities may deviate from the conceptual plan due to site-specific physical constraints and land use considerations.

## **CONSTRUCTION SCENARIO**

### **Potential Phasing and Financing**

The proposed project is divided into six individual phasing areas, each of which may be developed independently and in any order, partially or completely, in response to market conditions. Certain phasing areas may also be developed concurrently to efficiently develop infrastructure and meet demand. The rate and sequence of the project development would be





influenced by several factors, including general economic conditions, demographics, occupancy rates, construction scheduling, the emergence of other potentially competitive projects, and possible changes in the availability of regional infrastructure and public facilities.

The project site is divided into six Planning Areas ranging in size from approximately 450 to 1,400 acres. Development will be phased over a period of 19+ years, starting with the development of Planning Area 1 and/or Planning Area 6 and continuing with the balance of the Planning Areas (2, 3, 4, and 5) in numerical order. Build-out of each phase is projected to take approximately 2 to 4 years (Phase 1: 2 years; Phase 2: 4 years; Phase 3: 3 years; Phase 4: 4 years; Phase 5: 4 years; Phase 6: 2 years), with the first phase commencing in 2016. The portions of the site that are proposed to remain as exclusive agriculture/open space are primarily located along the southern edge of the California Aqueduct, along the southern portion of the project site at the foothills of the Tehachapi Mountains, and along Grapevine and Cattle Creeks.

Project phasing would be implemented through the preparation of tentative tract and parcel maps pursuant to the California Subdivision Map Act (Map Act) for specific portions of the project. Each tentative tract map would identify the infrastructure required to implement the proposed development in the map. The County would review each tentative tract map subject to the provision of the Map Act. When a tentative tract map is approved by the County, the land use statistical summary would be updated and filed with the County.

Various techniques are available for financing improvements associated with project development. The exact financing method that would be utilized for specific project improvements and maintenance would be determined as each infrastructure phase is completed. Some services, such as transit, may also be coordinated with TRCC. Potential infrastructure financing options include the following:

- Community facilities districts (i.e., Mello-Roos districts)
- Geological hazard abatement districts
- Homeowners associations
- Impact and road fee programs
- Community service districts
- Assessment districts
- Financing through the TCWD
- Public utility districts
- Landscape and lighting districts
- Facilities benefit assessments
- Conventional subdivision financing
- Turn-key construction by project applicants
- Land reservation, offers of dedication, fee dedications, and/or easements
- Per unit hook-up sewage and water use charges, and similar utility-based charges and fees
- Reimbursement agreements
- State and/or federal grants and loans (infrastructure financing programs)



## 1.5 PROJECT OBJECTIVES

The project proponent has defined the following objectives for the project:

- Respect the open space and development boundaries identified in the Tejon Ranch Conservation and Land Use Agreement executed by Tejon Ranchcorp and the Sierra Club, Audubon California, Natural Resources Defense Council, Endangered Habitats League and Planning and Conservation League.
- Provide housing for the existing and future employees of the TRCC.
- Expand the economic development activity initiated at TRCC through the implementation and expansion of the existing adopted General Plan Map Code 4.3, Grapevine Commercial designation, by providing additional business and employment opportunities.
- Create a livable community defined by convenient access to employment, shopping, parks, schools and housing via alternative modes of transportation in a portion of the County already served by major infrastructure (I-5) and already developed with employment uses at the adjacent to the TRCC.
- Create a sustainable community that includes project design features that reduce water demand, conserve energy, incorporate water quality features, and encourage alternative modes of transportation and a mix of land uses with a range of housing types and densities.
- Create a community that encourages healthy living through active lifestyles and access to local agricultural products.
- Develop a land plan that conserves important natural features such as Grapevine Creek, Cattle Creek, and natural landforms to the extent feasible.
- Develop a land plan that conserves important cultural and historic resources to the extent feasible.
- Develop a land plan that respects geotechnical constraints such as earthquake faults and landslides.
- Conserve wildlife movement corridors along foothills of Tehachapi Mountains and California Aqueduct by conserving undercrossings of I-5, and including in the land plan open space corridors for wildlife to continue to use these undercrossings. Preserve open space that supports Tejon Ranch's existing biological diversity and maintains its ranching heritage.
- Permanently fund community maintenance and other project obligations from revenues generated within the new community.
- Create new jobs and provide new tax revenues for the local economy of Kern County while at the same time minimizing demands on County Services.
- Provide flexibility in plan implementation over time to respond to changing market, financial, and environmental conditions.



## 1.6 PROPOSED DISCRETIONARY ACTIONS/REQUIRED APPROVALS

Construction and operation of the project may require certain discretionary actions and approvals from multiple public agencies; including, but not limited to, the following:

### **Federal**

- United States Fish and Wildlife Service (USFWS)
- Federal Aviation Administration (FAA)
- US Army Corps of Engineers
- U.S. Environmental Protection Agency
- Federal Highway Administration
- U. S. Department of Agriculture
- U.S. Department of Interior
- U.S.D.A., Forest Service

### **State**

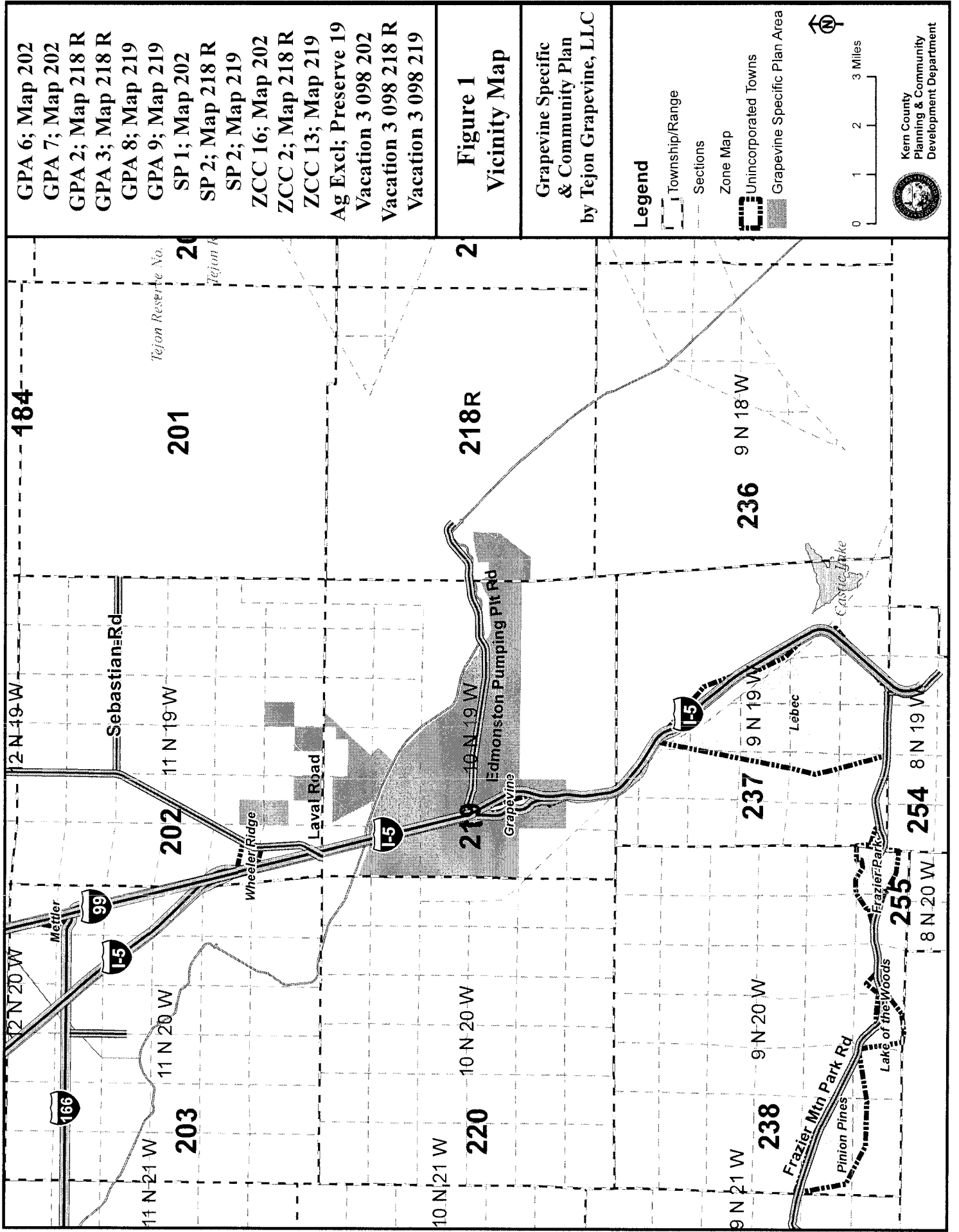
- California Public Utilities Commission
- California Department of Fish and Wildlife (CDFW)
- Regional Water Quality Control Board (RWQCB), Central Valley Region
- California Department of Transportation
- Department of Water Resources
- Governor's Office of Planning and Research
- California Air Resources Board (CARB)
- California Integrated Waste Management Board
- California Native American Heritage Commission
- Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR)
- Department of Mines and Geology
- Office of Historic Preservation

### **Local**

- Kern County Board of Supervisors
- Kern County Planning Commission
- San Joaquin Valley Air Pollution Control District
- Kern County Engineering, Surveying and Permit Services Department
- Kern County Environmental Health Services Division
- Kern County Fire Department
- Kern County Agriculture Department
- Kern County Community and Economic Development Department
- Kern County Administrative Office
- Kern County Library Facilities
- Kern County Parks and Recreation Department
- Kern County Roads Department
- Kern County Sheriff's Department
- Kern County Waste Management
- Kern County Roads Department
- General Shafter Elementary School District
- Kern Union High School District
- Kern County Superintendent of Schools
- Kern Council of Governments (Kern COG)
- Local Agency Formation Commission (LAFCO)



- Tejon-Castac Water District
- Kern County Water Agency
- Wheeler Ridge Maricopa Water Storage District
- AT&T
- Southern California Gas Company (SoCalGas)
- Pacific Gas and Electric (PG&E)
- Southern California Edison Company (SCE)



GPA 6; Map 202  
GPA 7; Map 202  
GPA 2; Map 218 R  
GPA 3; Map 218 R  
GPA 8; Map 219  
GPA 9; Map 219  
SP 1; Map 202  
SP 2; Map 218 R  
SP 2; Map 219  
ZCC 16; Map 202  
ZCC 2; Map 218 R  
ZCC 13; Map 219  
Ag Excl; Preserve 19  
Vacation 3 098 202  
Vacation 3 098 218 R  
Vacation 3 098 219

**Figure 1  
Vicinity Map**

**Grapevine Specific  
& Community Plan  
by Tejon Grapevine, LLC**

**Legend**

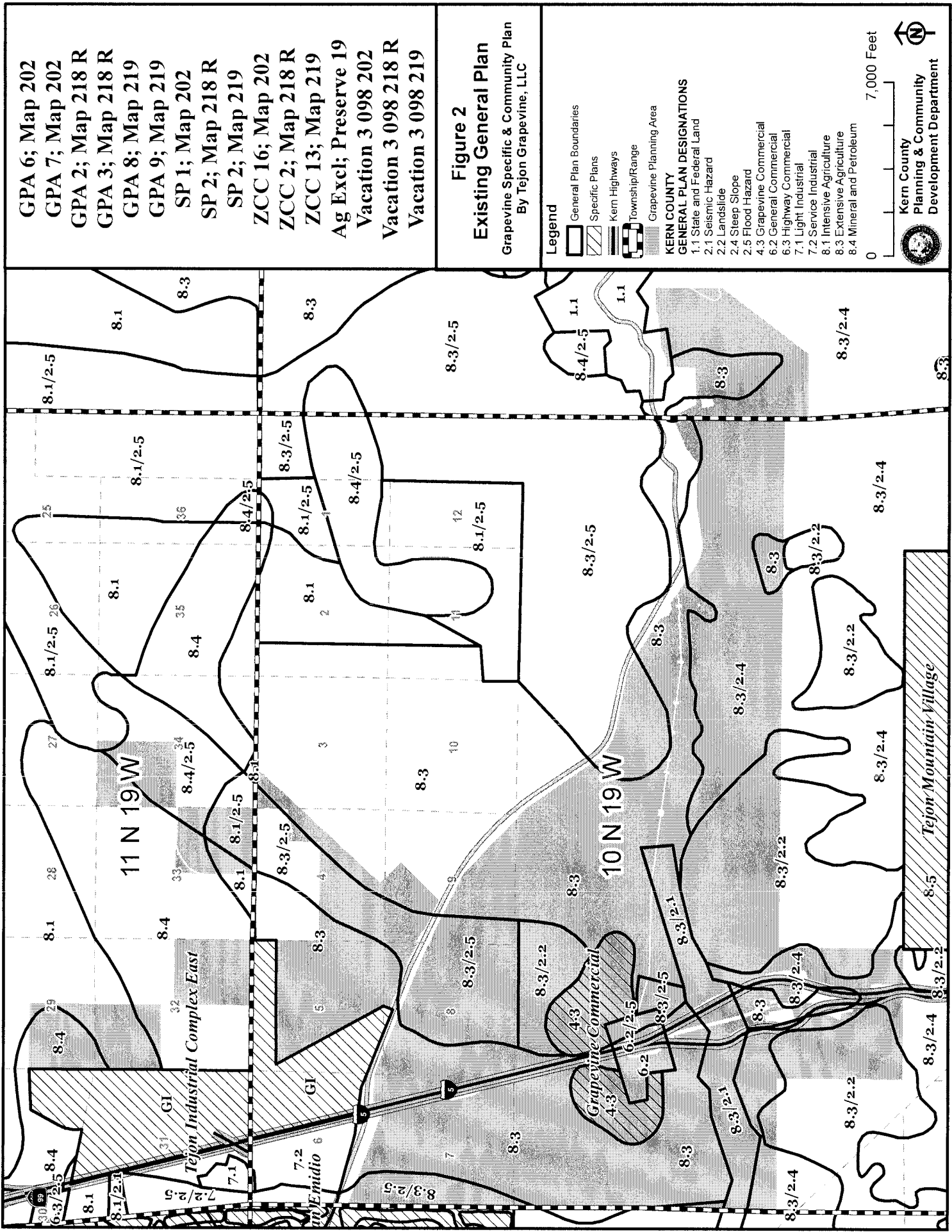
- Township/Range
- Sections
- Zone Map
- Unincorporated Towns
- Grapevine Specific Plan Area



0 1 2 3 Miles



**Kern County  
Planning & Community  
Development Department**



GPA 6; Map 202  
 GPA 7; Map 202  
 GPA 2; Map 218 R  
 GPA 3; Map 218 R  
 GPA 8; Map 219  
 GPA 9; Map 219  
 SP 1; Map 202  
 SP 2; Map 218 R  
 SP 2; Map 219  
 ZCC 16; Map 202  
 ZCC 2; Map 218 R  
 ZCC 13; Map 219  
 Ag Excl; Preserve 19  
 Vacation 3 098 202  
 Vacation 3 098 218 R  
 Vacation 3 098 219

**Figure 2**  
Existing General Plan

Grapevine Specific & Community Plan  
 By Tejon Grapevine, LLC

**Legend**

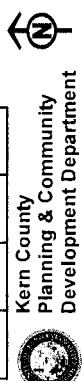
- General Plan Boundaries
- Specific Plans
- Kern Highways
- Township/Range
- Grapevine Planning Area

**KERN COUNTY**

**GENERAL PLAN DESIGNATIONS**

- 1.1 State and Federal Land
- 2.1 Seismic Hazard
- 2.2 Landslide
- 2.4 Steep Slope
- 2.5 Flood Hazard
- 4.3 Grapevine Commercial
- 6.2 General Commercial
- 6.3 Highway Commercial
- 7.1 Light Industrial
- 7.2 Service Industrial
- 8.1 Intensive Agriculture
- 8.3 Extensive Agriculture
- 8.4 Mineral and Petroleum

0 7,000 Feet



Tejon Mountain Village

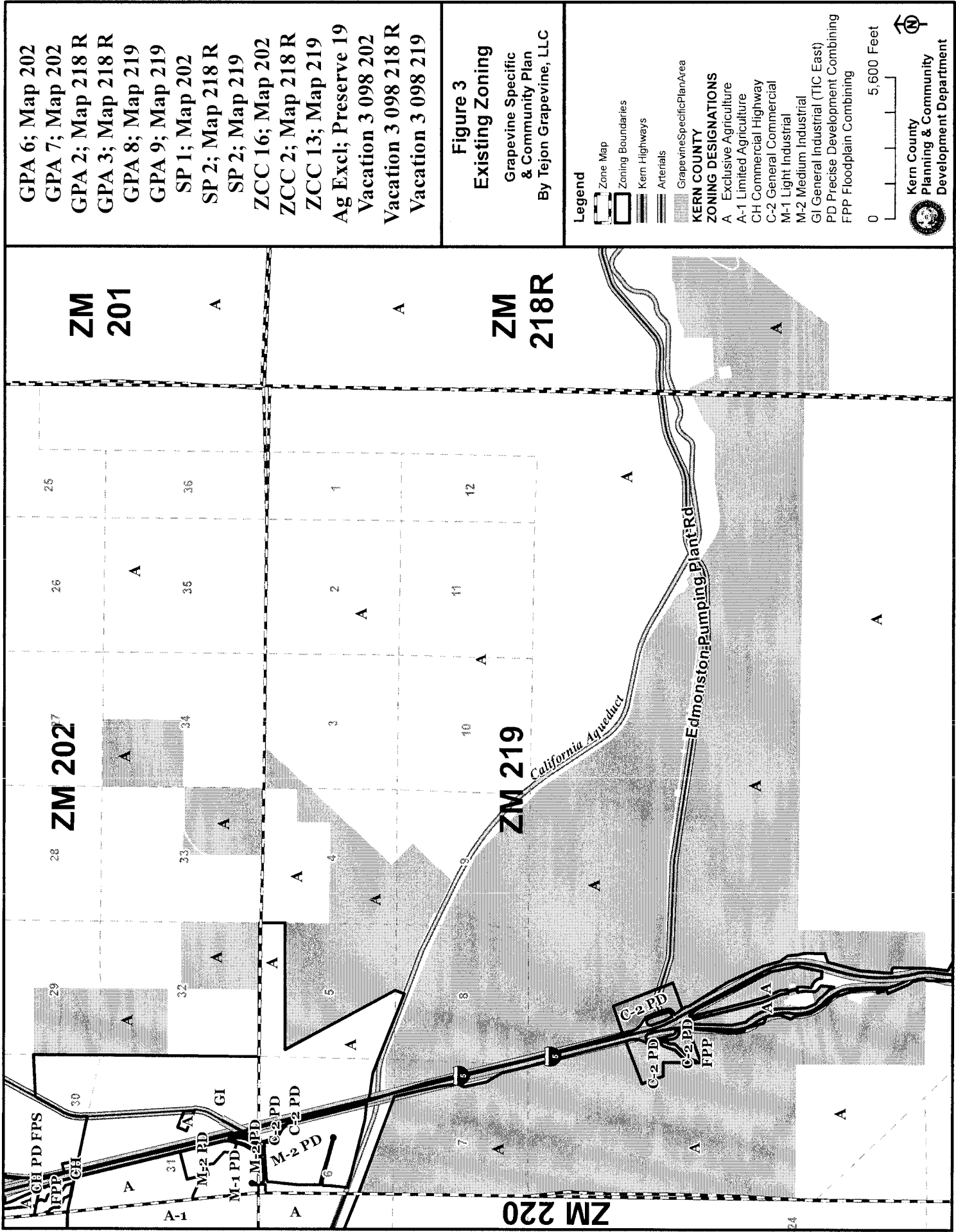
11 N 19 W

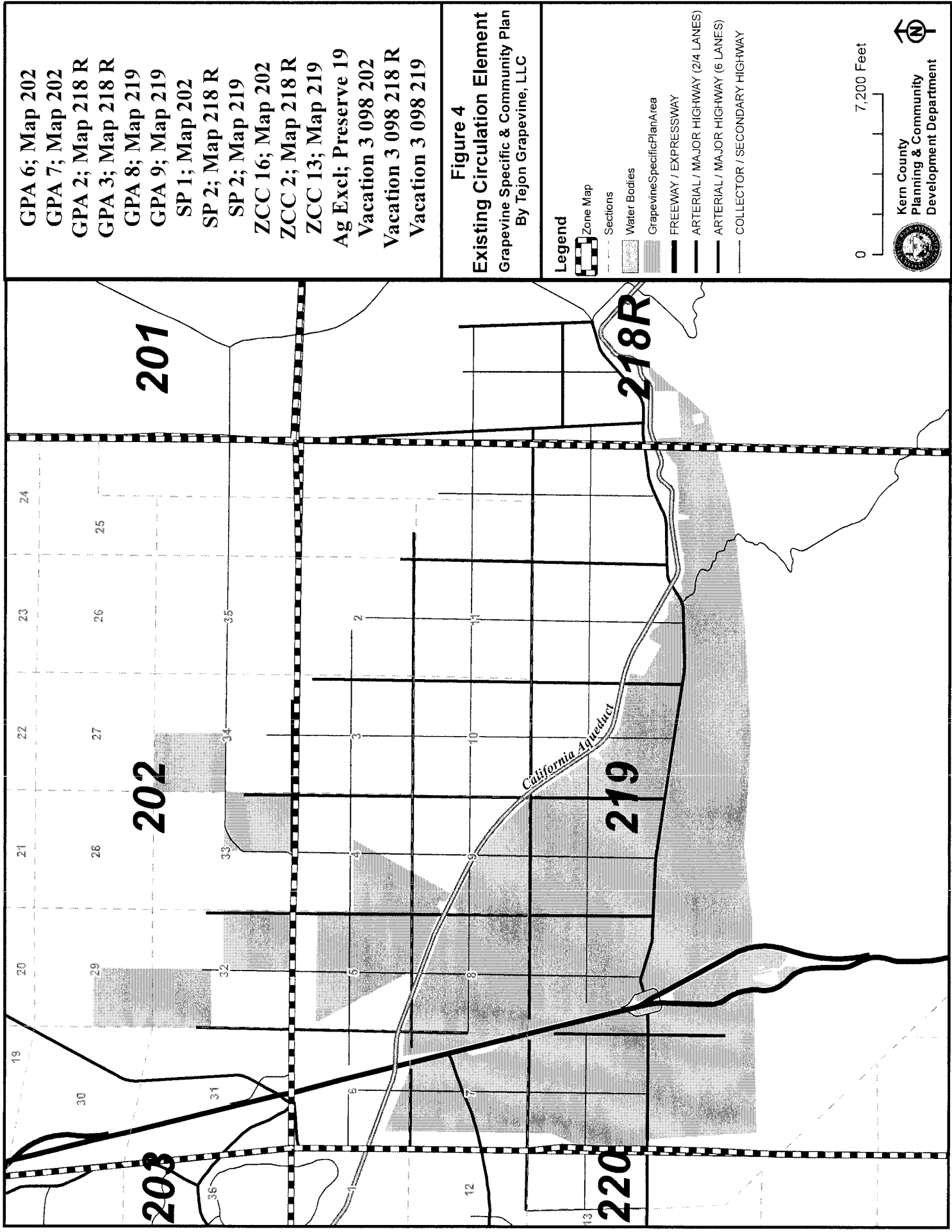
10 N 19 W

Tejon Industrial Complex East

Emidio

Grapevine Commercial





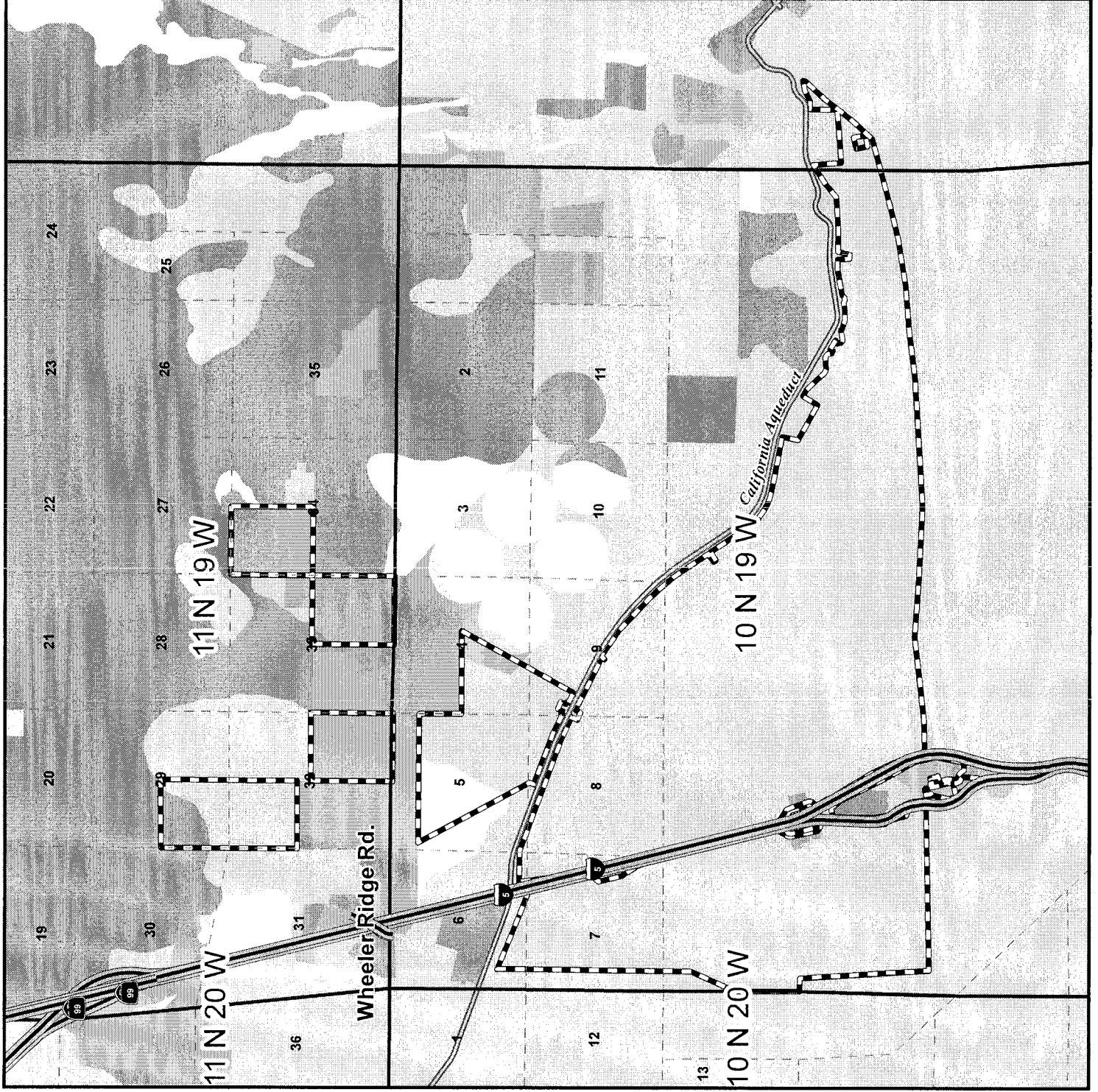
GPA 6; Map 202  
 GPA 7; Map 202  
 GPA 2; Map 218 R  
 GPA 3; Map 218 R  
 GPA 8; Map 219  
 GPA 9; Map 219  
 SP 1; Map 202  
 SP 2; Map 218 R  
 SP 2; Map 219  
 ZCC 16; Map 202  
 ZCC 2; Map 218 R  
 ZCC 13; Map 219  
 Ag Excl; Preserve 19  
 Vacation 3 098 202  
 Vacation 3 098 218 R  
 Vacation 3 098 219

**Figure 4**  
**Existing Circulation Element**  
 Grapevine Specific & Community Plan  
 By Tejon Grapevine, LLC

- Legend**
- Zone Map
  - Sections
  - Water Bodies
  - Grapevine Specific Plan Area
  - FREEWAY / EXPRESSWAY
  - ARTERIAL / MAJOR HIGHWAY (2/4 LANES)
  - ARTERIAL / MAJOR HIGHWAY (6 LANES)
  - COLLECTOR / SECONDARY HIGHWAY

0 7,200 Feet  
  
  
 Kern County  
 Planning & Community  
 Development Department





GPA 6; Map 202  
 GPA 7; Map 202  
 GPA 2; Map 218 R  
 GPA 3; Map 218 R  
 GPA 8; Map 219  
 GPA 9; Map 219  
 SP 1; Map 202  
 SP 2; Map 218 R  
 SP 2; Map 219  
 ZCC 16; Map 202  
 ZCC 2; Map 218 R  
 ZCC 13; Map 219  
 Ag Excl; Preserve 19  
 Vacation 3 098 202  
 Vacation 3 098 218 R  
 Vacation 3 098 219

**Figure 5**  
**CA Important Farmland**  
 Grapevine Specific & Community Plan  
 By Tejon Grapevine, LLC

**Legend**

- Township/Range
- Sections
- Grapevine Specific Plan Area
- Confined Animal Agriculture
- Urban and Built-Up Land
- Grazing Land
- Prime Farmland
- Rural Residential
- Statewide Importance
- Unique Farmland
- Vacant or Disturbed Land
- Water
- Non Ag & Natural Vegetation
- Semi-Ag & Rural Commercial Land

0 8,000 Feet



Kern County  
 Planning & Community  
 Development Department



## 2.0 KERN COUNTY ENVIRONMENTAL CHECKLIST FORM

### 2.1 ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "potentially significant impact" as indicated by the Kern County Environmental Checklist on the following pages.

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Aesthetics                 | <input checked="" type="checkbox"/> Agriculture and Forestry Resources | <input checked="" type="checkbox"/> Air Quality                        |
| <input checked="" type="checkbox"/> Biological Resources       | <input checked="" type="checkbox"/> Cultural Resources                 | <input checked="" type="checkbox"/> Geology and Soils                  |
| <input checked="" type="checkbox"/> Greenhouse Gas Emissions   | <input checked="" type="checkbox"/> Hazards and Hazardous Materials    | <input checked="" type="checkbox"/> Hydrology and Water Quality        |
| <input checked="" type="checkbox"/> Land Use and Planning      | <input checked="" type="checkbox"/> Mineral Resources                  | <input checked="" type="checkbox"/> Noise                              |
| <input checked="" type="checkbox"/> Population and Housing     | <input checked="" type="checkbox"/> Public Services                    | <input checked="" type="checkbox"/> Recreation                         |
| <input checked="" type="checkbox"/> Transportation and Traffic | <input checked="" type="checkbox"/> Utilities and Service Systems      | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

### 2.2 DETERMINATION (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (a) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (b) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Todd Taylor, Planner I

Document Prepared By (Printed Name)

Signature

Date

04/01/14

Jacquelyn Kitchen, Supervising Planner

Document Reviewed By (Printed Name)

Signature

Date

4/1/14



### 3.0 EVALUATION OF ENVIRONMENTAL IMPACTS

- (1) A brief explanation is required for all answers except “No Impact” answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A “No Impact” answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).
- (2) All answers must take account of the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- (3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. “Potentially Significant Impact” is appropriate if there is substantial evidence that an effect may be significant. If there are one or more “Potentially Significant Impact” entries when the determination is made, an EIR is required.
- (4) “Negative Declaration: Less Than Significant With Mitigation Incorporated” applies where the incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact.” The lead agency must describe the mitigation measure and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII, “Earlier Analyses,” may be cross-referenced).
- (5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or Negative Declaration, Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
  - (a) Earlier Analysis Used. Identify and state where they are available for review.
  - (b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
  - (c) Mitigation Measures. For effects that are “Less Than Significant With Mitigation Measures Incorporated,” describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- (6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- (7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- (8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- (9) The explanation of each issue should identify:
  - (a) The significance criteria or threshold, if any, used to evaluate each question; and
  - (b) The mitigation measure identified, if any, to reduce the impact to a less-than-significant level.



	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
<b>AESTHETICS.</b> <i>Would the project:</i>				
a. Have a substantial adverse effect on a scenic vista?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

- (a) The California Department of Transportation (Caltrans) states that a highway may be designated scenic depending upon how much of the natural landscape can be seen by travelers, the scenic quality of the landscape, and the extent to which development intrudes upon the traveler's enjoyment of the view. The construction and operation of the proposed project would dramatically alter the views of the project area. Persons traveling in vehicles on nearby roads and I-5 would observe major alterations to existing vistas. The alteration of vistas from I-5 and other perspectives will be further evaluated in the EIR.
- (b) The proposed project would sustainably alter what is now pastoral land and a scenic mountain range. With complete project build out of 12,000 homes and accompanying commercial and industrial elements, there is potential for an adverse visual effect on the viewsheds of these lands and therefore, this impact will be further evaluated in the EIR. The project site is visible from Interstate 5. The portion of I-5 that passes through the project site is not designated as an Officially Designated (OD) State or County Scenic Highway. Therefore, no impacts to scenic resources within a state scenic highway would occur, and no further discussion is warranted in the EIR.
- (c) The majority of the project site is currently undeveloped land that has been traditionally used for agriculture or grazing purposes. Repurposing of land has already begun adjacent to the project site with the recent and current development of the TRCC. However, due to the size of the proposed project, the undeveloped character of the area may be adversely affected by the project, and therefore the project's potential to substantially degrade its existing visual character or quality of the site and its surroundings will be further evaluated in the EIR.



- (d) Both during and after construction, the proposed project has the potential to create a new source of light or glare that would adversely affect day or nighttime views. The build out of 12,000 homes with accompanying infrastructure, and the construction of commercial and industrial centers will create a substantial new light source; therefore, this potential impact will be further evaluated in the EIR.



	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
<b>AGRICULTURE AND FOREST RESOURCES.</b> In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or Williamson Act contract?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Productions (as defined in Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
f. Result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract for any parcel of 100 or more acres (Section 15206(b)(3) Public Resources Code)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Discussion:**



- (a) The project site includes approximately 500 acres of farmland subject to the California Farmland Mapping and Monitoring Program classifications: Prime Farmland – 120 acres; Farmland of Statewide Importance – 285 acres; and Unique Farmland – 114 acres. Additionally, portions of the project area have the zoning classification of A (Exclusive Agriculture) and have historically been used for grazing or agricultural purposes. The entire project site is also within the boundaries of Agricultural Preserve No. 19 and approximately 19 parcels within the project are subject to existing Williamson Act Contracts. A portion of these contracted lands are presently in non-renewal status. Therefore, construction and/or operation of the project would result in the conversion of designated agricultural land to a nonagricultural use and this issue will be further evaluated in the EIR.
- (b) The majority of the project site is zoned A (Exclusive Agriculture) by the Kern County Zoning Ordinance. Approximately 19 parcels within the project are subject to existing Williamson Act Contracts; and portions are presently in non-renewal status. While it is anticipated that a portion of the project area will remain in agricultural zoning, the proposed project would implement a new Specific Plan that would allow for residential, commercial, and industrial uses and therefore convert land to nonagricultural uses. This impact would be considered potentially significant and will be analyzed in the EIR.
- (c) As discussed above, the project sites are zoned for agricultural use. No forestlands exist on the project sites. Accordingly, the proposed project would not conflict with existing zoning for, or cause the rezoning of forestland, timberland, or timberland zoned Timberland Production. Therefore, no impacts on forestland would occur, and no further discussion is warranted in the EIR.
- (d) The project sites and surrounding properties do not contain any forestland. No impacts resulting in the loss of forestland or conversion of forestland to non-forest use are expected to occur; therefore, no further discussion is warranted in the EIR.
- (e) As noted above, the majority of the project site is currently zoned A (Exclusive Agriculture) and is being used primarily as grazing land with some farmland. The project site includes approximately 500 acres of farmland subject to the California Farmland Mapping and Monitoring Program classifications: Prime Farmland – 120 acres; Farmland of Statewide Importance – 285 acres; and Unique Farmland – 114 acres. Additionally, the entire site is located in Agricultural Preserve No. 19. Approximately 19 parcels within the project are subject to existing Williamson Act Contracts; and a portion are presently in non-renewal status. The proposed project involves the construction and operation of 12,000 new homes with commercial and industrial centers on the project site. The proposed project would result in the conversion of land zoned for agriculture to a nonagricultural use. Therefore, impacts on agricultural resources are likely less than significant but will be analyzed further in the EIR.
- (f) Approximately 19 parcels within the project are subject to existing Williamson Act Contracts; and portions of these contracted lands are presently in non-renewal status. The project site is not subject to any open space contract made pursuant to the California Land Conservation Act of 1965 or Farmland Security Zone Contract. While it is anticipated that a portion of the project area will remain in agricultural zoning and allow for continued farming activities, the proposed project would implement a new Specific Plan that would also allow for residential, commercial, and industrial uses and convert the present land into nonagricultural uses. Therefore, potential impacts will be analyzed in the EIR.



Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Potentially Significant Impact	No Impact
--------------------------------------	---	--------------------------------------	--------------

**AIR QUALITY.** Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:

- |  |                                     |                          |                          |                          |
|--|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a. Conflict with or obstruct implementation of the applicable air quality plan?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Violate any air quality standard as adopted in (c)i or (c)ii, or as established by EPA or air district or contribute substantially to an existing or projected air quality violation?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? Specifically, would implementation of the project exceed any of the following adopted thresholds: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| i. San Joaquin Valley Unified Air Pollution Control District:  |                                     |                          |                          |                          |
| <u>Operational and Area Sources:</u>   |                                     |                          |                          |                          |
| Reactive Organic Gases (ROG)<br>10 tons per year.  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Oxides of Nitrogen (NO <sub>x</sub> )<br>10 tons per year.   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Particulate Matter (PM <sub>10</sub> )<br>15 tons per year.  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| <u>Stationary Sources as Determined<br/>by District Rules:</u>   |                                     |                          |                          |                          |
| Severe Nonattainment<br>25 tons per year.  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Extreme Nonattainment<br>10 tons per year.   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |





	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Potentially Significant Impact	No Impact
ii. Eastern Kern Air Pollution Control District:				
<u>Operational and Area Sources:</u>				
Reactive Organic Gases (ROG) 25 tons per year.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Oxides of nitrogen (NO <sub>x</sub> ) 25 tons per year.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Particulate Matter (PM <sub>10</sub> ) 15 tons per year.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Stationary Sources as Determined by District Rules:</u>				
25 tons per year.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Expose sensitive receptors to substantial pollutant concentrations?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Create objectionable odors affecting a substantial number of people?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

**Discussion:**

- (a)/(b) The project would be located entirely within the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD) in the San Joaquin Valley Air Basin (SJVAB). The SJVAB is designated non-attainment for both the State and federal ozone standards, the State particulate matter less than or equal to 10 microns in size (PM<sub>10</sub>) standard, and both the State and federal particulate matter less than or equal to 2.5 microns (PM<sub>2.5</sub>) standards. Project construction would generate emissions of oxides of nitrogen (NO<sub>x</sub>), reactive organic compounds (ROG), PM<sub>10</sub> and PM<sub>2.5</sub> that could result in significant impacts to air quality in the area. Equipment usage and activities during construction of the project would result in emissions of PM<sub>10</sub> and ozone precursors, including NO<sub>x</sub> and ROG, which could result in significant impacts to air quality in the area. The construction related sources of emissions include heavy equipment used to grade the project site, building pads, and roads; to install underground utilities, to construct buildings and infrastructure; and on-road motor vehicles for material deliveries, workers commuting to and from the project site and general daily trips. Activity on unpaved roads and grading would contribute to PM<sub>10</sub> and PM<sub>2.5</sub> emissions. The operation of the project would result in NO<sub>x</sub>, ROG, PM<sub>10</sub> and PM<sub>2.5</sub> emissions from motor vehicles, consumer products, natural gas combustion, potential industrial facilities, and related sources. Given the size of the project, the emissions of these pollutants would be substantial without mitigation measures. These impacts are potentially significant. Further analysis of air quality impacts is warranted to determine whether the project would conflict with or obstruct implementation of the applicable plans for attainment and if so, to determine the reasonable and feasible mitigation measures that could be imposed. These issues will be evaluated in the EIR.



Construction emissions could significantly contribute to an existing or projected air quality violation of  $PM_{10}$ ,  $PM_{2.5}$  and other ambient air quality standards, requiring further evaluation of the potential impacts. While more dispersed throughout the project site, the operational emissions from certain sources could also contribute to violations of ambient air quality standards. This impact is potentially significant and will be evaluated further in the EIR.

- (c) The SJVAPCD is a nonattainment area for the State and federal ozone standards, the State  $PM_{10}$  standard, and the State and federal  $PM_{2.5}$  standards. The SJVAPCD rules and regulations apply to all project activities. Therefore, construction and operation of the project could result in a cumulatively considerable contribution to existing nonattainment conditions. Cumulative contributions to the SJVAB could be potentially significant. Construction and operational emissions will be analyzed in the EIR as related to SJVAPCD.
- (d) Land uses determined to be “sensitive” to air quality include residential areas, schools, convalescent and acute care hospitals, and parks and recreational areas, where children, the elderly, or people with illnesses exacerbated by air pollution may be present. Construction-related activity and temporary facilities would result in off road equipment and on road vehicle exhaust emissions and dust that could adversely affect air quality for the nearest sensitive receptors. Additionally, the project will include residential uses and other sensitive receptors in close proximity to industrial uses and I-5. The EIR will evaluate the potential health impacts to sensitive receptors due to emissions of air pollutants and toxic air containments emitted during construction and operation. Mitigation measures for diesel equipment and dust control that are recommended by the SJVAPCD will be evaluated as part of the EIR to avoid or reduce the impacts to construction workers, future workers and residents of the project and other sensitive receptors.
- (e) Aside from odors associated with typical diesel exhaust during construction and operation, the project is not anticipated to generate objectionable odors from the residential and commercial land uses. The project will include industrial land uses and wastewater treatment facilities, which are a potential source of odor, although odor control measures may be implemented. Because of the potential for odors this issue will be evaluated further in the EIR.



	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
<b>BIOLOGICAL RESOURCES.</b> Would the project:				
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan or other approved local, regional, or state habitat conservation plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

- (a)/(b) Field surveys for special status plant and animal species (such as raptor and small mammals), species listed as either threatened or endangered by either the State or federal government, riparian habitat, and sensitive natural communities are currently being conducted and will be included in the EIR. Not all field studies for the project have been completed; therefore, potential impacts to biological resources, riparian habitat, and/or sensitive natural communities have not been fully identified at the



present time. In addition, project-related development, roads and infrastructure may cross streams and/or washes that require evaluation for riparian habitat, and may also require Streambed Alteration permits from the California Department of Fish and Wildlife. Major drainage features are accommodated within the land plan through avoidance or placement within open space features with the intent to maintain existing natural conditions consistent with public safety requirements. Impacts to biological resources, riparian habitat, and sensitive natural communities are potentially significant and will be analyzed in the EIR.

- (c) The project site does not contain any federally protected wetlands as defined by Section 404 of the Clean Water Act; however, this issue will be analyzed in the EIR.
- (d) The project sites and surrounding area may be used for migration or dispersal by some avian and bat species, as well as mammals such as San Joaquin kit fox. Project construction and operation could also remove foraging habitat. This impact is potentially significant and will be evaluated in the EIR.
- (e) Evaluation is currently being conducted to determine to what level the proposed project will conflict with local policies or ordinances protecting biological resources. Further analysis of this issue is warranted in the EIR.
- (f) Portions of the project sites are within the boundaries of the draft Kern County Valley Floor Habitat Conservation Plan (KCVFHCP). The draft KCVFHCP covers 3,100 square miles of the San Joaquin Valley floor portion of Kern County. However, the KCVFHCP has not yet been approved; therefore, the project would not conflict with an applicable conservation plan. Further analysis of this issue is warranted in the EIR.



Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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**CULTURAL RESOURCES.** Would the project:

- |   |                                     |                          |                          |                          |
|---|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a. Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines §15064.5?    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?                       | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d) Disturb any human remains, including those interred outside of formal cemeteries?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Discussion:**

- (a) A cultural resources survey is currently being conducted for the project site and will be evaluated within the EIR. Further evaluation is warranted to identify potential impacts and formulate avoidance or mitigation measures, if applicable.
- (b) An archaeological survey of the site is currently being completed and will be included within the EIR. Further evaluation is necessary to identify potential impacts and to formulate avoidance or mitigation measures, if applicable.
- (c) A paleontological survey within the project area is currently being conducted and will be included within the EIR. Potential impacts to paleontological resources, and proposed mitigation measures, will therefore be evaluated in the EIR.
- (d) If human burial grounds are identified in any part of the project area, the project would be redesigned to avoid them. Given the sensitivity of the project area the potential for locating human remains is reasonably foreseeable, and therefore, potentially significant. The EIR will evaluate this potential impact and identify measures to be implemented if any are unexpectedly uncovered during the course of development.



Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Potentially Significant Impact	No Impact
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**GEOLOGY AND SOILS.** Would the project:

- a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.
  - ii) Strong seismic ground shaking?
  - iii) Seismic-related ground failure, including liquefaction?
  - iv) Landslides?
- b. Result in substantial soil erosion or the loss of topsoil?
- c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on-or offsite landslide, lateral spreading, subsidence, liquefaction or collapse?
- d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?
- e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

- (a) (i) Construction of the project would be subject to all applicable ordinances of the Kern County Building Code (Chapter 17.08). Kern County has adopted the California Building Standards Code, 2007 Edition (CCR Title 24), which imposes substantially the same requirements as the International Building Code (IBC), 2006 Edition, with some modifications and amendments.



The entirety of Kern County is located in Seismic Zone 4, a designation previously used in the Uniform Building Code (UBC) (the predecessor to the IBC) to denote the areas of highest risk to earthquake ground motion. Adherence to all applicable regulations would mitigate any potential impacts associated with the project.

The project is crossed by an Alquist-Priolo Special Study Zone for the Pleito Thrust fault which runs along the base of the foothills. The Wheeler Ridge Thrust fault is subsurface within the project site. In addition several active faults are nearby including the Garlock Fault (8 miles), San Andreas (9.5 miles) and White Wolf (6.5 miles). Significant seismic activity in the area could adversely affect structures and workers on the site. This issue will be evaluated in the EIR.

- (ii) Strong seismic ground shaking could occur at the project site, resulting in damage to structures that are not properly designed to withstand strong ground shaking. The project would potentially be subject to moderate to strong ground shaking from local and regional earthquakes. This potential impact will be evaluated in the EIR.
  - (iii) The potential for substantial adverse effects due to seismic-related ground failure, including liquefaction, will be examined in the geotechnical report being prepared for the project site. Related potential impacts will be analyzed in the EIR.
  - (iv) The foothills on the project site are known to be at risk due to landslides. The potential for substantial adverse effects due to landslides will be analyzed in the EIR.
- (b) Grading and excavation would be required for development pads, roads and infrastructure throughout the project site. Construction activities could result in substantial soil erosion if the grading activity is not properly managed. These impacts are potentially significant and the potential for increased erosion will be evaluated in the EIR.
  - (c) The project would be designed such that it would not degrade the stability of the underlying soils. The geotechnical report currently being prepared will examine the current baseline stability of the soils that underlie the project area and the findings of that report will be evaluated in the EIR. While potential impacts are expected to be less than significant, they will be evaluated in the EIR and mitigation measures will be presented, if necessary, to protect both structures and people from adverse effects due to landslide, lateral spreading, subsidence, liquefaction, and/or collapse.
  - (d) Expansive soils generally result from specific clay minerals that expand when saturated and that shrink when dry. The geotechnical report currently being prepared for the project will confirm the presence or absence of expansive soils within the project area, and those results will be evaluated in the EIR.
  - (e) The project will provide a new wastewater collection and treatment system; however, this issue will be evaluated in the EIR.



Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Potentially Significant Impact	No Impact
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**GREENHOUSE GAS EMISSIONS.** Would the project:

- |  |                                     |                          |                          |                          |
|--|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Discussion:**

- (a)/(b) Global climate change is an international phenomenon, and the regulatory background and scientific data are changing rapidly. In 2006, the California state legislature adopted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 describes how global climate change would affect the environment in California. The impacts described in AB 32 include changing sea levels, changes in snow pack and availability of potable water, changes in storm flows and flood inundation zones, and other impacts.

As required by AB 32, California Air Resources Board (CARB) determined what the statewide greenhouse gas (GHG) emissions level was in 1990 and then approved a statewide GHG emissions limit that is equivalent to that level, which is to be achieved by 2020. CARB approved the 2020 limit on December 6, 2007. CARB's GHG inventory estimated the 1990 emissions level in California to be 427 million metric tons carbon dioxide equivalent (MMTCO<sub>2</sub>e). In 2011, the emissions were estimated to be 448 MMTCO<sub>2</sub>e.

Greenhouse gases (GHGs) emitted by human activity are implicated in global climate change or global warming. The principal GHGs are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (NO<sub>x</sub>), ozone (O<sub>3</sub>), water vapor, and fluorinated gases. Fossil fuel consumption in the transportation sector (on-road motor vehicles, off-highway mobile sources, and aircraft) is the single largest source of GHG emissions, accounting for approximately 38% of GHG emissions in California.

The primary source of GHG emissions from the project during construction would be mobile sources, including off road equipment, material delivery and other trucks and worker vehicles. The primary source of GHG emissions from the project during operation would be mobile sources (motor vehicles); other sources include natural gas combustion for space and water heating, electricity, and electricity for water supply and wastewater treatment. Not all GHGs exhibit the same ability to induce climate change (i.e., specific GHGs each have their own global warming potential); therefore, GHG contributions from projects are commonly quantified in carbon dioxide equivalent which reflects the global warming potential of each GHG relative to CO<sub>2</sub>, which has a global warming potential of 1. The GHG emissions from the project will be estimated in an air quality impact analysis using the California Emissions Estimator Model (CalEEMod). The project's construction and operational emissions are expected to have long lasting effects. At maximum project build out of 12,000 homes, with accompanying infrastructure, and commercial and industrial center, the project will generate substantial GHG emissions from residents and workers, electricity and other sources. Therefore, these issues are expected to have potential significant effects on the environment and will





be further evaluated in the EIR. Kern County does not currently have an adopted Climate Action Plan; however consistency with applicable State GHG reduction measures and General Plan policies will be evaluated in the EIR.



Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Potentially Significant Impact	No Impact
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**HAZARDS AND HAZARDOUS MATERIALS.** Would the project:

- |  |                                     |                          |                          |                                     |
|--|-------------------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Create a significant hazard to the public or the environment through the routine transport, use or disposal of hazardous materials?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?                                | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| e. For a project located within the adopted Kern County Airport Land Use Compatibility Plan, would the project result in a safety hazard for people residing or working in the project area?                                   | <input type="checkbox"/>            | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| g. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| h. Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?          | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| i. Would implementation of the project generate vectors (flies, mosquitoes, rodents, etc.) or have a component that includes agricultural  |                                     |                          |                          |                                     |



	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Potentially Significant Impact	No Impact
waste? Specifically, would the project exceed the following qualitative threshold:				
The presence of domestic flies, mosquitoes, cockroaches, rodents, and/or any other vectors associated with the project is significant when the applicable enforcement agency determines that any of the vectors:				
i. Occur as immature stages and adults in numbers considerably in excess of those found in the surrounding environment; and	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
ii. Are associated with design, layout, and management of project operations; and	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
iii. Disseminate widely from the property; and	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
iv. Cause detrimental effects on the public health or well being of the majority of the surrounding population.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

**Discussion:**

- (a) Project land uses, particularly industrial land uses, could involve the routine transport, use, or disposal of hazardous materials as defined by the Hazardous Materials Transportation Uniform Safety Act. The transport of hazardous materials does occur along I-5 which bisects the site. This issue will be evaluated in the EIR.
- (b) Operation of industrial land uses and project construction could result in the foreseeable upset and/or accident conditions involving the release of hazardous materials into the environment., This issue will be evaluated in the EIR.
- (c) The project will include up to eleven schools. School siting criteria and zoning restrictions will be utilized to address potential proximity issues. This issue will be addressed in the EIR.
- (d) A Phase 1 environmental assessment is being prepared to assess the likelihood of existing hazardous materials on the project site. This issue will be addressed in the EIR
- (e) The project area is not located within two miles of a public use airport, and the site is not within the sphere of influence of any airport as identified by the Kern County Airport Land Use Compatibility Plan (ALUCP). Therefore, there are no anticipated safety hazards for people residing or working in the project area with respect to the project's proximity to a public or public use airport. Therefore, no impacts would occur, and further analysis is not warranted.



- (f) The project site is adjacent to the private Tejon Ag airstrip located offsite between Planning Areas 6c and 6d. The potential safety hazards associated with operation of this private airstrip will be evaluated in the EIR.
- (g) The project construction and operation is not anticipated to physically impede existing emergency response or evacuation plans. Appropriate fire and sheriff facilities, as determined by the County, will be provided on site. The site is located in an area with several alternative access roads allowing access to the site in the event of an emergency. Therefore, impacts related to impairment of the implementation of, or physical interference with, an adopted emergency response plan or emergency evacuation plan are not anticipated, however, this issue will be addressed in the EIR.
- (h) The project site is within a State Responsibility Area (SRA), and the California Department of Forestry and Fire Protection (CAL FIRE) implements wildfire planning and protection for the SRA. The foothill portion of the project site is located in a high fire hazard severity zone. The area between the Aqueduct and the foothills is identified as a moderate fire hazard severity zone. The portions of the project north of the Aqueduct are within a local responsibility area and have a very low wildfire risk. The potential for construction and operation of the project to result in increased risk of wildfires in the project area will be evaluated in the EIR.

With implementation of mitigation to prevent the spread of wildfires, the project is not expected to result in significant impacts to the exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires. The EIR will address this issue.

- (i) Project-related infrastructure such as water quality basins, if not properly managed, could provide habitat for vectors such as mosquitoes, flies, cockroaches or rodents. Residents and workers will generate large quantities of solid waste (i.e. trash) that would be appropriately stored for permanent disposal offsite. If properly managed, potential impacts should be negligible; however this issue will be addressed in the EIR.



	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Potentially Significant Impact	No Impact
<b>HYDROLOGY AND WATER QUALITY.</b> Would the project:				
a. Violate any water quality standards or waste discharge requirements?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation onsite or offsite?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding onsite or offsite?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Otherwise substantially degrade water quality?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



	Potentially Significant Impact	Potentially Significant Unless Mitigated	Potentially Significant Impact	No Impact
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Inundation by seiche, tsunami, or mudflow?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

- (a) Construction of the project would be subject to County, State, and federal water quality regulations. This includes, but is not limited to, required adherence to the federal Clean Water Act, National Pollutant Discharge Elimination System requirements, the National Flood Insurance Act, requirements of the California Department of Water Resources, adherence to the requirements of the California Fish and Game Code, the California Water Code, the requirements of the Kern County General Plan and Zoning Ordinance, etc. Development of the project would result in a significant impact to hydrology and water quality if associated construction, maintenance, or decommissioning activities would result in the violation of any water quality or waste discharge standards. Such violations could occur through the creation of erosion, sedimentation, and/or polluted runoff, through the accidental release of potentially hazardous materials required during construction or operational activities, or through the discharge of contaminated groundwater during dewatering activities. It is anticipated that appropriate best management practices and compliance with applicable regulations would reduce potential water quality impacts to a less than significant level; however, this potential impact will be evaluated fully in the EIR.
- (b) The project would substantially increase impervious surfaces, and the project could potentially interfere with groundwater recharge. Further evaluation of project effects will be provided in the EIR.
- (c)/(d) The proposed drainage system for the project is designed to maintain, to the maximum extent possible, existing drainages in their natural state consistent with public safety requirements. Grapevine Creek and Cattle Creek (tributary) watercourses will be maintained in permanently preserved open space areas. The existing Pastoria Creek, Cattle Creek and Live Oak watercourse will be avoided by the project. However existing drainage will be modified on the project site. Evaluation of impacts to existing drainage patterns on-site, as well as the potential for increased erosion/siltation and changes in hydrologic condition will be evaluated in the EIR.
- (e) The project would result in an overall increase in impervious surfaces onsite, which could substantially increase storm water runoff. The project would be required to prepare a drainage plan to address storm water runoff impacts. Further analysis in the EIR is required to identify appropriate mitigation/design measures and evaluate their effectiveness.
- (f) Project construction activities (such as grading of development pads and construction access roads) could potentially degrade water quality through erosion and subsequent sedimentation of streams. Additionally, accidental release of potentially harmful materials, such as engine oil, diesel fuel, and cement slurry could degrade the water quality of nearby streams. Implementation of best management practices would likely reduce the impact of project activities on surrounding water



quality. However, further analysis in the EIR is required to identify appropriate mitigation/design measures and evaluate their effectiveness.

- (g) The project site includes areas that are mapped within flood hazard areas. Setbacks and or flood control improvements will be necessary in order to protect some portions of the proposed development area from flood events. Further analysis in the EIR is required to identify appropriate mitigation/design measures and evaluate their effectiveness.
- (h) Portions of the project are located within an A Zone (100-year) Flood Hazard Area, as delineated on the Federal Emergency Management Agency's (FEMA) Digital Flood Insurance Rate Maps (DFIRM). The project requests the overlay of the Floodplain (FP) Combining District. The purpose of the FP Combining District is to protect public health and safety and minimize property damage by designating areas that are potentially subject to flooding by establishing reasonable restrictions on land use. However, the placement of structures within a 100-year flood hazard zone is a potentially significant impact. The potential for project structures to redirect or impede flood flows will be evaluated in the EIR.
- (i) The project is not located within an area that is subject to flooding due to failure of a levee or dam. Without the appropriate flood control protection that is proposed the project could expose people or structures to a significant risk of loss, injury, or death due to flooding. Further analysis in the EIR is required to identify appropriate mitigation measures and evaluate their effectiveness.
- (j) The project is not located near an ocean or enclosed body of water, and would not be subject to inundation by seiche or tsunami. Mudflows or debris flows are a type of mass wasting or landslide, where earth and surface materials are rapidly transported downhill under the force of gravity. These events are caused by a combination of factors, including soil type, precipitation, and slope. Mudflow or debris flows may be triggered by heavy rainfall that the soil is not able to sufficiently drain or absorb. As a result of this super-saturation, soil and rock materials become unstable and eventually slide away from their existing location. The potential for project structures to be inundated by mudflow or debris flows will be further evaluated in the EIR.



	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Potentially Significant Impact	No Impact
<b>LAND USE AND PLANNING.</b> Would the project:				
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

(a) The project would be developed on predominantly vacant or rural lands that are either being used for agricultural or grazing purposes. The surrounding area is also largely vacant, with some industrial and commercial complexes adjacent to the project. Where commercial activity does exist in the project area, around the existing Grapevine interchange and TRCC, commercial zoning is proposed that will allow the continuation of similar uses and the connection of these existing developments. Additionally, a single agricultural residence exists in the project area in an area proposed to continue in agriculture. No established communities are located within or adjacent to the project. Therefore, no impact would occur, and no further analysis is warranted.

(b) Portions of the site are designated with the Physical Constraint Map Code 2.4 (Steep Slopes) per the Kern County General Plan (KCGP). The KCGP contains an implementation measure requiring that development proposed in areas with steep slopes be reviewed to ensure that appropriate soil stability and drainage will result. As noted in 3.6 Geology and Soils, above, a geotechnical study for the project is currently being conducted. Further evaluation is warranted to identify potential impacts and formulate avoidance or mitigation measures.

A portion of the project site is designated with the Physical Constraint Map Code 2.5 (Flood Hazard) per the Kern County General Plan (KCGP). The KCGP contains an implementation measure requiring that development proposed in areas subject to flooding prepare flood evaluations and studies. Further evaluation is warranted to identify potential impacts and formulate avoidance or mitigation measures.

The appropriateness of the project with regard to its consistency with the any applicable policies or regulations adopted for the purpose of avoiding or mitigating an environmental effect will be evaluated in the EIR.

(c) The project is not currently within the boundaries of any adopted habitat conservation plan (HCP) or natural community conservation plan; however, the project area is almost entirely within the boundaries of the proposed Kern County Valley Floor HCP, which covers approximately 3,110





square miles and generally includes most of the San Joaquin Valley floor portion of Kern County up to an elevation of 2,000 feet. The project applicant is in ongoing coordination with Kern County, and as appropriate, the USFWS and DFW regarding the preparation of that HCP. The HCP, if and when finalized, would provide a program for complying with the Federal ESA on private lands within the HCP area. Although no impacts are anticipated to occur, further analysis of this issue is warranted in the EIR.



	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
<b>MINERAL RESOURCES.</b> Would the project:				
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

- (a) The project site is located within an area of known mineral resources. The northern four areas of the project site are designated Map Code 8.4 (Resources- Mineral and Petroleum), which indicates areas that contain producing or potentially productive petroleum fields, natural gas, geothermal resources, and mineral deposits of regional and Statewide significance. The northern areas of the project site also fall with the boundaries of both the Tejon and the Tejon North Oil Fields. Numerous active, plugged, or abandoned wells are located within the northern areas of the project; however, wells are also located sporadically throughout the remainder of the site. Construction and operation of the project could result in the loss of availability of a known mineral resource that would be of value to the region and residents of the State; therefore, potentially significant impacts may occur and further analysis is required in the EIR.
- (b) As discussed above, portions of the project site are located in an area delineated in the KCGP as having mineral resources. Impacts are considered potentially significant and will be further analyzed in the EIR.



	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
<b>NOISE.</b> Would the project result in:				
a. Exposure of persons to, or generate, noise levels in excess of standards established in the local general plan or noise ordinance or applicable standards of other agencies?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Exposure of persons to, or generate, excessive groundborne vibration or groundborne noise levels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. For a project located within the Kern County Airport Land Use Compatibility Plan, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

- (a) Land uses determined to be “sensitive” to noise as defined by the Kern County General Plan include residential areas, schools, convalescent and acute care hospitals, parks and recreational areas, and churches. The nearest sensitive receptor is one rural residence located within the project site. The project site is bisected by I-5, an existing noise source due to automobile and truck traffic. Additionally, the project will add residential uses and other sensitive receptors in close proximity to industrial uses and I-5. A noise analysis will be included in the EIR to determine the project’s consistency with the applicable provisions of the KCGP, and Kern County Zoning Ordinance; therefore, this issue will be evaluated in the EIR.
- (b) Groundborne vibration and groundborne noise could originate from earth movement during the construction phase of the project. Further analysis of construction period groundborne vibration and groundborne noise will be included in the EIR.
- (c) The project would result in, increased traffic, and therefore mobile noise sources. Some industrial uses can increase ambient noise levels. Construction activity would also increase ambient noise



levels above existing levels for the duration of the construction period. Further analysis of ambient noise levels and the project's potential impact on those levels will be included in the EIR.

- (d) Heavy equipment used during construction would cause a temporary or periodic increase in ambient noise levels. Temporary or periodic increases in ambient noise levels caused by construction activities could be reduced with the incorporation of mitigation measures. Project-related construction noise levels will be quantified and evaluated in the EIR.
- (e) The project is not located within the sphere of influence of an airport, as identified in the Kern County Airport Land Use Compatibility Plan (ALUCP). Because no public airport/public use airports are located in the project vicinity, the project is not expected to expose individuals residing or working in the project area to excessive noise levels resulting from any airports located within the ALUCP; therefore, no further analysis related to public airports is warranted.
- (f) The project is located adjacent to the infrequently used, private Tejon Ag airstrip. Implementation of the project may have the potential to expose individuals residing or working in the project area to excessive noise levels generated from the private airstrip. Further discussion related to the private airstrip will therefore be evaluated in the EIR.



Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Potentially Significant Impact	No Impact
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**POPULATION AND HOUSING.** Would the project:

- |   |                                     |                          |                          |                                     |
|---|-------------------------------------|--------------------------|--------------------------|-------------------------------------|
| a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/>            |
| b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?   | <input type="checkbox"/>            | <input type="checkbox"/> |                          | <input checked="" type="checkbox"/> |
| c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?   | <input type="checkbox"/>            | <input type="checkbox"/> |                          | <input checked="" type="checkbox"/> |

**Discussion:**

- (a) Typical established local thresholds of significance for housing and population growth pursuant to the State *CEQA Guidelines*, Section 15064.7, include effects that would induce substantial growth or concentration of a population beyond County projections, alter the location, distribution, density, or growth rate of the population beyond that projected in the General Plan Housing Element, result in a substantial increase in demand for additional housing, or create a development that significantly reduces the ability of the County to meet housing objectives set forth in the General Plan Housing Element. The effects of the project in relation to these local thresholds are substantial.

The proposed project is a new Community and Specific Plan that when completely built out will be comprised of 12,000 new homes, with accompanying infrastructure, and 10,748,400 square feet of commercial and industrial land use. Construction and completion of the proposed project will have substantial effects on this issue and will be further evaluated in the EIR.

- (b) One existing residential structure is located within the project boundaries, and no housing is expected to be displaced; therefore, no further analysis related to public airports is warranted.
- (c) The project is not expected to displace any people; therefore, this issue will not require further evaluation in the EIR.



	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Potentially Significant Impact	No Impact
<b>PUBLIC SERVICES.</b> Would the project:				
a. Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or to other performance objectives for any of the public services:				
i) Fire protection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ii) Police protection?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iii) Schools?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
iv) Parks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
v) Other public facilities?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

- (a) During project construction it is expected that most workers would commute to the project sites from surrounding communities. There are no existing public services facilities at the project site, therefore, substantial temporary increases in population that would adversely affect local public facilities, such as post office and library services, are not expected. However, as the project is built out in phases, possible strains on public services might occur. Although such public services as a fire station, 11 schools, 145 acres of park land, a transit facility/park-and-ride, and if necessary, a sheriff's substation, are proposed to be built as part of the project, local and surrounding services might be affected.

**Fire Protection.** The Kern County Fire Department provides fire suppression and medical emergency services to the project area. The primary fire stations that would serve the project area are Station No. 55 (Tejon), located at 5411 Dennis McCarthy Drive in Mettler, California, and Station No. 56 (Lebec), located at 1548 Golden State Highway Lebec, California, approximately 3 miles north and approximately 8 miles south of the project, respectively. Construction and operation activities may result in increased risk of wildfire, which could impact firefighting capacity in the area. Therefore, the potential impact on fire services from construction and operation of the proposed project and the need for additional firefighting equipment is potentially significant and will be evaluated in the EIR.

**Police Protection.** Police protection services in the project area are provided by the Kern County Sheriff's Department. The project is located in proximity to two Substations. The Frazier Park Substation, located at 617 Monterey Trail in Frazier Park and the Lamont Substation, located at 12022 Main in Lamont, are approximately 20 miles south and 16 miles north of the project,



respectively. These Substations would be the primary substations to service the project area. Although the potential is low, the project may attract vandals or other security risks, and construction activities could result in increases in traffic volumes along I-5 that could increase demand on law enforcement services. Onsite security would be provided during construction, thereby minimizing the need for police surveillance and response. The project's impacts on sheriff services are considered potentially significant and will be evaluated in the EIR.

**Schools.** During construction it is not expected for school attendance to increase as it is assumed that workers would commute to the project site, the effects the project could have once phases of the project are complete could be substantial on the local and existing school systems. Although two high schools, two middle schools, and seven elementary schools are proposed for the project at completion, effects on existing local schools are possible until those proposed schools are implemented. The closest schools in proximity to the project are: El Tejon Middle School, located 4.8 miles south of the project site; General Shafter Elementary, which serves grades kindergarten through 8<sup>th</sup> grade, located 13 miles north of the project site ; and Arvin High School, which is located approximately 23 miles north of the project site. The project impacts on local school systems have the potential to be significant and therefore will be further evaluated in the EIR.

**Parks.** The proposed project plans on incorporating 145 acres of new park land. It is anticipated that parks may be located jointly with school recreational facilities to facilitate access to parkland, efficient use of land and financial resources required for ongoing maintenance and management. Portions of the site will be left as open space, particularly along the southern edge of the California Aqueduct and the foothills of the Tehachapi Mountains; areas that have previously been identified as wildlife corridors. A trails system is also proposed that would include a non-vehicular circulation system that would provide pedestrian, bicycle, equestrian, and multi-use trails along Grapevine Creek, Cattle Creek, the southern foothills, the open space adjacent to the California Aqueduct, and at other locations throughout the project site. The closest County park to the project is located in Frazier Park approximately 20 miles to the south. The project impacts on this issue will be further evaluated in the EIR.

**Other Public Facilities.** During construction of the proposed project, population increases are not expected. However, once the project is built out, strain on local services such as libraries, courts, and post offices are likely due to 12,000 new homes and 10,748,400 square feet of commercial and industrial land use. Therefore, further analysis of this issue is warranted in the EIR.



	Potentially Significant Impact Unless Mitigated	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
<b>RECREATION.</b> Would the project:				
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

- (a) While the temporary increase of population during construction would be minimal, the permanent increase of population after project completion is substantial. Of the 8,010 acre project site, 145 acres are to be used for parks and portions of the site would be left as open space, particularly along the southern edge of the California Aqueduct and the foothills of the Tehachapi Mountains; areas that have previously been identified as wildlife corridors. It is anticipated that parks may be located jointly with school recreational facilities to facilitate access to parkland, efficient use of land and financial resources required for ongoing maintenance and management. A trails system is also proposed that would include a non-vehicular circulation system that would provide pedestrian, bicycle, equestrian, and multi-use trails along Grapevine Creek, Cattle Creek, the southern foothills, the open space adjacent to the California Aqueduct, and at other locations throughout the project site. Some of these trails would connect to on-street, Class 2 bike lanes. However, due to the significant increase project completion will have on local population, this issue will be further evaluated in the EIR.
- (b) As noted above, the proposed project is planning to incorporate 145 acres of park land, preserve open space, and create a non-vehicular multi-use trail system that will connect the various locations of the project. Although these proposed elements would not completely change the nature of the land that exists, this issue will be further evaluated in the EIR.





	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
<b>TRANSPORTATION/TRAFFIC.</b> Would the project:				
a. Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable congestion management program, including, but not limited to, level of service (LOS) standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				
i. Metropolitan Bakersfield General Plan LOS "C"	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Kern County General Plan LOS "D"	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Discussion:**

- (a) The project site can be accessed from the existing Interstate 5 interchanges at Grapevine and Laval Road. The project is planned as a residential community and employment center, featuring a series of compact neighborhoods linked by streets, bicycle and pedestrian trails that provide convenient access to retail and professional services, schools and parks. The community would leverage and build upon the economic expansion and growth that has occurred at Tejon Ranch Commerce Center (TRCC)



which is immediately adjacent to the project site. The project would provide housing opportunities for the large workforce at TRCC. The project includes a proposal to rebuild the existing Grapevine interchange slightly north from its current location, and a new I-5 overcrossing when traffic levels warrant. The project is served by an internal grid system including four- and two-lane arterials, collector and local streets. Roundabouts and reduced width local to local street intersections are proposed as traffic calming measures and to encourage walking. On and off street bicycle lanes and paths will be provided throughout the project. The project will include a bus transit facility with park and ride. Given the size of the project, impacts will occur to existing highways and County road facilities. The potential impact of the project operational and construction traffic on the area roadway system, and internally within the project, will be evaluated and appropriate mitigation/design features considered in the EIR.

- (b) (i) The project site is not located in or near the metropolitan Bakersfield area. Therefore, no further analysis of this topic will be conducted in the EIR.
- (ii) Construction of the project would generate construction trips. Operation of the project would also generate trips on local roadways. The potential impacts of these trips on the LOS of area roadways will be evaluated in the EIR.
- (c) Future residents and workers would potentially increase demand for flights at regional airports including Meadows Field in Bakersfield. This issue will be addressed in the EIR.
- (d) The project includes modifications to County standard design for roadways to encourage walkability and reduce dependence on the automobile. Proposed project roadway and intersection design standards will be evaluated for consistency with County standards. This issue will be addressed in the EIR.
- (e) The potential for project-related traffic to result in inadequate emergency access will be evaluated in the EIR.
- (f) Project consistency with adopted policies, plans or programs regarding transportation/circulation will be evaluated in the EIR.



Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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**UTILITIES AND SERVICE SYSTEMS.** Would the project:

- |   |                                     |                          |                          |                          |
|---|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                            | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?                                      | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or would new or expanded entitlements be needed?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| g. Comply with federal, state, and local statutes and regulations related to solid waste?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Discussion:**

- (a) The project would generate a substantial volume of wastewater. The project will be served by a new wastewater treatment and collection system, will utilize the existing systems at TRCC, if capacity is available, and will temporarily utilize the existing system just east of existing Grapevine interchange commercial uses. The EIR will consider these issues more thoroughly.
- (b) The project will require the construction of new wastewater and water treatment systems. The systems will be operated by TCWD. On-site wastewater reclamation facilities would be located at various locations within the project site. Project wastewater will be treated to tertiary sanitary levels.



All facilities would be constructed in accordance with TCWD, Kern County Health Department, and the Central Valley Regional Water Quality Control Board Standards. Recycled water will be supplied by the reclamation facilities and primarily be used for common-area landscape irrigation. Potable water system will be sized to meet anticipated maximum day, peak hour and fire flow requirements. Engineering reports will be prepared describing systems operations. The EIR will further evaluate the proposed systems and their overall effectiveness.

- (c) Although the project would create additional impervious surface, it will include the implementation of water quality features and sumps to manage the increased rate of stormwater flow and address surface water quality. The project area is presently drained by natural stream channels and drainages and does not rely on constructed stormwater drainage systems. The existing pattern and concentration of runoff would be altered by project activities, such as the grading of development pads, roads and infrastructure. Further analysis will be provided in the EIR to determine the need for appropriate stormwater mitigation/design measures.
- (d) Water will be delivered to the site by the Kern County Water Agency (KCWA) under the terms of a 2001 water transfer agreement between KCWA, the Nickel Family LLC and certain other parties (the Nickel Agreement). The Nickel Agreement obligates the KCWA to supply 10,000 acre feet per year of potable water, with 100% reliability at the Tupman turnout along the California Aqueduct. The project has acquired rights to receive 6,693 acre feet per year through approximately 2079, which will fully meet the projects annual potable water demand. This issue will be evaluated in the EIR.
- (e) The project includes improvements to existing TCWD wastewater facilities and the construction of new facilities to meet project demand. This issue will be addressed in the EIR.
- (f) The project is expected to generate a significant amount of waste and the capacity of local landfills needs to be evaluated. Waste generated from the project includes construction, household, commercial and industrial wastes. Disposal of potential hazardous waste will need to be addressed. This issue will be further analyzed in the EIR.
- (g) The project would generate solid waste during construction and operation of the project, thus requiring the consideration of waste reduction and recycling measures. The 1989 California Integrated Waste Management Act (AB 939) requires Kern County to attain specific waste diversion goals. In addition, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the project design. The need for mitigation measures to confirm that the project will comply with the 1989 California Integrated Waste Management Act and the 1991 California Solid Waste Reuse and Recycling Access Act of 1991, as amended will be evaluated in the EIR.



Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
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## MANDATORY FINDINGS OF SIGNIFICANCE

- |   |                                     |                          |                          |                          |
|---|-------------------------------------|--------------------------|--------------------------|--------------------------|
| a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are significant when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?   | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Does the project have environmental effects which would cause substantial adverse effects on human beings, either directly or indirectly?  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

### Discussion:

- (a) Impacts to biological resources are currently unknown. Biota studies for the project are currently being conducted. The EIR's biological resources section will discuss specific project impacts on plants and wildlife. The document will also evaluate the project's contribution to cumulative biological resources impacts and propose mitigation that will reduce the impacts.
- (b) The proposed project has the potential to contribute to cumulative impacts to aesthetics, agriculture, air quality, biological resources, cultural resources, geology and soils, GHG emissions, hazards and hazardous materials, hydrology and water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation and traffic, and utilities and service systems impacts. The EIR will evaluate the project's contribution to cumulative impacts in these and other areas as further impacts are identified.

The proposed project could result in cumulative impacts. When combined with other current, past, or future projects in the area, the proposed project impacts could potentially be cumulatively considerable. The EIR will evaluate the possibility of any potentially significant cumulative impacts.

- (c) The proposed project has the potential to cause substantial adverse effects on human beings, either directly or indirectly. Potential adverse effects on human beings will be evaluated in the EIR.



Edmund G. Brown Jr.  
Governor

STATE OF CALIFORNIA  
Governor's Office of Planning and Research  
State Clearinghouse and Planning Unit



Ken Alex  
Director

**Notice of Preparation**

April 1, 2014

To: Reviewing Agencies

Re: ERI 04-14; Grapevine Specific and Community Plan by Tejon Grapevine, LLC  
SCH# 2014041005

Attached for your review and comment is the Notice of Preparation (NOP) for the ERI 04-14; Grapevine Specific and Community Plan by Tejon Grapevine, LLC draft Environmental Impact Report (EIR).

Responsible agencies must transmit their comments on the scope and content of the NOP, focusing on specific information related to their own statutory responsibility, within 30 days of receipt of the NOP from the Lead Agency. This is a courtesy notice provided by the State Clearinghouse with a reminder for you to comment in a timely manner. We encourage other agencies to also respond to this notice and express their concerns early in the environmental review process.

Please direct your comments to:

**Jacquelyn R. Kitchen**  
**Kern County Planning Department**  
**2700 M Street, Suite 100**  
**Bakersfield, CA 93301-2323**

with a copy to the State Clearinghouse in the Office of Planning and Research. Please refer to the SCH number noted above in all correspondence concerning this project.

If you have any questions about the environmental document review process, please call the State Clearinghouse at (916) 445-0613.

Sincerely,

Scott Morgan  
Director, State Clearinghouse

Attachments

cc: Lead Agency

**Document Details Report  
State Clearinghouse Data Base**

**SCH#** 2014041005  
**Project Title** ERI 04-14; Grapevine Specific and Community Plan by Tejon Grapevine, LLC  
**Lead Agency** Kern County

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**Type** NOP Notice of Preparation

**Description** The proposed project is both a Specific and Community Plan that encompasses ~8,010 acres of the 15,644 acre Grapevine Planning Area in southwestern Kern County, CA. The project includes up to 12,000 residences and 10,748,400 sf of commercial development; and the project would provide parks, public and private recreational amenities, schools, public services, helipad(s), a transit center/park and ride, and water and waste water treatment facilities. Portions of the site would be left as open space, particularly along the southern edge of the CA Aqueduct and the foothills of the Tehachapi Mountains; in areas that have previously been identified as wildlife corridors. Access to the site would be taken from I-5 at the Laval Road and the Grapevine interchanges. A new interchange is proposed to replace the existing Grapevine interchange.

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**Lead Agency Contact**

<b>Name</b>	Jacquelyn R. Kitchen		
<b>Agency</b>	Kern County Planning Department		
<b>Phone</b>	(661) 862-8619	<b>Fax</b>	
<b>email</b>			
<b>Address</b>	2700 M Street, Suite 100		
<b>City</b>	Bakersfield	<b>State</b> CA	<b>Zip</b> 93301-2323

---

**Project Location**

<b>County</b>	Kern						
<b>City</b>							
<b>Region</b>							
<b>Cross Streets</b>	Grapevine Interchange and Interstate 5						
<b>Lat / Long</b>	34° 56' N / 118° 54' W						
<b>Parcel No.</b>	Multiple						
<b>Township</b>	Multip	<b>Range</b>	Multip	<b>Section</b>	Multip	<b>Base</b>	SBB&M

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**Proximity to:**

<b>Highways</b>	I-5
<b>Airports</b>	Tejon Ag (Private Airstrip)
<b>Railways</b>	
<b>Waterways</b>	California Aqueduct
<b>Schools</b>	
<b>Land Use</b>	LU: Vacant Grazing Land; Agriculture - Uncultivated Grape, and Almond; Oils Wells; I-5; General Commercial Z: A (Exclusive Agriculture); C-2 PD (General Commercial, Precise Development Combining); FPP (Floodplain Primary). GPD: 2.1 (Seismic Hazard); 2.2 (Landslide); 2.4 (Steep Slope); 2.5 (Flood Hazard); 4.3 (Specific Plan-Grapevine Commercial); 6.2 (General Commercial); 8.1 (Intensive Agriculture - Min. 20 Acre); 8.3 (Extensive Agriculture - Min. 20 Acre); 8.4 (Mineral and Petroleum - Min. 5 Acre).

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**Project Issues** Aesthetic/Visual; Agricultural Land; Air Quality; Archaeologic-Historic; Biological Resources; Drainage/Absorption; Flood Plain/Flooding; Forest Land/Fire Hazard; Geologic/Seismic; Minerals; Noise; Population/Housing Balance; Public Services; Recreation/Parks; Schools/Universities; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Water Supply; Wetland/Riparian; Wildlife; Growth Inducing; Landuse; Cumulative Effects

Note: Blanks in data fields result from insufficient information provided by lead agency.

**Document Details Report  
State Clearinghouse Data Base**

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<b>Reviewing Agencies</b>	Resources Agency; Department of Conservation; Office of Historic Preservation; Department of Parks and Recreation; Department of Water Resources; Department of Fish and Wildlife, Region 4; Office of Emergency Services, California; Native American Heritage Commission; Caltrans, Division of Aeronautics; California Highway Patrol; Department of Housing and Community Development; Caltrans, District 6; Air Resources Board, Major Industrial Projects; Regional Water Quality Control Bd., Region 5 (Fresno)
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<b>Date Received</b>	04/01/2014	<b>Start of Review</b>	04/01/2014	<b>End of Review</b>	04/30/2014
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# NOP Distribution List

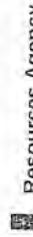
SL

County: Kern

SCH#

2014041005

## Resources Agency



Resources Agency  
Nadell Gayou

☐ Dept. of Boating & Waterways  
Nicole Wong

☐ California Coastal Commission  
Elizabeth A. Fuchs

☐ Colorado River Board  
Tamiya Trujillo

☒ Dept. of Conservation  
Elizabeth Carpenter

☐ California Energy Commission  
Eric Knight

☐ Cal Fire  
Dan Foster

☐ Central Valley Flood Protection Board  
James Herota

☒ Office of Historic Preservation  
Ron Parsons

☒ Dept of Parks & Recreation  
Environmental Stewardship Section

☐ California Department of Resources, Recycling & Recovery  
Sue O'Leary

☐ S.F. Bay Conservation & Dev't. Comm.  
Steve McAdam

☒ Dept. of Water Resources  
Agency  
Nadell Gayou

☐ Fish and Game

☐ Depart. of Fish & Wildlife  
Scott Flint

☐ Environmental Services Division

☐ Fish & Wildlife Region 1  
Donald Koch

☐ Fish & Wildlife Region 1E  
Laurie Harnsberger

☐ Fish & Wildlife Region 2  
Jeff Dronagesen

☐ Fish & Wildlife Region 3  
Charles Amnor

☒ Fish & Wildlife Region 4  
Julie Vance

☐ Fish & Wildlife Region 5  
Leslie Newton-Reed

☐ Fish & Wildlife Region 6  
Gabriana Gatchel

☐ Fish & Wildlife Region 6 I/M  
Heidi Sickler

☐ Dept. of Fish & Wildlife M  
George Isaac

☐ Marine Region

☐ Food & Agriculture  
Sandra Schubert

☐ Dept. of Food and Agriculture

☐ Depart. of General Services  
Public School Construction

☐ Dept. of General Services  
Anna Garbelf

☐ Environmental Services Section

☐ Dept. of Public Health  
Jeffery Worli

☐ Dept. of Health/Drinking Water

☐ Delta Stewardship Council  
Kevan Samsam

☐ Independent Commissions, Boards

☐ Delta Protection Commission  
Michael Machado

☒ OES (Office of Emergency Services)  
Dennis Castrillo

☒ Native American Heritage Comm.  
Debbie Treadway

☐ Public Utilities Commission  
Leo Wong

☐ Santa Monica Bay Restoration  
Guangyu Wang

☐ State Lands Commission  
Jennifer Deleong

☐ Tahoe Regional Planning Agency (TRPA)  
Cherry Jacques

☐ Business, Trans & Housing

☒ Caltrans - Division of Aeronautics  
Philip Crimmins

☐ Caltrans - Planning  
Terri Pencovic

☒ California Highway Patrol  
Suzann Ikeuchi

☒ Office of Special Projects

☒ Housing & Community Development  
CEQA Coordinator

☐ Housing Policy Division

☐ Dept. of Transportation

☐ Caltrans, District 1  
Rex Jackman

☐ Caltrans, District 2  
Marcelino Gonzalez

☐ Caltrans, District 3  
Gary Arnold

☐ Caltrans, District 4  
Erik Alm

☐ Caltrans, District 5  
David Murray

☒ Caltrans, District 6  
Michael Navarro

☐ Caltrans, District 7  
Dianna Watson

☐ Caltrans, District 8  
Dan Kopulsky

☐ Caltrans, District 9  
Gayle Rosander

☐ Caltrans, District 10  
Tom Dumas

☐ Caltrans, District 11  
Jacob Armstrong

☐ Caltrans, District 12  
Maureen El Haraque

☐ Cal EPA

☐ Air Resources Board

☒ All Projects  
CEQA Coordinator

☐ Transportation Projects  
Nesamani Kalandiyyur

☒ Industrial Projects  
Mike Tollstrup

☐ State Water Resources Control Board  
Regional Programs Unit

☐ Division of Financial Assistance

☐ State Water Resources Control Board  
Student Intern, 401 Water Quality Certification Unit

☐ Division of Water Quality

☐ State Water Resources Control Board  
Phil Grader

☐ Division of Water Rights

☐ Dept. of Toxic Substances Control  
CEQA Tracking Center

☐ Department of Pesticide Regulation  
CEQA Coordinator

☐ Other

☐ Conservancy

Regional Water Quality Control Board (RWQCB)

☐ RWQCB 1  
Cathleen Hudson  
North Coast Region (1)

☐ RWQCB 2  
Environmental Document Coordinator  
San Francisco Bay Region (2)

☐ RWQCB 3  
Central Coast Region (3)

☐ RWQCB 4  
Teresa Rodgers  
Los Angeles Region (4)

☐ RWQCB 5S  
Central Valley Region (5)

☒ RWQCB 5F  
Central Valley Region (5)  
Fresno Branch Office

☐ RWQCB 5R  
Central Valley Region (5)  
Redding Branch Office

☐ RWQCB 6  
Lahontan Region (6)

☐ RWQCB 6V  
Lahontan Region (6)  
Victorville Branch Office

☐ RWQCB 7  
Colorado River Basin Region (7)

☐ RWQCB 8  
Santa Ana Region (8)

☐ RWQCB 9  
San Diego Region (9)

**Todd Taylor - Re: Grapevine Specific and Community Plan by Tejon Grapevine**

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**From:** Jacqui Kitchen  
**To:** Rod Wallace  
**Date:** 04/02/2014 2:26 PM  
**Subject:** Re: Grapevine Specific and Community Plan by Tejon Grapevine  
**CC:** Todd Taylor

---

Thank you for this information Mr. Wallace; we will include it in the record for this project.

Sincerely,  
Jacqui Kitchen

>>> Rod Wallace <rwallace@el-tejon.k12.ca.us> 04/02/2014 1:43 PM >>>  
Dear Ms. Kitchen,

I am in receipt of the Notice of Preparation document regarding the above mentioned project. I would like to inform you that the closest high school to the project is Frazier Mountain High School in the El Tejon Unified School District. Frazier Mountain High School is located approximately 12 miles from the current Grapevine Interchange. This would make Frazier Mountain High School the closest in proximity to the project.

Thank you for your consideration of this information.  
Sincerely,  
Rodney Wallace

--

Rodney Wallace  
Superintendent  
El-Tejon Unified School District  
(661) 248-6247

April 3, 2014

Jacquelyn R. Kitchen, Supervising Planner  
Kern County Planning Department  
2700 M Street, Suite 100  
Bakersfield, CA 93301

**Our File No.:** CO14-0056

**RE: DEVELOPER FEES FOR: EIR 04-14: Grapevine Specific and Community Plan by Tejon Grapevine, LLC (East and West of Interstate 5 at the Grapevine interchange)**

Dear Ms. Kitchen:

This office represents the Arvin Union, General Shafter and Kern High School Districts with regard to the imposition of developer fees, and appreciates the opportunity to respond on behalf of these districts regarding the proposed project. This letter is limited to addressing the possible effects which the project might have on school facilities created by students attributable to the project. It is not intended to address other possible environmental concerns which might be identified by the district(s) after reviewing it.

The districts have been advised that Government Code Sections 65995.5 et seq. now prohibits the County of Kern from denying or refusing to approve a project such as this on the basis of the adequacy of school facilities. For this reason, although the above-mentioned Specific Plan, proposing up to 12,000 residences (single- and multi-family) as well as 10,748,400 square foot of commercial/industrial development will have significant effects on these districts' facilities, neither district expects the County to impose any condition related to the financing of public school facilities at this time.

Based on this, and as it relates to the General Shafter and Kern High School Districts, our office has determined mitigation of this project's impacts on public school facilities will be limited to the collection of statutory fees authorized under Education Code Section 17620 and Government Code Sections 65995 et seq. (all as amended with an operative date of November 4, 1998) at the time that building permits are issued. Currently these fees are set at \$3.20 per square foot for residential development, and \$0.51 per square foot for commercial/industrial development, amounts subject to COLA adjustment every two years. These fees are expected to increase July 1, 2014 to \$3.36 for residential and \$0.54 for commercial/industrial development.

With regards to the Arvin Union School District, the district has adopted the alternative fees authorized by Government Code Sections 65995.5 and/or 65995.7. The current fee of \$7.87 per square foot will be levied on all new residential building permits. This fee is expected to increase July, 2014. The commercial/industrial rate for this district currently remains at \$0.51 per square foot for commercial/industrial development, amounts subject to COLA adjustment every two years. This fee is expected to increase July 1, 2014 to \$0.54.

Thank you for this opportunity to comment on this project. If you have any questions, or if we can be of any further assistance in this matter, please contact me at 636-4599, or through e-mail at [mabaker@kern.org](mailto:mabaker@kern.org).

Sincerely,

Christine Lizardi Frazier  
County Superintendent of Schools



Mary L. Baker, Manager  
School District Facility Services

MLB

cc: Districts

CO14-0056 Arvin-Gen Shafter.wpd

1300 17th Street - CITY CENTRE, Bakersfield, CA 93301-4533

(661) 636-4000 • FAX (661) 636-4130 • TDD (661) 636-4800 • [www.kern.org](http://www.kern.org)

# Office Memorandum

KERN COUNTY

To: Planning Department  
Todd Taylor

Date: April 4, 2014

From: Engineering, Surveying and Permit Services  
Floodplain Management Section  
Aaron Leicht, by Jason Scheer

Phone: (661) 862-5083  
Email: [ScheerJ@co.kern.ca.us](mailto:ScheerJ@co.kern.ca.us)

Subject: Notice of Preparation of Draft Environmental Impact Report  
Grapevine Specific and Community Plan Project

Our section has reviewed the attached subject documents and has the following comments:

The runoff of storm water from the site will be increased due to the increase in impervious surface generated by the proposed development.

The subject property is subject to flooding.

Therefore, this section recommends the following be included as Conditions of Approval for this project:

The applicant shall provide a plan for the disposal of drainage waters originating on site and from adjacent road right-of-ways (if required), subject to approval of the Engineering, Surveying and Permit Services Department, per the Kern County Development Standards.

Associated flood hazard requirements will need to be incorporated into the design of this project per the Kern County Floodplain Management Ordinance.

If levies are constructed to protect improvements from flood hazards then a district with the authority to provide flood control services will need to be formed.



COUNTY OF KERN  
DEPARTMENT OF AIRPORTS



RICHARD STRICKLAND, C.M.  
Director

Meadows Field Airport

3701 Wings Way, Suite 300 • Bakersfield, CA 93308

Telephone (661) 391-1800 • FAX (661) 391-1801 • email: stricklandr@co.kern.ca.us

System Airports

Elk Hills - Buttonwillow

Poso • Kern Valley • Wasco

Lost Hills • Taft • Meadows Field

April 15, 2014

Jacquelyn Kitchen  
Kern County Planning Department  
Land Division Unit  
2700 "M" Street, Suite 100  
Bakersfield, CA 93301

Re: Approximately 13 miles south of Bakersfield city limits, east and west of Interstate 5  
adjacent to Laval and Gibson Road, southern Kern County

Dear Jacquelyn Kitchen:

It is the opinion of this Department that this proposal, as presented, does not appear to  
conflict with any aviation safety standards as they relate to airport operations.

Please contact me if you have any questions.

Respectfully,

Ron Brewster CM, CAE  
Airports Chief Operations Officer

## NATIVE AMERICAN HERITAGE COMMISSION

1550 Harbor Boulevard, Suite 100  
West Sacramento, CA 95691  
(916) 373-3715  
Fax (916) 373-5471  
Web Site [www.nahc.ca.gov](http://www.nahc.ca.gov)  
Ds\_nahc@pacbell.net  
e-mail: ds\_nahc@pacbell.net



April 15, 2014

Ms. Jacquelyn R. Kitchen, Supervising Planner

**Kern County Planning and Community  
Development Department**

2700 "M" Street, Suite 100  
Bakersfield, CA 93301

Sent by U.S. Mail

No. of Pages:

3

RE: SCH#2014041005 CEQA Notice of Preparation (NOP)n; draft  
Environmental Impact Report (DEIR) for the **"ERI 04-14; Grapevine  
Specific and Community Plan by Tejon Corporation LLC;"** located in  
southwestern Kern County, California

Dear Ms. Kitchen

The Native American Heritage Commission (NAHC) has reviewed the  
above-referenced environmental document.

The California Environmental Quality Act (CEQA) states that any project  
which includes archeological resources, is a significant effect requiring the  
preparation of an EIR (CEQA guidelines 15064.5(b)). To adequately comply with  
this provision and mitigate project-related impacts on archaeological resources,  
the Commission recommends the following actions be required:

Lead agencies should include in their mitigation plan provisions for the  
identification and evaluation of accidentally discovered archeological resources,  
pursuant to California Environmental Quality Act (CEQA) §15064.5(f). In areas  
of identified archaeological sensitivity, a certified archaeologist and a culturally  
affiliated Native American, with knowledge in cultural resources, should monitor  
all ground-disturbing activities. Also, California Public Resources Code Section  
21083.2 require documentation and analysis of archaeological items that meet  
the standard in Section 15064.5 (a)(b)(f).

If there is federal jurisdiction of this project due to funding or regulatory  
provisions; then the following may apply: the National Environmental Policy Act (NEPA  
42 U.S.C 4321-43351) and Section 106 of the National Historic Preservation Act (16  
U.S.C 470 *et seq.*) and 36 CFR Part 800.14(b) require consultation with culturally

affiliated Native American tribes to determine if the proposed project may have an adverse impact on cultural resources

We suggest that this (additional archaeological activity) be coordinated with the NAHC, if possible. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. Any information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure pursuant to California Government Code Section 6254.10.

A list of appropriate Native American Contacts for consultation concerning the project site has been provided and is attached to this letter to determine if the proposed active might impinge on any cultural resources.

California Government Code Section 65040.12(e) defines "environmental justice" to provide "fair treatment of People...with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations and policies." (The California Code is consistent with the Federal Executive Order 12898 regarding 'environmental justice.' Also, applicable to state agencies is Executive Order B-10-11 requires consultation with Native American tribes their elected officials and other representatives of tribal governments to provide meaningful input into the development of legislation, regulations, rules, and policies on matters that may affect tribal communities.

Lead agencies should consider first, avoidance for sacred and/or historical sites, pursuant to CEQA Guidelines 15370(a). Then if the project goes ahead then, lead agencies include in their mitigation and monitoring plan provisions for the analysis and disposition of recovered artifacts, pursuant to California Public Resources Code Section 21083.2 in consultation with culturally affiliated Native Americans.

Lead agencies should include provisions for discovery of Native American human remains in their mitigation plan. Health and Safety Code §7050.5, CEQA §15064.5(e), and Public Resources Code §5097.98 mandates the process to be followed in the event of an accidental discovery of any human remains in a location other than a dedicated cemetery.

Sincerely,

  
Dave Singleton  
Program Analyst

CC: State Clearinghouse

Attachment: Native American Contacts list



**Native American Contacts  
Kern County California  
April 15, 2014**

Tule River Indian Tribe  
Neil Peyron, Chairperson  
P.O. Box 589                      Yokuts  
Porterville , CA 93258  
chairman@tulerivertribe-nsn.  
(559) 781-4271  
(559) 781-4610 FAX

Santa Rosa Tachi Rancheria  
Lalo Franco, Cultural Coordinator  
P.O. Box 8                      Tachi  
Lemoore , CA 93245        Tache  
(559) 924-1278 - Ext. 5       Yokut  
(559) 924-3583 - FAX

Kitanemuk & Yowlumne Tejon Indians  
Delia Dominguez, Chairperson  
115 Radio Street                Yowlumne  
Bakersfield , CA 93305       Kitanemuk  
deedominguez@juno.com  
(626) 339-6785

Tule River Indian Tribe  
Kerri Vera, Environmental Department  
P.O. Box 589                      Yokuts  
Porterville , CA 93258  
(559) 783-8892

Tejon Indian Tribe  
Katherine Montes Morgan, Chairperson  
1731 Hasti-acres Drive,        Yowlumne  
Bakersfield , CA 93309       Kitanemuk  
kmorgan@bak.rr.com        Kawaiisu  
661-758-2303

Tule River Indian Tribe  
Joey Garfield, Tribal Archeological  
P.O. Box 589                      Yokuts  
Porterville , CA 93258  
(559) 783-8892

661-215-6530 - FAX

Kawaiisu Tribe of Tejon Reservation  
David Laughinghorse Robinson  
PO Box 1547                      Kawaiisu  
Kernville , CA 93238  
horse.robinson@gmail.com

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of the statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting locative Americans with regard to cultural resources for the proposed SCH#2014041005; CEQA Notice of Preparation (NOP); draft Environmental Impact Report (DEIR) for the Grapevine Specific and Community Plan by Tejon Grapevine, LLC; located in southwestern Kern County, California.



Tubatulabal Tribe of  
Kern Valley

OFFICE

P.O.Box 226  
Lake Isabella, CA 93240

PHONE

760-379-4590

FAX

760-379-4592

EMAIL

[rogomezjr@gmail.com](mailto:rogomezjr@gmail.com)

WEB

[www.tubatulabal.org](http://www.tubatulabal.org)

April 15, 2014

Jacquelyn R. Kitchen  
2700 "M" St. Suite 100  
Bakersfield, CA 93301

Dear Ms. Kitchen

It appears that your project EIR 04-14, Grapevine Specific and Community Plan by Tejon Grapevine, is a very extensive and aggressive construction plan in terms of above and below ground disturbances. With that in mind, I believe it is important and imperative that your office and the project applicant meet with the Native American communities in order to develop timely and meaningful dialogue regarding Native American cultural artifacts that will be impacted by the project. This manner of cooperation and collaboration may be fruitful to the eventual outcome of the project for all parties involved.

I will forward a copy of this document to Ms. Kathy Morgan, Chairperson for the Tejon Tribe in order that she may be aware of my concern. The project area is well within the purviews of her tribe's capacity to respond to these issues. However, as a member of a tribe that was once affiliated with the tribal history of the San Sebastián Reservation, I feel compelled to respond to your document.

May I remind you that several years ago, another project, of a similar nature, was planned for that surrounding area and as a result, there was an awareness of an abundance of cultural resources. I am confident that in this instance, we shall find the same and must error on the side of caution in order to address the resources appropriately.

I look forward to contacting you in order to provide further input regarding the potential impacts to the cultural resources of this project.

Sincerely yours,

Robert Gomez, Jr.

Chairman



April 18, 2014

Ms. Jacquelyn R. Kitchen, Supervising Planner  
Kern County Planning and Community  
Development Department  
2700 "M" Street, Suite 100  
Bakersfield, CA 93301-2323

RE: EIR 04-14: Grapevine Specific and Community Plan by Tejon Grapevine, LLC (PP14108).

Dear Ms. Kitchen,

Please allow me to formally introduce myself. My name is Colin Rambo, and I was recently hired by the Tejon Indian Tribe (the Tribe) to handle their cultural resource consultation correspondences and to help establish their Tribal Historic Preservation Office.

Thank you for your notice, dated 1 April 2014, regarding the preparation of a Draft EIR for the Tejon Grapevine project. As you may or may not be aware, there are numerous cultural resources located in the proposed project location (including the Sebastian Indian Reservation Archaeological District, which was recently nominated to the National Register of Historic Places) that are considered to be significant to the Tribe as well as other local tribes. The Tribe is intimately familiar with this project as I personally assisted with the Phase I and II cultural resource studies (Studies) working as an Associate Archaeologist for ASM Affiliates, Inc., Tehachapi; a Tejon Indian Tribal Monitor was present during all phases of the Studies as well. That said, the Tribe would like to continue to be intimately involved with this project as it moves forward, and included in any tribal consultation that may occur. The Tribe would also like to request a hardcopy of the Draft EIR when it becomes available. Given that there is a high sensitivity for archaeological deposits and human remains in the proposed project location, the Tribe will likely ask to incorporate tribal monitoring, during the construction phase of the project, as a mitigation measure in the EIR.

For your information, I plan to be in attendance at the scoping meeting on 24 April 2014 with a Tribal Member. If the opportunity presents itself, I will attempt to make a brief personal introduction with the Planning Department representatives in attendance either before or after the meeting.



Thank you for including the Tribe in the consultation process, and I look forward to working with your office in the future.

Sincerely,

A handwritten signature in black ink that reads "Colin Rambo". The signature is written in a cursive, flowing style.

Colin Rambo  
Tribal Historic Preservation Technician  
Tejon Indian Tribe  
[colin.rambo@tejontribe.net](mailto:colin.rambo@tejontribe.net)

## INTEROFFICE MEMORANDUM

---

To: Todd Taylor  
From: Jeremy Ryan  
Subject: NOP-Grapevine Specific and Community Plan Project

---

Date: April 21, 2014

The Kern County Environmental Health Division has reviewed the above referenced project. This Division has the local regulatory authority to enforce state regulations and local codes as they relate to waste discharge, water supply requirements, and other items that may affect the health and safety of the public or that may be detrimental to the environment.

The Environmental Health Division requests that the following conditions be placed on the subject project and be satisfied prior to issuance of building permits:

1. The applicant(s) shall submit a "will serve" letter from Tejon Castaic Water District stating its ability and intent to provide potable water and sewer services to the proposed project.
2. The applicant(s) shall contact the Land and Water Program for destruction permitting procedures should any abandoned water wells be discovered during the construction and grading process.



RECEIVED  
APR 23 2014  
Tuesdays, April 23, 2014

Ms. Jacquelyn R. Kitchen  
Supervising Planner  
Kern County Planning and  
Community Development Department  
2700 M Street, Suite 100  
Bakersfield, CA 93301-2370

State Clearinghouse  
P.O. Box 3044  
Sacramento, CA 95812-3044

Subject: EIR 04-14; Grapevine Specific and Community Plan by Tejon Grapevine, LLC

Dear Ms. Kitchen:

My family has owned the property commonly known as APN# 241-230-15, Laval Road for nearly thirty years and are proud to be neighbors and planning partners with Tejon Ranch. For decades now, we have been equally committed to being good stewards of the ground and to making sound and environmentally appropriate decisions related to our land. This morning, we had the opportunity to meet with Tejon Ranch executives to learn of their plans related to the Grapevine Specific and Community Plan, as these planning efforts (Initial Study/Notice of Preparation) will undoubtedly impact our property. Certainly it is our hope and expectation there will be no adverse impacts.

The purpose of this letter is to express our support of these planning efforts that will facilitate the continued orderly development of Tejon Ranch and adjacent properties. We wish to stay actively involved in this planning process, and to remain engaged in any and all ways that maintain communication between all parties and us as it relates to the Specific Plan and Community Plan and any impacts to our property. Please accept this letter in part as a re-introduction of our family and our property, as neighbors, to the efforts being facilitated by Kern County as initiated by Tejon Ranch, and also as our express desire to be informed of all activities related for the reasons noted above.

Thank you, we look forward to being a part of this exciting next step for Tejon Ranch, and the region.



Ronald LaBrucherie  
12953 South Baker Avenue  
Ontario, CA 91761  
c: 951.316.9867  
e: rlabrucherie@verizon.net



**James Chuang**  
Environmental Specialist/Land Planner

Planning & Resource Management  
Mail Location GT17E2  
555 W. Fifth Street  
Los Angeles, CA 90013-1036

Tel: 213.244.5817  
Fax: 323.518.2324  
E-mail : WCChuang@semprautilities.com

April 23, 2014

Ms. Jacquelyn Kitchen  
Supervising Planner  
Kern County Planning and Community Development Department  
2700 M Street, Suite 100  
Bakersfield, CA 93301-2370

**Re: Grapevine Specific and Community Plan by Tejon Grapevine, LLC**

Dear Ms. Kitchen:

Southern California Gas Company (SCG) appreciates the opportunity to review and respond to the Project's Initial Study. We respectfully request that the following comments be incorporated in the subsequent Draft Environmental Impact Report (DEIR).

SCG recommends that the DEIR include a discussion of activities associated with the extension of new natural gas service or relocation of existing pipeline. At present, there is no mention of any existing facilities. This additional discussion should include:

- The presence and condition of existing utility infrastructure on the project site, including right-of-ways and/or easements.
- The number and description of any new natural gas facilities that will have to be constructed or installed, in order to provide natural gas service to the proposed project.
- Identification of any existing natural gas infrastructure that would need to be relocated and/or abandoned, in order to provide natural gas service to the proposed project.
- Identification and description of any temporary areas required for construction and/or staging of material related to new gas service relocation or construction.
- Identification of any actions that would require permitting or acquisition of new right-of-way or easements for natural gas service to the project.
- Any proposed grading and/or drainage improvements that would redirect drainage in a manner that would increase the potential for erosion around SCG facilities.

In addition, if any field monitoring for cultural or biological resources is required during construction of the natural gas facilities, the monitoring should be mentioned in the DEIR as a requirement and responsibility of the ("larger") Tejon Grapevine, LLC development project. Likewise, any environmental mitigation required for the potential

impacts associated with the construction of gas service to the project should also be addressed as part of the responsibility of the “larger” Tejon Grapevine, LLC development project.

Once again, we appreciate the opportunity to comment on the Initial Study. If you have any questions, please feel free to contact me at (213) 244-5817 or [WCChuang@semprautilities.com](mailto:WCChuang@semprautilities.com).

Sincerely,

A handwritten signature in black ink, appearing to read 'James Chuang', with a stylized flourish at the end.

James Chuang  
Environmental Specialist  
Southern California Gas Company



**WHEELER RIDGE FARMS, LLC.**

5304 DERRY AVENUE, SUITE A

AGOURA HILLS, CALIFORNIA 91301

TELEPHONE (818) 889-2822 • FAX (818) 889-8750

April 24, 2014

Jacquelyn Kitchen  
Supervising Planner  
Kern County Planning and Community  
Development Department  
2700 "M" Street, Suite 100  
Bakersfield, CA 93301

Re: Comments regarding NOP of an EIR for the Grapevine Specific Community Plan by Tejon Grapevine, LLC.

Dear Ms. Kitchen:

I am writing to you to express our support of the Tejon Grapevine, LLC. project. We are pleased that the EIR will address issues concerning the project's impact on water, wastewater treatment, school facilities, and access. In doing so, we ask that the analysis include the cumulative impacts which will result from the proposed development of the San Emidio project which currently consists of residential and commercial development.

If you should have any questions or concerns, please contact me at [btrebil@earthlink.net](mailto:btrebil@earthlink.net) or 818-889-2822 xt. 114. I thank you in advance for your consideration of our concerns.

Sincerely,

A handwritten signature in blue ink, appearing to read "Brett Trebil".

Brett Trebil

Project Manager

# *General Shafter School District*

1825 Shafter Road – Bakersfield, California 93313

Phone: (661) 837.1931 – Fax: (661) 837.8261

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## **BOARD OF TRUSTEES**

Vicki Drake

Paul Kaiser

Matthew Woodfin

## **SUPERINTENDENT**

Chris Salyards

April 28, 2014

Jacquelyn R. Kitchen, Supervising Planner  
Kern County Planning and Community Development  
2700 "M" Street, Suite 100  
Bakersfield, CA 93301

### **SUBJECT: NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT**

Dear Ms. Kitchen:

This letter is in response to the Notice of Preparation (NOP) of the Draft Environmental Impact Report (EIR) for the Project Grapevine Specific and Community Plan (and including a General Plan Amendment and Rezone) by Tejon Grapevine, LLC. We understand that 12,000 residences, including single-family and multi-family units and up to 10,748,400 square feet of commercial development are proposed. The entire Project lies within the General Shafter School District.

#### **1. SCHOOL IMPACTS**

The District is currently using the Student Generation Rates (SGR) of 0.50 for elementary grades K-5 and 0.22 for middle school grades 6-8 previously used in the Tejon Mountain Village Environmental Impact Report. Applying these SGR to the 12,000 residential units, 5,966 elementary students and 2,674 middle school students can be anticipated.

#### **2. SCHOOL FACILITIES**

At a minimum, five elementary school sites and two middle school sites will be required. It is not feasible for the students to be served at existing facilities, which are portable and lie approximately 20 miles from the Project. Both interim and permanent facilities will need to be constructed in the Project.

The District will require sites that are large enough to provide the District flexibility so that elementary school facilities could serve over 1,000 students at least on an interim basis and elementary sites could be built as K-8 schools if required. Prior to acquisition, all school sites must be approved by the California Department of Education to ensure access to state funding if and when it becomes available.

The District has adopted the California Department of Education school site size guidelines for future schools built within the District. For elementary schools, 13.8 acres and for middle schools, 20.9 acres will be required.

General Shafter School District supports joint use in concept. Through acceptable joint use agreements, a school site could be reduced as long as an adjacent joint use park ensures the school the use of 13.8 acres (school-park combination) for each elementary school and 20.9 acres (school-park combination) for each middle school.

### 3. MITIGATION

Senate Bill 50 (SB 50), which passed in 1998, provided a comprehensive school facilities financing and reform program and enabled a state-wide bond measure to be placed on the ballot. The provisions of SB 50 allowed the state to offer funding to school districts to acquire school sites, construct new school facilities, and modernize existing school facilities. SB 50 also established a process for determining the amount of fees developers may be charged to mitigate the impact of development on school facilities.

SB 50 established three levels of Developer Fees that may be imposed upon new development by the governing board of a school district depending upon certain conditions within a district. These three levels are described as follow:

Level 1: Level 1 fees are the base statutory fees. These pre-determined amounts are the maximum that can be legally imposed upon new construction projects by a school district unless the district qualifies for a higher level of funding.

Pursuant to the California Government Code Section 65995, as of January 2014, the statutory maximum Level 1 school fees that may be levied by a school district on new development is a maximum of \$3.36 per assessable square foot of residential construction and a maximum of \$0.54 per square foot of enclosed and covered space for commercial/industrial development. These rates are established by the State Allocation Board, and may be increased to adjust for inflation based upon a statewide cost index for Class B construction<sup>1</sup>.

Level 2: Level 2 fees allow the school district to impose developer fees above the statutory level, up to 50 percent of new school construction costs. To implement Level 2 fees, the governing board of the school district must adopt a School Facilities Needs Analysis (SFNA) as well meet other pre-requisites in accordance with Government Code section 65995.6.

Level 3: Level 3 fees apply if the state runs out of bond funds, allowing the school district to impose 100 percent of the cost of the school facility or mitigation minus any local dedicated school moneys. The state has run out of bond funds but legislation was approved so that no Level 3 can be implemented until the end of 2014. A state-wide bond measure may be on the ballot in November.

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<sup>1</sup> The Office of Public School Construction defines Class B construction as buildings constructed primarily of reinforced concrete, steel frames, concrete floors, and roofs.



Regardless of which fee is implemented, General Shafter School District does not have the financial resources to acquire school sites and construct school facilities to serve the Project. Additional resources will be required such as state funding (if and when there are state-wide bonds approved), mitigation payments, land dedication, Community Facility Districts and General Obligation Bonds or School Facility Improvement District. The funding program will need to address both permanent and interim facilities.

General Shafter School District appreciates your consideration of these comments and your support in the provision of adequate school facilities. Please feel free to call me at 661-837-1931 ext. 104 if you have questions or need additional information.

Sincerely,



Chris Salyards  
Superintendent

**DEPARTMENT OF CALIFORNIA HIGHWAY PATROL**

Fort Tejon Area  
1033 Lebec Road  
Lebec, CA 93243  
(661)248-6655  
(800) 735-2929 (TT/TDD)  
(800) 735-2922 (Voice)



April 29, 2014

File No.: 430.15586.12228

Ms. Jacquelyn R. Kitchen  
Kern County Planning Department  
2700 M Street, Suite 100  
Bakersfield, CA 93301-2323

Dear Ms. Kitchen:

Thank You for the opportunity to review the Notice of Preparation (SCH# 2014041005). Your letter was forwarded to me from the State Clearinghouse and Planning Unit.

The Notice of Preparation of a Draft Environmental Impact Report for the Grapevine Specific and Community Plan by Tejon Grapevine LLC, raises several issues. The proposed site would include approximately 12,000 residential units, 10.7 million square feet of commercial development, and include a variety of other uses on the approximate 8,010 acres. The Fort Tejon Area would have primary traffic enforcement responsibility within the boundaries of this project. My concern would be the Grapevine project's impact related to increased traffic, changes in traffic patterns, and additional enforcement demands in unincorporated areas.

The Grapevine project would cause a major increase in traffic from residents, employees, deliveries, visitors, and others. All surrounding County roads and State highways, including access ramps, are currently insufficient to handle the proposed increase in vehicle traffic in a safe and efficient manner. The proposed location of the new on and off ramps would place traffic in direct conflict with the commercial vehicles leaving the Grapevine Enforcement Facility.

The extreme geography and climate of southern Kern County would also have an adverse effect on the additional vehicle traffic. Closures on Interstate 5 over the Grapevine are fairly routine; due to snow and/or ice storms, wild land fires, traffic collisions, and hazardous material spills. Additionally, Grapevine Loop is the location used for turning traffic around during the closures of Interstate 5 for winter storms, placing exiting traffic in conflict with those vehicles being detoured back to Highway 58 or Highway 166.



Thank you for the opportunity to comment on the Notice of Preparation on the Grapevine Specific and Community Plan project. If this office may be of any further assistance, please do not hesitate to contact either myself or Sergeant Jonathan Cochran at (661) 248-6655.

Sincerely,



C. H. WHITTY, Lieutenant  
Commander

cc: Special Projects Section



April 29, 2014

Jacquelyn Kitchen  
County of Kern  
Planning and Community Development Department  
2700 "M" Street, Suite 100  
Bakersfield, CA 93301

**Project: Grapevine Specific and Community Plan by Tejon Grapevine, LLC  
(PP14108)**

**District CEQA Reference No: 20140208**

Dear Ms. Kitchen:

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed the Notice of Preparation (NOP) for the Grapevine Specific and Community Plan project. The proposed project is both a Specific Plan and Community Plan that encompasses approximately 8,010 acres of the 15,644 acre Grapevine Planning area in southwestern Kern County, California. The project includes up to 12,000 residences (including single-family and multi-family units) and up to 10,748,400 square feet of commercial development. The commercial development could include a mix of uses, including: regional and neighborhood service retail, office, institutional, education, hospitality, medical and industrial uses. In addition, the project would provide parks, public and private recreational amenities, schools, public services, helipad(s), a transit center/park and ride, and water and wastewater treatment facilities. The District offers the following comments:

### **Emissions Analysis**

- 1) The District is currently designated as extreme nonattainment for the 8-hour ozone standard, attainment for PM10 and CO, and nonattainment for PM2.5 for the federal air quality standards. At the state level, the District is designated as nonattainment for the 8-hour ozone, PM10, and PM2.5 air quality standards. The District recommends that the Air Quality section of the Environmental Impact Report (EIR) include a discussion of the following impacts:
  - a) **Criteria Pollutants:** Project related criteria pollutant emissions should be identified and quantified. The discussion should include existing and post-project emissions.

**Seyed Sadredin**  
Executive Director/Air Pollution Control Officer

**Northern Region**  
4800 Enterprise Way  
Modesto, CA 95356-8718  
Tel: (209) 557-6400 FAX: (209) 557-6475

**Central Region (Main Office)**  
1990 E. Gettysburg Avenue  
Fresno, CA 93726-0244  
Tel: (559) 230-6000 FAX: (559) 230-6061

**Southern Region**  
34946 Flyover Court  
Bakersfield, CA 93308-9725  
Tel: 661-392-5500 FAX: 661-392-5585



- i) **Construction Emissions:** Construction emissions are short-term emissions and should be evaluated separate from operational emissions. The District recommends preparation of an Environmental Impact Report (EIR) if annual construction emissions cannot be reduced or mitigated to below the following levels of significance: 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), or 15 tons per year particulate matter of 10 microns or less in size (PM10).
- *Recommended Mitigation:* To reduce impacts from construction related exhaust emissions, the District recommends feasible mitigation for the project to utilize off-road construction fleets that can achieve fleet average emissions equal to or cleaner than the Tier II emission standards, as set forth in §2423 of Title 13 of the California Code of Regulations, and Part 89 of Title 40 Code of Federal Regulations. This can be achieved through any combination of uncontrolled engines and engines complying with Tier II and above engine standards.
  - *Recommended Mitigation:* Project related impacts on air quality can be reduced through incorporation of design elements, for example, reduce vehicle miles traveled, and reduce construction exhaust related emissions. However, design elements and compliance with District rules and regulations may not be sufficient to reduce project related impacts on air quality to a less than significant level. Another example of a feasible mitigation measure is the mitigation of project emissions through a Voluntary Emission Reduction Agreement (VERA). The VERA is an instrument by which the project proponent provides monies to the District, which is used by the District to fund emission reduction projects that achieve the reductions required by the lead agency. District staff is available to meet with project proponents to discuss a VERA for specific projects. For more information, or questions concerning this topic, please call District Staff at (559) 230-6000.
- ii) **Operational Emissions:** Permitted (stationary sources) and non-permitted (mobile sources) sources should be analyzed separately. The District recommends preparation of an Environmental Impact Report (EIR) if the sum of annual permitted and non-permitted emissions cannot be reduced or mitigated to below the following levels of significance: 10 tons per year of oxides of nitrogen (NOx), 10 tons per year of reactive organic gases (ROG), or 15 tons per year particulate matter of 10 microns or less in size (PM10).
- *Recommended Mitigation:* Project related impacts on air quality can be reduced through incorporation of design elements, for example, that increase energy efficiency, reduce vehicle miles traveled, and reduce construction exhaust related emissions. However, design elements and compliance with District rules and regulations may not be sufficient to reduce project related impacts on air quality to a less than significant



level. Another example of a feasible mitigation measure is the mitigation of project emissions through a Voluntary Emission Reduction Agreement (VERA). The VERA is an instrument by which the project proponent provides monies to the District, which is used by the District to fund emission reduction projects that achieve the reductions required by the lead agency. District staff is available to meet with project proponents to discuss a VERA for specific projects. For more information, or questions concerning this topic, please call District Staff at (559) 230-6000.

- iii) **Recommended Model:** Project related criteria pollutant emissions should be identified and quantified. Emissions analysis should be performed using CalEEMod (**California Emission Estimator Model**), which uses the most recent approved version of relevant Air Resources Board (ARB) emissions models and emission factors. CalEEMod is available to the public and can be downloaded from the CalEEMod website at: [www.caleemod.com](http://www.caleemod.com).
- b) **Nuisance Odors:** The project should be evaluated to determine the likelihood that the project would result in nuisance odors. Nuisance odors are subjective, thus the District has not established thresholds of significance for nuisance odors. Nuisance odors may be assessed qualitatively taking into consideration of project design elements and proximity to off-site receptors that potentially would be exposed objectionable odors.
- c) **Health Impacts:** Project related health impacts should be evaluated to determine if emissions of toxic air contaminants (TAC) will pose a significant health risk to nearby sensitive receptors. TACs are defined as air pollutants that which may cause or contribute to an increase in mortality or serious illness, or which may pose a hazard to human health. The most common source of TACs can be attributed to diesel exhaust fumes that are emitted from both stationary and mobile sources. Health impacts may require a detailed health risk assessment (HRA).

Prior to conducting an HRA, an applicant may perform a prioritization on all sources of emissions to determine if it is necessary to conduct an HRA. A prioritization is a screening tool used to identify projects that may have significant health impacts. If the project has a prioritization score of 1.0 or more, the project has the potential to exceed the District's significance threshold for health impacts of 10 in a million and an HRA should be performed.

If an HRA is to be performed, it is recommended that the project proponent contact the District to review the proposed modeling approach. The project would be considered to have a significant health risk if the HRA demonstrates that project related health impacts would exceed the District's significance threshold of 10 in a million.

More information on TACs, prioritizations and HRAs can be obtained by:

- E-mailing inquiries to: [hramodeler@valleyair.org](mailto:hramodeler@valleyair.org); or
- Visiting the District's website at:

[http://www.valleyair.org/busind/pto/Tox\\_Resources/AirQualityMonitoring.htm](http://www.valleyair.org/busind/pto/Tox_Resources/AirQualityMonitoring.htm).

2) In addition to the discussions on potential impacts identified above, the District recommends the EIR also include the following discussions:

- a) A discussion of the methodology, model assumptions, inputs and results used in characterizing the project's impact on air quality. To comply with CEQA requirements for full disclosure, the District recommends that the modeling outputs be provided as appendices to the EIR. The District further recommends that the District be provided with an electronic copy of all input and output files for all modeling.
- b) A discussion of the components and phases of the project and the associated emission projections, including ongoing emissions from each previous phase.
- c) A discussion of project design elements and mitigation measures, including characterization of the effectiveness of each mitigation measure incorporated into the project.
- d) A discussion of whether the project would result in a cumulatively considerable net increase of any criteria pollutant or precursor for which the San Joaquin Valley Air Basin is in non-attainment. More information on the District's attainment status can be found online by visiting the District's website at:

<http://valleyair.org/aqinfo/attainment.htm>.

### **District Rules and Regulations**

- 3) The proposed project may be subject to District rules and regulations, including: Regulation VIII (Fugitive PM<sub>10</sub> Prohibitions), Rule 4102 (Nuisance), and Rule 4641 (Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations). In the event an existing building will be renovated, partially demolished or removed, the project may be subject to District Rule 4002 (National Emission Standards for Hazardous Air Pollutants).
- 4) This project may be subject to District Rule 2010 (Permits Required) and Rule 2201 (New and Modified Stationary Source Review) and will require District permits. Prior to construction, the project proponent should submit to the District an application for an Authority to Construct (ATC). For further information or assistance, the project proponent may contact the District's Small Business Assistance (SBA) Office at (661) 392-5665.

- 5) Based on information provided, the proposed project would equal or exceed the relevant District Rule 9510 (Indirect Source Review) applicability threshold of 50 residential units. Therefore, the District concludes that the proposed project is subject to District Rule 9510.

Any applicant subject to District Rule 9510 is required to submit an Air Impact Assessment (AIA) application to the District no later than applying for final discretionary approval, and to pay any applicable off-site mitigation fees before issuance of the first building permit. If approval of the subject project constitutes the last discretionary approval by your agency, the District recommends that demonstration of compliance with District Rule 9510, including payment of all applicable fees before issuance of the first building permit, be made a condition of project approval. Information about how to comply with District Rule 9510 can be found online at: <http://www.valleyair.org/ISR/ISRHome.htm>.

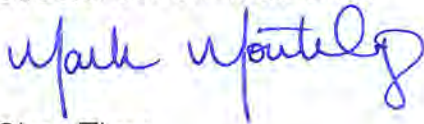
- 6) The above list of rules is neither exhaustive nor exclusive. To identify other District rules or regulations that apply to this project or to obtain information about District permit requirements, the applicant is strongly encouraged to contact the District's Small Business Assistance (SBA) Office at (661) 392-5665. Current District rules can be found online at the District's website at:

[www.valleyair.org/rules/1ruleslist.htm](http://www.valleyair.org/rules/1ruleslist.htm).

The District recommends that a copy of the District's comments be provided to the project proponent. If you have any questions or require further information, please call Mark Montelongo at (559) 230-5905.

Sincerely,

Arnaud Marjollet  
Director of Permit Services



for: Chay Thao  
Permit Services Manager

AM: mm

cc: File



State of California – Natural Resources Agency  
DEPARTMENT OF FISH AND WILDLIFE  
Central Region  
1234 East Shaw Avenue  
Fresno, California 93710  
(559) 243-4005  
[www.wildlife.ca.gov](http://www.wildlife.ca.gov)

EDMUND G. BROWN, JR., Governor  
CHARLTON H. BONHAM, Director



April 30, 2014

Jacquelyn Kitchen  
Kern County Planning and Community  
Development Department  
2700 M Street, Suite 100  
Bakersfield, California 93301

**Subject: Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) for the Grapevine Specific and Community Plan (State Clearinghouse number 2014041005).**

Dear Ms. Kitchen:

The California Department of Fish and Wildlife (CDFW) has reviewed the NOP submitted by Kern County (Lead Agency) for the proposed Grapevine Specific and Community Plan (Project) located approximately 13 miles south of the Bakersfield city limit, east and west of Interstate 5 at the Grapevine interchange, and adjacent to Laval and Gibson roads, at the southern end of the San Joaquin Valley in southwestern Kern County. The Project is comprised of a series of discontinuous parcels located on approximately 8,010 acres of the 15,644-acre Grapevine Planning Area and includes up to 12,000 single- and multi-family units and up to 10,748,400 square feet of commercial development. The commercial development will include a mix of uses such as: retail service, office, institutional, education, hospitality, medical and industrial. In addition, the Project will provide parks, public and private recreational amenities, schools, public services, helipads, transit centers, and water and waste water treatment facilities. The proposed land use plan will enable the continued development of oil and gas wells and extraction facilities. Portions of the Project site will be left as open space, mainly along the southern edge of the California Aqueduct and along the foothills of the Tehachapi Mountains. Access to the Project site will be from Interstate 5 at the Laval Road and Grapevine interchanges. A new future interchange is proposed to eventually replace the existing Grapevine Interchange. The new interchange would be located between the existing Grapevine Interchange and the California Highway Patrol Grapevine Inspection Facility.

The NOP states that the results of the field surveys and impacts to biological resources will be analyzed in the DEIR. The current land use on the Project site is listed as a mixture of undeveloped annual grassland grazing, agriculture, commerce and gas and oil production.

At this time, CDFW has not been presented with data from biological surveys performed on the Project site. Although we do not have Project-specific survey data, we do know enough about the Project area and the surrounding Tejon Ranch lands to say that it is one of the largest, most-intact grassland habitat areas remaining in the San Joaquin Valley, which supports a diverse assemblage of special status species, including but not limited to, San Joaquin kit fox (*Vulpes macrotis mutica*, SJKF), San Joaquin antelope squirrel (*Ammospermophilus nelsoni*, SJAS), blunt-nosed leopard lizard (*Gambelia sila*, BNLL), Swainson's hawk (*Buteo swainsoni*,

*Conserving California's Wildlife Since 1870*



SWHA), and burrowing owl (*Athene cunicularia*, BUOW). This intact habitat area is bound by the Tehachapi Mountains and areas on which the State of California holds a Conservation Easement (Tejon Ranch Conservation Lands) to the south and east and the Tejon Ranch Tecuya Creek Conservation Easement and the Wind Wolves Preserve to the west. The four smaller areas of the Project site that lie to the north are generally bound by undeveloped annual grassland, agriculture, oil and gas production and the Tejon Ranch Commerce Center. Conserving the habitat and wildlife movement corridors in this area is considered essential to the recovery of these species (Recovery Plan, USFWS 1998). The Project appears to present the potential to significantly impact these species and degrade this core habitat area.

In this letter, we describe several minimum survey recommendations for the special status species that are known to occur on and in habitat that is contiguous with the Project site. Because the surveys are intended to provide a baseline for the County's California Environmental Quality Act (CEQA) analysis, we recommend completing the surveys prior to circulating a draft CEQA document so that the project design, impact analysis, and mitigation measures are based on an understanding of the species' abundance and distribution on the Project site. Such surveys would also be necessary to inform the analysis required for CDFW to issue Incidental Take Permits (ITPs) under the California Endangered Species Act (CESA).

#### **Department Jurisdiction**

**Trustee Agency Authority:** CDFW is a Trustee Agency with the responsibility under CEQA for commenting on projects that could impact plant, fish and wildlife resources. Pursuant to Fish and Game Code Section 1802, CDFW has jurisdiction over the conservation, protection and management of fish, wildlife, native plants and habitat necessary for biologically sustainable populations of those species. As a Trustee Agency for plant, fish and wildlife resources, CDFW is responsible for providing, as available, biological expertise to review and comment on environmental documents and impacts arising from project activities, as those terms are used under CEQA.

**Responsible Agency Authority:** CDFW has regulatory authority over projects that could result in take of any species listed or is a candidate for listing by the State (State-listed) as threatened or endangered, pursuant to CESA. For this or any other project which impacts listed species, an ITP is the mechanism for providing take authorization under CESA. CEQA requires a Mandatory Finding of Significance if a project is likely to substantially impact threatened or endangered species (sections 21001{c}, 21083, Guidelines sections 15380, 15064, 15065). Impacts must be avoided or mitigated to less than significant levels unless the CEQA Lead Agency makes and supports a Statement of Overriding Consideration (SOC). A CEQA Lead Agency's SOC would not preclude the Project proponent's obligation to comply with CESA.

**Lake and Streambed Alteration Notification:** CDFW has regulatory authority with regard to activities occurring in streams and/or lakes that could adversely affect any fish or wildlife resource, pursuant to Fish and Game Code sections 1600 *et seq.* Section 1602(a) of the Fish and Game Code requires an entity to notify CDFW before engaging in activities that would substantially change the bed, channel, or bank of a stream or substantially divert or obstruct the natural flow of a stream. If Project activities are proposed that will involve work within the bed, bank, or channel of any stream, a Lake and Streambed Alteration Agreement may be

necessary. CDFW recommends the Project applicant submit a Lake and Streambed Alteration Notification to CDFW for the Project. CDFW is required to comply with CEQA before issuing a Lake and Streambed Alteration Agreement. Therefore, for efficiency in environmental compliance, we recommend that any stream disturbance be described and mitigation for the disturbance be developed as part of the environmental review process. This will reduce the need for CDFW to require extensive additional environmental review for a Lake and Streambed Alteration Agreement for the Project in the future.

**Other Rare Species:** Species of plants and animals need not be listed as Endangered, Rare or Threatened (E, R or T) pursuant to CESA and/or the Federal Endangered Species Act (ESA) to be considered E, R or T under CEQA. If a species can be shown to meet the criteria for a listing as E, R or T under CESA and/or ESA as specified in the CEQA Guidelines (California Code of Regulations [CCR], Title 14, Chapter 3, Section 15380), it should be fully considered in the environmental analysis for the Project.

**Fully Protected Species:** CDFW has jurisdiction over fully protected species of birds, mammals, amphibians, reptiles, and fish, pursuant to Fish and Game Code sections 3511, 4700, 5050, and 5515. Take of any fully protected species is prohibited, and CDFW cannot authorize their take except under the provisions of a Natural Communities Conservation Plan (NCCP), 2081.7 or a Memorandum of Understanding for scientific purposes. Neither the Lead Agency nor Project proponent are plan participants of an NCCP; 2081.7 does not apply to the proposed Project and a development project is not considered a scientific purpose.

The fully protected species BNLL is known to occur on the Project site (CNDDDB 2014). The DEIR should evaluate and address potential Project-related impacts to fully protected species and should include appropriate avoidance measures. Additional comments on potential Project-related impacts to BNLL are provided below.

**Bird Protection:** CDFW has jurisdiction over actions that may result in the disturbance or destruction of active nest sites or the unauthorized take of birds. Sections of the Fish and Game Code that protect birds, their eggs and nest include sections 3503 (regarding unlawful take, possession or needless destruction of the nest or eggs of any bird), 3503.5 (regarding the take, possession or destruction of any birds-of-prey or their nests or eggs), and 3513 (regarding unlawful take of any migratory nongame bird).

### **Potential Impacts and Recommendations**

The Project has the potential to impact several special status species, including but not limited to, the State Threatened SJAS and SWHA, the State Threatened and federally Endangered SJKF, the State and federally Endangered and Fully Protected BNLL, and the State Species of Special Concern BUOW.

All the species listed above are known to occur or could potentially occur on the proposed Project site and in the Project vicinity. Given the importance of the Project area for many special status species, CDFW recommends that the DEIR's biological impact analysis include a robust assessment of the proposed Project's potential to substantially reduce and adversely

modify habitat for special status species, reduce and potentially seriously impair the viability of populations of special status species, and reduce the number and range of special status species while taking into account the likelihood that special status species on adjacent and nearby natural lands rely upon the habitat that occurs on the proposed Project site. For each State-listed species potentially impacted by the Project, CDFW recommends the Lead Agency demonstrate in the DEIR that Project-related impacts would be fully mitigated as required by CESA. In addition, given the location of this Project and the degree to which habitat for the suite of Valley Floor listed species is being affected by a variety of land uses, we recommend a robust, population-level analysis for these listed species that addresses population viability in relation to recovery objectives, a detailed cumulative effects analysis addressing the impacts of this Project in relation to other projects and their effect on sensitive species, and measures that would be undertaken through Project actions and other mechanisms to ensure that the effects of this Project would not contribute to declining sensitive species populations or preclude recovery of these species.

**San Joaquin Kit Fox:** The Project site is located at the southern edge of the San Joaquin Valley, within a large area of intact SJKF habitat that has been identified as essential to the recovery of the species (Recovery Plan, USFWS 1998). The Project is located between several SJKF satellite populations identified in the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (Recovery Plan, USFWS 1998) and development of this area as proposed has the potential to impede connectivity between SJKF satellite populations by restricting the movement of SJKF into and out of the satellite populations. Impeding or severing connectivity between these satellite populations would result in decreased genetic and habitat connectivity between and within the core habitat areas. The continued movement of SJKF between these core and satellite populations is critical to prevent localized extinctions of SJKF and to allow for the recolonization of restored habitat where SJKF were previously extirpated.

The generalized goals of the Recovery Plan identify the steps necessary to downgrade the federal listing status of species from endangered to threatened, and to delist the species. The primary step toward achieving these goals is to secure and protect specified recovery areas from incompatible uses. For the SJKF, this includes the protection of the three core populations and several satellite populations identified in the Recovery Plan. Recovery Task 5.3.8 of the Recovery Plan is specific to the maintenance of a habitat linkage or movement corridor for SJKF around the southern edge of the San Joaquin Valley from McKittrick south to Maricopa, east from Maricopa, and north to the Kern River. The preservation of this movement corridor is considered essential for maintaining the connectivity between SJKF satellite populations on the western and eastern edges of the southern San Joaquin Valley (Recovery Plan, USFWS 1998). The presence of SJKF satellite populations to the west, east and northeast of the Project site currently constitutes a viable movement corridor along the southern edge of the San Joaquin Valley, and the preservation of this corridor through the conservation of these areas will contribute significantly toward achieving Recovery Task 5.3.8 (Cypher 2005).

CDFW recommends that the DEIR address the Project's compatibility with the Recovery Plan's goals and avoid precluding recovery of SJKF and other species considered in the Recovery Plan. We also recommend that the DEIR address the effects of large-scale habitat modification and the potential for take during construction, operation and for the life of the Project.

Take avoidance is likely infeasible and acquisition of an ITP is warranted prior to Project implementation. Title 14, CCR, Section 783.4 requires that applicants fully mitigate the impacts of the permitted take of a State-listed species, including all impacts on the species that result from any act that would cause the proposed taking. The analysis and ultimate determination of full mitigation considers both direct and indirect impacts (including spatial, temporal, sub-lethal, and cumulative impacts). The desired outcome of full mitigation is to ensure that the status of the covered species is preserved such that it is able to continue to survive and thrive after completion of the Project. Full mitigation for this Project would include offsetting take of individual SJKFs and the loss of carrying capacity by protection of suitable and comparable San Joaquin kit fox habitat in perpetuity and enhancing the capacity of this habitat to support higher densities of SJKF. Additionally, the Project footprint will need to accommodate San Joaquin kit fox movement through the Project Area.

CDFW recommends that any proposal to fully mitigate potential SJKF impacts from this Project include the specific location, habitat quality, and acreage of proposed mitigation lands. If the DEIR does not specify conservation of specific areas, identification of the larger area within which mitigation lands could be acquired (including the amount of proposed mitigation lands) may suffice. We further recommend the DEIR impact analysis and mitigation proposal demonstrate how the acreage, location, and management of mitigation lands would increase the number of SJKFs on those lands in perpetuity at a rate which fully offsets the Project's individual and cumulative impacts to the kit fox population, including the direct and indirect effects discussed above.

**Blunt-Nosed Leopard Lizard:** BNLL have been documented on the Project site (CNDDDB 2014). Please note that CDFW cannot authorize take of BNLL for this Project via an ITP because of its fully protected status (Fish and Game Code Section 5050). To establish the status and precise distribution of BNLL on the Project site, and avoid take of BNLL during Project activities, CDFW recommends BNLL surveys be conducted. BNLL surveys should follow CDFW's BNLL survey protocol (CDFG 2004). CDFW recommends surveying the entire Project site, with the exception of areas with existing orchards, vineyards, and regularly irrigated areas to determine the precise distribution of BNLL which will help inform appropriate avoidance measures and assure that take will be avoided during Project construction. The DEIR should also include measures to preclude take on the Project site from traffic increases and other impacts associated with full build out of the Project.

We also recommend the DEIR include measures to preclude take on the Project site during construction, operation and for the life of the Project. CDFW recommends the DEIR analyze the potential for take as a result of habitat modification. If a project's modification of occupied habitat causes mortality of individuals, then the project will be considered the cause of the take. Therefore, to avoid take, we recommend construction, operation, maintenance and daily Project-related activities avoid all observed BNLLs and their burrows by a minimum of 2,340 feet. This buffer is based on all available telemetry and mark-recapture data, which document BNLL moving up to 1,509 feet between successive capture locations and using single-season home ranges of up to 98.8 acres (Tollestrup 1983, Warrick et al. 1998; D. Germano, California State University Bakersfield, unpublished data). The diameter of the upper home range estimate equals approximately 2,340 feet. This buffer recommendation is also based on the uncertainty of a home range's shape and position relative to the location



where the individual is observed on the surface: BNLL home ranges are irregularly-shaped, and a BNLL may be observed during surveys near the center or the margin of its home range. Additional buffers may also be warranted to ensure that the Project would not reduce species' abundance or distribution over time due to habitat loss and/or fragmentation. Buffers around detected BNLL must connect to intact adjacent habitat; BNLL detections cannot simply be encircled by development or other Project-related impacts as the encircled area would not be large enough to support a population of BNLL. Unlike some other species, BNLL are not able to traverse wide areas of heavily modified (concrete, asphalt, irrigated agriculture) landscapes. It is important to note that BNLL abundance and distribution can fluctuate in response to climatic conditions and land management. Absence of BNLL on part of the Project site in one year does not mean that the species is absent from those areas in other years or that the species does not rely on it for population persistence. Given the historic drought currently being experienced in the State of California and the resulting condition of the grasslands on the Project site, BNLL detections made during surveys conducted on the Project site during 2014 will not likely be indicative of the full extent of BNLL occupancy within the Project site. In other words, due to limited foraging opportunities, the local BNLL population is likely depressed and surface activity will be reduced. As a result, incidental BNLL detections as well as those made during focused surveys will be less likely, and actual observations would likely reflect only a portion of the areas within the Project site actually occupied by the species.

Alternatively to complete avoidance, the applicant has the option of assuming presence of this species and participating in an NCCP with BNLL as a covered species. Note that Kern County is not currently a participant in an NCCP in the Project area or elsewhere in Kern County; participation by the local agency with land use jurisdiction over the Project area would be necessary for an NCCP. Under an NCCP, take authorization would require, among other criteria, conservation of the species as a whole.

**San Joaquin Antelope Squirrel:** CDFW recommends focused surveys for SJAS be conducted using daytime line transects, with 10- to 30-meter (30- to 100-foot) spacing, for the entire area of direct and indirect Project effects. To be effective, surveys should be conducted only when air temperatures are between 20° to 30°C (68° to 86°F) during their most active season, April 1 to September 30. If the Project would potentially result in take of this species, take authorization from CDFW in the form of an ITP would be warranted prior to Project implementation. Take authorization would require full mitigation, as discussed above for San Joaquin kit fox.

**Swainson's Hawk:** SWHAs are known to occur in the general vicinity of the Project (CNDDB 2014). Because of the known site fidelity (repeated use of the same nest site annually) demonstrated by SWHA, CDFW considers any documented SWHA nest to be active unless it is demonstrated by protocol-level surveys conducted during the nesting season (January 1 through September 15) to be unoccupied. Annual grasslands, alfalfa, fallow fields, dry-land and irrigated pasture, non-flooded rice land, cereal grain crops (including corn after harvest), as well as beet, tomato and other low-growing row or field crops are all considered SWHA foraging habitat (CDFG 1994). To help identify potential Project-related impacts to SWHA, CDFW recommends the Lead Agency require surveys for nesting SWHA be conducted within a 0.5-mile buffer around the Project site, before starting any Project-related activities, following the survey methodology developed by the SWHA Technical Advisory Committee (SWHA TAC

2000). In the event that SWHA is detected, consultation with CDFW is recommended to discuss how to implement the Project and avoid take (e.g., minimize impacts). If take cannot be avoided, acquisition of an ITP would be warranted in advance of Project implementation for Project-related incidental take of SWHA. To facilitate the application of an ITP, CDFW recommends the Lead Agency disclose potential impacts to SWHAs and their nest sites in the CEQA document; thereby enabling CDFW to use the CEQA document to issue an ITP if or when the developer applies for one.

**Burrowing Owl:** BUOWs are known to nest within the vicinity of the Project site and could occur on or adjacent to the Project site, which provides suitable habitat for the species. To establish the status of BUOWs on the Project site and to provide for a CEQA baseline, CDFW recommends following the *Staff Report on Burrowing Owl Mitigation* dated March 7, 2012. The staff report can be found on our website at [www.dfg.ca.gov/wildlife/nongame/docs/BUOWStaffReport.pdf](http://www.dfg.ca.gov/wildlife/nongame/docs/BUOWStaffReport.pdf). If the Project site contains potential BUOW burrows, CDFW recommends that a qualified biologist conduct a survey no more than 30 days before the onset of any Project activities. Per the CDFW staff report, if Project activities are delayed or suspended for more than 30 days, the area should be resurveyed.

**Raptors and Migratory Birds:** For the protection of raptors and migratory song birds and to assist in avoiding take of avian species as required by Fish and Game Code sections 3503, 3503.5 and 3513, if Project-related activities will occur during the breeding season (January through mid-September), CDFW recommends the Lead Agency require surveys be conducted by a qualified biologist no more than 14 days prior to the beginning of any Project-related activity likely to impact raptors and migratory song birds, for the entire Project site. If Project activities are delayed or suspended for more than 14 days during the breeding season, repeat the surveys. If nesting raptors and migratory song birds are identified, CDFW recommends the Lead Agency require the following minimum no-disturbance buffers be implemented:

1. 250 feet around active passerine (perching birds and songbirds) nests,
2. 500 feet around active non-listed raptor nests and
3. 0.5 mile around active listed bird nests.

These buffers should be maintained until the breeding season has ended or until a qualified biologist has determined, and CDFW has agreed in writing, that the birds have fledged and are no longer reliant upon the nest or parental care for survival.

**Special Status Plants and Natural Communities:** To assess the presence of rare, threatened, and endangered plants and natural communities on the Project site, botanical surveys following the guidelines developed by CDFW (CDFW 2009) and the United States Fish and Wildlife Service (USFWS) (USFWS 1996) are recommended. CDFW recommends botanical surveys cover the entire area of direct and indirect Project effects and be timed appropriately to detect all species which may occur on the property before CEQA analysis occurs. Use of reference sites is recommended for species which are known to occur in the

vicinity or which otherwise have a high potential of occurring on-site. Special status plant species should be avoided whenever possible by delineation and observation of a no-disturbance buffer of at least 50 feet from the outer edge of the plant population(s) or specific habitat type(s) required by special status plant species. If buffers cannot be maintained, then consultation with CDFW should occur to determine appropriate minimization and mitigation measures for impacts to special status plant species. Should a State- or federally listed plant species be identified during botanical surveys then consultation with CDFW should occur and take authorization may be warranted prior to commencing ground-disturbing activities.

CDFW recommends natural communities be classified according to the *List of Natural Communities Recognized by the California Natural Diversity Database* (CDFG 2010) and the *List of California Vegetation Alliances* (CDFG 2007). CDFW considers those natural communities noted with an asterisk in CDFG 2010, or with a State rank of S1-S3 in CDFG 2007, to be of conservation concern and recommends the CEQA analysis consider these communities as sensitive.

**Cumulative Impacts:** Cumulative impacts are changes in the environment that result from the incremental impact of the Project when added to other closely related past, present, and reasonably foreseeable, probable future impacts. CDFW recommends that the DEIR prepared for the Project adequately address and quantify cumulative impacts to the State-listed species addressed above, including from other projects along the southern edge of the San Joaquin Valley, such as the Tejon Ranch Commerce Center, Centennial, and Tejon Mountain Village. We recommend that the cumulative impacts analysis also consider that these species are rapidly losing habitat in the same region, as undisturbed lands are converted to agricultural and commercial developments.

The Project site is within an area currently being considered in the conservation strategy for the Kern Valley Floor Habitat Conservation Plan (VFHCP), which is currently under development, and the Tejon Valley Floor HCP, which was previously being pursued by Tejon Ranch for the Project Area. CDFW recommends the DEIR discuss how the Project will affect the development of these conservation strategies and avoid precluding the recovery of the target species.

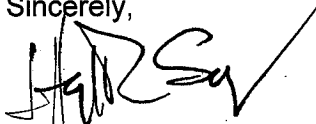
As discussed above for SJKF, Recovery Task 5.3.8 of the Recovery Plan is specific to the maintenance of a habitat linkage or movement corridor for SJKF around the southern edge of the San Joaquin Valley from McKittrick south to Maricopa, east from Maricopa, and north to the Kern River. The preservation of this movement corridor is considered essential for maintaining the connectivity between SJKF satellite populations on the western and eastern edges of the southern San Joaquin Valley (Recovery Plan, USFWS 1998). The presence of SJKF satellite populations to the west, east and northeast of the Project site currently constitutes a viable movement corridor along the southern edge of the San Joaquin Valley, and the preservation of this corridor through the conservation of these areas will contribute significantly toward achieving Recovery Task 5.3.8 (Cypher 2005). CDFW does not consider the proposed Project wildlife movement corridors along the southern edge of the California Aqueduct, under the existing Grapevine Interchange and along Grapevine Creek and the foothills of the Tehachapi Mountains to be sufficient to maintain these movement corridors. CDFW recommends cumulative impacts in the DEIR address the Project's compatibility with Recovery Task 5.3.8, for

the target species and consider additional measures to ensure SJKF permeability throughout the Project site with the incorporate of additional features such as the construction of a green bridge at the new I-5 interchange, the enhancement, enlargement and modification of existing over- and undercrossings through the installation of artificial dens and refugia to provide cover for SJKF, and through the design of the Project footprint to maintain permeability throughout the Project site for SJKF.

**Federally Listed Species:** CDFW also recommends consulting with the USFWS on potential impacts to federally listed species. Take under ESA is more broadly defined than CESA; take under ESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting. Consultation with the USFWS in order to comply with ESA is advised well in advance of Project implementation.

Thank you for the opportunity to comment on the Grapevine Specific and Community Plan NOP. If you have any questions regarding these comments, please contact Lori Bono, Senior Environmental Scientist (Specialist), at (559) 243-4014, extension 350, or [lori.bono@wildlife.ca.gov](mailto:lori.bono@wildlife.ca.gov).

Sincerely,



Jeffrey R. Single, Ph.D.  
Regional Manager

cc: Thomas Leeman  
United States Fish and Wildlife Service  
2800 Cottage Way, Room W-2805  
Sacramento, California 95825-1846

ec: Derek Abbott  
Tejon Ranch Company  
[dabbott@tejonranch.com](mailto:dabbott@tejonranch.com)

Julie Vance  
California Department of Fish and Wildlife

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## Central Valley Regional Water Quality Control Board

30 April 2014

Jacquelyn R. Kitchen, Supervising Planner  
Kern County Planning Department  
2700 "M" Street, Suite 100  
Bakersfield, CA 93301-2323

### STATE CLEARINGHOUSE NO. 2014041005, EIR 04-14, NOTICE OF PREPARATION OF DRAFT ENVIRONMENTAL IMPACT REPORT, TEJON GRAPEVINE, LLC, GRAPEVINE SPECIFIC AND COMMUNITY PLAN, KERN COUNTY

Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) staff reviewed EIR 04-14, Notice of Preparation of Draft Environmental Impact Report (DEIR), from the Kern County Planning Department (County) received on 4 April 2014 for the Grapevine Specific and Community Plan Project (Project). The Project is located approximately 13 miles south of Bakersfield, east and west of Interstate 5 at the Grapevine interchange, and adjacent to Laval and Gibson Roads, within portions of T11N, R19W; T10N, R18W; and T10N, R19W, in the San Bernardino Base and Meridian. The Project site encompasses approximately 8,010 acres of the 15,644 acre Grapevine Planning Area in southwestern Kern County and proposed planning includes up to 12,000 residences and 10,748,400 square-feet of commercial development.

The Project proposes provisions for parks, public and private recreational amenities, schools, public services, helipad(s), a transit center/park and ride, and water and wastewater treatment facilities.

The Project proponent proposes to construct a tertiary level wastewater treatment facility (WWTF) to accommodate the substantial volume of wastewater that will be generated by the development. The WWTF will be operated by the Tejon-Castac Water District. Treated wastewater will be recycled and used for common-area landscape irrigation and other approved uses.

Under the California Environmental Quality Act, the purpose of a DEIR is to identify the significant effects on the environment of a project, to identify alternatives to the project, and to indicate the manner in which those significant effects can be mitigated or avoided. It is the policy of the State that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects.



With respect to water quality, The *Water Quality Control Plan for the Tulare Lake Basin, Second Edition, Revised 2004* (Basin Plan), designates beneficial uses, establishes narrative and numerical water quality objectives, and contains policies and implementation programs for protecting all waters of the Basin. The Basin Plan, Pages IV-9 through IV-11, contains specific effluent limits for electrical conductivity, chloride, and boron, all of which will be applicable to the proposed discharge. The DEIR must explain how the proposed discharge will meet the Basin Plan limits.

The Basin Plan also incorporates, by reference, policies and plans of both the State and Regional Water Boards, including State Water Resources Control Board Resolution 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (State Antidegradation Policy) and Central Valley Water Board Resolution No. R5-2009-0028, *In Support of Regionalization, Reclamation, Recycling and Conservation for Wastewater Treatment Plants*. The degradation of groundwater and surface water quality is a significant environmental impact. The State Antidegradation Policy directives require that high quality waters of the State be maintained "consistent with the maximum benefit to the people of the State." These directives apply to groundwaters and surface waters of quality that meets or is better than water quality objectives and establish several conditions that must be met before the quality of high quality waters may be lowered by waste discharges. Under no circumstances can discharges of waste that cause pollution be authorized under the State Antidegradation Policy. The DEIR must provide an analysis demonstrating that the proposed project will comply with the State Antidegradation Policy. At a minimum, the analysis shall:

1. Identify the beneficial uses of the groundwater in the vicinity of the discharge. Beneficial uses are designated in the Basin Plan.
2. Identify the applicable water quality objectives (i.e., identify applicable Maximum Contaminant Levels or other waste concentration levels that cause odors or impair the taste of groundwater designated as suitable for municipal and domestic beneficial use, identify salinity thresholds that will be protective of groundwaters designated as suitable for agricultural use).
3. Identify constituents currently found in groundwater at concentrations lower (of better quality) than the applicable water quality objectives. Waters where a constituent is found at concentrations lower than the applicable water quality objective are considered "high quality waters" under the antidegradation policy. It is important to note that water can still be considered of high quality water even when other constituents are found at concentrations higher (of worse quality) than the applicable water quality objectives.
4. Evaluate how the proposed discharge may degrade groundwater that has been identified as high quality water. The evaluation shall compare the concentrations of waste constituents in the discharge with the concentrations of these constituents in underlying groundwater and with applicable water quality objectives, and must be conducted on a constituent-by-constituent basis. This evaluation must also address waste constituents that may not be present in elevated concentrations in the discharge when applied to land, but may be released to groundwater as a result of the discharge (e.g., nitrate, iron, manganese, arsenic).

When the above analysis finds that high quality waters will be degraded by the discharge, it must also:

5. Justify why the degradation is consistent with the maximum benefit to the people of the state. It is appropriate to consider "important social and economic development" when evaluating whether the degradation is consistent with the maximum benefit to the people of the state.
6. Evaluate, with respect to the treatment or control measures that will be implemented, how these measures will reduce the discharge's potential to degrade groundwater and how these measures will ensure that the discharge does not cause or contribute to existing conditions of groundwater pollution, where the pollution is due to controllable factors.

The DEIR must also include a description of additional control measures that could further reduce the degradation associated with the discharge, and why it is not "practicable" to implement these measures at the site. This can include analysis relating the viability of the project to the expense of the pollution control technology (i.e., the project would not be economically feasible if higher-cost treatment was required by the Central Valley Water Board).

The DEIR must also demonstrate how the proposed new WWTF and reclamation program will be consistent with the Basin Plan and the enclosed Central Valley Water Board Resolution No. R5-2009-0028, *In Support of Regionalization, Reclamation, Recycling and Conservation for Wastewater Treatment Plants*. Basin Plan, Pages IV-11 through IV-13, encourage water recycling, reclamation, and consolidation of WWTFs. The Central Valley Water Board is aware that there are several small WWTFs in the area serving portions of the ongoing development. The DEIR must propose that the project WWTF serve as a regional facility and that the numerous smaller facilities be decommissioned. If the project WWTF will not serve as a regional WWTF, the DEIR must demonstrate through a suitable analysis why consolidation is not feasible.

Discharges of recycled water are also subject to the requirements of Title 22, California Code of Regulations, Section 60301 et seq. The DEIR should describe how the WWTF's use and distribution of recycled water will comply with these requirements.

If the DEIR does not adequately address the above issues, it may inhibit the ability of the Central Valley Water Board to adopt waste discharge requirements for the proposed project.

Water Code section 13260 states that all persons discharging waste, proposing to discharge a waste that could affect the quality of waters of the State shall file a report of waste discharge with the appropriate regional water quality control board. Water Code section 13264 states that no person shall initiate any new discharge of waste or make any material changes in any discharge prior to the filing of the report required by section 13260 and no person shall take any of these actions after filing the report but before whichever of the following occurs first:

1. The issuance of waste discharge requirements pursuant to Section 13263.



2. The expiration of 140 days after compliance with Section 13260 if the waste to be discharged does not create or threaten to create a condition of pollution or nuisance and any of the following applies:
  - a. The project is not subject to the California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code).
  - b. The regional board is the lead agency for purposes of the California Environmental Quality Act, a negative declaration is required, and at least 105 days have expired since the regional board assumed lead agency responsibility.
  - c. The regional board is the lead agency for the purposes of the California Environmental Quality Act, and environmental impact report or written documentation prepared to meet the requirements of Section 21080.5 of the Public Resources Code is required, and at least one year has expired since the regional board assumed lead agency responsibility.
  - d. The regional board is a responsible agency for purposes of the California Environmental Quality Act, and at least 90 days have expired since certification or approval of environmental documentation by the lead agency.
3. The issuance of a waiver pursuant to WC section 13269.

Pursuant to California Water Code Sections 13260 and 13264, the Project proponent must submit a complete Report of Waste Discharge (RWD) to the Central Valley Water Board at least 140 days prior to initiating operations that will result in a discharge of waste to land.

If any construction or demolition activity, including, but not limited to, clearing, grading, grubbing, or excavation, or any other activity that will result in a land disturbance of equal to or greater than one acre, compliance with the NPDES General Permit No. CAS000002, Order No. 2009-0009-DWQ, General Permit for Storm Water Discharges Associated With Construction and Land Disturbance Activities (General Storm Water Construction Permit) will be required prior to the start of construction. The Construction General Permit requires development and implementation of a Storm Water Pollution Prevention Plan (SWPPP) and includes runoff reduction requirements that need to be included in the Project design. The SWPPP must contain descriptions of measures taken to prevent or eliminate unauthorized non-storm water discharges, and both temporary and permanent best management practices (BMPs) that will be implemented to prevent construction-related pollutants from discharging with storm water and into waters of the United States.

If you have any questions regarding our comments, I may be reached at (559) 445-6190 or by e-mail at [Dale.Harvey@waterboards.ca.gov](mailto:Dale.Harvey@waterboards.ca.gov).



W. DALE HARVEY  
Senior Engineer  
RCE No. 55628

Enclosures: State Water Board Resolution No. R5-2009-0028

cc: State Clearinghouse, Sacramento

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

RESOLUTION NO. R5-2009-0028

IN SUPPORT OF REGIONALIZATION, RECLAMATION, RECYCLING AND  
CONSERVATION FOR WASTEWATER TREATMENT PLANTS

WHEREAS, the California Regional Water Quality Control Board, Central Valley Region (Regional Water Board) finds that:

1. The Water Quality Control Plans for the Sacramento River and the San Joaquin River Basins and/or Tulare Lake Basin includes the following principles that relate to reclaimed water and consolidation of wastewater collection and treatment systems.
  - a. Municipal, agricultural, and industrial wastewaters must be considered as a potential integral part of the total available fresh water resource.
  - b. Coordinated management of water supplies and wastewaters on a regional basis must be promoted to achieve efficient utilization of water.
  - c. Regional solutions for wastewater collection and treatment must be considered in all cases where feasible and desirable to implement sound water quality management programs based upon long-range economic and water quality benefits to an entire basin.
  - d. Institutional and financial programs for implementation of consolidated wastewater management systems must be tailored to serve each particular area in an equitable manner.
  - e. Wastewater reclamation and reuse systems which assure maximum benefit from available fresh water resources shall be encouraged. Reclamation systems must be an appropriate integral part of the long-range solution to the water resources needs of an area and incorporate provisions for salinity control and disposal on non-reclaimable residues.
2. The State Water Board adopted Resolution No. 77-1, "Policy with Respect to Water Reclamation in California." Resolution No. 77-1 includes the principle that the State Water Board and Regional Water Boards shall encourage reclamation, reuse, and water conservation. The Legislature has also repeatedly expressed a strong policy favoring water recycling and reuse. (See, Water Code sections 13510-13511, 13576, 14051.)
3. The Strategic Plan Update 2008-2012 for the Water Boards includes a priority to increase sustainable local water supplies available for meeting existing and future beneficial uses by 1,725,000 acre-feet per year, in excess of 2002 levels, by 2015, and ensure adequate water flows for fish and wildlife habitat.

Reclamation and recycling of wastewaters, and conservation of the use of water supplies, will contribute to meeting this goal.

4. On 3 February 2009, the State Water Board adopted *A Policy for Water Quality Control for Recycled Water*. The policy, which will take effect after approval by the Office of Administrative Law, included the following goals for California:
  - a. Increase the use of recycled water over 2002 levels by at least one million acre-feet per year (afy) by 2020 and by at least two million afy by 2030.
  - b. Increase the use of stormwater over use in 2007 by at least 500,000 afy by 2020 and by at least one million afy by 2030.
  - c. Increase the amount of water conserved in urban and industrial uses by comparison to 2007 by at least 20 percent by 2020.
  - d. Included in these goals is the substitution of as much recycled water for potable water as possible by 2030.
5. In 1972 the federal Clean Water Act, Section 101 (a)(1) established a national goal to eliminate the discharge of pollutants into navigable waters. Minimizing wastewater generation through conservation, and minimizing discharge of wastewater to surface waters through reclamation and reuse, are consistent with this national goal.
6. The Regional Water Board has adopted the Water Quality Control Plan for the Sacramento River and the San Joaquin River Basins (Sacramento/San Joaquin Basin Plan) and the Water Quality Control Plan for the Tulare Lake Basin (Tulare Lake Basin Plan).
7. The Sacramento/San Joaquin Basin Plan includes a wastewater reuse policy that encourages the reclamation and reuse of wastewater where practicable and requires as part of a Report of Waste Discharge an evaluation of reuse and land disposal options as alternative disposal methods. The Tulare Lake Basin Plan requires as part of a Report of Waste Discharge an evaluation of reuse and land disposal options as alternative disposal methods, and requires studies for new or expanded wastewater facilities that include plans for wastewater reclamation. Where these studies show that year-round or continuous reuse of all of the wastewater is not practicable, consideration must be given to partial reuse of the flow and seasonal reuse.
8. The Sacramento/San Joaquin Basin Plan prohibits the direct discharge of municipal and industrial wastes to specified water bodies, and discourages discharges of wastes into sloughs and streams with intermittent flow or dilution capacity.
9. The Tulare Lake Basin Plan specifies that municipal and domestic wastewater dischargers will be required to reclaim and reuse wastewater whenever

reclamation is feasible and includes a policy that discharges to surface waters will not be considered a permanent solution when the potential exists for wastewater reclamation.

10. Reducing discharges of wastewater into seasonal or ephemeral streams reduces habitat changes to the waterbodies that occur when wastewater is discharged into stream channels at locations, volumes or times when flow is not naturally present in the streams.
11. The Tulare Lake Basin Plan finds that reclaimed water provides a substitute source of water and provides nutrients that nourish crops. The Tulare Lake Basin Plan includes a policy that wastewater reclamation shall be maximized by controlling or limiting salt pickup and evaporation during use, treatment, or disposal.
12. The Tulare Lake Basin Plan finds that the proliferation of small treatment plants serving individual communities in developed areas is undesirable and most small communities do not have adequate resources to properly manage, treat and dispose of wastewater in an urban environment. The Tulare Lake Basin Plan includes the following policies:
  - Adjoining small communities should combine resources to construct and operate a joint or regional wastewater treatment plant.
  - Consolidation should be cost-effective, and consider benefits to the ecology, treatment efficiencies, and effective current and future reuse opportunities of the waters.
  - Unsewered areas and new developments adjacent to or within existing wastewater collection system service areas should be connected to the system. Developments not within a service area but within the projected sphere of influence of a regional collection system should be developed in a manner that provides for future connection to the system when it becomes available.
  - Each municipal collection and treatment facility should act as a regional facility and provide sewerage services within its sphere of influence. The municipality must be equitably compensated for these services.
13. State and federal antidegradation policies require Dischargers to demonstrate that degradation from new or expanded discharges are necessary, and to implement best practicable treatment or control of the discharge necessary to maintain the highest water quality consistent with maximum benefit to the people of the State. Regionalization, reclamation, recycling and conservation may enhance the implementation of these policies.



14. Evaluating regionalization, reclamation, recycling and/or conservation opportunities requires a balancing of these and many other considerations, including impacts to water quality, costs, authority to implement and other factors necessary to determine if regionalization, reclamation, recycling and/or conservation are feasible and practicable for the specific facility(ies).
15. The costs of constructing, expanding, upgrading and maintaining wastewater collection and treatment systems are large, and can be a severe impact on small communities and small economically disadvantaged communities. Increased rates on most communities, but especially for the small communities in particular, result in the likelihood of a successful Proposition 218 challenge to rate increases, which may make compliance with regulations and improvements in water quality difficult or impossible for some communities. While the capital investment for regionalization of wastewater collection and treatment systems may result in a higher initial cost than upgrading an existing facility to meet current day regulatory requirements, costs associated with meeting future regulatory requirements and system upgrades can be spread over a larger population and will ultimately reduce the per capita costs of wastewater treatment and disposal. Regionalization will also increase the technical and economical feasibility of a higher level of wastewater treatment, allowing the treated water to be a "resource" and not merely a "waste."
16. Regionalization of wastewater systems can consist of a broad range of alternatives from agreements for mutual aid between nearby wastewater authorities, to centralized operation and administration of separate wastewater systems, to combining smaller wastewater systems into a single larger system.
17. Focused, long-range planning is necessary to identify and implement regionalization, reclamation, recycling and/or conservation opportunities. This is a continuing process in that certain projects may not be technically or fiscally feasible at this time, but may become feasible as the community grows, treatment systems are upgraded, or other factors change with time.

THEREFORE BE IT RESOLVED THAT:

1. Consistent with the policies described above, any new or existing discharger that owns or operates a wastewater treatment plant shall provide upon request in their Reports of Waste Discharge (ROWD), a report regarding:
  - a) Efforts that have been taken to promote new or expanded wastewater recycling and reclamation opportunities and programs;
  - b) Water conservation measures; and
  - c) Regional wastewater management opportunities and solutions (e.g. regionalization).

The reports should include all current efforts and actions involving regionalization, reclamation, recycling and conservation. The status of current

opportunities and activities, the potential for new opportunities and activities, and impediments to new or expanded efforts should be addressed.

2. As required by the Basin Plans, all dischargers requesting a National Pollutant Discharge Elimination System (NPDES) permit for discharges to surface waters, the ROWD must also include an evaluation of wastewater reclamation and land disposal as alternative disposal methods.
3. Regional Water Board staff will facilitate dischargers' opportunities for wastewater regionalization, recycling, reclamation, and conservation. Regional Water Board staff facilitation may include, but is not limited to, attending local government and stakeholder meetings, participating in public outreach efforts, and supporting the use of grant funding. Staff facilitation should promote initiation, optimization, and/or promotion of all types of water efficiency programs.
4. In evaluating the feasibility of regionalization, reclamation, recycling and conservation projects, the interrelationship of regionalization, reclamation, recycling, and conservation should be considered.
5. The Regional Water Board will consider innovative permitting options when existing NPDES permit requirements, waste discharge requirements, and/or enforcement Orders inhibit a discharger's ability to implement regionalization, recycling, reclamation, or conservation programs. All newly proposed permitting options must comply with the Clean Water Act and the Porter-Cologne Water Quality Control Act; and be protective of water quality.
6. In a future basin planning action, Regional Water Board staff is directed to develop and propose amendments to the Basin Plans that consider requirements regarding regionalization, recycling, reclamation, and conservation.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 23 April 2009.

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PAMELA C. CREEDON, Executive Officer

**DEPARTMENT OF PARKS  
AND RECREATION**

**MEMORANDUM**

Robert Lerude, Director



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**TO: Todd Taylor, Planner I** **DATE: 4/30/14**  
**Kern County Planning and Community Development Department**

**FROM: Bob Lerude, Director** *BL*

**SUBJECT: Comments RE Draft Environment Impact Report for Grapevine Specific and Community Plan by Tejon Grapevine, LLC.**

**I want to thank you for the opportunity to review and comment on the Notice of Preparation of a Draft Environmental Impact Report for the Grapevine Specific and Community Plan.**

**After reviewing the text, the Parks and Recreation Department feels that the addition of new parkland, open space, trails and recreational facilities will be a welcome and necessary part of the proposed project. I have already met with representatives from Tejon Grapevine LLC, Kern High School District, and General Shafter Elementary School District, and told them that we are open to collaboration and are willing to work with all involved parties. The Kern County Parks and Recreation Department wishes to state that we strongly recommend the formation of Park Maintenance Districts, prior to construction, to provide the financial resources for the ongoing maintenance of parkland. The Department is willing to collaborate with the Schools, but understand that the Schools may foresee access and maintenance complications with joint use of school and park land that may be difficult to overcome.**

**As parkland landscaping in southern California, and especially recreational turf, is heavily dependent on irrigation, we are concerned about the availability of water sources during drought. Xeriscape can be used where appropriate to reduce water demand, but turf athletic fields require higher demands of water. The text explains that potable water demands are**



**projected to be fully met through agreements and obligations with the project suppliers.**

**The text also refers to common-area landscape irrigation to be provided from reclaimed water supplied by reclamation facilities. Use of reclaimed non-potable water affects the way irrigation systems are designed and utilized. The Department applauds the use of recycled water as an effective means of reducing the demand on potable water systems.**


**If you have any questions or require additional information, please give me a call or you can contact either John Laybourn at 868-7022 or Don Woodard at 868-7020.**



**COUNTY OF KERN  
DEVELOPMENT SERVICES AGENCY  
ROADS DEPARTMENT**  
*Office Memorandum*

To: Lorelei Oviatt, Director  
Attn: Todd Taylor, Planner I

April 30, 2014

From: Warren D. Maxwell, Transportation Development Engineer  
Roads Department 

Subject: 7-8.6 Notice of Preparation of a Draft Environmental Impact Report for  
Grapevine Specific and Community Plan Project (PP14108)

This Department has reviewed the Notice of Preparation of the Draft Environmental Impact Report for the subject project and has the following comments:

- 1) Provide a Stamped and Signed Traffic Impact Study to the Kern County Roads Department for review and comment prior to final Environmental Impact Report.
- 2) Contact the California Department of Transportation regarding this project for impacts to State Highways.

Thank you for the opportunity to comment on this project, if you have any questions or comments please contact Paul Candelaria at 862-8869.



## KERN COUNTY WASTE MANAGEMENT DEPARTMENT

Douglas E. Landon, Director  
2700 "M" Street, Suite 500  
Bakersfield, CA 93301-2372  
(661) 862-8900  
(800) 552-KERN (option 6)  
Fax: (661) 862-8905  
<http://www.kerncountywaste.com>

April 30, 2014

Ms. Jacquelyn Kitchen  
Kern County Planning & Community Development Department  
2700 M Street, Suite 100  
Bakersfield, CA 93301

Dear Ms. Kitchen:

**RE: Comments on Notice of Preparation of a Draft Environmental Impact Report for the Grapevine Specific and Community Plan by Tejon Grapevine, LLC(PP14108)**

Thank you for the opportunity to comment on the Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for the Grapevine Specific and Community Plan by Tejon Grapevine, LLC (Grapevine Project). The proposed project is both a specific and community plan that includes up to 12,000 residences and up to approximately 11 million square feet of commercial development. The commercial development could include a mix of service retail, office, educational, medical, and industrial uses. The project is located approximately 13 miles south of Bakersfield city limits in southwestern Kern County, encompassing 8,010 acres of the 15,644-acre Grapevine Planning Area.

Kern County Waste Management Department (KCWMD) has reviewed the NOP for the Grapevine Project and has the following comments.

### Solid Waste Generation Analysis

KCWMD would like to thank McIntosh & Associates for providing the Waste Haul Analysis (WHA) – Grapevine Project report for our review. KCWMD recognizes that the primary objective of the WHA Report is to analyze the hauling and disposal costs associated with waste generation of the project.

KCWMD agrees with the ongoing residential and non-residential waste generation analysis provided in the WHA Report. Solid waste generation data is consistent with KCWMD's waste generation formula. The WHA Report does not, nor was it intended to, estimate and analyze the construction related solid waste generated as a result of residential and commercial development.

KCWMD requests that the project proponent complete the attached Waste Generation Worksheet and analyze ongoing and construction related waste for each of the Project's six individual phasing areas in the Draft EIR. In order to estimate the impact the project may have to the County's solid waste infrastructure system and recommending any mitigation measures that may be necessary, KCWMD recommends utilizing the data



presented within the WHA Report to analyze the ongoing and construction related waste generation for residential and non-residential functions. Additionally, KCWMD recommends when analyzing the waste-related impacts of the Project, the Draft EIR include a discussion of residential and non-residential recycling and/or diversion opportunities that will be utilized.

Solid waste generated by this project will likely be disposed of at the Bakersfield Metropolitan (Bena) Sanitary Landfill (SLF) located approximately 36 miles northeast of the project site at 2951 Neumarkel Road, Bakersfield, CA, 93307. Bena SLF has a permitted maximum tonnage of 4,500 tons per day (TPD). In 2013, the average incoming waste stream at the landfill was 1,253 TPD or 451,080 tons per year (TPY).

#### Applicable Codes and Regulations

The California Green Building Standards Code (Standards Code) will apply to construction related activities of this project. The purpose of the Standards Code is to improve public, health, safety, and general welfare by enhancing the design and construction of buildings through the use of building concepts that have a positive environmental impact and encouraging sustainable construction practices. Provisions of the Standards Code shall apply to the design and construction of building structures subject to state regulation.

Per §708.3 – Construction Waste Reduction, Disposal, and Recycling of the Standards Code, a commercial entity is to *recycle and/or salvage for reuse a minimum of 50 percent of the non-hazardous construction and demolition debris, or meet a local construction and demolition waste management ordinance, whichever is more stringent*. KCWMD recommends contacting the Kern County Engineering, Surveying & Permit Services Department – Building Inspection Division for specific local building code standards and regulations. In the absence of a local ordinance, the project is required to comply with the 50 percent recycling and/or salvaging element set forth in the Standards Code. The 2010 Standards Code can be located at:

[http://www.documents.dgs.ca.gov/bsc/CALGreen/2010\\_CA\\_Green\\_Bldg.pdf](http://www.documents.dgs.ca.gov/bsc/CALGreen/2010_CA_Green_Bldg.pdf).

Assembly Bill (AB) 341 declares that it is the policy goal of the state that not less than 75 percent of solid waste generated be source separated, reduced, recycled, or composted by the year 2020. AB 341 sets forth the requirements of the statewide mandatory commercial recycling program which defines that a business, including any commercial or public entity, generating four cubic yards or more of commercial solid waste per week are required to recycle. Businesses can take one or any combination of the following in order to reuse, recycle, or otherwise divert solid waste from disposal:

- Subscribe to a source separated recycling service with a regional franchise hauler authorized to provide service for the area in which the business is located;
- Subscribe to a mixed solid waste recycling service with a regional franchise hauler authorized to provide service for the area in which the business is located; or
- Self-recycle and certify compliance with Kern County Ordinance No. G-8337.

Ongoing business operations must comply with AB 341. Additional information on AB 341 and mandatory commercial recycling information is available on KCWMD's website, <http://www.kerncountywaste.com/>, and the California Department of Resources Recycling and Recovery's website, <http://www.calrecycle.ca.gov/Climate/Recycling/>.

Solid Waste Infrastructure Impacts and Recommendations

A project of this size will likely have impacts on the solid waste infrastructure. The landfill where waste will be discharged is a consideration in estimating the project's impact to the County's solid waste infrastructure system. KCWMD recommends the following measures be considered to reduce the impact the project may have on the County's solid waste infrastructure.

During the construction phase, the project will generate construction and demolition (C&D) waste and inert debris (asphalt, brick, concrete, dirt, drywall, fencing, glass, metal, packing material, pallets, pipe, steel, and wood). The current gate fee for disposal of C&D waste at Bena SLF is \$54.50 per ton.

Bena SLF operates diversion and recycling programs including source separated scrap metal, wood waste (lumber), and clean loads of inert materials (concrete). A discount may apply for source separated materials brought to the landfills. For discount conditions, contact the KCWMD Operations Division at (661) 862-8900.

The project proponent is encouraged, to the greatest extent possible, to include provisions for recycling C&D waste and to utilize the diversion and recycling programs offered by KCWMD and other local recyclers. KCWMD recommends contacting Mountainside Sanitation, the regional franchise hauler for additional regional recycling opportunities.

KCWMD will continue to work with the project proponent in estimating solid waste generation and determining the appropriate level of mitigation needed to reduce the impact to the County's solid waste infrastructure. KCWMD will provide additional comments for review and comment when a subsequent CEQA document is circulated for this project. If you have any further questions, please contact Katrina Slayton at (661) 862-8810 or myself at (661) 862-8918.

Sincerely,



Eric Greenwood, PE, PG, CHG  
Engineering Manager

## **Kern County Waste Management Department (KCWMD)**

### **Solid Waste Work Sheet - Introduction**

This work sheet provides information and formulas to estimate the general volume of solid waste resulting from new development and incoming waste to the landfill. This work sheet is intended to help KCWMD rate the environmental significance of a project's solid waste impacts per the California Environmental Quality Act (CEQA). Additional solid waste has the potential to impact Kern County's system of sanitary landfills, transfer stations, or effect local recycling programs mandated by the State. KCWMD is, per CEQA, the responsible agency in Kern County for solid waste. This work sheet also allows KCWMD to track and forecast future solid waste estimates.

This work sheet is intended for use by "major projects" defined as follows:

- Urban Development on sites over 15 acres.
- General Plan Amendments to commercial/industrial for sites over 15 acres
- Zone Changes to commercial/industrial for sites over 15 acres.
- Subdivision tracts over 15 acres or over 50 dwellings.
- Conditional Use Permit for recreational / public facilities projects over 15 acres.

**Instructions.** Project applicants/agents should review Sections A, B, C, and D.

For residential projects, please answer Sections A, B and D.

For non residential projects, please answer Sections A, C and D.

For combined residential/non residential projects, please answer Sections A, B, C and D.

Property information may be obtained at the Planning Department of the County or City.

Census tract data is available from:

**Kern Council of Governments**  
**1401 19<sup>th</sup> Street, Bakersfield, Ca.**  
**(661) 861-2191    [www/KernCog.org](http://www.KernCog.org).**

Solid waste information may be obtained from:

**Kern County Waste Management Department**  
**2700 "M" Street, Suite 500 Bakersfield, CA.**  
**(661) 862-8900.**

If you have any questions or comments regarding this form please contact Katrina Slayton at (661) 862 - 8810 or email at [slaytonk@co.kern.ca.us](mailto:slaytonk@co.kern.ca.us).

## A. Project Identification & Solid Waste Input from the Project Applicants

### A-1. Project Identification

Applicant/Agent \_\_\_\_\_ Ph # (\_\_\_\_) - \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_

Check: Residential Project \_\_\_\_\_ Non-Residential Project \_\_\_\_\_

Check: Applications: GPA \_\_\_\_\_ ZC \_\_\_\_\_ CUP \_\_\_\_\_ Tract \_\_\_\_\_ Site Plan \_\_\_\_\_ Other \_\_\_\_\_

Project Description is / is not attached (circle one) or is defined as follows:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Nearest city or community \_\_\_\_\_

Township \_\_\_\_\_ Range \_\_\_\_\_ Section \_\_\_\_\_ Assessor Parcel Number \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_

Landfill or Transfer Station (KCWMD) \_\_\_\_\_

Franchise Hauler (KCWMD) \_\_\_\_\_

## B. Residential Projects: Data and Calculation Formulas

Residential waste streams are based on a county wide average, type of dwelling unit and household population. Projects which have higher than average household populations may involve higher waste streams and may need to be evaluated on a case by case basis.

### Residential Waste Profile

Dwelling type	Persons per Dwelling	Waste per Person	Total Waste per Household
Single Family	3.05	1,225 lbs	3,735 lbs
Apartments	2.85	1,225 lbs	3,490 lbs
MH park	2.15	1,225 lbs	2,635 lbs

Residential Data Needs:

\_\_\_\_\_ Average number of persons per dwelling unit (census data).

\_\_\_\_\_ Total # of proposed dwelling units.

**Pounds  
per year**

### B-1. Single Family Residential Units

Factor: The residents of one standard S.F. dwelling generate 3,735 pounds of solid waste per year.

Calculation: 3,735 lbs times # of dwelling units

\_\_\_\_\_

### B-2. Multi Family Apartments / Condominium

Factor: The residents of one standard apartment /condominium generate 3,490 pounds of solid waste per year.

Calculation: 3,490 lbs times # of apartment /condominium

\_\_\_\_\_



**B-3. Mobilehome Park Residential Units**

Factor: One residents of one standard mobilehome generate 2,635 pounds of solid waste per year.

Calculation: 2,635 lbs times # of dwelling units \_\_\_\_\_

**B-4. Residential construction waste**

Factor: 4 pounds of construction waste per square foot.

Calculation: 4 lbs times # average square feet times # of dwelling units \_\_\_\_\_

*Note: This waste is a one time waste, not an annual waste.*

**B-5 Total residential waste (Non-Construction B-1, B-2, B-3):** \_\_\_\_\_

**C. Non –Residential Projects: Data Needs and Calculation Formulas**

Solid waste projections are based on calculations unique to a given land use. A Non-residential project includes commercial, industrial and public facilities. If a commercial project is proposed where the building land uses are unknown, please use Section C-1. Use Section C-11 for unspecified industrial land uses.

Non- Residential Data Needs:

\_\_\_\_\_ Project site net area in acres (1 acre = 43,560 sq. ft.).

\_\_\_\_\_ Building footprint square footage.

\_\_\_\_\_ Percentage ratio of building footprint square footage to net site acreage

**Commercial Waste**

**Pounds  
per year**

**C-1. Unspecified Mix Commercial**

Factor: One square foot of building will generate 13.0 pounds per year.

Calculation: 13.0 lbs times # of building square feet \_\_\_\_\_

**C-2. General Retail**

Factor: One square foot will generate 7 pounds per year.

Calculation: 7 lbs times # of square feet \_\_\_\_\_

**C-3. Neighborhood Commercial (30,000 to 100,000 square feet).**

Factor: One per square foot will generate 7 pounds per year.

Calculation: 7 lbs times # of square feet \_\_\_\_\_

**C-4. Regional Mall (100,000 to 300,000 square feet)**

Factor: One square foot will generate 9 pounds per year.

Calculation: 9 lbs times # of square feet \_\_\_\_\_

**C-5. Restaurants, Fast Food Restaurants, and Drinking Establishments**

Factor: One square foot will generate 22 pounds per year.

Calculation: 22 lbs times # of square feet \_\_\_\_\_

**C-6. Supermarkets**

Factor: One square foot of space will generate 15 pounds per year.

Calculation: 15 lbs times # of square feet \_\_\_\_\_

**C-7. Office**

Factor: One square foot of office space will generate 3.5 pounds per year.

Calculation: 3.5 lbs times # of square feet \_\_\_\_\_

**C-8. Medical /Dental offices**

Factor: One per square foot will generate 6.0 pounds per year.

Calculation: 6 lbs times number of square feet \_\_\_\_\_

**C-9. Hotel/Motel Units**

Factor: One square foot of space will generate 10 pounds per year.

Calculation: 10 lbs times # of square feet \_\_\_\_\_

**C-10. Auto Dealer, Services, Repair and Service Station**

Factor: One square foot of space will generate 10 pounds per year.

Calculation: 10 lbs times # of square feet \_\_\_\_\_

**Industrial Waste**

**C-11. Unspecified Mixed Industrial**

Factor: One square foot will generate 6 pounds per year

Calculation: 6 lbs times # of square feet \_\_\_\_\_

**C-12. Warehouse**

Factor: One square foot will generate 2.5 pounds per year.

Calculation: 2.5 lbs times # of square feet \_\_\_\_\_

**C-13. Manufacturing with 100 to 400 employees**

Factor: One square foot will generate 5 pounds per year

Calculation: 5 lbs times # of square feet \_\_\_\_\_

**C-14. Manufacturing with 401 to 3000 employees**

Factor: One square foot will generate 10 pounds per year.

Calculation: 10 lbs times # of square feet \_\_\_\_\_

**Public Facility Waste**

**C-15. Schools**

Factor: One per square foot will generate 2.5 pounds per year.

Calculation: 2.5 lbs times number of square feet \_\_\_\_\_

**C-16. Nursing & Retirement Care Facility**

Factor: One per square foot will generate 9 pounds per year.

Calculation: 9 lbs times number of square feet \_\_\_\_\_



**C-17. Hospitals**

Factor: One per square foot will generate 11 pounds per year.

Calculation: 11 lbs times number of square feet \_\_\_\_\_

**C-18. Industrial/Commercial/ Public Facility Construction Waste**

Factor: 8 pounds of construction waste per building square foot.

Calculation: 8 lbs times building square footage \_\_\_\_\_

**D. Calculation Summary for Publication**

Please merge the Section A,B, and C data onto Section D.

<i>Category of Waste Per Year</i>		<i>WMD Formula Pounds</i>
D-1. Residential	(Section B-5)	_____
D-2. Commercial	(Section C 1-10)	_____
D-3. Industrial	(Section C 11-14)	_____
D-4. Public Facility	(Section C 15-17)	_____
D-5. Construction /Demolition	(Section B-4 & C-18)	_____
<hr/>		
D-5	Total Construction Waste Stream;	_____ pounds per year
Add D-1, D-2, D-3, and D-4	Total Annual Operating Waste Stream;	_____ pounds per year



*Via electronic mail only*

May 1, 2014

Jacquelyn Kitchen  
Supervising Planner  
Kern County Planning and Community  
Development Department  
2700 M Street, Suite 100  
Bakersfield, CA 93301  
[kitchen@co.kern.ca.us](mailto:kitchen@co.kern.ca.us)

Re: Notice of Preparation of Draft Environmental Impact Report for Grapevine Specific and Community Plan (PP14108)

Dear Ms. Kitchen:

These comments are submitted on behalf of the Center for Biological Diversity (“the Center”) regarding the proposed Specific and Community for the Grapevine Project by Tejon Grapevine, LLC. Specifically, the Center urges that the Draft Environmental Impact Report (EIR) fully address and analyze the Project’s impacts to sensitive species, air quality, greenhouse gas emissions, traffic, water quality, water supply potential for growth-inducing impacts, cumulative impacts and all reasonable alternatives and mitigation measures.

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has 775,000 members and online activists throughout California and the United States, including Kern County.

The Project, as currently proposed, encompasses approximately 8,010 acres and will include 12,000 residences and up to 10,748,400 square feet of commercial development. The residences will be in the form of single-family and multi-family units. The Project will include a broad range of commercial development including service retail, office, education, hospitality, medical and industrial uses. In order to accommodate the large flux in population, the Project also anticipates the construction of parks, schools, transit center and waste water treatment facilities. The Project is anticipated to bring large scale construction to the area and significantly alter the current environment.

Under the California Environmental Quality Act (“CEQA”), an EIR must provide decision-making bodies and the public with detailed information about the effect a proposed project is likely to have on the environment, to list ways in which the significant effects of a project might be minimized, and to indicate alternatives to the project. Pub. Res. Code § 21061.

Therefore in order to meet the statutory requirement under CEQA, the EIR should include thorough analysis of the following issues.

## I. Direct and Indirect Impacts on Biological Resources

The proposed project site appears to include habitat for numerous rare, sensitive, threatened and endangered species<sup>1</sup>. Complete surveys and documentation of all locations for any rare, sensitive, threatened and endangered species need to be accurately evaluated and used as a basis for impact avoidance to these declining species. If avoidance is infeasible a minimization analysis must occur, complete with minimization strategies and robust mitigation.

Other rare species with potential to occur on the project site and tracked by state and federal resource agencies include:

Common Name	Scientific Name	Fed/State/Other <sup>2</sup>
<b>Plants</b>		
Horn's milk-vetch	<i>Astragalus hornii</i> var. <i>hornii</i>	--/--/1B.1, BLM S
Bakersfield smallscale	<i>Atriplex tularensis</i>	--/Endangered/1A
round-leaved filaree	<i>California macrophylla</i>	--/--/1B.1, BLM S

<sup>1</sup> CNDDDB 2014

<sup>2</sup> **Federal:**

E = Endangered

Delisted = Formerly listed, and adequate recovery allowed for delisting

**State:**

E = Endangered

T = Threatened

FP = Fully Protected

Other:

1A.1 = Plants Presumed Extirpated in California and Either Rare or Extinct Elsewhere.

1B.1 = Plants Rare, Threatened, or Endangered in California and Elsewhere and seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat).

1B.2 = Plants Rare, Threatened, or Endangered in California and Elsewhere and moderately threatened in California (20-80% occurrences threatened / moderate degree and immediacy of threat).

BLM S = Considered a sensitive species by the Bureau of Land Management.

FS S = Considered a sensitive species by the Forest Service.

G1 = Less than 6 viable element occurrences (EOs) OR less than 1,000 individuals OR less than 2,000 acres globally

G3 = 21-80 EOs OR 3,000-10,000 individuals OR 10,000-50,000 acres globally

G5 = Population or stand demonstrably secure to ineradicable due to being commonly found in the world

S1.1 = Less than 6 EOs OR less than 1,000 individuals OR less than 2,000 acres statewide; and very threatened

S2.1 = 6-20 EOs OR 1,000-3,000 individuals OR 2,000-10,000 acres statewide; and very threatened

S4? = Apparently secure within California; but factors exist to cause some concern;

SSC = State Species of Special Concern

BCC = federal Bird of Conservation Concern

Lemmon's jewelflower	<i>Caulanthus lemmonii</i>	--/--/1B.2, BLM & FS - S
hispid salty bird's-beak	<i>Chloropyron molle ssp. hispidum</i>	--/--/1B.1, BLM S
Kern mallow	<i>Eremalche kernensis</i>	--/--/1B.1, BLM S
Tejon poppy	<i>Eschscholzia lemmonii ssp. kernensis</i>	--/--/1B.1, BLM S
pale-yellow layia	<i>Layia heterotricha</i>	--/--/1B.1, BLM S
Comanche Point layia	<i>Layia leucopappa</i>	--/--/1B.1, BLM S
calico monkeyflower	<i>Mimulus pictus</i>	--/--/1B.2, BLM S
Piute Mountains navarretia	<i>Navarretia setiloba</i>	--/--/1B.1, BLM S
Bakersfield cactus	<i>Opuntia basilaris var. treleasei</i>	E/E/1B.1
<b>Rare Plant Communities</b>		
Valley Sink Scrub	Valley Sink Scrub	--/--/G1, S1.1
Valley Oak Woodland	Valley Oak Woodland	--/--/G3, S2.1
<b>Invertebrates</b>		
Kern River pyrg	<i>Pyrgulopsis greggi</i>	--/--/G1, S1
<b>Reptiles</b>		
San Bernardino ringneck snake	<i>Diadophis punctatus modestus</i>	--/--/FS S
western pond turtle	<i>Emys marmorata</i>	--/--/SSC, BLM S
blunt-nosed leopard lizard	<i>Gambelia sila</i>	E/E & FP/--
<b>Birds</b>		
tricolored blackbird	<i>Agelaius tricolor</i>	--/--/SSC, BCC, BLM S
long-eared owl	<i>Asio otus</i>	--/--/SSC
burrowing owl	<i>Athene cunicularia</i>	--/--/SSC, BCC, BLM S
bald eagle	<i>Haliaeetus leucocephalus</i>	Delisted/E & FP/BCC, BLM & FS S
<b>Mammals</b>		
Nelson's antelope squirrel	<i>Ammospermophilus nelsoni</i>	--/T/BLM S
pallid bat	<i>Antrozous pallidus</i>	--/--/SSC, BLM & FS S
Tipton kangaroo rat	<i>Dipodomys nitratoides nitratoides</i>	E/E/--
hoary bat	<i>Lasiurus cinereus</i>	--/--/G5, S4?
San Joaquin pocket mouse	<i>Perognathus inornatus inornatus</i>	--/--/SSC
Buena Vista Lake ornate shrew	<i>Sorex ornatus relictus</i>	E/--/SSC
American badger	<i>Taxidea taxus</i>	--/--/SSC
San Joaquin kit fox	<i>Vulpes macrotis mutica</i>	E/T/--

At a minimum, the Environmental Impact Report must address each of the following species/communities.

#### *California Condor*

With the expanding range of the California condor – a success story of the Endangered Species Act - additional development on the Tejon Ranch will only increase the likelihood that a California condor will be impacted, increasing possible mortality. Therefore ...it is incumbent upon the County to require implementation of all feasible avoidance and mitigation measures to ensure that no take of the species occurs. These avoidance and mitigation measures should be determined in the context of other regional pressures and likely impacts on the species, including from other regional developments like Tejon Mountain Village, and various wind energy projects like Alta East. Anything short of that would result in a piecemealed conservation strategy that will provide no benefit to the species, and will instead likely harm it and impede its recovery.

#### *Fully Protected Species*

Because the proposed project has potential to impact state fully protected species, the County needs to require a Natural Communities Conservation Plan (NCCP) in order to comply with state law that now allows for “take” of fully protected species through the NCCP process.

#### *Locally Rare Species*

In order to present a full picture of the biological impacts of the project, the EIR needs to evaluate the impact of the proposed permitted activities on *locally rare species* (not merely federal- and state-listed threatened and endangered species). The preservation of regional and local scales of genetic diversity is very important to maintaining species. Therefore, all species found at the edge of their ranges or that occur at disjunct locations must be evaluated for impacts by the proposed permitted activities.

### **A. Biological Surveys and Mapping**

In order to present a full picture of the biological impacts of the project, thorough, seasonally appropriate surveys must be performed for sensitive plant species and vegetation communities, and animal species under the direction and supervision of the County and resource agencies such as the US Fish and Wildlife Service and the California Department of Fish and Wildlife. Full disclosure of survey results to the public and other agencies without limitations must be implemented to assure full CEQA compliance.

Surveys for the plants and plant communities should follow California Native Plant Society (CNPS)<sup>3</sup> and California Department of Fish and Wildlife (CDFW) floristic survey guidelines<sup>4</sup> and should be documented as recommended by CNPS<sup>5</sup> and California Botanical Society policy guidelines. A full floral inventory of all species encountered needs to be

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<sup>3</sup> <http://www.cnps.org/cnps/rareplants/inventory/guidelines.php>

<sup>4</sup> [http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols\\_for\\_Surveying\\_and\\_Evaluating\\_Impacts.pdf](http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf)

<sup>5</sup> <http://www.cnps.org/cnps/archive/collecting.php>

documented and included in the EIR. Surveys for animals should include an evaluation of the California Wildlife Habitat Relationship System's (CWHR) Habitat Classification Scheme. All rare species (plants or animals) need to be documented with a California Natural Diversity Data Base form and submitted to the California Department of Fish and Wildlife using the CNDDB Form<sup>6</sup> as per the State's instructions<sup>7</sup>.

In order for the public to properly evaluate the data, the vegetation maps must be at a large enough scale to be useful for evaluating the impacts. Vegetation/wetland habitat mapping should be at such a scale as to provide an accurate accounting of wetland and adjacent habitat types that will be directly or indirectly affected by the proposed activities. A half-acre minimum mapping unit size is recommended, such as has been used for other development projects. Habitat classification should follow both CNPS' *Manual of California Vegetation*.

## **B. Impact Analysis**

The EIR must evaluate all direct, indirect, and cumulative impacts to sensitive habitats, including impacts associated with unpermitted recreational activities, the introduction of non-native plants, lighting, noise, and the loss and disruption of essential habitat due to edge effects.

The EIR must identify and evaluate impacts to species and ecosystems from invasive, exotic species. Many of these species invade disturbed areas, and then spread into undisturbed wildlands. Fragmentation of intact, ecologically functioning communities further aides the spread and degradation of plant communities (Bossard et al 2000). Additionally, landscaping with exotic species is often the vector for introducing invasive exotics into adjacent habitats. Invasive landscape species displace native vegetation, degrade functioning ecosystems, provide little or no habitat for native animals, and increase fire danger and carrying capacity. All of these factors for wildland weeds are present in the project, and their effects must be evaluated in the EIR.

## **C. Wildlife Movement**

A thorough and independent evaluation of the project's impacts on wildlife movement is essential, especially for the critically endangered species of the San Joaquin Valley. The proposed project will create a catastrophic wildlife blockage for the highly endangered and declining San Joaquin kit fox. The U.S. Fish and Wildlife Service's most recent five-year review of the San Joaquin kit fox identifies a key linkage that connects the western and eastern populations of the fox<sup>8</sup>. Independent research on kit fox habitat also identifies the proposed project site as habitat that is critical for the San Joaquin kit fox<sup>9</sup>. The proposed project site directly in this linkage. Severing this key linkage will isolate the kit fox populations, which can lead to inbreeding and reduced genetic integrity, pushing the kit fox closer to the brink of

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<sup>6</sup> [http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB\\_FieldSurveyForm.pdf](http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf)

<sup>7</sup> [http://www.dfg.ca.gov/biogeodata/cnddb/submitting\\_data\\_to\\_cnddb.asp](http://www.dfg.ca.gov/biogeodata/cnddb/submitting_data_to_cnddb.asp)

<sup>8</sup> [http://ecos.fws.gov/docs/five\\_year\\_review/doc3222.pdf](http://ecos.fws.gov/docs/five_year_review/doc3222.pdf)

<sup>9</sup> [http://www.canids.org/app/images/journal/16/san\\_joaquin\\_kit\\_fox\\_habitat\\_suitability.pdf](http://www.canids.org/app/images/journal/16/san_joaquin_kit_fox_habitat_suitability.pdf)

extinction. Cumulative impacts to this species also needs to be robustly analyzed because of increased energy development, some of it in core kit fox habitat.

Independent evaluations of wildlife movement in the area indicate that San Joaquin kit fox is not the only species that rely on the proposed project area for habitat. An independent evaluation of the importance of southern San Joaquin Valley to the regional wildlife habitat and connectivity indicates that the proposed project area is crucial for a functional reserve<sup>10</sup>, not development. The EIR must evaluate all direct, indirect, and cumulative impacts to wildlife movement corridors. The analysis should cover movement of mammals, as well as other taxonomic groups, including birds, reptiles, amphibians, invertebrates, and vegetation communities. The EIR should first evaluate habitat suitability within the analysis window for multiple species, including all listed and sensitive species, in addition to target species. The habitat suitability maps generated for each species should then be used to evaluate the size of suitable habitat patches in relation to the species average territory size to determine whether the linkages provide both live-in and move-through habitat. The analyses should also evaluate if suitable habitat patches are within the dispersal distance of each species. The EIR should address both individual and intergenerational movement (i.e., will the linkages support metapopulations of smaller, less vagile species). The EIR should identify which species would potentially utilize the proposed wildlife movement corridors under baseline conditions and after build out, and for which species they would not. In addition, the EIR should consider how wildlife movement will be affected by other planned approved, planned, and proposed development in the region as well as how it would affect existing conservation investments in the area.

The EIR should analyze whether any proposed wildlife movement corridors are wide enough to minimize edge effects and allow natural processes of disturbance and subsequent recruitment to function. The EIR should also evaluate whether the proposed wildlife movement corridors would provide key resources for species, such as host plants, pollinators, or other elements. For example, many species commonly found in riparian areas depend on upland habitats during some portion of their cycle. Therefore, in areas with intermittent or perennial streams, upland habitat protection is needed for these species. Upland habitat protection is also necessary to prevent the degradation of aquatic habitat quality.

#### **D. Mitigation and Restoration**

For affected sensitive habitat and vegetation types, the EIR should prioritize avoidance, followed by onsite habitat replacement at a mitigation ratio calculated to ensure success, followed by onsite restoration and enhancement, followed by off-site mitigation. The EIR should include alternatives that maximize avoidance of sensitive habitat through clustering and preservation of large, contiguous areas. Identification and purchase of mitigation areas, with establishment of effective long-term management, should occur prior to any grading.

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<sup>10</sup> [http://scwildlands.org/reports/SCML\\_Tehachapi.pdf](http://scwildlands.org/reports/SCML_Tehachapi.pdf) and [http://scwildlands.org/reports/ProposedReserve\\_TejonRanch.pdf](http://scwildlands.org/reports/ProposedReserve_TejonRanch.pdf)

Specific, feasible, and enforceable mitigation measures for impacts associated with unpermitted recreational activities, the introduction of non-native plants, lighting, noise, and the loss and disruption of essential habitat due to edge effects are available and should be included in the EIR, including but not limited to the following:

- minimum 300-foot setbacks between developed area, including roads, and sensitive habitat areas
- conditions prohibiting non-leashed outdoor pets (including cats)
- incorporation of low-intensity, shielded, and directional night lighting
- techniques to control non-native invasive species
- prohibiting the use of pesticides and other toxic chemicals around/in facilities
- requiring the use of appropriate native vegetation in landscaping
- providing public education regarding rare, threatened and endangered species and how local communities can help protect them
- requiring controlled access to lands set aside for habitat preservation

If any type of restoration is proposed as part of the project, the conservation organizations requests the analysis of economic advantages of conserving natural vegetation communities versus the costs of restoring them, be included in the EIR. Restoration biology has shown that “restored” habitats never support the diversity of species found in undisturbed habitats (Longcore et al. 1997). Therefore, the benefits of maintaining current communities and habitat need versus no action need to be evaluated.

Habitat enhancement, particularly for avian species should be incorporated into the project to enhance the corridor for habitat and nesting.

## **E. Fuel Modification and Fire Clearance**

The project is proposed in an area of/adjacent to high fire risk. Clearly the project location will be threatened by catastrophic fire if built. While protection of life and property is the highest priority, building projects in areas of high fire risk further impacts biological resources because of the typical fuel modification and fire clearance requirements. Impacts associated with these requirements must be included as part of the proposed project.

## **II. Other Issues that Must be Fully Addressed in the EIR**

The large scale of this Project suggests it will have significant impacts on the currently rural Project site. In order to comply with CEQA’s stringent requirements, the EIR must undertake a complete and thorough analysis of potential environmental impacts, including those listed below.

### **A. Air Quality**



This Project is within the San Joaquin Valley Air Pollution Control District which is designated for non-attainment for numerous types of air pollution. The Project's pollution from construction will likely result in significant air quality degradation and could result in long-term health impacts to sensitive populations. The many sources of air pollution during the construction and lifetime of the Project must be disclosed and thoroughly analyzed. Any resulting significant impacts must be discussed in the EIR, and avoidance measures and mitigations must be proposed to reduce this impact to less than significant.

## **B. Climate Change**

The EIR must provide comprehensive information on the greenhouse gas emissions from construction of the Project and anticipated emissions during the life of the Project. The EIR should use current existing emissions and anticipated emissions from the Project when making a significance determination about the Project's greenhouse gas emissions. The EIR should use a numerical significance threshold that makes clear how greenhouse gas emissions in the region will be affected by the Project. In order to comply with CEQA and the state's greenhouse gas goals, the EIR must look at ways to avoid, minimize and mitigate the greenhouse gas impacts from the Project.

## **C. Traffic**

The EIR should provide updated traffic models for nearby major highways and roadways that incorporate traffic projections based on current traffic levels and other existing, approved, and planned projects. Alternatives that reduce significant impacts to traffic should be thoroughly explored and analyzed. Any resulting significant impacts should be minimized to the extent possible.

## **D. Growth Inducing Impacts**

The EIR must provide detailed analysis on how the Project will contribute to future development in the area, including residential and commercial development. The proposed project is located in a rural area that is of great importance to threatened, endangered, and sensitive plants and wildlife. The region already suffers from traffic and air quality issues, to which this Project will contribute significantly. The EIR must fully disclose and analyze the growth-inducing impacts of this project, and discuss alternatives and effective mitigation measures to avoid, reduce, and mitigate these impacts.

## **E. Water Quality**

The EIR must provide detailed descriptions of the project's water quality impacts. In particular, the EIR must evaluate the water quality impacts associated with the urban run-off from upstream sources, such as pesticides, irrigation, and fertilizer runoff from upstream sites proposed as part of the Project. These impacts must be disclosed and analyzed in the EIR. The EIR should consider landscaping design alternatives that minimize or avoid these types of impacts.

## **F. Water Supply**

The EIR must identify the sources of water for the Project. The EIR must also evaluate all environmental impacts associated with use of any identified water sources. The EIR should disclose the legal status of any water rights asserted as a basis for the project's water supply, and indicate any further administrative or legal proceedings that are necessary to perfect such rights. If local surface water supplies will be used to supply the project, the EIR must document the existing state of such supplies, and evaluate the impact of any surface water diversions. The effects of the water diversion on the natural resources (springs, seeps, wetlands, drainages, etc.) must be thoroughly analyzed.

## **G. Cumulative Impacts**

As required by CEQA, the EIR must include a list of past, present, and probable future projects producing related or cumulative impacts, together with a summary of the expected environmental impacts from those projects and a reasonable analysis of the cumulative impacts of the relevant projects.

## **III. Evaluation of Reasonable and Prudent Alternatives**

The EIR must include a robust analysis of all alternatives that would meet the Project objectives while also minimizes the environmental impacts of the Project. The Center urges adoption of an alternative that would limit environmental impacts and maintain existing habitat values of the Project site. The EIR should include careful and thoughtful evaluation of alternatives that limit the footprint of the Project and preserves the natural resources found on the site.

Any alternatives that will result in direct and indirect impacts on biological diversity that cannot be reduced to less than significant, unreasonably expands the scope of environmental impacts or includes unfeasible mitigation measures should be rejected. The EIR should consider a range of smaller alternatives that reduce or avoid the project's significant environmental impacts. The County should undertake an independent evaluation of the financial viability of the project, as well as reduced-scale alternatives.

## **IV. Conclusion**

The environmental effects of the proposed Grapevine Specific and Community Plan will include direct and indirect impacts to biological resources, air quality, traffic, climate change, water quality and regional urban growth. Evaluation of each of these impacts, as well as, analysis of reasonable and prudent alternatives must be included in the EIR. Thank you for the opportunity to submit comments on this proposed Project. Please do not hesitate to contact the Center with any questions at the number listed above. We look forward to reviewing the Draft EIR for this Project once it has been completed.

Sincerely,

A handwritten signature in black ink, appearing to read 'Aruna Prabhala', is centered below the word 'Sincerely,'.

Aruna Prabhala  
Staff Attorney  
Center for Biological Diversity  
351 California St, Suite 600  
San Francisco, CA 94104  
Ph: (415) 436-9682 ext. 322  
[aprabhala@biologicaldiversity.org](mailto:aprabhala@biologicaldiversity.org)

May 1, 2014

Jacquelyn Kitchen  
Kern County Planning and Community Development Department  
2700 "M" Street, Suite 100  
Bakersfield, CA 93301  
KitchenJ@co.Kern.ca.us

Re: Grapevine Specific and Community Plan

Ms. Kitchen:

Southern California Edison (SCE) appreciates the opportunity to review and provide comments on the Notice of Preparation of an Environmental Impact Report (EIR) for the Grapevine Specific and Community Plan. The proposed project includes development of 12,000 residences (including single-family and multi-family units) and up to 10,748,400 square-feet of commercial development. The commercial development could include a mix of uses, including regional and neighborhood service retail, office, institutional, education, hospitality, medical and industrial uses. In addition, the project would provide parks, public and private recreational amenities, schools, public services, helipad(s), a transit center/park and ride, and water and waste water treatment facilities. Portions of the site would be left as open space, particularly along the southern edge of the California Aqueduct and the foothills of the Tehachapi Mountains (in areas that have been identified as wildlife corridors). A new future interchange is proposed to eventually replace the existing Grapevine interchange. The proposed project is located approximately 13 miles south of Bakersfield city limits, east and west of Interstate 5 at the Grapevine interchange, and adjacent to Laval and Gibson Roads, at the southern end of the San Joaquin Valley area of Kern County.

SCE maintains an electrical system that consists of a network of electrical facilities (transmission, distribution, and supporting appurtenances) within Kern County. The proposed project has the potential to impact SCE's 220 kilovolt (kV) transmission lines and Pastoria substation in the project vicinity. SCE's rights-of-way and fee-owned properties are purchased for the exclusive use of SCE to operate and maintain its present and future facilities. Any proposed use will be reviewed on a case-by-case basis by SCE. Approvals or denials will be in writing based upon review of the maps provided by the developer and compatibility with SCE right-of-way constraints and rights. The impacts will need to be consented to and addressed by SCE prior to finalizing the plan of development. Please forward five (6) sets of plans depicting SCE's facilities and associated land rights to the following location:

Real Properties Department  
Southern California Edison Company  
2131 Walnut Grove Avenue  
G.O.3 – Second Floor  
Rosemead, CA 91770

Please be advised if development plans result in the need to build new or relocate existing SCE electrical facilities that operate at or above 50 kV, SCE may be subject to the California Public Utilities Commission's (CPUC) General Order 131-D<sup>1</sup>, which contains rules relating to the planning and construction of electric generation, transmission/power/distribution line facilities and substations located in California. If the relocation or construction of new transmission lines results in significant environmental impacts, they must be identified and addressed in the Draft EIR. If significant impacts resulting from SCE's facilities are not adequately addressed in the EIR, SCE may be required to pursue a separate, mandatory CEQA review through the CPUC, which could delay approval of the SCE transmission line portion of the project for two years or longer.

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<sup>1</sup> <http://docs.cpuc.ca.gov/PUBLISHED/Graphics/589.PDF>



Calvin Rossi, Region Manager  
Local Public Affairs  
2425 S. Blackstone Avenue  
Tulare, CA 93274

SCE looks forward to working with the County and developer on the proposed project. If you have any questions regarding this letter, please do not hesitate to contact me at [Calvin.Rossi@sce.com](mailto:Calvin.Rossi@sce.com) and (559) 685-3240.

Regards,

A handwritten signature in cursive script that reads "Calvin J. Rossi".

Calvin Ross  
Local Public Affairs Region Manager  
Southern California Edison Company



## DEPARTMENT OF CONSERVATION

*Managing California's Working Lands*

## Division of Oil, Gas, and Geothermal Resources

4800 STOCKDALE HIGHWAY, SUITE 100 • BAKERSFIELD, CALIFORNIA 93309

PHONE (661) 322-4031 • FAX (661) 861-0279 • WEB SITE [conservation.ca.gov/dog](http://conservation.ca.gov/dog)

May 9, 2014

Jacquelyn R. Kitchen, Supervising Planner  
Kern County Planning and Community Development Department  
2700 M Street, Suite 100  
Bakersfield, California 93301

Subject: Tejon Grapevine Specific and Community Plan  
Oil and Gas Wells shown on *attached* Location Maps as follows:  
*Location Maps A through D*; Sections 29, 32, 33, and 34 in T.11N., R.19W.  
*Location Map E*; Sections 3, 4, 5, 8, and 9 in T.10N., R.19W.  
*Location Map F*; Sections 6 and 7, T.10N., R.19W.  
*Location Map G*; Sections 14 through 23 and 29, T.10N., R.19W., and  
*Location Map H*; Section 24, T.10N., R.19W., and Section 19, T.10N., R.18W.

Dear Ms. Kitchen:

The Department of Conservation's Division of Oil, Gas, and Geothermal Resources (Division) has reviewed the above referenced project. The Division supervises the drilling, maintenance, and plugging and abandonment of oil, gas, and geothermal wells in California. The Division offers the following comments for your consideration.

The proposed project is planned both inside and outside the administrative boundaries of the Tejon and North Tejon oil fields. 52 active wells and 116 plugged-and-abandoned (P&A) wells have been identified within project boundaries as shown on the subject *Location Maps*. Of the P&A wells, 28 are dry holes which never produced oil or gas. All reported well locations are summarized in *Tables 1 through 7*.

The P&A wells will need to be addressed if structures, roads, or parking lots are planned in proximity to one or more of them, and/or access to the well(s) becomes impeded. Given the total count of P&A wells, many are likely to require excavation for surface plug inspection and leakage testing prior to construction. Please refer to the attached *Proximity* diagram.

The Division recommends that no structure be built over or in proximity to an abandoned well location. According to Section 3208.1 (a) of the Public Resources Code (PRC), the supervisor or district deputy may order the reabandonment of any previously abandoned well if the supervisor or district deputy has reason to question the integrity of the previous abandonment. The costs of well reabandonment operations, depending on the situations described in PRC 3208.1 (a) (1) (2) and (3) could be the responsibility of the project owner or developer and can



Ms. Jacquelyn Kitchen  
Grapevine Specific and Community Plan  
May 9, 2014

be significant. The Division should be consulted for an opinion regarding well reabandonment responsibilities for the project owner or developer.


If these or any other abandoned or unrecorded wells are uncovered or damaged during excavation or grading, remedial plugging operations may be required. This office must be contacted to obtain information on the requirements for and approval to perform remedial operations.

The Division recommends that the well locations be recorded on all future maps related to this project with a minimum 10-foot no-build radius. Also, legible copies of the final project maps should be submitted to the Division. For additional information, please check the Division's website page at:

[http://www.conservation.ca.gov/dog/for\\_operators/Pages/construction\\_site\\_review.aspx](http://www.conservation.ca.gov/dog/for_operators/Pages/construction_site_review.aspx).

Thank you for the opportunity to comment on this project. If you have any questions, please contact **Dayne L. Frary** at the Bakersfield district office, phone **(661) 334-3674**.

Sincerely,



Michael Toland  
Acting Senior Oil and Gas Engineer  
Environmental Unit





## Grapevine Specific and Community Plan

**North Tejon Oil Field**

Portion in the W/2 of Section 29, T.11N., R.19W.

Source: Division Field Map No. 430

May 2014 DLF

Table 1  
Grapevine Specific and Community Plan  
Oil and Gas Wells  
Ptn of the W/2 of Section 29, T.11N., R.19W.  
North Tejon Oil Field

Operator	Lease	Well No.	API No.	Status	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD 83
Vintage Production CA LLC	R-S-T	16-29	029-20515	P & A July 1995 acs	Fr SW cor 1810N, 660E	907 GL	35.006734	-118.932408
Reserve Oil, Inc.	R-S-T	18-29	029-20516	P & A DH Sept 1960 ww	Fr SW cor 660N, 660E	945 GL	35.003530	-118.932345
Reserve Oil, Inc.	R-S-T	36-29	029-20517	P & A Jan 1964	Fr SW cor 1810N, 1980E	913 GL	35.006798	-118.928097

Refer to Location Map A

**Key**

- acs Abandoned to current DOGGR standards
- DH Dry Hole
- GL Ground Level
- P & A Plugged and Abandoned
- ww Utilized as a fresh water well beginning Nov 1960; present day status unknown.



## Grapevine Specific and Community Plan

Tejon Oil Field, Western Area

Portions in the NW/4 and the SE/4 of Section 32, T.11N., R.19W.

Source: Division Field Map No. 430

May 2014 DLF



**Table 2**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In the NW/4 and SE/4 of Section 32, T.11N., R.19W.**  
**Tejon Oil Field, Western Area**

Operator of Record	Well	API Number	Status Mo-Yr	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD 83
<b>NW/4 of Section 32</b>							
ARCO Western Energy	1	029-18623	P & A May 1992	Fr SW cor 4017N, 2305E	1010 KB	34.995581	-118.927150
ARCO Western Energy	2	029-18624	P & A NC Apr 1969	Fr SW cor 5007N, 2302E	989 KB	34.998258	-118.927075
ARCO Western Energy	3	029-18625	P & A NC Apr 1969	Fr SW cor 4426N, 2034E	1012 KB	34.996725	-118.927980
Vintage Production California LLC (VPC)	31X-32	030-22876	Active	Fr NW cor 798S, 1460E	987 KB	34.999542	-118.930445
VPC	60H-32	030-46343	Active	Fr NW cor 762S, 1379E	1095 KB	34.986513	-118.930652
<b>SE/4 of Section 32</b>							
<b>"J.V." Lease (BLM)</b>							
VPC	46H-32	030-43982	Active	Fr SE cor 346N, 1545W	1054 KB	34.985342	-118.922742
VPC	47H-32	030-44145	Active	Fr SE cor 2297N, 317W	1049 KB	34.990705	-118.918647
VPC	50H-32	030-44146	Active	Fr SE cor 1990N, 314W	1058 KB	34.989860	-118.918636
VPC	49H-32	030-44172	Active	Fr SW cor 2320N, 2523E	1072 KB	34.990601	-118.927185
VPC	48H-32	030-44317	Active	Fr SE cor 2837N, 876W	1042 KB	34.992187	-118.920514
VPC	51H-32	030-44442	Active	Fr SW cor 2259N, 2615E	1067 KB	34.990361	-118.926544
VPC	53H-32	030-44443	Active	Fr SE cor 1328N, 460W	1075 KB	34.988058	-118.919213
VPC	54H-32	030-44444	Active	Fr SE cor 627N, 2231W	1080 KB	34.986115	-118.925034
VPC	2H-32	030-44930	Active	Fr SE cor 1816N, 2420W	1071 KB	34.989380	-118.925667
VPC	56H-32	030-45166	Active	Fr SE cor 1573N, 196W	1070 KB	34.988715	-118.918238
VPC	67H-32	030-50686	Active	Fr SE cor 317N, 1618W	1108 KB	34.985266	-118.922984
VPC	56R-32	029-18714	Active	Fr S/4 cor 1951N, 330E	1057 KB	34.989747	-118.925331
VPC	86-32	029-00902	Active	Fr SE cor 2240N, 478W		34.990539	-118.919159
VPC	WWD7-32	030-53049	Active	Fr SE cor 741N, 156W	1092 KB	34.986429	-118.918106
VPC	WWD8-32	030-53050	Active	Fr SE cor 2567N, 353W	1032KB	34.991477	-118.917830
VPC	"J.V. Reserve" 1H	030-20984	Active	Fr SE cor 1936N, 2541W	1066 KB	34.989718	-118.926036
VPC	10H-32	030-21006	Active	Fr SE cor 1125N, 500W	1080 KB	34.987462	-118.919301

**Table 2**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In the NW/4 and SE/4 of Section 32, T.11N., R.19W.**  
**Tejon Oil Field, Western Area**

Operator of Record	Well	API Number	Status Mo-Yr	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD 83
VPC	28H-32	030-36350	Active	Fr SE cor 322N, 879W	1101 KB	34.985281	-118.920521
VPC	25H-32	030-37072	Active	Fr SE cor 259N, 1192W	1104 KB	34.985055	-118.921593
VPC	101-32	029-18732	Active	Fr S/4 cor 1980N, 1290E	1039 KB	34.989545	-118.920254
VPC	76-32	029-18724	Active	Fr S/4 cor 2310N, 1590E	1045 KB	34.990724	-118.921078
VPC	682-32	029-18744	Active	Fr S/4 cor 998N, 1293E	1075 KB	34.987119	-118.922132
VPC	102-32	029-18733	Active	Fr SE cor 1900N, 800W	1155 KB	34.989596	-118.920571
VPC	104-32	030-02007	Active	Fr SE cor 1318N, 1652W	1076 KB	34.988018	-118.923112
VPC	23H-32	030-36348	Active	Fr SW cor 2360N, 2498E	1055 KB	34.990852	-118.926946
VPC	765-32	029-18747	Active	Fr SE cor 1844N, 747W	1056 KB	34.989440	-118.920046
VPC	575-32	029-18739	Active	Fr SE cor 1430N, 2060W	1068 KB	34.988321	-118.924478
VPC	755-32	029-18746	Active	Fr SE cor 2649N, 810W	1039 KB	34.991618	-118.920301
VPC	"J.V. Valv" 1H	030-20751	Active	Fr SE cor 1564N, 493W	1065 KB	34.989721	-118.926028
VPC	4H-32	030-31718	Active	Fr SW cor 2401N, 2973E	1055 KB	34.991000	-118.925368
VPC	685-32	029-18745	Active	Fr SE cor 580N, 1300W	1086 KB	34.986008	-118.921940
VPC	3H-32	030-31720	Active	Fr SW cor 2993N, 2333E	1039 KB	34.992604	-118.925421
VPC	24H-32	030-36349	Active	Fr SE cor 1198N, 2090W	1083 KB	34.987653	-118.924545
VPC	15H-32	030-31717	Active	Fr SW cor 451N, 2757E	1089 KB	34.985613	-118.926027
VPC	565-32	029-18738	P & A Mar 2012	Fr SE cor 1980N, 1980W	1054 KB	34.989810	-118.924220
VPC	68-32	029-00272	P & A NC Aug 1973	Fr S/4 cor 990N, 990E	1075 KB	34.987521	-118.923173
VPC	67-32	029-18721	P & A May 2002	Fr S/4 cor 1650N, 990E	1052 GL	34.988910	-118.923369
VPC	775-32	029-18748	P & A July 2013	Fr SE cor 1320N, 770W	1069 KB	34.987997	-118.920188
VPC	55-32	029-18712	P & A Mar 2002	Fr S/4 cor 2880N, 330E	1031 KB	34.992290	-118.925573
VPC	65-32	029-18719	P & A NC Apr 1973	Fr S/4 cor 2881N, 990E	1031 KB	34.992628	-118.922956

**Table 2**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In the NW/4 and SE/4 of Section 32, T.11N., R.19W.**  
**Tejon Oil Field, Western Area**

Operator of Record	Well	API Number	Status Mo-Yr	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD 83
VPC	485-32	029-18736	P & A July 2013	Fr S/4 cor 650N, 105E	1095 KB	34.986151	-118.926035
VPC	57-32	029-18715	P & A NC Oct 1974	Fr S/4 cor 1650N, 330E	1061 KB	34.989153	-118.925303
VPC	77-32	029-18725	P & A NC Feb 1973	Fr S/4 cor 1650N, 1590E	1060 KB	34.989251	-118.921063
VPC	465-32	029-18735	P & A May 2002	Fr S/4 cor 2130N, 105E	1055 KB	34.990229	-118.926324
VPC	875-32	029-18751	P & A May 1996	Fr SE cor 1320N, 167W	1068 KB	34.987999	-118.918454
VPC	88-32	029-18731	P & A May 1996	Fr SE cor 990N, 476W	1077 KB	34.987099	-118.919484
VPC	56-32	029-18713	P & A NC Mar 1971	Fr S/4 cor 2310N, 330E	1046 KB	34.991115	-118.925211
VPC	58-32	029-18716	P & A Mar 2012	Fr S/4 cor 990N, 330E	1075 KB	34.987096	-118.925573
VPC	78-32	029-18726	P & A May 1996	Fr S/4 cor 990N, 1590E	1065 GL	34.987099	-118.921364
VPC	79-32	029-18727	P & A Mar 2012	Fr S/4 cor 330N, 1650E		34.985295	-118.920938
VPC	455-32	029-18734	P & A May 2002	Fr S/4 cor 2757N, 105E	1045 KB	34.992001	-118.926324
VPC	785-32	029-18749	P & A July 2013	Fr SE cor 660N, 751W	1084 KB	34.986190	-118.920115
VPC	85-32	029-18729	P & A July 2001	Fr SE cor 3000N, 450W	1030 KB	34.992618	-118.919403
VPC	555-32	029-18737	P & A May 2002	Fr SE cor 2640N, 1980W	1040 KB	34.991629	-118.924504
VPC	59-32	029-18717	P & A Feb 2003	Fr S/4 cor 330N, 330E	1090 KB	34.985265	-118.925292
VPC	585-32	029-18740	P & A Mar 2003	Fr SE cor 590N, 1970W	1086 KB	34.986012	-118.924171
VPC	66-32	029-18720	P & A Feb 2003	Fr S/4 cor 2310N, 990E	1037 GL	34.990726	-118.923072

**Table 2**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In the NW/4 and SE/4 of Section 32, T.11N., R.19W.**  
**Tejon Oil Field, Western Area**

Operator of Record	Well	API Number	Status Mo-Yr	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD 83
VPC	675-32	029-18743	P & A Mar 2003	Fr SE cor 1410N, 1290W	1067 KB	34.988278	-118.921877
VPC	865-32	029-18750	P & A May 2002	Fr SE cor 1980N, 182W	1052 KB	34.989819	-118.918504
VPC	87-32	029-18730	P & A Mar 2011	Fr SE cor 1580N, 477W	1063 KB	34.988701	-118.919182
VPC	655-32	029-18741	P & A Apr 2011	Fr SE cor 2640N, 1320W	1040 KB	34.991629	-118.922307
VPC	69-32	029-18722	P & A Feb 2003	Fr S/4 cor 330N, 990E	1096 DF	34.985308	-118.923120
VPC	665-32	029-18742	P & A June 2002	Fr SE cor 2130N 1350W	1064 KB	34.990229	-118.922404

Refer to Location Map B

**Key**

DF Derrick Floor  
GL Ground Level  
KB Kelly Bushing  
NC Not Abandoned to Current Division Standards  
P & A Plugged and Abandoned





**Table 3**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In the SE/4 of Section 33, T.11N., R.19W.**  
**Tejon Oil Field**

Operator of Record	Well No.	API No.	Status Month-Year	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD83
ARCO Western Energy	2-33	029-18840	P&A Dec 1992	Fr ctr 330S, 330E	1020 DF	34.992229	-118.907643
ARCO Western Energy	12-33	029-18847	P&A Dec 1992	Fr E/4 cor 330S, 990W	1009 GL	34.992641	-118.903098
ARCO Western Energy	13-33	029-18848	P&A Dec 1992	Fr ctr 330S, 1200E	1017 KB	34.992548	-118.904674
Reserve Oil, Inc.	3-33	029-18841	P&A July 1943	Fr ctr 960S, 330E	1027 DF	34.990949	-118.907539
Reserve Oil, Inc.	6-33	029-18843	P&A Apr 1972	Fr E/4 cor 330S, 330W	1009 DF	34.992611	-118.900961
Reserve Oil, Inc.	65-33	029-18859	DH P&A Oct 1955	Fr ctr 330S, 990E	1024 KB	34.992578	-118.905387
Reserve Oil, Inc.	66R-33	029-18862	P&A Apr 1972	Fr ctr 950S, 620E	1029 KB	34.990857	-118.906340
Reserve Oil, Inc.	67-33	029-18863	P&A June 1972	Fr ctr 1460S, 1200E	1028 GL	34.989474	-118.904739
Reserve Oil, Inc.	78-33	029-18868	DH P&A Feb 1952	Fr SE cor 990N, 990W	1046 KB	34.987416	-118.903295
Reserve Oil, Inc.	78A-33	029-18869	DH P&A Sept 1952	Fr SE cor 980N, 700W	1030 GL	34.987170	-118.902285
Reserve Oil, Inc.	157-33	029-18873	P&A Apr 1972	Fr ctr 1430S, 760E	1035 KB	34.989597	-118.906051
Edwin W. Pauley	33-9	029-18816	DH P&A Feb 1945	Fr SE cor 963N, 405W	1027 DF	34.987986	-118.901270
Pauley Petroleum Inc.	57-33	029-18817	P&A Jan 1972	Fr ctr 1320S, 330E	1037 KB	34.989873	-118.907548
The Petrol Corp.	33-5	029-18820	P&A July 1940	Fr ctr 1550S, 990E	1039 GL	34.989136	-118.905455
Vintage Production California LLC (VPC)	1H-33	030-45349	Active	Fr SE cor 1310N, 1628W	1053 KB	34.987986	-118.905257
VPC	57X-33	030-47145	Active	Fr SE cor 2135N, 2436W	1039 KB	34.990254	-118.907952

**Table 3**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In the SE/4 of Section 33, T.11N., R.19W.**  
**Tejon Oil Field**

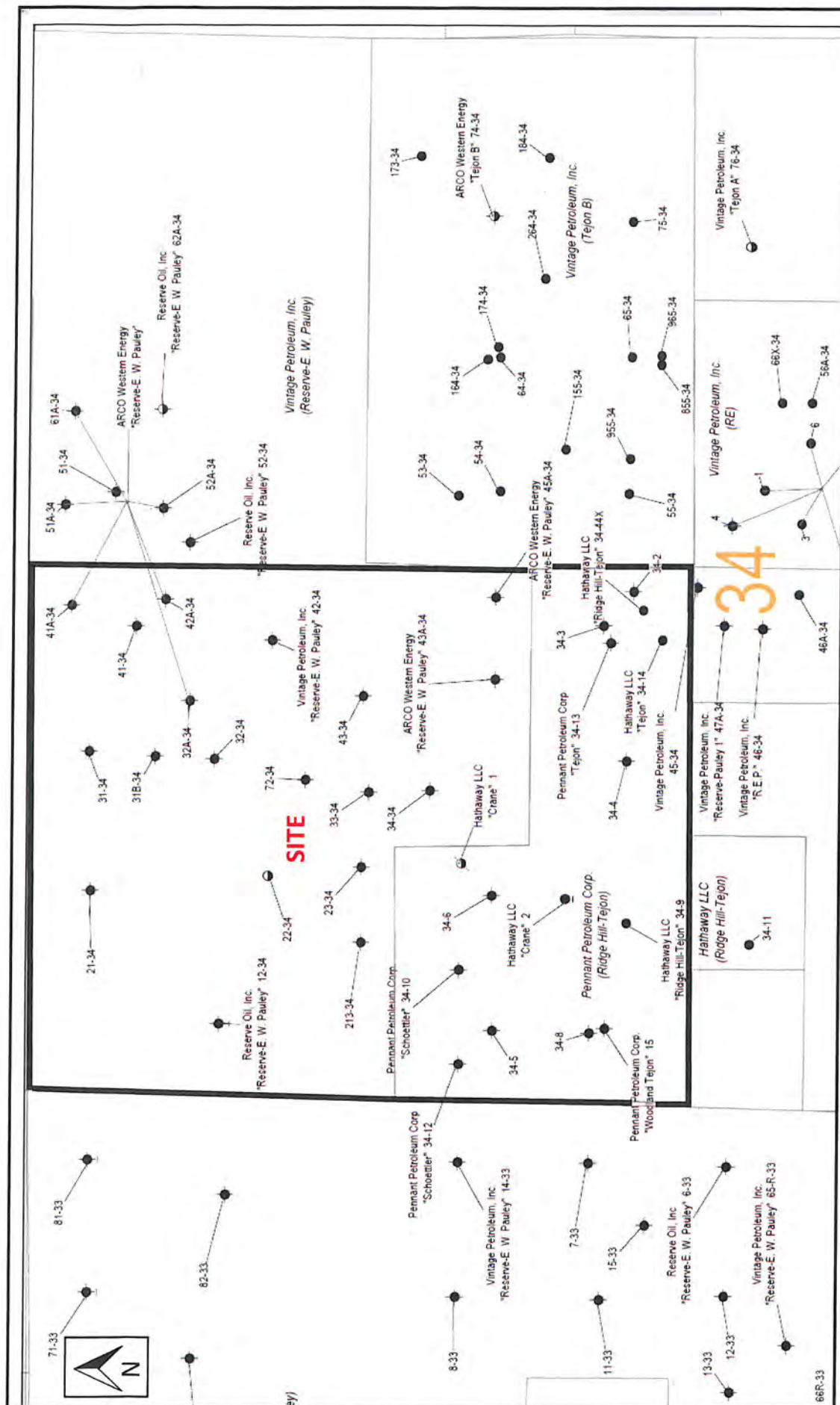
Operator of Record	Well No.	API No.	Status Month-Year	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD83
VPC	66X-33	030-48376	Active	Fr SE cor 2021N, 1618W	1037 KB	34.989941	-118.905223
VPC	76X-33	030-50806	Active	Fr SE cor 2012N, 1077W	1045 KB	34.989913	-118.903413
VPC	66-33	029-18861	P&A Dec 1996	Fr ctr 1000S, 990E	1021 KB	34.990796	-118.905253
VPC	57-V-33	029-18855	P&A Dec 1996	Fr ctr 1100S, 660E	1033 KB	34.990427	-118.906306
VPC	77-33	029-18867	P&A Apr 1997	Fr E/4 cor 1600S, 825W	1037 KB	34.989137	-118.902567
VPC	67-R-33	029-18864	P&A Dec 1996	Fr ctr 1425S, 1360E	1035 KB	34.989475	-118.904139
VPC	58-33	029-18856	P&A Oct 2009	Fr ctr 1980S, 330E	1040 GL	34.987645	-118.907631
VPC	56-33	029-18854	P&A Dec 2001	Fr ctr 615S, 380E	1025 KB	34.991717	-118.907457
VPC	176-33	029-18874	P&A Dec 1996	Fr ctr 1055S, 1365E	1030 KB	34.990458	-118.904055
VPC	87-33	029-18872	P&A Oct 1997	Fr E/4 cor 1300S, 300W	1022 KB	34.989906	-118.900910
VPC	76-33	029-18866	P&A Dec 1996	Fr E/4 cor 990S, 850W	1020 KB	34.990705	-118.902666
VPC	65-R-33	029-18860	P&A Dec 2001	Fr ctr 700S, 1420E	1018 KB	34.991780	-118.903894

Refer to Location Map C

**Key**

DF Derrick Floor  
DH Dry Hole  
GL Ground Level  
KB Kelly Bushing  
P&A Plugged and Abandoned





Scale - Feet

720	1440
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### Location Map D

## Grapevine Specific and Community Plan

Tejon Oil Field, Central Area

Portion in the NW/4 of Section 34, T.11N., R.19W.

Source: Division Field Map No. 430

May 2014 DLF

**Table 4**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In the NW/4 of Section 34, T.11N., R.19W.**  
**Tejon Oil Field**

Operator of Record	Well No.	API No.	Status Month-Year	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD83
ARCO Western Energy	32A-34	029-18900	P&A May 1992	Fr N/4 cor 700S, 700W	931 GL	34.999896	-118.893302
ARCO Western Energy	41A-34	029-18904	P&A May 1992	Fr N/4 cor 224S, 224W	918 GL	35.001498	-118.891731
ARCO Western Energy	42A-34	029-18906	P&A Dec 1992	Fr N/4 cor 700S, 233W	925 GL	35.000238	-118.891630
ARCO Western Energy	43A-34	029-57938	P&A Dec 1992	Fr ctr 870N, 600W	958 GL	34.995780	-118.892945
ARCO Western Energy	45A-34	029-51966	P&A Dec 1992	Fr ctr 870N, 200W	962 KB	34.995781	-118.891594
E&B Nat'l Resource Mgmt Corp (E & B)	18-34	030-44320	Active	Fr SW cor 3743N, 1600E	980 KB	34.994688	-118.894420
E & B	Crane 1	029-18915	Active WD	Fr W/4 cor 1155N, 1155E	945 GL	34.996231	-118.895978
E & B	Crane 2	029-18916	Active	Fr W/4 cor 605N, 990E	980 KB	34.994749	-118.896562
E & B	34-9	029-18923	Active	Fr W/4 cor 330N, 990E	980 GL	34.993991	-118.896964
E & B	34-14	029-51222	Active	Fr ctr 160N, 406W	962 GL	34.993516	-118.892300
E & B	34-44X	030-00853	Active	Fr ctr 247N, 256W	959 GL	34.993775	-118.891808
Pennant Petroleum Corp (Pennant)	34-2	029-18917	P&A Dec 1993	Fr ctr 162N, 181W	961 GL	34.993906	-118.891499
Pennant	34-3	029-18918	P&A Dec 1993	Fr ctr 330N, 330W	960 GL	34.994305	-118.892058
Pennant	34-4	029-18919	P&A May 2002	Fr W/4 cor 330N, 1650E	977 KB	34.993985	-118.894291
Pennant	34-5	029-18920	P&A May 2002	Fr W/4 cor 990N, 330E	976 GL	34.995793	-118.898731
Pennant	34-6	029-18921	P&A May 2002	Fr W/4 cor 990N, 990E	970 GL	34.995803	-118.896505
Pennant	34-8	029-18922	P&A Feb 1981	Fr W/4 cor 330N, 330E	986 GL	34.994487	-118.898769
Pennant	34-10	029-18925	P&A May 2002	Fr NW cor 1485S, 560E	970 RT	34.996239	-118.897726

**Table 4**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In the NW/4 of Section 34, T.11N., R.19W.**  
**Tejon Oil Field**

Operator of Record	Well No.	API No.	Status Month-Year	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD83
Pennant	34-12	029-18926	P&A May 2002	Fr W/4 cor 1155N, 165E	980 KB	34.996243	-118.899278
Pennant	34-13	029-50588	P&A May 2002	Fr ctr 408N, 416W	959 GL	34.994210	-118.892344
Pennant	15	029-62777	P&A May 2002	Fr W/4 cor 430N, 330E	996 KB	34.994271	-118.898689
Reserve Oil, Inc.	12-34	029-18894	P&A Feb 1972	Fr NW cor 990S, 330E	960 KB	34.999436	-118.898612
Vintage Production California LLC (VPC)	22EH-34	030-31235	Active WD	Fr NW cor 935S, 1443E	954 KB	34.999476	-118.894899
VPC	22-34	029-86052	Active	Fr SW cor 5250N, 1100E	958 KB	34.998800	-118.896183
VPC	32H-34	030-33234	Active	Fr SW cor 5378N, 1226E	964 KB	34.999101	-118.895702
VPC	42X-34	030-33235	Active	Fr SW cor 4892N, 2566E	949 KB	34.997795	-118.891308
VPC	46A-34	029-18876	Active	Fr ctr 510S, 165W	975 KB	34.991696	-118.891547
VPC	855-34	029-87341	Active	Fr W/4 cor 178N, 960E	962 KB	34.993555	-118.887772
VPC	21-34	029-18895	P&A Dec 2001	Fr N/4 cor 330S, 1650W	945 KB	35.001219	-118.896421
VPC	213-34	029-18914	P&A Apr 1997	Fr W/4 cor 1485N, 715E	970 KB	34.997561	-118.897279
VPC	23-34	029-18896	P&A Apr 1997	Fr W/4 cor 1485N, 1100E	966 KB	34.997562	-118.896041
VPC	31-34	029-18897	P&A Apr 1997	Fr N/4 cor 330S, 990W	941 KB	35.001251	-118.894133
VPC	31B-34	029-18898	P&A Dec 2000	Fr N/4 cor 660S, 990W	945 KB	35.000359	-118.894216
VPC	32-34	029-18899	P&A Aug 1993	Fr N/4 cor 990S, 990W	951 GL	34.999560	-118.894261
VPC	33-34	029-18901	P&A Dec 2001	Fr W/4 cor 1485N, 1485E	962 KB	34.997470	-118.894805
VPC	34-34	029-18902	P&A Apr 1997	Fr W/4 cor 1155N, 1485E	954 GL	34.996640	-118.894775

**Table 4**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In the NW/4 of Section 34, T.11N., R.19W.**  
**Tejon Oil Field**

Operator of Record	Well No.	API No.	Status Month-Year	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD83
VPC	41-34	029-18903	P&A Dec 2000	Fr N/4 cor 440S, 330W	934 KB	35.000610	-118.892067
VPC	42-34	029-18905	P&A Dec 2001	Fr N/4 cor 1100S, 400W	948 KB	34.998797	-118.892300
VPC	43-34	029-18907	P&A No Date	Fr W/4 cor 1635N, 1985E	953 KB	34.997558	-118.893222

Refer to Location Map D

**Key**

DF Derrick Floor  
DH Dry Hole  
GL Ground Level  
KB Kelly Bushing  
P&A Plugged and Abandoned  
RT Rotary Table  
WD Water Disposal Well





**Table 5**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In Sections 3, 4, 5, 8, and 9, T.10N., R.19W.**  
**Tejon Oil Field**

Operator of Record	Lease	Well No.	API Number	Status Month & Year	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD83
<b>Section 3, T10N, R19W</b>								
ARCO Western Energy (ARCO)	Tejon R-H	11-3	029-18609	P&A DH Feb 1945	Fr NW cor 330S, 330E	1054 DF	34.984059	-118.898610
<b>Section 4, T10N, R19W</b>								
	No Wells							
<b>Section 5, T10N, R19W</b>								
Chevron U.S.A. Inc. (CUSA)	Tejon Ranch	22-5	029-18779	P&A WF Nov 1983	Fr NW cor 990S 990E	1139 KB	34.981657	-118.932144
CUSA	Tejon Ranch	23-5	029-18780	P&A July 1947	Fr W/4 cor 990N 990E	1158 KB	34.980029	-118.932184
CUSA	Tejon Ranch	32-5	029-18782	P&A Apr 1989	Fr N/4 cor 990S 990W	1136 KB	34.981660	-118.929974
CUSA	Tejon Ranch	42-5	029-18784	P&A Apr 1989	Fr N/4 cor 990S 330W	1130 KB	34.981660	-118.927774
CUSA	Tejon Ranch	52-5	029-18786	P&A Mar 1983	Fr N/4 cor 990S 330E	1128 KB	34.981660	-118.925564
CUSA	Tejon Ranch	53A-5	029-18787	P&A May 1968	Fr N/4 cor 1320S 330E	1133 KB	34.980985	-118.925452
CUSA	Tejon Ranch	62-5	029-18789	P&A Apr 1989	Fr N/4 cor 900S 990E	1126 KB	34.981900	-118.923364
CUSA	Tejon Ranch	72-5	029-18791	P&A DH Aug 1947	Fr NE cor 990S 990W	1124 KB	34.981834	-118.920875
CUSA	Tejon Ranch B	1	029-18928	P&A DH Apr 1957	Fr NE cor 2310S 330W	1148 KB	34.978135	-118.918596
CUSA	Tejon T	4	029-58857	P&A WD Apr 1989	Fr NW cor 1124S 624E	1140 KB	34.981289	-118.933366
Dow Chemical Co.	DDCP-Tejon Ranch NW/RS <u>OFB</u>	1	029-57884	P&A DH Sept 1978	Fr W/4 cor 400S 1800E	1187 KB	34.976164	-118.929381

**Table 5**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In Sections 3, 4, 5, 8, and 9, T.10N., R.19W.**  
**Tejon Oil Field**

Operator of Record	Lease	Well No.	APINumber	Status Month & Year	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD83
<b>Section 8, T10N, R19W</b>								
ARCO	Tejon <u>QFB</u>	11	029-32528	P&A DH Jan 1942	Fr NW cor 663S 3076E	1239 MAT	34.968047	-118.925265
ARCO	Tejon <u>QFB</u>	13	029-32529	P&A DH Feb 1942	Fr SW cor 2191N 2820E	1304 MAT	34.961368	-118.926211
ARCO	Tejon A <u>QFB</u>	53-8	029-32530	P&A DH Dec 1952	Fr NE cor 1607S 2340W	1271 KB	34.965495	-118.925645
ARCO	Tejon A <u>QFB</u>	61-8	029-32531	P&A DH Nov 1962	Fr NE cor 342S 1650W	1239 KB	34.968955	-118.923226
<b>Section 9, T10N, R19W</b>								
<b>No Wells</b>								

Refer to Location Map E

**Key**

- DF Derrick Floor
- DH Dry Hole
- KB Kelly Bushing
- MAT Ground Level
- QFB Outside Tejon Field Boundary
- P&A Plugged and Abandoned
- RT Rotary Table
- WD Water Disposal Well
- WF Waterflood Well





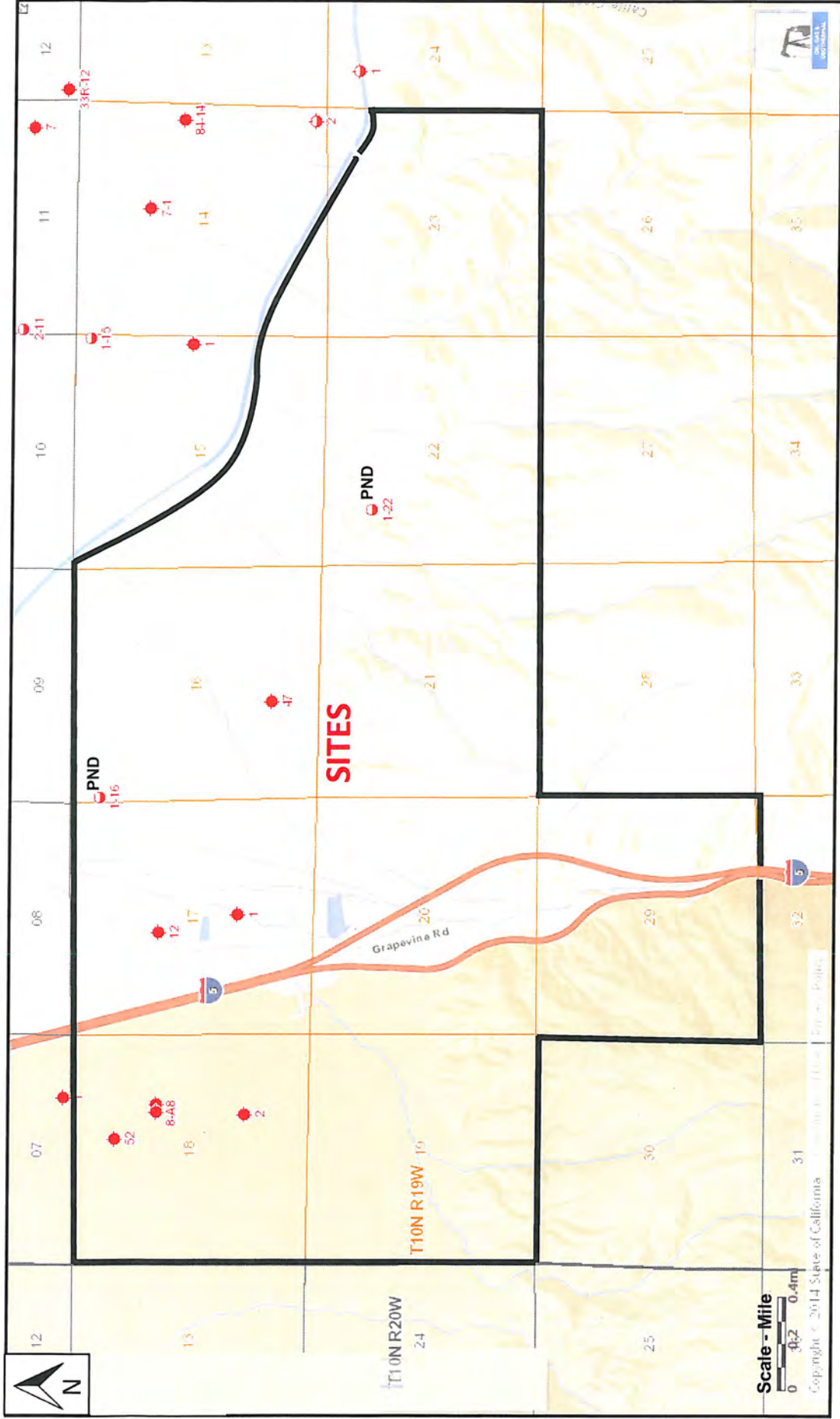
**Table 6**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In Sections 6 and 7, T.10N., R.19W.**

Operatorname	Well	API No.	Status Month & Year	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD83
<b>Section 6, T10N, R19W</b>							
Drilling & Production Company	38-6	029-32538	P&A DH Oct 1965	Fr SW cor 300N, 1300E	1300 DF	34.970693	-118.949261
<b>Section 7, T10N, R19W</b>							
101 Oil Company	1	029-32544	P&A DH Dec 1938	Fr NE cor 400S, 1000W	1300 MAT	34.968851	-118.939011
ARCO Western Energy (ARCO)	Tejon 1	029-32523	P&A DH Feb 1940	Fr SE cor 144N, 1431W	1429 MAT	34.955866	-118.940666
ARCO	Tejon 4	029-32524	P&A DH Dec 1939	Fr SE cor 2416N, 1219W	1357 MAT	34.962030	-118.939816
ARCO	Tejon 9	029-32525	P&A DH Nov 1941	Fr NE cor 877S, 2508W	1310 MAT	34.967567	-118.944138
ARCO	Tejon A 25-7	029-32526	P&A DH Aug 1945	Fr W/4 cor 339S, 989E	1415 MAT	34.961751	-118.950279
ARCO	Tejon Ranch 3	029-32527	P&A DH Jan 1946	Fr W/4 cor 316S, 329E	1414 DF	34.961787	-118.952366

Refer to Location Map F

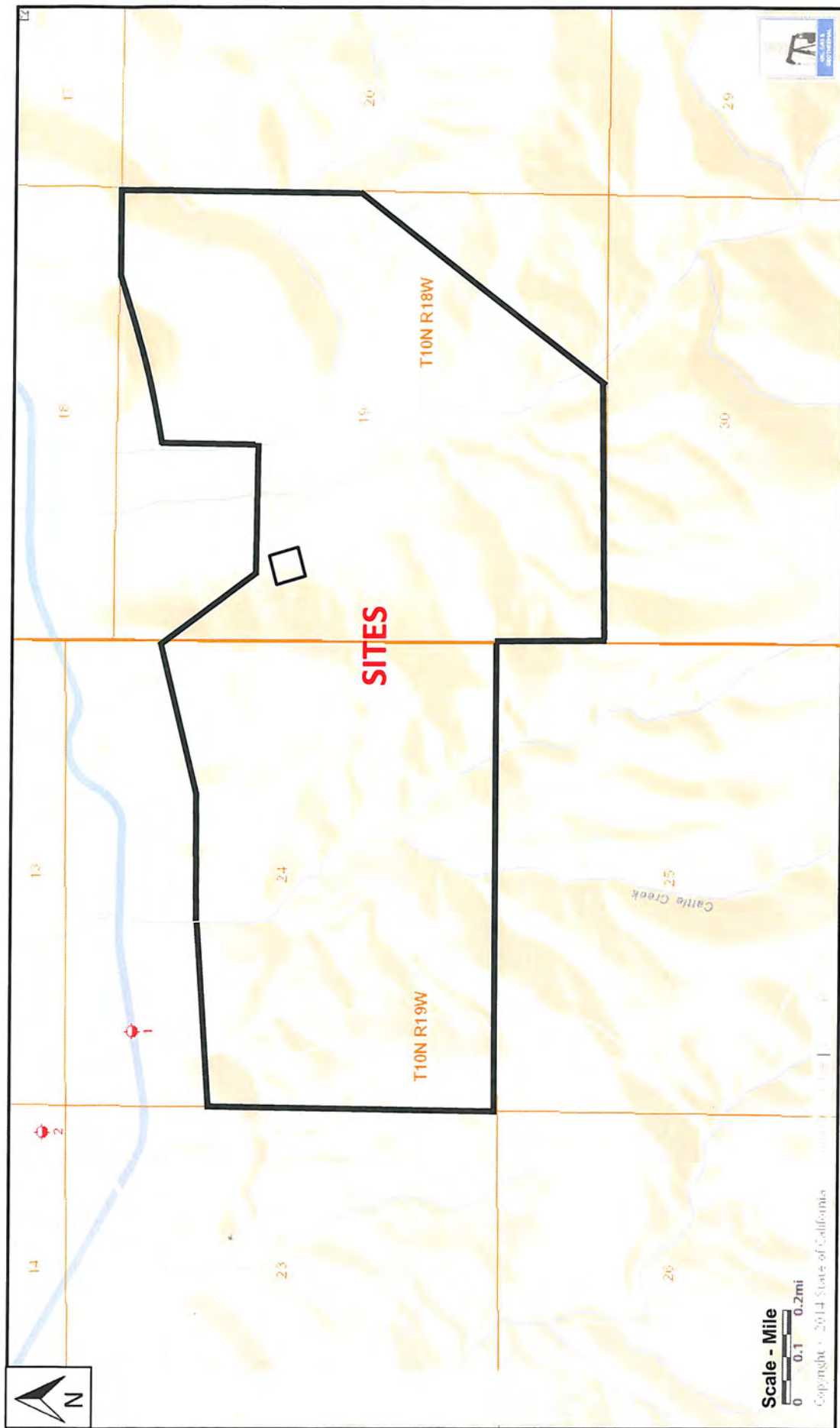
**Key**

DF Derrick Floor  
DH Dry Hole  
MAT Ground Level  
P&A Plugged and Abandoned



**Location Map G**  
 Grapevine Specific and Community Plan  
 Outside Tejon Oil Field Boundaries  
 In Sections 14 through 23, and 29, T. 10N., R. 19W.  
 Source: Division Online Well Finder  
 May 2014 DLF





### Location Map H

Grapevine Specific and Community Plan  
Outside Tejon Oil Field Boundaries

In a Portion of Section 24, T.10N., R.19W., and  
A Portion of Section 19, T.10N., R.18W.

Source: Division Online Well Finder

May 2014 DLF

**Table 7**  
**Grapevine Specific and Community Plan**  
**Oil and Gas Wells**  
**In Sections 16, 17, 18, 22, and 23, T.10N., R.19W.**  
**Outside Field Boundaries**

Operator of Record	Well	API No.	Status Month & Year	Location in Feet	Elevation in Feet	Latitude NAD83	Longitude NAD83
<b>Section 16, T10N, R19W</b>							
A. M. Van Flick	Tejon-Richfield 47	029-32548	P&A DH Mar 1957	Fr S/4 cor 990N, 330W	1405 KB	34.942959	-118.910323
<b>Section 17, T10N, R19W</b>							
L. M. Hampton	1	029-42426	P&A DH Oct 1968	Fr NE cor 3682S, 2381W	1471 KB	34.945017	-118.9267
ARCO Western Energy (ARCO)	Tejon 12	029-32534	P&A DH Feb 1942	Fr NW cor 1872S, 2347E	1408 MAT	34.94992	-118.928019
<b>Section 18, T10N, R19W</b>							
ARCO	Tejon 2	029-32535	P&A DH Feb 1940	Fr NE cor 3838S, 1825W	1557 MAT	34.944528	-118.941938
ARCO	Tejon 8	029-32536	P&A DH Sept 1941	Fr NE cor 1848S, 1625W	1490 MAT	34.95002	-118.941178
ARCO	Tejon 8-A	029-32537	P&A DH Nov 1941	Fr NE cor 1898S, 1630W	1492 MAT	34.950027	-118.941747
Phillips Petroleum Co.	Richfield-Tejon 52	029-32547	P&A DH May 1957	Fr NE cor 990S, 2310W	1482 KB	34.952577	-118.943848
<b>No Wells in Sections 22, 23, or 24 in T10N, R19W</b>	<b>No Wells in Section 19, T10N, R19W</b>						

Refer to Location Maps G and H

**Key**

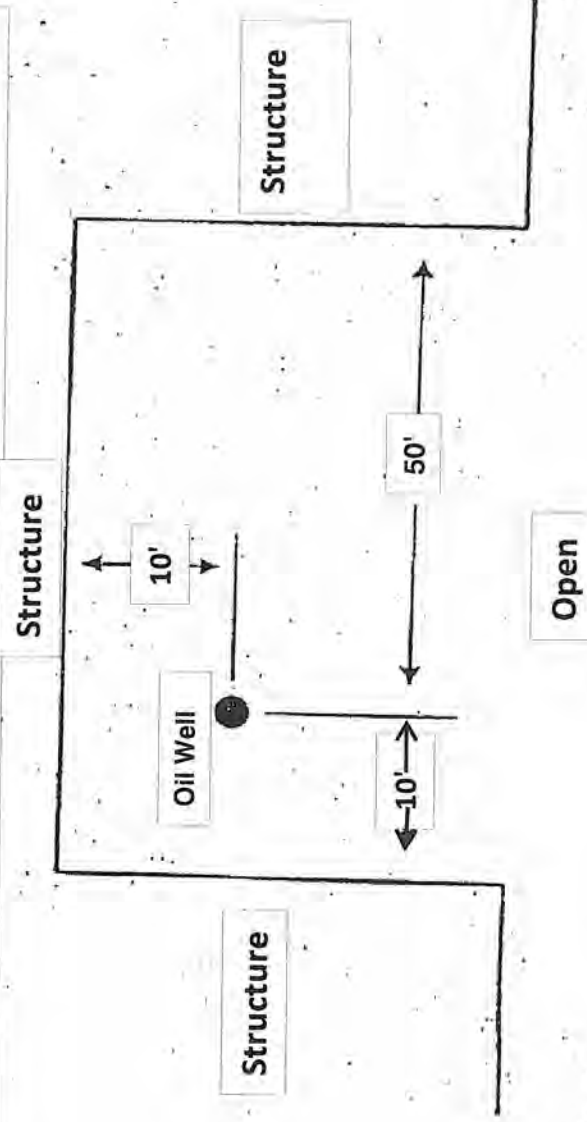
DH Dry Hole  
KB Kelly Bushing  
MAT Ground Level  
P&A Plugged and Abandoned

## PROXIMITY DIAGRAM A

### For Commercial, Industrial, and Residential Projects

Proximity, at a *minimum*, shall be defined as being within 10 feet from the property line and/or structure. The distance shall be measured from the center of the well, extending out to the sides of the building or structure. Two adjacent sides shall be not less than 10 feet, with the third side not less than 50 feet. The fourth side shall remain open to allow access to the well by a rig for workovers (if an active or idle well), abandonment, or reabandonment.

Example:



Note: If the operator of an active or idle well believes that the distance from the structure to the well is unsafe to work over, the operator may request the Division to review the special circumstances; a Division engineer will contact both the developer and the operator in writing of the decision.

State of California DOGGR, District 4



**DEPARTMENT OF TRANSPORTATION**

1352 WEST OLIVE AVENUE  
P.O. BOX 12616  
FRESNO, CA 93778-2616  
PHONE (559) 488-4325  
FAX (559) 445-5875  
TTY 711  
www.dot.ca.gov



*Serious drought.  
Help save water!*

May 12, 2014

2135-IGR/CEQA  
06-KER 5-9.5/15.0  
NOP DEIR  
The Grapevine Project

Ms. Jacquelyn R. Kitchen, Supervising Planner  
Kern County Planning Department  
2700 "M" Street, Suite 100  
Bakersfield, CA 93301

Dear Ms. Kitchen:

Thank you for the opportunity to review the Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) for the Grapevine Project. The project proposes to construct up to 12,000 residences (a range of single family and attached units) and up to 10,748,400 square feet of commercial development (potentially including regional and neighborhood commercial serving retail, office, institutional education, and hospitality, medical and industrial uses). In addition, the proposed project would provide parks, public and private recreational amenities, schools, a public services helipad, a transit center/park and ride, and water/waste water treatment facilities. The proposed land use plan would enable the continued development of oil and gas wells/extraction facilities. Per agreements with stakeholders, portions of the site would remain open space, particularly along the southern edge of the California aqueduct and the foothills of the Tehachapi Mountains. These are areas that have previously been identified as wildlife corridors.

The proposed project is within the 270,000-acre Tejon Ranch in unincorporated Kern County, California. The site is located on both sides of Interstate (I) 5 at the Grapevine Interchange, approximately 13 miles south of the City of Bakersfield limits and approximately 80 miles north of downtown Los Angeles. The Tejon Ranch Commerce Center, a commercial and industrial center, lies immediately north of and adjacent to the project site. Access to the site would be from I-5 at Laval Road and the Grapevine Interchange.

As part of the project, a new interchange is proposed to replace the Grapevine Interchange. The new interchange is proposed to be approximately half way between the existing Grapevine interchange and the California Highway Patrol Grapevine Inspection Facility. Primary circulation within the project would extend from these points for access. The roads within the project would be public.

Caltrans has been in discussions with Fehr and Peers, the traffic consultant on the project, and has also had the opportunity to review an Updated Traffic Impact Study (TIS) Methodology Memorandum for the Grapevine Project. It summarizes the proposed methodology for the Grapevine Project TIS as defined by Fehr and Peers and acts as the scope of work for the TIS.

Caltrans has the following comments on both the NOP and the Updated TIS Methodology Memorandum:

Caltrans has not received a complete and accurate description of the project phases, including completion dates for each phase. Given the lack of detail provided in the NOP, the following comments are provided and are subject to change. Please provide more information for a more thorough set of recommendations.

- The project is located in a rural setting along an interstate freeway. Caltrans is unable to agree on conceptual improvements to the interstate freeway without sufficient detail. The “Caltrans Guide for Preparation of Traffic Impact Studies” has not been followed by the traffic consultants, particularly with regard to Section III.B.2, Traffic Analysis Scenarios. This is a significant concern and inconsistent given the scope of this project and the magnitude of potential impacts. Where a project level EIR is being proposed, and not a Tiered document, there is need for greater detail to validate impacts and mitigation for Caltrans and the Federal Highway Administration (FHWA).
- Caltrans is concerned that the market saturation rate for residential housing implicit in the NOP is greatly overstated. If the residential portion of the project is not realized, the trip generation and trip distribution to internal or near-by zones would underestimate the air quality impacts as well as impacts to the state highway system.
- The rural setting appears to be in direct contradiction to SB 375 by proposing the equivalence of a new “city” along an interregional freeway in a rural setting. Caltrans anticipates potentially significant air quality impacts along the state highway system and regionally by virtue of increasing truck volumes or increasing passenger cars. This warrants interagency consultation between the California Air Resources Board (ARB), San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD), the Governor’s Office of Planning and Research (OPR) and Caltrans, which may require micro-simulation of PM2.5 and PM10 pollutants.
- Caltrans is concerned with the long distance project trips and mitigation. Validation of the long distance and cross-county trips is a concern that Caltrans wants to evaluate and agree with to mitigate the project impacts.
- Caltrans has concerns that the “Existing Conditions Analysis” assumes post construction trips from the Outlet Mall. This would result in an “Existing Conditions Analysis” that assumes the trip rates of a regionally significant project. Please have the project proponent provide the existing traffic volumes along with the intermediate step of the assumed Outlet Mall trips. This would enable Caltrans to compare the existing traffic volumes to the Outlet Mall trips.
- Caltrans has level of service requirements and significance thresholds that vary by location, i.e. rural and urban, that could be different than our local agency partners.



Ms Jacquelyn Kitchen  
May 12, 2014  
Page 3

Once the trip generation and trip distribution have been agreed to, Caltrans would review the proposed study locations and agree to the significance threshold.

If you have any questions, please contact me at (559) 488-4325.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Alec Kimmel', with a long horizontal stroke extending to the right.

ALEC KIMMEL, Transportation Planner  
Planning South Branch

copy via email:      Rob Hananouchi, Fehr and Peers  
Steve Letterly, DMB Pacific Ventures, LLC  
Paul Candelaria, Kern County  
Warren Maxwell, Kern County Roads Department  
George Wright, Fehr and Peers  
Ronald Milam, Fehr and Peers  
Caltrans District 7 Intergovernmental Review  
Caltrans District 6 Traffic Operations





RON CHAPMAN MD, MPH  
Director & State Health Officer

State of California—Health and Human Services Agency  
California Department of Public Health



EDMUND G. BROWN JR.  
Governor

May 20, 2014

Jacquelyn R. Kitchen, Supervising Planner  
Kern County Planning and Community Development Dept.  
2700 M Street, Suite 100  
Bakersfield, CA 93301

RE: Domestic Water Supply Permit for Tejon Grapevine, LLC, Kern County, CA

Dear Ms. Kitchen:

We are in receipt of a document titled "Notice of Preparation of Draft Environmental Impact Report (EIR)" dated April 1, 2014. A review of the document indicates that the proposed Tejon Grapevine, LLC in southwest Kern County is going to serve up to 12,000 residences (single-family and multi-family units) and up to 10,748,400 square feet of commercial developments that includes various service retail, office, institutional, education, hospitality, medical and industrial facilities. In addition, there would be a number of recreational and educational facilities. Based on the information provided in the above-mentioned document, domestic water supply for Tejon Grapevine, LLC is going to be provided by Tejon-Castac Water District. No other specific information about domestic water supply system has been provided. When the draft EIR is ready, please forward a copy to our office for review and comments.

According to Section 116275(h) of California Health & Safety Code, a "**Public Water System**" means a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. Please be advised that Tejon-Castac Water District will be required to obtain a domestic water supply permit for operating the potable water supply system of the Tejon Grapevine, LLC. After receiving a written request from Tejon-Castac Water District, we will send a permit application package.

Per requirements of the California Health and Safety Code, a person cannot operate a public water system without a valid domestic water supply permit issued by the State Department of Public Health.

For further information or copies of any regulations applicable to public water supply systems, please visit our web site at <http://www.cdph.ca.gov/certlic/drinkingwater/Pages/default.aspx>, or contact our office at (661) 335-7315.

Sincerely,



Jaswinder S. Dhaliwal, P.E.

Senior Sanitary Engineer

DRINKING WATER FIELD OPERATIONS BRANCH

cc: Kern County Environmental Health Services Department  
Tricia Wathen, District Engineer, CDPH, Drinking Water Program, Fresno, CA (via email)  
Sara Lowry, CDPH, Environmental Review Unit, Sacramento, CA (via email)  
Dennis Atkinson, President, Tejon-Castac Water District

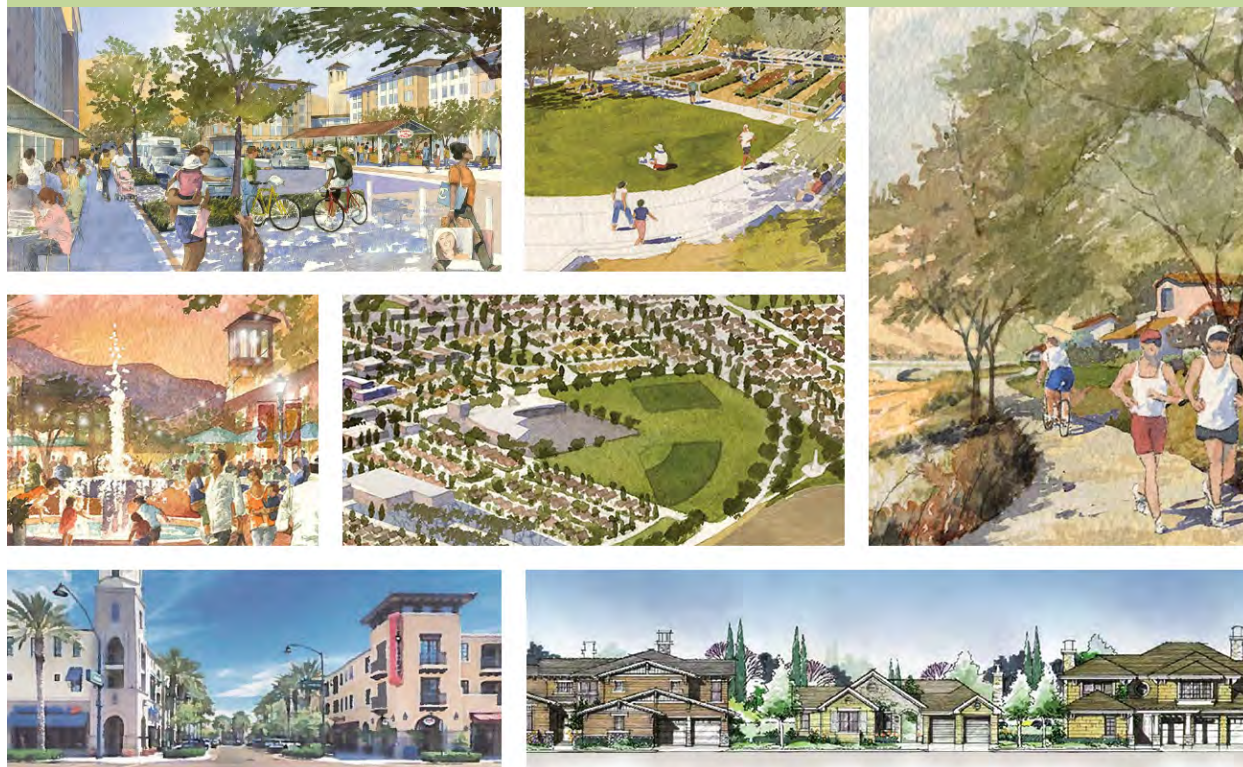
Appendix B

## **Grapevine Specific and Community Plan**



# Grapevine

## SPECIFIC AND COMMUNITY PLAN



**Kern County Planning and Community  
Development Department**



March 2016



# **Grapevine**

## **SPECIFIC AND COMMUNITY PLAN**

**Kern County Planning and  
Community Development  
Department**  
2700 M Street, Suite 100  
Bakersfield, CA 93301  
(661) 862-8600

**Applicant:**  
Tejon Ranchcorp  
P.O. Box 1000, 4436 Lebec Road  
Lebec, CA 93243  
661-663-4253  
Contact: Derek Abbott

**Special Plan No. 1, Map 202**  
**Special Plan No. 2, Map 218R**  
**Special Plan No. 2, Map 219**

**Technical Assistance by:**  
Dudek  
465 Magnolia Avenue  
Larkspur, CA 94939  
415-758-9812  
Contact: Heather Ivey, AICP

March 2016





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## ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
ALUCP	Airport Land Use Compatibility Plan
amsl	above mean sea level
CAL FIRE	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFD	Community Facilities District
CHP	California Highway Patrol
CVEF	Commercial Vehicle Enforcement Facility
EA	Exclusive Agriculture (district)
EIR	environmental impact report
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
GET	Golden Empire Transit
GIS	geographic information systems
HDPE	high-density polyethylene
I	Industrial (district)
I-5	Interstate 5
KCFD	Kern County Fire Department
KCWA	Kern County Water Agency
KCZO	Kern County Zoning Ordinance
Kern COG	Kern Council of Governments
KRT	Kern Regional Transit
LAFCO	Local Agency Formation Commission
LID	low-impact development
LOS	level-of-service
LRA	Local Responsibility Area
MMRP	Mitigation Monitoring and Reporting Program

**Acronyms and Abbreviations**

---

<b>Acronym/Abbreviation</b>	<b>Definition</b>
MU	Mixed-Use (district)
PVC	polyvinyl chloride
Ranchwide Agreement	Tejon Ranch Conservation and Land Use Agreement
RWQCB	Regional Water Quality Control Board
SP	Special Planning (see Section 19.52 of the Zoning Ordinance)
SR	State Route
SRA	State Responsibility Area
TCWD	Tejon Castac Water District
TMA	Transportation Management Association
TMV	Tejon Mountain Village
TRCC	Tejon Ranch Commerce Center
UBC	Uniform Building Code
VMU	Village Mixed-Use (district)
WWTP	wastewater treatment plant

# CHAPTER 1

## INTRODUCTION

### 1.1. Purpose

The Grapevine Specific and Community Plan (Specific Plan) is a master-planned community located on Interstate 5 (I-5) at the base of the Grapevine in southern Kern County. The purpose of the Grapevine Specific Plan is to provide for the orderly and efficient development of the Specific Plan area (plan area) in accordance with all applicable land use requirements as identified throughout the planning effort. This document identifies the existing conditions and issues related to the plan area and sets forth the goals, policies, and implementation measures that will guide future development within the plan area.

### 1.2. Authority

This document meets the requirements for both a specific plan and a community plan as specified by the State of California and Kern County. However, for purposes of simplicity, it will be referred to hereafter as the Grapevine Specific Plan or the Specific Plan.

#### 1.2.1. Community Plan

In accordance with Section 21083.3(e) of the California Public Resources Code, a community plan is a part of a general plan and identifies development policies and implementation measures that specifically apply to a particular area or community. A community plan must be consistent with the general plan but may also serve as a mechanism for amending the general plan in order to supplement or clarify the goals, policies, and objectives of the general plan for a particular area or community.

#### 1.2.2. Specific Plan Requirements

State law (California Government Code Section 65450 *et seq.*) permits a specific plan to be prepared for any defined geographic area that might benefit from specialized land use regulations and development standards. Specifically, Section 65451 of the California Government Code mandates that a specific plan be prepared in accordance with the following requirements:

- (a) A specific plan shall include text and diagram(s) which specify all of the following in detail:
  - 1. The distribution, location and extent of the uses of land including open space within the plan.
  - 2. The proposed distribution, location and extent of major transportation, sewage, water, drainage, solid waste disposal, and energy components, and other essential facilities proposed to be located within the plan and needed to support the land uses proposed.



## **Introduction**

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3. Standards and criteria by which development will proceed, and standards for conservation, development and utilization of natural resources, where applicable.
  4. A program of implementation measures including regulations, programs, public works and financing measures necessary to carry out the plan.
- (b) The specific plan shall include a statement of the relationship of the specific plan to the General Plan.

In Kern County, specific plans are used to identify and implement the objectives, goals, and policies of the Kern County General Plan in a more detailed manner, tailored to the unique geographic area encompassed by the specific plan. Pursuant to Appendix C, Specific Plan Requirements, of the Kern County General Plan, a specific plan must conform to applicable state laws (addressed above) and address, at a minimum, the following elements:

1. Land Use Element
2. Circulation Element
3. Housing Element
4. Conservation Element
5. Open Space Element
6. Noise Element
7. Safety Element

For purposes of consistency with the Kern County General Plan, the Grapevine Specific Plan includes all of the above elements, and combines the Land Use, Conservation, and Open Space Elements into one chapter. The Specific Plan is an authorized land use designation under the Kern County General Plan (Map Code 4.1).

### **1.2.3. Adoption**

General plans must be adopted by resolution (California Government Code Section 65356). In addition, community plans are part of the general plan and therefore must also be adopted by resolution. State law allows specific plans to be adopted either by resolution, to establish a policy document, or by ordinance, to establish a regulatory document. A specific plan adopted by resolution acts as a versatile tool for implementing planning policy and providing direction for development of a specific area. It is the determination by the Kern County Planning and Community Development Department that the Grapevine Specific Plan, as a policy and implementation tool, will be adopted by resolution. The primary implementation tool for the Specific Plan is the Grapevine Special Planning District Plan (Grapevine Special Plan) (Appendix A). The Grapevine Special Plan is the regulatory document to implement the Grapevine Specific Plan and will therefore be adopted by ordinance.

## **1.3. Location and Setting**

### **1.3.1. Background**

In the 1800s, the Spanish and Mexican governments encouraged the settlement of California by establishing large land grants. These land grants eventually became ranchos that were primarily devoted to the raising of

cattle and sheep. In 1843, Rancho el Tejon or Tejon Ranch (the Ranch) was established in central and southern California. The Ranch grew in size as additional lands were purchased by the Ranch's founder, General Edward Fitzgerald Beale, a historic figure in early California. Today, the 270,000-acre Ranch is the principal asset of Tejon Ranch Co. (Tejon Ranch Company), which was incorporated in 1936. The Grapevine Specific Plan is a landowner-initiated land use plan located within the Ranch, specifically within a portion of the Rancho De Castac and Rancho El Tejon land grant areas of the Ranch on property owned by the Tejon Ranchcorp (a subsidiary of Tejon Ranch Company) (Exhibit 1-1).

The Tejon Ranch Company is focused on carrying out its long-term vision of conservation, continued ranching and farming, and the creation of high-quality, environmentally sensitive communities on a small portion of its land. In addition to the ongoing ranching, farming, and real estate activities that take place there, the Ranch also has hunting, mining, and oil production operations. The diverse topography of the Ranch also makes it a favorite location for the filming of movies, television programs, and commercials.

The plan area lies within the 15,644-acre Grapevine Planning Area that was previously identified in the Tejon Ranch Conservation and Land Use Agreement (Ranchwide Agreement). The Ranchwide Agreement was signed in 2008 between the Ranch and several recognized environmental organizations, including the Sierra Club, the Natural Resources Defense Council, Audubon California, the Endangered Habitats League, and the Planning and Conservation League. The Ranchwide Agreement does not bind the County of Kern to any specific requirements, but rather is a private agreement between Tejon Ranch Company and the various environmental organizations to preserve approximately 90% of the Ranch as permanent open space and limit development to designated areas near existing infrastructure, including I-5, the California Aqueduct, and other utilities. The Specific Plan is consistent with the development area identified in the Ranchwide Agreement.

### **1.3.2. Specific Plan Area and Surroundings**

The Grapevine Specific Plan is located within an unincorporated area of Kern County at the southern end of the San Joaquin Valley. The plan area is situated just south of the I-5 and State Route (SR) 99 junction, approximately 25 miles south of downtown Bakersfield (see Exhibit 1-1, Regional Location). The plan area is bisected by I-5 running north to south, and by the California Aqueduct running from west to east. The plan area consists of six individual Sub Areas consisting of two large areas east and west of I-5, in proximity to the Grapevine Road and I-5 interchange, and four smaller areas directly north, adjacent to Laval Road (see Exhibit 1-2, Specific Plan Location).

The plan area ranges in elevation from approximately 898 to 2,186 feet above mean sea level (amsl), with most of the plan area being in the lower to mid-elevation range of approximately 1,000 to 1,400 feet amsl. The southern end of the plan area extends from the San Joaquin Valley floor approximately one-half mile into the adjacent San Emigdio and Tehachapi Mountain Ranges. The following drainages are located within the plan area:

- Grapevine Creek and its ephemeral tributaries;
- Pastoria Creek (intermittent creek);
- Cattle and Live Oak Creeks (intermittent creeks, tributaries to Pastoria Creek);
- Tributaries to Cattle Creek; and

**Introduction**

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- Five unnamed ephemeral drainages that are isolated and wholly contained in the plan area (meaning they originate and terminate within the area) (Isolated Drainages A–E).

**1.3.3. On-Site Activities and Land Uses**

The plan area is characteristic of a landscape that has been used for ranching, agriculture, oil production, and managed hunting for many years. Agricultural uses in the plan area include almond orchards and wine grapes, as well as several corrals associated with cattle ranching operations. Oil and gas production wells consisting of both active and inactive wells are located throughout the valley floor portions of the plan area along with several underground oil and gas pipelines. Linear utilities and associated utility easements for water, gas, and electricity are present throughout the site.

At the time of Specific Plan preparation, the plan area includes a cluster of highway-oriented commercial uses located at the Grapevine Road interchange with I-5, which consists of gas stations, fast-food restaurants, small hotels, and restaurants geared to serve the traveling public. The portions of I-5 adjacent to the plan area are four lanes on the south- and north-bound sides of the freeway, for a total of eight through-lanes. Just off the I-5 southbound between the California Aqueduct and the Grapevine Road interchange with I-5 is a California Vehicle Enforcement Facility (CVEF) Weigh Station operated by the California Highway Patrol. An existing residence surrounded by vineyards and the ExxonMobil Grapevine Pumping Station are located between the I-5 southbound and northbound lanes in the southern portion of the plan area.

Tejon Ranchcorp grants leases for exploration and production of oil and gas on the Ranch, as well as aggregate and limestone mining operations. The Ranch is home to the 750-megawatt natural gas-fired Pastoria Energy Center, owned and operated by Calpine Corp., located southeast of the plan area. Current oil and gas extraction operations are concentrated on disturbed lands to the north, but the entire site is subject to existing oil and gas leases.

Agricultural activities, including irrigated vineyards (35 acres) and pistachio and almond groves (454 acres), are located within the northern portion of the plan area.

The existing Kern County General Plan land use designations within the plan area are provided in Table 1-1. Through the existing designation of Map Code 4.3 (Specific Plan Required), the Kern County General Plan recognizes that given the presence of major infrastructure in this area, portions of the plan area are subject to potential development, which would require a specific plan.

**Table 1-1  
Existing General Plan Land Use Designations**

<b>Map 202</b>	
8.1	Intensive Agriculture – Min 20 Acres
8.1/2.5	Intensive Agriculture – Min 20 Acres, Flood Hazard
8.4	Mineral and Petroleum – Min 5 Acres
8.4/2.5	Mineral and Petroleum – Min 5 Acres, Flood Hazard

**Table 1-1  
Existing General Plan Land Use Designations**

<b>Map 218R</b>	
4.3	Specific Plan – Grapevine Commercial
6.2	General Commercial
6.2/2.5	General Commercial, Flood Hazard
8.3	Extensive Agriculture – Min 20 Acres
8.3/2.1	Extensive Agriculture – Min 20 Acres, Seismic Hazard
8.3/2.2	Extensive Agriculture – Min 20 Acres, Landslide
8.3/2.4	Extensive Agriculture – Min 20 Acres, Steep Slope
8.3/2.5	Extensive Agriculture – Min 20 Acres, Flood Hazard
<b>Map 219</b>	
1.1	State and Federal Land
8.3	Extensive Agriculture – Min 20 Acres
8.3/2.4	Extensive Agriculture – Min 20 Acres, Steep Slope

The existing Kern County zoning classifications within the plan area are provided in Table 1-2.

**Table 1-2  
Existing Zone Classifications**

<b>Map 202</b>	
A	Exclusive Agriculture
<b>Map 218R</b>	
A	Exclusive Agriculture
C-2 PD	General Commercial, Precise Development Combining
C-2 PD FPP	General Commercial, Precise Development Combining Floodplain Primary
<b>Map 219</b>	
A	Exclusive Agriculture

#### **1.3.4. Surroundings**

Table 1-3 provides a listing of the surrounding uses at the time of Specific Plan preparation.

## Introduction

**Table 1-3  
Grapevine Specific Plan Surroundings**

Surrounding	Direction
Tehachapi Mountains and Tejon Ranch conservation lands	South, east, and west
Los Padres National Forest and Wind Wolves Preserve	South and west (west of I-5)
Pastoria Energy Facility, Griffith Sand and Gravel Mine, and Edmonston Pumping Station	East
Tejon Ranch Commerce Center (TRCC) <sup>1</sup>	North (east and west of I-5)
San Emidio New Town Specific Plan <sup>2</sup>	North
Remainder of Grapevine Planning Area	North and east

**Notes:**

<sup>1</sup> TRCC, formerly the Tejon Industrial Complex (TIC), is a major employment center for the region. TRCC on the west side of I-5 includes warehousing and distribution facilities for IKEA, Dollar General, and Famous Footwear; a PETRO shopping center; and has some remaining industrial and commercial facilities available for lease. TRCC on the east side of I-5 includes warehousing and distribution facilities for Caterpillar, a TA Travel Center, the Outlets at Tejon, and several available industrial and commercial sites. TIC West was approved on March 28, 2000 and the TIC East Specific Plan was approved on November 8, 2005.

<sup>2</sup> The 9,447-acre San Emidio New Town Specific Plan, adopted by Kern County in October 1992, is currently undeveloped.

### 1.3.5. Circulation Conditions

#### Existing Roadways

**I-5** is a major north–south interstate freeway that travels the length of California, connecting the metropolitan regions of Southern and Northern California. It is also a primary movement route for trucking goods and materials through California and beyond. In the vicinity of the plan area, I-5 is an 8-lane freeway with interchanges at Laval Road and Grapevine Road, and is the primary regional transportation facility. North of the plan area, I-5 travels northwest along the west side of the San Joaquin Valley toward Northern California. South of the plan area, I-5 begins immediately climbing into the Tehachapi Mountains toward Tejon Pass and into Southern California. The 6-mile segment of I-5 heading south from the Grapevine Road/I-5 interchange includes a dedicated truck lane in each direction to accommodate heavy vehicles as they navigate the steep grade from Grapevine to Fort Tejon.

**SR 99** is a north–south state highway that begins north of the plan area and connects many of the major cities in the San Joaquin Valley. Similar to I-5, SR 99 is a primary goods movement route, particularly for shipping goods from agricultural producers in the San Joaquin Valley to the rest of California. SR 99 begins approximately 3 miles north of the plan area at a “Y” junction with I-5, as a 6-lane freeway traveling north toward Bakersfield.

**SR 166** is approximately 5 miles north of the plan area. It is an east–west, 2-lane state highway that begins north of the I-5/SR 99 interchange. It connects SR 99 and I-5 with Taft and Maricopa as it heads west toward California’s Central Coast. It also provides access to agricultural and oil production operations northwest of the plan area.

**SR 223** is an east–west state highway that travels between I-5 and SR 58 through Arvin, approximately 15 miles north of the plan area. It is a 2-lane rural highway outside of Arvin and a 4-lane divided roadway within the city.

**SR 138** is approximately 15 miles south of the plan area. It is an east–west state highway that begins south of Tejon Pass in Los Angeles County. It is generally a 2-lane highway that provides regional access between I-5 and the Antelope Valley cities of Lancaster and Palmdale.

**Wheeler Ridge Road** is adjacent to the plan area. It is a County arterial street connecting I-5 to SR 223 and SR 184. Near I-5 and the plan area, it is a 4- to 6-lane divided roadway providing access to highway commercial and industrial warehousing uses at TRCC. North of TRCC, it is a rural 2-lane roadway traveling through agricultural areas toward Arvin, Weedpatch, and Lamont.

**Laval Road** is a County arterial street with an interchange at I-5. West of I-5, it is a 4- to 6-lane divided roadway providing access to highway commercial and industrial warehousing uses at TRCC. East of I-5, it is a 6-lane arterial through TRCC before transitioning to a rural 2-lane roadway. Laval Road crosses the plan area.

**Edmonston Pumping Plant Road** is a private 2-lane roadway traveling east–west and bisects the plan area. It connects to Grapevine Road near the Grapevine Road/I-5 interchange and travels approximately 6 miles east, serving the Edmonston Pumping Station operated by the California Department of Water Resources, the Pastoria Energy Center operated by Calpine Corp., and the Griffith Sand and Gravel Mine operated by the Griffith Company.

## Existing Public Transportation

### *Kern Transit*

Kern Transit plans, coordinates, and administers the public transit system within the County’s unincorporated areas. Kern Transit provides a combination of demand-response, fixed-route, and intercity transit services. Additionally, Kern Transit provides transit recommendations for development plans and also administers the County’s transit enterprise fund. Currently, Kern Transit provides regional linkage service to the Frazier Park, Lebec, and mountain communities region located north of the plan area.

### *Golden Empire Transit*

Golden Empire Transit (GET) was formed in 1973 and serves the Bakersfield metropolitan area: 160 square miles with a population of 473,348. GET has an active fleet of 88 buses plus 19 GET-A-Lift buses, which are all fueled with clean-burning compressed natural gas. All buses are equipped with wheelchair lifts and bike racks. GET has 450 bus benches made from recycled plastic milk jugs, purchased with a grant from the California Department of Conservation. GET receives funding from the Federal Transit Administration. GET currently provides express service between a Park-and-Ride facility in Bakersfield and TRCC, providing a vital link for employees in the Bakersfield metropolitan area to reach their places of employment at TRCC.



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### ***Arvin City Bus***

The City of Arvin currently operates a fixed bus route between Arvin and TRCC, providing mass-transit service for Arvin-area residents to reach employment or services at TRCC.

#### **1.3.6. Infrastructure**

Existing infrastructure and utilities within the plan area include gas, electrical, and communication lines that serve the area and larger transmission lines that cross the plan area; the California Aqueduct; I-5; and other roads. In addition, oil and gas distribution lines that cross the area are related to oil and gas production that currently takes place on the northern portion of the plan area, including portions of the North Tejon and Tejon oil fields. Tejon Ranchcorp owns the mineral rights throughout the plan area. These rights have been leased for development of oil and gas resources.

#### **1.3.7. Noise Setting**

Existing noise sources in the plan area include traffic noise from I-5, primary arterials, and major local streets; oil and gas production activities; construction; aircraft; and certain types of industrial land uses.

#### **1.3.8. Safety Conditions**

The following existing safety conditions are identified as potentially affecting the plan area.

#### **Geologic Hazards**

The Kern County General Plan Seismic Hazard (Map Code 2.1) identifies two major fault zones, San Andreas and Garlock, which intersect about 8 miles south of the plan area near Frazier Park. The Pleito and Wheeler Ridge Thrust Faults are also located in the plan area. Portions of the Pleito Fault are designated as active and identified as an Earthquake Fault Zone on the Alquist-Priolo Earthquake Fault Zoning Map. The limits of the Earthquake Fault Zone are defined approximately 500 feet from active fault traces. The White Wolf Fault lies 6.5 miles to the north. Seismic hazards associated with faulting within the plan area are a constraint that affects the location, construction, and type of development allowed within certain portions of the plan area.

The Kern County General Plan Landslide Hazard (Map Code 2.2) identifies the southern portion of the plan area as containing known landslide areas, as well as areas suspected to have possible landslides. Landslides are a constraint that affects the location and type of recreation, open space, and structures.

Debris flow hazards are also present to varying degrees within the plan area. The debris flow hazard potential has been modified in some areas by construction of the embankments and channel of the California Aqueduct and embankments for I-5. Debris flow risks for Sub Areas located north of the aqueduct are low, except for portions of the Grapevine Creek corridor north of the at-grade stream crossing with the aqueduct. Debris flow risks are higher in the western and eastern portions of the plan area immediately adjacent to the southern mountain range. All other areas south of the aqueduct are subject to moderate debris flow risks.

The Kern County General Plan Steep Slopes (Map Code 2.4) indicates that the plan area has lands with steeper slopes, which can be associated with landslides, slumping, and erosion.

### **Flood Hazards**

Portions of the plan area, primarily east and west of Grapevine Creek, have been mapped by FEMA as being located within a 100-year flood risk zone. Amended flood zone maps are required from FEMA before development takes place. FEMA map modifications will be obtained as part of the subdivision map process and will take into account the riparian setbacks and other features of the plan area that affect flood control.

The Kern County General Plan Flood Hazard (Map Code 2.5) illustrates that flood hazards could occur within the 100-year floodplain associated with Grapevine, Tecuya, and Pastoria Creeks, which occur within the plan area.

### **Fire Hazards**

Wildfires are also a safety concern, given the location of the plan area adjacent to the foothills of the San Emigdio and Tehachapi Mountains. The plan area is within an area designated by the Kern County General Plan as being either in a moderate or high fire hazard severity zone. Approximately 70% of the plan area lies within areas designated as a moderate fire hazard, whereas the southern 30% of the development footprint is within the area designated as high fire hazard. This southern area receives the “high” classification due to its steeper slopes (not in the development area), which can affect fire spread rates. The highest fire hazard category is “very high,” and there is no occurrence of this zone within the plan area.

State Responsibility Areas occur in the portions of the plan area that are south of the California Aqueduct and west of I-5. The portion of the plan area north of the California Aqueduct and east of I-5 is situated within a Local Responsibility Area classified as “unzoned,” indicating there is minimal or no wildland fire hazard.

Because Kern County Fire Department (KCFD) is under contract to the California Department of Forestry and Fire Protection (CAL FIRE), KCFD has jurisdiction and is responsible for providing initial fire protection throughout Kern County State Responsibility Areas (SRAs), regardless of the location. KCFD also provides fire protection within some Local Responsibility Areas (LRAs) and will assist other fire departments (Bakersfield, Lost Hills) within the LRA through mutual and/or automatic aid agreements.

According to available data from CAL FIRE’s Fire and Resource Assessment Program (CAL FIRE 2013), several fires have burned in the vicinity of the plan area since the beginning of the historical fire data record.

## **1.4. Planning Overview**

The Grapevine Specific Plan is a landowner-initiated land use plan designed to ensure the orderly development of a portion of the Ranch. As a part of the Ranch, the plan area has been used for more than 160 years for various ranching and farming activities, and oil and gas production. For much of this period, the Kern County economy was largely characterized by agricultural and oil and gas resource production activities. Kern County has experienced a high rate of population growth, and has been among the fastest-growing regions of California over the last two decades. The County’s population is expected to more

## **Introduction**

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than double within the next 35 years (California Department of Finance 2013). This increase in expected population growth has created the need for additional housing, employment, and lifestyle choices for Kern County's growing population.

The Grapevine Project presents a significant opportunity to provide housing in a sustainable manner and expand business and community diversity in Kern County to keep pace with the growing population and to continue the legacy of stewardship and vision at the Ranch. The Grapevine community will serve as the gateway to the San Joaquin Valley and provide for a wide variety of lifestyles and income levels, all while carrying forward the ranching heritage of the Ranch and the agricultural traditions at the southern edge of the valley.

### **1.4.1. Specific Plan Concept**

Grapevine is a new community built on the principles of balancing job creation and new housing, leveraging existing infrastructure, ecological sensitivity, and a continued dedication to agriculture. Grapevine is a residential community and employment center that builds on the economic development occurring nearby at the Tejon Ranch Commerce Center (TRCC), and supports the continued expansion of TRCC and the economy of Kern County by providing a local workforce, enabling TRCC and Grapevine to evolve and grow into a complete community with residences, public uses, and new types of commercial, industrial, and recreational opportunities. Located on I-5, the major north-south interstate, it is a community serving as the gateway to and from the San Joaquin Valley, carrying on the ranching heritage of Tejon Ranch and the agricultural traditions at the southern edge of the valley, while integrating those traditions with a modern, connected community that provides employment and housing for a wide variety of lifestyles and income levels. To realize this vision, the Specific Plan provides for organized development of 60% of the plan area through the use of higher and lower intensity mixed-use residential and commercial zones, while also maintaining 40% of the plan area as Exclusive Agriculture, with ongoing uses including grazing and open space.

The Specific Plan is designed to include multi-modal transportation options to reduce reliance on single-occupancy vehicles. This is accomplished by creating a series of compact neighborhoods linked by streets, transit, and bicycle and pedestrian trails that will provide convenient access to employment, shopping, professional services, schools, and parks. This vision is consistent with the Kern County General Plan and will create an orderly development pattern for this portion of the San Joaquin Valley, consistent with the regional land use plan in the Kern Council of Governments' (Kern COG's) *2014 Regional Transportation Plan/Sustainable Communities Strategy*, as supported by Kern County, and approved by the Kern COG and the California Air Resources Board.

The Grapevine Specific Plan is designed to allow flexibility to create a livable community defined by a series of dense village centers surrounded by compact neighborhoods and lower-density suburban areas with convenient access to employment, shopping, parks, schools, and housing. Table 1-4 provides a breakdown of acreage within the Specific Plan by land use.

**Table 1-4  
Development of the Grapevine Specific Plan**

<b>Land Use Type</b>	<b>Residential and Commercial Development</b>	<b>Percentage of Specific Plan</b>	<b>Area</b>
Residential community and employment center	12,000 residential units <sup>1</sup> 5.1 million sq. ft. commercial and industrial	60%	4,778 acres
Grazing and open space as the predominant use <sup>2</sup>	0 residential units <sup>3</sup> 0 sq. ft. commercial and industrial	40%	3,232 acres

**Notes:**

sq. ft. = square feet

<sup>1</sup> Up to 2,000 additional residential units may be allowed through a reduction of commercial/industrial square footage based on vehicle trip equivalency ratios identified in Chapter 2.

<sup>2</sup> No industrial uses other than agriculture-related processing are allowed. Incidental recreation and agriculture-supporting commercial uses are also allowed. A complete list of permitted uses is provided in the Grapevine Special Plan (Appendix A).

<sup>3</sup> Existing residential units in Exclusive Agriculture may be retained.

### 1.4.2. Planning Principles

In the overall land use planning concept and identification of the development areas, roadways, and other backbone infrastructure components, the Grapevine Specific Plan reflects, to the extent practicable, the following planning principles:

1. Continue the long-term tradition of conservation, ranching, and farming on the Ranch through preserving a significant portion of the Specific Plan for agricultural, grazing and open space uses.
2. Continue the orderly pattern of development begun by TRCC with a master-planned community that will complement existing and planned commercial uses on and adjacent to the Specific Plan, consistent with the *2014 Regional Transportation Plan/Sustainable Communities Strategy*.
3. Provide mixed-used development and housing in close proximity to existing and future jobs to reduce reliance on the automobile.
4. Each developer, builder, and property owner will be encouraged to use the Grapevine Design Principles (Appendix B) guidance as a menu of potential options to consider in achieving the character consistent with the Specific Plan.
5. Preserve key features of the natural environment, such as the Grapevine Creek, Cattle Creek, Pastoria Creek and Live Oak Creek watercourses, as permanently maintained open space areas buffered from development.
6. Conserve on-site special-status plant communities and wildlife species through accommodating regional wildlife movement patterns and thoughtfully placing infrastructure and development away from foothill areas and special-status plant and wildlife zones within the valley floor.
7. Avoid to the extent feasible siting development near geologic hazards, such as earthquake faults, unstable soils, landslide areas and steep slopes.
8. Identify noise and other highway-related impacts, such as I-5, when planning locations for noise-sensitive uses.
9. Preserve protected cultural sites and resources in the planning and placement of infrastructure and development.

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10. Reduce carbon footprint and maximize energy efficiency through the following programs and use of the Grapevine Sustainability Principles' (Appendix C) guidance as a menu of potential options to enhance sustainability of development.
  - (a) air quality emission-reduction programs;
  - (b) construction-related energy efficiency and generation programs; and
  - (c) on-site renewable energy, water conservation, and waste recycling and reduction programs.
11. Maximize the conservation of potable water supplies through state-of-the-art treatment plant design; low-water-use plant materials and irrigation systems; water-efficient standards for appliances; and the use of recycled water for common area landscaping.

### **1.5. Plan Implementation**

Implementation of the Grapevine Specific Plan will be done through the use of the Special Planning (SP) Zone District, as detailed under Chapter 19.52 of the Kern County Zoning Ordinance (KCZO). As noted in the KCZO, the SP District Classification provides for special review procedures and development standards that will implement the Specific Plan policies and provisions. The SP District Classification provides for master-planned communities to provide their own development standards and procedures that are unique to the individual circumstances. In conjunction with the Specific Plan, the Special Plan (Appendix A) creates new zoning districts and specialized development standards, allows for deviations from some existing standards, and establishes development caps. Adoption of a Special Plan is required for implementation of the SP District, which must be consistent with the County's General Plan and the Grapevine Specific Plan.

The Grapevine Special Plan is included in the document as Appendix A and includes:

- Site-specific districts for the Specific Plan;
- Caps that limit the amount of authorized development; and
- Ordinances and standards applicable only to proposed development projects within the Grapevine Specific Plan.

### **1.6. Development Agreement**

Development Agreements are voluntary contracts negotiated between project proponents and public agencies that govern the land uses in a particular project and provide the project proponent with assurances that the project can be built following project approval. State law (Government Code 65864 through 65869.5) provides for such agreements and Kern County Zoning Ordinance Chapter 19.103, Development Agreements, specifies the County's procedures for reviewing, considering, approving and implementing such agreements. The allowable terms and conditions for such agreements are negotiated between parties subject to the public agency's approval. A development agreement is proposed by the project applicant for consideration by the Kern County Board of Supervisors.

## 1.7. Specific Plan Amendments

The Grapevine Specific Plan may be amended as necessary in the same way it was adopted, by resolution. Each amendment shall include all chapters or portions of the Specific Plan that are affected by the change. The amendment procedures are described in greater detail in Appendix A.

## 1.8. California Environmental Quality Act Compliance

A project-level environmental impact report (EIR) (State Clearinghouse No. 2014041005) was prepared to analyze and address the potential impacts of the Grapevine Project. The EIR was prepared in conformance with the most recently adopted State of California and Kern County implementation guidelines and policies for the California Environmental Quality Act (CEQA). The EIR addresses environmental conditions in and around the Specific Plan, considers a range of project alternatives, assesses the potential impacts of project implementation, evaluates cumulative impacts, and identifies mitigation measures that will eliminate or minimize potential impacts to less-than-significant levels where feasible. The Mitigation Monitoring and Reporting Program (MMRP) will ensure implementation of EIR mitigation measures in accordance with CEQA requirements and is included as Appendix D to this document.

## 1.9. Document Organization

The Grapevine Specific Plan contains goals, policies, plans, and implementation measures to guide subsequent land use and development actions within the Grapevine community. The Specific Plan includes the following chapters:

1. INTRODUCTION

The purpose of the introduction chapter is to provide project background, describe the project and its objectives, establish the authority and scope for the Specific Plan, and define adoption and implementation procedures of the Specific Plan over time as market conditions change.

2. LAND USE, CONSERVATION, OPEN SPACE, and RECREATION

The purpose of this chapter is to describe existing conditions; provide a description of the land use plan, conservation policies, and open space and recreation concepts for the Specific Plan; establish Specific Plan land use designations, intensity of development, and spatial allocation of land uses; and to identify land use, conservation, open space, and recreation goals, policies, and implementation measures.

3. CIRCULATION and INFRASTRUCTURE

The purpose of this chapter is to describe existing circulation conditions; provide a description of the circulation and infrastructure systems to serve the Specific Plan (including non-vehicular circulation and public transportation); and to identify circulation and infrastructure issues, goals, policies, and implementation measures.

4. NOISE

The purpose of this chapter is to describe existing noise conditions, provide a detailed description of the noise considerations and issues within the Specific Plan and to identify noise goals, policies, and implementation measures.



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**5. HOUSING**

The purpose of this chapter is to explain the relationship of the Specific Plan to the Kern County General Plan Housing Element's goals, policies, and implementation measures.

**6. SAFETY and CONSTRAINTS**

The purpose of this chapter is to describe existing safety conditions, provide a detailed description of safety considerations and issues within the Specific Plan and to identify safety goals, policies, and implementation measures.

**7. FINANCING and MAINTENANCE**

The purpose of this chapter is to define the financing mechanisms that will be used to fund the maintenance of infrastructure and public services within the Specific Plan.

**8. REFERENCES**

The references chapter provides publication information for all documents and sources referenced in the Specific Plan.

**9. GLOSSARY**

The glossary provides definitions for a variety of terms used within the Specific Plan to provide a consistent understanding of those terms that will govern the future interpretation of the Specific Plan's goals, policies, and implementation measures. Where necessary, the appendices to the Specific Plan have separate glossaries or define terms that are specific to each document.

**Appendices****A. GRAPEVINE SPECIAL PLANNING (SP) DISTRICT PLAN**

The purpose of the Grapevine Special Planning (SP) District Plan is to satisfy the requirements of the Kern County Special Planning (SP) District, Section 19.52 zoning classification and to establish permitted uses, site development regulations, and any modified infrastructure design standards.

**B. GRAPEVINE DESIGN PRINCIPLES**

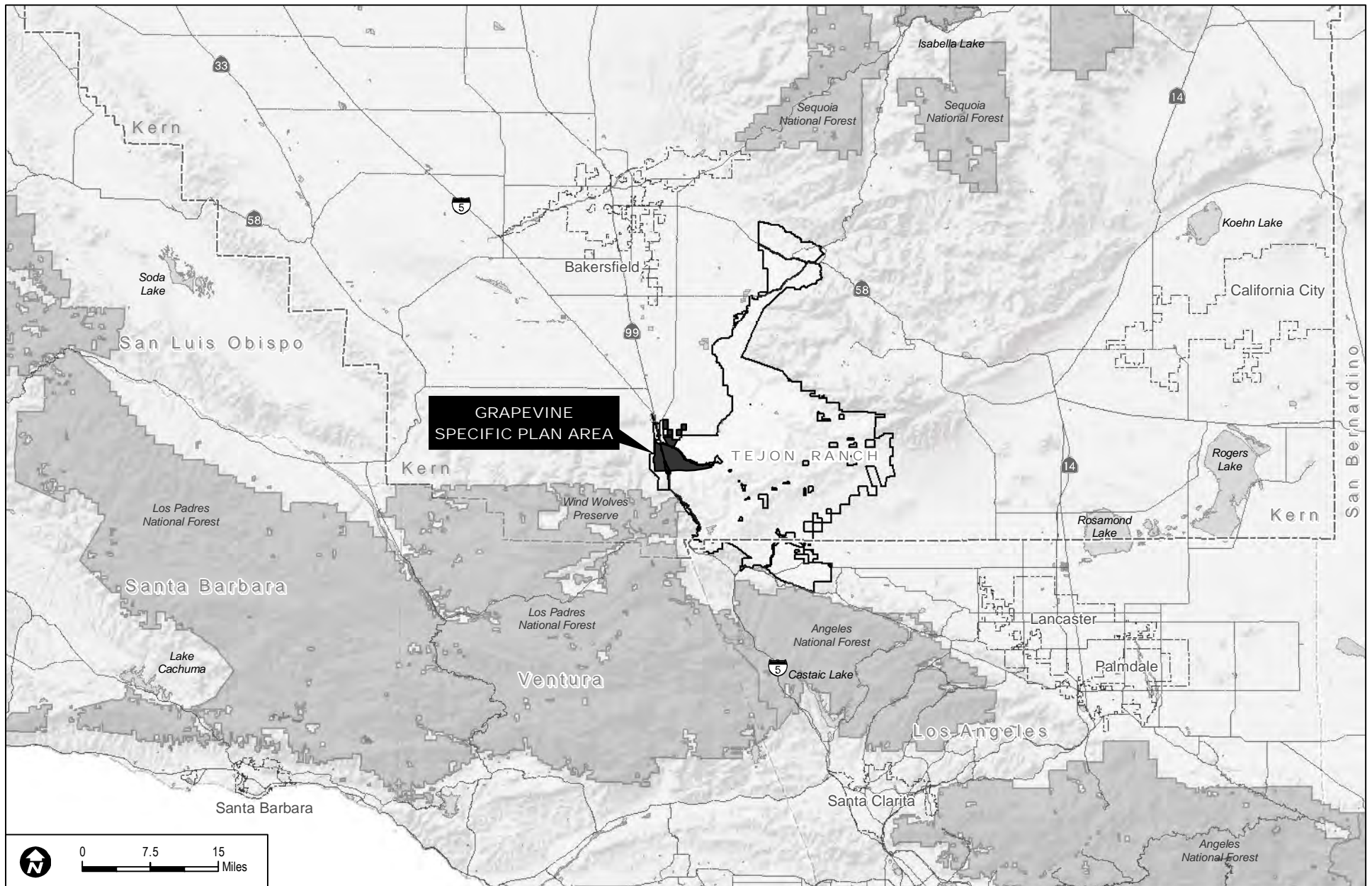
The Grapevine Design Principles has been prepared to supplement the Grapevine Specific and Special Plans and to serve as the basis for more detailed design guidelines and CC&Rs that will be developed by Tejon Ranch in the future to guide the development with regard to community design, building, and development practices.

**C. GRAPEVINE SUSTAINABILITY PRINCIPLES**

The Grapevine Sustainability Principles has been prepared to supplement the Grapevine Specific and Special Plans and to serve as the basis for more detailed design guidelines and CC&Rs that will be developed by Tejon Ranch in the future to guide the development with regard to sustainable community design, building, and operating practices.

**D. GRAPEVINE PROJECT MITIGATION MONITORING AND REPORTING PROGRAM**

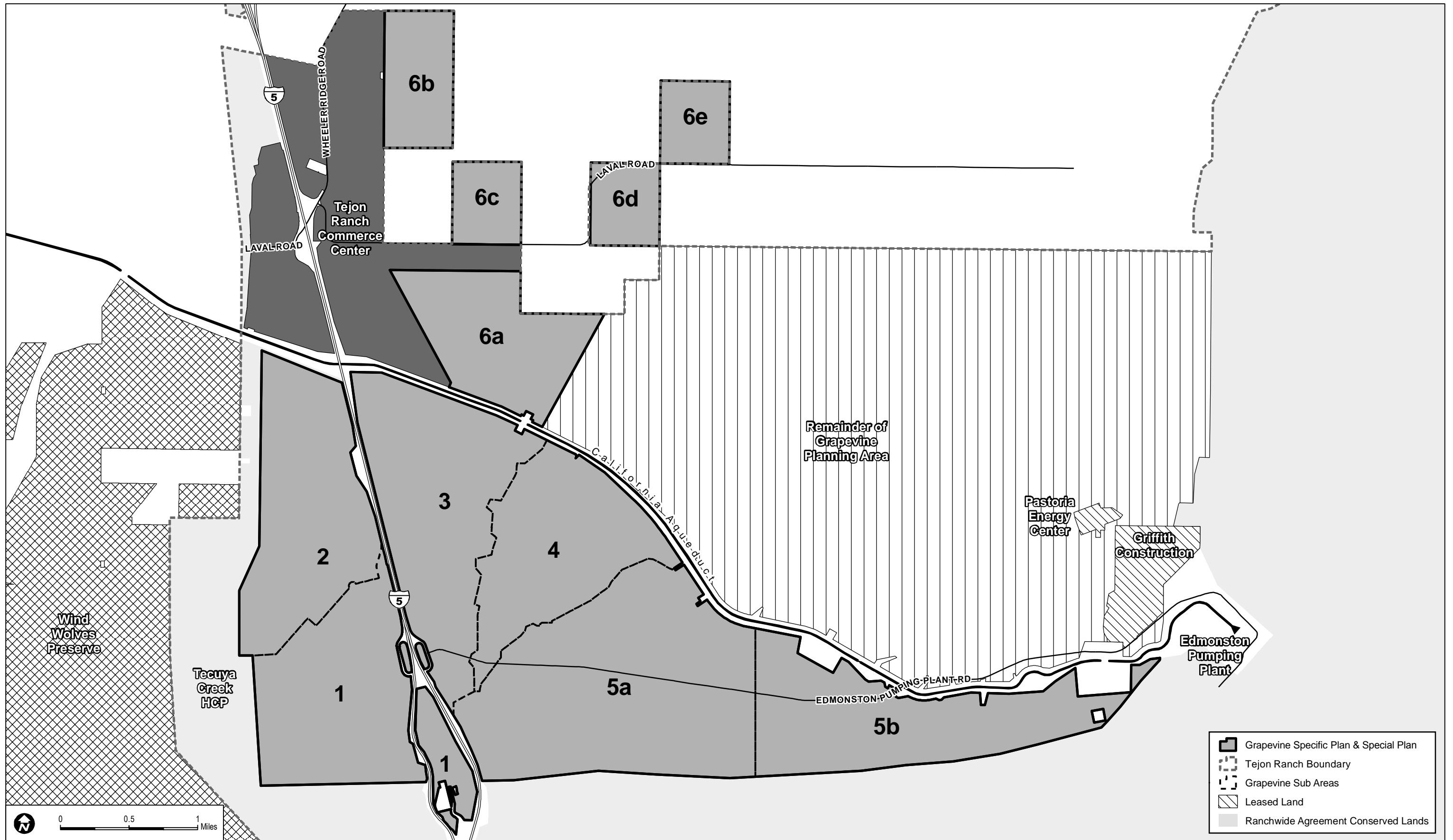
Mitigation measures identified in the EIR are included in a matrix format as the Grapevine Project MMRP. This matrix is completed as part of the EIR process, and mitigation measures from the certified Final EIR are included in the final version of this MMRP.



SOURCES: TRC 2013a; McIntosh & Associates 2013

**EXHIBIT 1-1**  
**Regional Location**

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SOURCES: McIntosh & Associates 2013; TRC 2013b; BLM 2013

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## **CHAPTER 2**

# **LAND USE, CONSERVATION, OPEN SPACE, AND RECREATION**

### **2.1. Purpose and Scope**

The purpose of the Land Use, Conservation, Open Space, and Recreation chapter is to describe land use concepts and address the relationships between development, environmental characteristics, and resource management. This chapter also identifies goals, policies, and implementation measures to guide development of the Specific Plan. It includes a description of the use of the Kern County Special Planning (SP) District, Chapter 19.52, which is the zoning mechanism that provides direction for making land use implementation decisions in the subsequent Site Development Plan review of individual development proposals within the Specific Plan. Procedures for Site Development Plan review are specified in the Grapevine Special Plan (Appendix A of this document).

### **2.2. Land Use Concept**

The land use concept for Grapevine is to create a livable and sustainable community defined by convenient access to a balanced mix of employment, shopping, parks, schools, and housing that complements and supports the thousands of jobs being created at Tejon Ranch (including, for example, Tejon Ranch Commerce Center (TRCC)). Grapevine embodies the rural agricultural character and values of Kern County. The sustainable land use concept for Grapevine includes selective concentration and diversity of land uses, multi-modal transportation improvements, pedestrian-friendly community design, the integration of open space and natural terrain, and the creation of a sense of place.

The Grapevine community balances homes with jobs along a major transportation corridor. In all, commercial uses with more than 15,000 logistics, manufacturing, technical, retail, and office jobs are anticipated at buildout of the Grapevine and TRCC developments combined. Sustainable planning means balancing these jobs with enough homes to keep commuter miles to a minimum. Grapevine is designed to reduce reliance on single-occupancy vehicles by creating a series of compact neighborhoods linked by streets, transit, and bicycle and pedestrian trails. This will provide convenient access to employment, shopping, professional services, schools, and parks.

Grapevine is divided into 6 separate Sub Areas and each sub area includes Special Plan district designations (Exhibit 2-1). Sub Areas 1 through 6a are designed as a series of conveniently located villages, each with a unique vision based on the existing characteristics and surroundings. The Special Plan districts will aid in guiding development towards the goals of each sub area. Each village will



## **Land Use, Conservation, Open Space, and Recreation**

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contain a village center comprised of high-density housing opportunities and a mix of neighborhood-serving retail and office uses, schools, parks, and community services.

Sub Areas located closest to I-5 will include the most intensive commercial and higher-density residential uses in order to utilize freeway exposure and support efficient transportation patterns. Village centers in these Sub Areas will be designated Village Mixed Use (VMU). The VMU districts are envisioned as dense mixed-use centers with compact development that will encourage walkability and meet the needs of contemporary and sustainable living (see Exhibit 2-2).

Outside the village centers, the Grapevine community will accommodate a mix of lower-density residential, office, research and development, retail, and light industrial/warehouse uses within the Mixed Use (MU) District.

The Exclusive Agriculture (EA) District is located outside the centers of each sub area and serves as a buffer between adjacent development and sensitive natural resources. Sustainable agriculture opportunities are integrated throughout the Specific Plan with continued grazing in the EA District and new community gardens and in-town farms. The more intensive industrial uses (Industrial (I) District) are prioritized for the northern parcels nearest TRCC, within Sub Areas 6b through 6e, with appropriate buffer distances required for residential and other sensitive uses.

### **2.2.1. Sub Areas**

As reflected in Exhibit 2-1, the Specific Plan is divided into sub areas based on natural and manmade features, such as changes in topography, creeks and drainages, and major roadways.

Sub Areas 1 through 6 are described separately below:

- **Sub Area 1** encompasses the southwestern portion of the Specific Plan, west of Interstate 5 (I-5). Given the proximity to I-5, this sub area is envisioned to include higher-intensity uses adjacent to the freeway and lower-intensity uses to the south and west.
- **Sub Area 2** encompasses the northwestern portion of the Specific Plan, west of I-5. Given the proximity to I-5, this sub area is envisioned to include higher-intensity uses adjacent to the freeway and lower-intensity uses to the west.
- **Sub Area 3** is located east of I-5 and south of the California Aqueduct. This sub area is envisioned to include higher-intensity uses adjacent to the freeway and lower-intensity uses to the north and east. Sub Area 3 will also be defined by open space adjacent to Grapevine Creek and the California Aqueduct.
- **Sub Area 4** is located east of Sub Area 3 and south of the California Aqueduct. This sub area will accommodate lower-intensity uses than the sub areas adjacent to the freeway and will have a more suburban, lower-density character. Open space adjacent to Grapevine Creek and the California Aqueduct will provide important definition and recreational resources for Sub Area 4.
- **Sub Area 5a** is located south and east of Sub Area 4, across Cattle Creek. This sub area will also accommodate lower-intensity uses than the sub areas adjacent to the freeway and will have a more suburban, lower-density character. The northern and southern portion of Sub Area 5A will accommodate open space and agricultural uses.
- **Sub Area 5b** is located east of Sub Area 5A and is the lowest-intensity sub area. This sub area will accommodate primarily limited lower intensity residential uses as well as open space and

## Land Use, Conservation, Open Space, and Recreation

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agricultural uses and limited lower-intensity uses. Sub Area 5b will be surrounded by open space to the east, south, and west.

- **Sub Area 6a** is located north of Sub Area 3 and adjacent to and southeast of the TRCC. Given the proximity to TRCC, this sub area is envisioned to include higher-intensity commercial, industrial, and residential uses in the western portion and lower-intensity uses in the eastern portion, including open space adjacent to Grapevine Creek.
- **Sub Areas 6b–6e** are the northernmost sub areas and are not contiguous with the remainder of the Specific Plan. These sub areas are located in proximity to the TRCC without allowed residential uses, and are envisioned to include higher-intensity commercial, industrial, and infrastructure uses that will support and expand the uses at the TRCC and Grapevine.

### 2.2.2. General Plan Designation and Specific Plan Districts

The Kern County General Plan designation for the Specific Plan is Map Code 4.1 (Accepted County Plan Areas). The entirety of the Grapevine Specific Plan falls within this designation, as shown on Exhibit 2-3.

The Specific Plan Districts, shown in Exhibit 2-1, set forth a general framework for development within the Specific Plan. All of the land within the Specific Plan is assigned one of four specialized districts: Village Mixed Use (VMU), Mixed Use (MU), Industrial (I), or Exclusive Agriculture (EA). In addition, there are two combining districts that apply to areas identified as having potential geologic or flooding hazards: Geologic Hazard (GH) and Floodplain (FP) Combining Districts. The combining districts encompass the area within the four specialized districts and are not stand-alone districts. These districts and combining districts are the same as those in the Grapevine Special Plan (Appendix A).

#### Specific Plan Districts

**Village Mixed Use (VMU).** This district is intended to create pedestrian-friendly village centers by providing for a variety of compatible land uses including service-oriented commercial, office, and higher-density residential dwellings (6–72 dwelling units/net acre). Complimentary land uses are compact and designed to provide a pedestrian-scale environment with convenient access to everyday needs within the village centers. This district integrates multi-modal elements and development densities that will support pedestrian, bicycle, and transit modes as alternatives to automobile travel. The village centers within the VMU districts will be located approximately 1/2-mile apart to create a community identity for each village.

**Mixed Use (MU).** This district provides gradually decreased density from the VMU districts, creating neighborhoods and employment centers. Uses in this district include a wide variety of residential dwellings (1 dwelling unit per 5 net acres to 40 dwelling units/net acre), office, retail commercial, light industrial, warehouse, and other uses compatible with adjacent land uses. The MU district allows the flexibility to create suburban residential neighborhoods in close proximity to jobs, shopping, and civic uses at lower densities than found within the VMU district.

**Industrial (I).** This district is limited to the northern project parcels located closest to the TRCC, and provides for a variety of industrial park, research and development, commercial, manufacturing, warehouse, energy generation, and other uses that are compatible with adjacent land uses.

## **Land Use, Conservation, Open Space, and Recreation**

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**Exclusive Agriculture (EA).** This district is generally consistent with the intent and purpose of the existing Exclusive Agriculture Zone Classification within Chapter 19.12 of the Kern County Zoning Ordinance. This district will provide for a wide variety of agricultural and incidental nonagricultural uses, and activities that are compatible with agricultural uses, such as permanent produce stands, farmers markets, and telecommunications facilities. Grazing, open space, and recreation such as hiking and biking trails are the predominant land uses in this district. Existing residences at the time of Specific Plan approval will be retained; however, no new residences are authorized, except those accessory to a primary permitted use.

Notices of non-renewal have been filed in 2014 and 2016 for the Williamson Act Contract lands within the Specific Plan. Until the Williamson Act contracts expire on December 31, 2023 and December 31, 2025, or are terminated, the existing Kern County Exclusive Agriculture (A) zoning remains in effect. Accordingly, the existing A zoning is determined to be a consistent implementing zone classification for the Specific Plan districts.

**Geologic Hazard (GH) Combining District.** The purpose of the Geologic Hazard (GH) Combining District is to protect the public's health and safety and minimize property damage by designating areas that are subject to or potentially subject to surface faulting, ground shaking, ground failure, landslides, mudslides, or other potential geologic hazards including liquefaction, lateral spreading, and seismically induced densification and settlement by establishing restrictions on land use in such areas. These areas will be subject to the regulations identified in Kern County Zoning Ordinance (KCZO) Chapter 19.68.

**Floodplain (FC) Combining District.** The purpose of the Floodplain (FC) Combining District is to protect the public health and safety and minimize property damage by designating areas that are potentially subject to flooding and by establishing reasonable restrictions on land use in such areas. The FC Combining District shall be applied to those areas lying within Zone A on the Flood Insurance Rate Maps (FIRM) of the Federal Emergency Management Agency (FEMA) and supplemented by floodplain delineating maps that have been approved by the Kern County Public Works Department. These areas will be subject to the regulations identified in KCZO Chapter 19.70.

The special flood hazard area designated as Zone A is based on historical flood flows where no quantitative determination of the frequency of flooding has been made. Detailed engineering studies will be performed and/or approved by the Kern County Public Works Department prior to the reclassification of the FC Combining District into the Floodplain Primary (FPP) District and/or the Floodplain Secondary (FPS) Combining District.

The degree of flood protection required by the KCZO is considered reasonable for regulatory purposes and is based on engineering and scientific methods of study. Larger floods may occur on rare occasions or flood heights may be increased by manmade or natural causes, such as bridge openings restricted by debris. The KCZO does not imply that areas outside the FC Combining District or land uses permitted within the FC Combining District will be free from flooding or flood damages. The KCZO shall not create liability on the part of the County of Kern or any officer or employee thereof for any flood damage that may result from reliance on the KCZO or any administrative decision lawfully made hereunder.

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### 2.2.3. Development Intensities

Given the relatively long timeframe for development of the Specific Plan and the potential for market conditions to change throughout that period, the Grapevine Specific Plan incorporates flexibility in its districts and in the final layout of neighborhood development areas. Such flexibility allows final decisions on uses and development siting to be made, as conditions change over time, within a framework that ensures that the overall Specific Plan goals are achieved. At full buildout, the Specific Plan is authorized to have 12,000 residential dwelling units and 5,100,000 million square feet of commercial/industrial land uses. There is flexibility in the Specific Plan to allow up to 14,000 residential dwelling units if commercial/industrial square footage is reduced, as detailed in Tables 2-1 and 2-2.

The Grapevine Special Plan will implement an array of permitted uses within each district. It also defines a pattern of use focused on those lands determined to be most suitable for development and least disruptive of environmental resources. This zoning mechanism incorporates development “caps,” that limit the amount of commercial, industrial, and residential development allowed within the Specific Plan. Based on the land use concept described in Section 2.2, Table 2-1 establishes the plan-wide development caps for future development.

**Table 2-1  
Development Included in the Grapevine Specific Plan**

<b>Residential Dwelling Units Total<sup>1</sup></b>	<b>12,000</b>
Retail (Gross Leasable Area/SF)	1,200,000
Office/R&D (Gross Floor Area/SF)	2,450,000
Industrial/Warehouse (Gross Floor Area/SF)	1,450,000
<b>Commercial/Industrial Total (SF)</b>	<b>5,100,000</b>

**Note:** The area to be dedicated and developed for elementary, middle, and high schools (approximately 157 acres), and parks uses (approximately 96-112 acres) is not included in the numerical values presented above.

<sup>1</sup> Up to 2,000 additional residential units may be allowed through a land use exchange that would ensure a commensurate reduction of commercial/industrial square footage based on vehicle trip equivalency ratios. Trip equivalency will be demonstrated by employing the trip conversions outlined in Table 2-3 of the Specific Plan.

The Grapevine Development Maximums by Sub Areas outlined in Table 2-2 provide a projected range of residential units and commercial/industrial area to be developed in each sub area, consistent with the Grapevine Specific Plan goals for flexibility in future allocation of land use. The number of residential units and the amount of commercial/industrial area that would actually be developed in any one sub area would be specified at the tentative map stage, falling within the development range projections for the relevant land use and subject to the overall development cap.

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**Table 2-2**  
**Grapevine Development Maximums by Sub Area<sup>1,2</sup>**

Land Use	Area 1	Area 2	Area 3	Area 4	Area 5a	Area 5b	Area 6a	Area 6b	Areas 6c–6e
<b>Residential Total (DU)</b>	<b>2,075</b>	<b>3,865</b>	<b>2,675</b>	<b>3,390</b>	<b>2,890</b>	<b>50</b>	<b>1,870</b>	<b>n/a</b>	<b>n/a</b>
SFR-Detached (DU)	1,750	2,490	1,650	2,590	2,425	50	820	n/a	n/a
SFR/MFR-Attached (DU)	325	1,375	1,025	800	465	n/a	1,050	n/a	n/a
<b>Commercial/Industrial Total (SF)</b>	<b>1,130,000</b>	<b>2,210,000</b>	<b>2,280,000</b>	<b>565,000</b>	<b>600,000</b>	<b>n/a</b>	<b>2,155,000</b>	<b>400,000</b>	<b>30,000-450,000</b>
Retail (Gross Leasable Area/SF)	70,000	670,000	990,000	165,000	100,000	n/a	350,000	n/a	n/a
Office/R&D (Gross Floor Area/SF)	560,000	1,090,000	910,000	250,000	250,000	n/a	405,000	n/a	n/a
Industrial/Warehouse (Gross Floor Area/SF)	500,000	450,000	380,000	150,000	250,000	n/a	1,400,000	400,000	450,000

**Notes:** DU = dwelling unit, SF = square feet

<sup>1</sup> The area to be dedicated and developed for elementary, middle, and high schools, parks, and institutional uses is not included in the numerical values presented.

<sup>2</sup> The development maximums for each Sub Area are subject to the overall development caps of 5,100,000 square feet of commercial/ industrial uses and 12,000 residential dwelling units plus the 2,000 additional units available if commercial/industrial square footage is reduced.

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### 2.2.4. Land Use Exchange

The overall development cap for the entire Grapevine Specific Plan is a maximum of 12,000 dwelling units and a maximum of 5,100,000 square feet of commercial and industrial floor area (Table 2-1). However, based on the built and permitted commercial/industrial uses at the adjacent TRCC, Grapevine may ultimately support up to 2,000 additional dwelling units. The additional 2,000 units would be authorized only with a corresponding reduction of commercial/industrial square footage based on vehicle trip equivalency ratios (as shown in Table 2-3), and only to the extent that the additional units would not cause any significant new adverse impacts, or increase the severity of previously identified adverse impacts. At the time a land use exchange may be proposed during the tract map stage, the most current Institute of Transportation Engineers (ITE) Trip Generation Manual will be used to calculate the vehicle trip generation for each use involved in the land use exchange, as shown in Table 2-3.

This mechanism to provide for a future increase in the number of residential units and correlated reduction in commercial and/or industrial uses is necessary to allow flexibility to ensure a jobs-housing balance over time, and would be monitored by County staff.

**Table 2-3**  
**Grapevine Land Use Exchange Table**

Grapevine Land Use Type	Conversion Information <sup>1,2</sup>			Conversion Rate	
	ITE Code	Units	Daily Trip Rate <sup>2</sup>	SFR - Detached	SFR/MFR-Attached
SFR-Detached	210	1 DU	9.52	1	1.43
SFR/MFR-Attached	220	1 DU	6.665	0.7	1
Retail	820	1,000 SF gross leasable area	42.7	225 SF = 1 DU	155 SF = 1 DU
Office/R&D	710	1,000 SF gross floor area	11.03	865 SF = 1 DU	600 SF = 1 DU
Industrial/Warehouse	150	1,000 SF gross floor area	3.56	2,675 SF = 1 DU	1,865 SF = 1 DU

**Source:** Trip Generation Manual, 9th Edition (ITE 2012).

<sup>1</sup> At time of land use exchange, the most current ITE information shall be used and reflected in all calculations

<sup>2</sup> Average trip rate for weekday (ITE 2012)

### 2.2.5. Grapevine Road/I-5 Interchange

Primary access to the Grapevine Specific Plan Area will be from I-5. The existing I-5/Laval Road interchange, and if operational enhancements approved by Caltrans are implemented, the existing I-5/Grapevine Road interchange will be used for initial development phase access. A new interchange will be constructed on I-5 to serve the Specific Plan before applicable level of service (LOS) standards are exceeded at any existing interchange providing interim access to the Specific Plan. There are two options for relocating the interchange, Option A and Option B, as shown on Exhibit 3-1, Circulation Plan. Under Option A, the new interchange would be constructed approximately 1-mile north of the existing I-5/Grapevine interchange and would connect with planned Street A. Sufficient right of way would be



## **Land Use, Conservation, Open Space, and Recreation**

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reserved to facilitate a 6-lane overpass at the interchange, if required. A 2-lane overpass connecting sub areas east and west of I-5 would be constructed at planned Street B about ½-mile south of the interchange. The existing I-5/Grapevine Road underpass would be maintained, and freeway access at the existing interchange would be closed. Four-lane arterials would be constructed east (planned Street D) and west (planned Street C) of I-5 and would extend north/south approximately parallel with the freeway. Two new overcrossings of the California Aqueduct would be constructed east and west of I-5 to extend the arterials north to the existing Laval Road/I-5 interchange system and the Tejon Ranch Commerce Center (TRCC). A network of 2-lane connectors would be constructed generally to the east and west of the Grapevine Specific Plan Area north/south arterials.

An existing California Commercial Vehicle Enforcement Facility (CVEF) is operated by the California Highway Patrol at the approximate location of the new I-5 interchange in Option A. To facilitate interchange construction, and to improve the capacity and operation of the facility, the CVEF would be moved north to the west side of the junction of I-5 and SR 99 on land owned by Tejon RanchCorp. Access and bypass ramps would be constructed to connect the new CVEF with I-5 and SR 99, and an additional ramp would be constructed on the east side of I-5 from the new CVEF to the Laval Road/I-5 interchange to accommodate truck movement. The northbound Laval Road/I-5 onramp would be metered. Sufficient right of way would also be reserved from the northbound Laval Road/I-5 onramp north to the I-5/SR 99 junction to construct an auxiliary lane if required to meet applicable LOS and safety standards. An existing agricultural road (the “Haul Road”) east of the Specific Plan would be improved from the existing Edmonston Pumping Plant Road north to Laval Road. The Haul Road would route utility and quarry truck traffic from activities outside of the Grapevine Specific Plan around the planned development.

Under Option B, the new I-5 interchange would be constructed approximately ½-mile south of the preferred location and would connect with planned Street B. Sufficient rights of way would be reserved at the interchange in Option B to facilitate a 6-lane overpass, if required. As shown in Exhibit 3-1, the 2-lane I-5 overpass in Option A would be moved approximately ½-mile north to connect with planned Street A in Option B. The CVEF would remain in its existing location, and a braided onramp would be constructed east of I-5 to accommodate truck movement south from the existing CVEF to the new I-5 interchange.

### **2.2.6. Oil and Gas Exploration and Production**

Continued oil and gas production, as well as the accommodation of new exploration and recovery activities, will be allowed within the Specific Plan in a manner that is compatible with existing and planned uses by establishing appropriate setbacks, height requirements, safeguards, and controls designed to protect public health and safety. Oil and gas production will be allowed in all four Specific Plan Districts (VMU, MU, I, and EA) subject to the provisions of the Grapevine Special Plan (Appendix A) as implemented through the compatibility, mitigation, and development standards of the Conformity Review and Minor Activity Review land use permitting processes set forth in Chapter 19.98 of the KCZO.

## **2.3. Conservation, Open Space, and Recreation Concept**

Grapevine is a community of close-knit neighborhoods surrounded by 240,000 acres of Tejon Ranch conservation lands. The concept for conservation, open space, and recreation in the Grapevine Specific Plan is to build upon Grapevine’s unique setting in the foothills of Tejon Ranch with an integrated

## **Land Use, Conservation, Open Space, and Recreation**

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framework of parks and open spaces that defines neighborhoods and connects residential areas with key community destinations. A hierarchy of open spaces will provide for a variety of uses and experiences throughout Grapevine, including preserved open space, integrated agriculture, community parks, dual-use school/park facilities, town center squares and plazas, trails, and paseos. Agricultural and passive open space lands will surround the development areas, providing an open space buffer and amenities within the context of Tejon Ranch's working conservation landscape.

Varied scales and ranges of contextually relevant, energy conserving, and energy production measures will create a flexible palette of sustainable strategies as outlined in the Grapevine Sustainability Principles (Appendix C). A practical and comprehensive application of sensitivity to natural elements, energy conservation, and energy production will allow Grapevine to become a model of sustainability in the San Joaquin Valley.

### **2.4. Land Use Goals, Policies, and Implementation Measures**

The land use concept has guided preparation of goals for the development of the Specific Plan with emphasis on walkability and green building principles, minimization of impacts on the environment, efficient use of limited natural resources, and compatibility with the Tejon Ranch Land Use and Conservation Agreement. These goals were used in the preparation of the land use, conservation, open space, and recreation policies and implementation measures provided below; and the Grapevine Special Plan (Appendix A).

#### **2.4.1. Land Use Goals**

- A. A livable community with convenient access to employment, shopping, parks, schools, and housing in an area already served by major infrastructure and developed with employment uses.
- B. A community that expands economic development activity with additional businesses that generate commercial and retail employment opportunities and tax revenues.
- C. A community that serves as a gateway to Kern County and reflects the rich agricultural heritage of the San Joaquin Valley.

#### **2.4.2. Land Use Policies**

- 1. Encourage development of pedestrian-oriented, mixed use neighborhoods within village centers that include a mix of employment, commercial services, and shopping opportunities.
- 2. Provide flexible design and siting standards in the Grapevine Special Plan to facilitate innovative development, including compact neighborhood design that promotes walkability.
- 3. Development intensity and density should be highest in the Village Mixed Use (VMU) (i.e. village centers) and Industrial (I) districts, and should gradually decrease across the Mixed Use (MU) districts to the Exclusive Agriculture (EA) districts.
- 4. The most intensive commercial and higher-density residential uses should be guided to locations in the sub areas closest to I-5 to leverage freeway exposure and support efficient transportation patterns.
- 5. Encourage the majority of community-serving commercial uses to be located in or near village centers.
- 6. Civic and other uses which are neither residential nor commercial should be located in or near village centers.

## **Land Use, Conservation, Open Space, and Recreation**

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7. A variety of housing types shall be provided proximate to neighborhood commercial, schools, parks, and other uses.
8. A variety of residential product types, including multi-family, townhouse, clustered small lot, and single-family homes shall be provided.
9. The design and siting of new development shall ensure compatibility with adjacent land uses.
10. Recognize existing natural hazards in the land use planning process and direct development in areas that are not hazardous.
11. Ensure adequate infrastructure and public services are provided for all development.
12. Ensure adequate water supply is available prior to development.
13. Allow a range and mix of industrial uses that provide appropriate buffers from nearby sensitive uses.
14. Encourage the continuation and expansion of large- and small-scale agricultural operations with appropriate buffers from sensitive uses.
15. Allow for the land use exchange program, while maintaining overall caps for residential and commercial development.
16. Protect areas and planned parcels important for oil and gas production through the provision of appropriate standards, requirements, and mitigation measures designed to ensure land use compatibility with the Specific Plan's planned land use.

### **2.4.3. Land Use Implementation Measures**

The Grapevine Special Plan (Appendix A) contains specific development and resource standards to implement the land use goals and policies of the Grapevine Specific Plan, based on the implementation measures below:

- (a) Ensure compliance within all requirements of the Grapevine Special Plan (Appendix A) and mitigation measures in the EIR certified by the Board of Supervisors, require all development within the Grapevine Specific Plan Area to submit a Site Development Plan review that is first reviewed by the Master Developer for certification of its adherence to the Grapevine Specific Plan and Special Plan (Appendix A), and then reviewed by Kern County for compliance prior to issuance of grading or building permits.
- (b) Implement all mitigation measures and conditions of approval of the Grapevine Special Plan (Appendix A) through the Mitigation Monitoring and Reporting Program (MMRP) and Site Development Plan review process.
- (c) Define districts in the Grapevine Special Plan (Appendix A) that allow mixed development combining residential, commercial, and industrial uses in designated locations, as well as a variety of residential product types, including multi-family, townhouse, clustered small lot, and single-family homes to allow for affordable housing opportunities.
- (d) Use the Master Developer Internal Design Review process to ensure the design and siting of development is consistent with the Grapevine Design Principles (Appendix B).
- (e) Provide for innovative design for commercial, residential, and mixed-use development through the incorporation of flexible design and siting standards in the Grapevine Special Plan (Appendix A), and promote multi-modal transportation elements through compact neighborhood design.
- (f) Ensure that all residents can readily access transit by creating paths, accessways, or other land plan techniques to reduce walking distances between homes, employment, commercial and transit stops.
- (g) Incorporate design criteria in the Grapevine Special Plan (Appendix A) to address minimization of light and glare. Include principles of buffering through the use of orientation and landscaping

## Land Use, Conservation, Open Space, and Recreation

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to minimize excess light spillover and reflection within buildable areas, especially where development abuts open space areas.

- (h) Through the Grapevine Special Plan (Appendix A) development standards and the Grapevine Design Principles (Appendix B), guide development improvements to integrate the community into the region and provide for development that complements physically and environmentally constrained areas.
- (i) Identify small-scale community gardens and in-town organic farms as permitted uses within each district (VMU, MU, etc.), where applicable and provide standards for siting these uses in proximity to sensitive uses.
- (j) Identify public facilities as permitted uses within each district, and where applicable, provide standards for siting these uses in proximity to sensitive uses.
- (k) Develop public service facilities, including fire, police, and library facilities, to serve the community, in accordance with fire and life safety standards and best practices.
- (l) Incorporate energy-efficient design features in the Grapevine Special Plan (Appendix A) development standards and the Grapevine Sustainability Principles document (Appendix C) outlining energy and water conservation techniques for site planning and building design. Include air quality emission reduction programs; construction-related energy efficiency programs; passive solar site orientation; low-impact development (LID) and renewable energy strategies in the energy-efficiency section of the Grapevine Sustainability Principles document (Appendix C).
- (m) Implement the Grapevine Sustainability Principles document (Appendix C), which includes feasible measures that serve to reduce water and energy use (e.g., for interior fixtures, require tank-less water heaters and low-flow plumbing) and establishes the need for a Maximum Applied Water Allowance (MAWA) budget for each land use.
- (n) Oil and gas exploration and production shall be allowed as provided through the Special Plan Section 3.16 and implemented using Chapter 19.98 of the KCZO.

## 2.5. Conservation and Open Space Goals, Policies, and Implementation Measures

### 2.5.1. Conservation and Open Space Goals

*(Note: Goal lettering deliberately continued)*

- D. A community that emphasizes the value of open space and protects biological and cultural resources.
- E. A community that minimizes impacts to the natural environment.
- F. A development pattern that respects and protects the inherent environmental character and natural features of the land.
- G. A community that carefully manages the interface between development, open space, existing agricultural uses, and utility easements.
- H. A community that minimizes the use of energy and natural resources.
- I. A community that includes a hierarchy of open spaces which provide connections with nature, serve a variety of uses, and create a structure which organizes the form of the community.

## **Land Use, Conservation, Open Space, and Recreation**

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### **2.5.2. Conservation and Open Space Policies**

*(Note: Policy numbering deliberately continued)*

17. Conserve open space that supports Tejon Ranch's existing biological diversity and maintains its ranching heritage.
18. Retain natural conditions in undeveloped areas to the extent feasible.
19. Protect important environmental features and connectivity to adjacent conservation areas.
20. Conserve important cultural and historic resources to the extent feasible.
21. Conserve wildlife movement corridors along the foothills of the Tehachapi Mountains and California Aqueduct.
22. Encourage use of a plant palette containing natural vegetation plant materials into landscaping for disturbed open space areas to be re-vegetated.
23. Maintain the scenic vistas of foothills and mountains from the I-5 corridor.
24. Allow ranching and agricultural uses and activities to continue as permitted uses in the Exclusive Agriculture district.
25. Allow areas with Williamson Act contracts to continue their existing qualified uses and compatible activities until existing Williamson Act contracts expire or are terminated.
26. Develop resident and visitor awareness and support for local agriculture and grazing operations.
27. Establish open spaces which provide for many types of active and passive recreation opportunities.

### **2.5.3. Conservation and Open Space Implementation Measures**

*(Note: Numbering deliberately continued)*

The Grapevine Special Plan (Appendix A) contains specific development and resource standards to implement the conservation and open space goals and policies of the Grapevine Specific Plan, based on the implementation measures below:

- (o) Reserve 40% of the Specific Plan as Exclusive Agriculture, with grazing and open space as the predominant land uses.
- (p) Incorporate measures from the Tejon Ranch Land Use and Conservation Agreement into the Grapevine Sustainability Principles document (Appendix C).
- (q) Require conservation of important natural features such as Grapevine Creek, Cattle Creek, and natural landforms to the extent feasible.
- (r) Prior to the submittal of the first Site Development Plan review application, the Master Developer shall prepare an environmental education pamphlet to be disseminated to educate residents on the value of conserving natural resources. A copy shall be submitted to the Kern County Planning and Community Development Department as a requirement of the Site Development Plan review process.
- (s) Maintain existing wildlife undercrossings of I-5 and protect wildlife corridors that connect to these undercrossings.
- (t) Require a restricted landscape palette for all development in order to conserve water and promote the use of native and other drought-resistant or drought-tolerant plants and plant species that are reflective of agricultural heritage or native to the San Joaquin Valley.
- (u) Landscape and irrigation shall comply with the Water-Efficient Landscape requirements set forth in the Grapevine Special Plan (Appendix A) development standards and the Grapevine Sustainability Principles document (Appendix C).

## Land Use, Conservation, Open Space, and Recreation

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- (v) Require an open space buffer of 50 feet from Caltrans right-of-way on either side of I-5 that will be landscaped with regionally appropriate scenic landscape features such as wildflower fields, grasslands, orchards, and vineyards.
- (w) Limit glare and light spillage into any natural area through implementation of nighttime lighting requirements and design features in conformance with the “Dark Sky” ordinance.
- (x) Restrict uses within the Exclusive Agriculture district to grazing; agriculture; community infrastructure; open space management; and low-impact recreation, such as hiking, mountain biking, and equestrian activities on designated trails; and allow associated structural uses, such as stables and outfitter support facilities, ranching, and other activities that have historically occurred on Tejon Ranch as recognized in the Tejon Ranch Land Use and Conservation Agreement, such as filming, oil and gas production, and mining.
- (y) Prior to submittal of the first Site Development Plan review application, the Master Developer shall prepare an agricultural education program to be disseminated to educate residents on the value of grazing and agricultural operations within the Specific Plan and on the larger Tejon Ranch. A copy shall be submitted to the Kern County Planning and Community Development Department as a requirement of the Site Development Plan review process.
- (z) Develop a comprehensive trail network for a variety of users that links development areas, open space, and parks.
- (aa) Develop a network of parks and open spaces within and surrounding development areas.

## 2.6. Recreation Goals, Policies, and Implementation Measures

### 2.6.1. Recreation Goals

*(Note: Goal lettering deliberately continued)*

- J. A community that provides a variety of recreational resources for residents and visitors.
- K. A community that encourages active, healthy lifestyles through recreation and multi-modal transportation opportunities.

### 2.6.2. Recreation Policies

*(Note: Policy numbering deliberately continued)*

- 28. Provide an integrated framework of parks and recreation facilities, including community parks, joint use facilities, town center squares and plazas, public and private trails, paseos, and other compatible recreational uses that will serve Grapevine residents as well as visitors from the surrounding region.
- 29. Provide park and recreational facilities within walking or biking distance of each residence, and of sufficient size and number to meet the demands of the projected population.
- 30. Encourage and allow for the joint use of park and adjacent schools and other municipal-serving facilities, including libraries, community centers, and senior centers.
- 31. Provide a complete street network that accommodates pedestrian and bicycle facilities to encourage walking and biking between uses.



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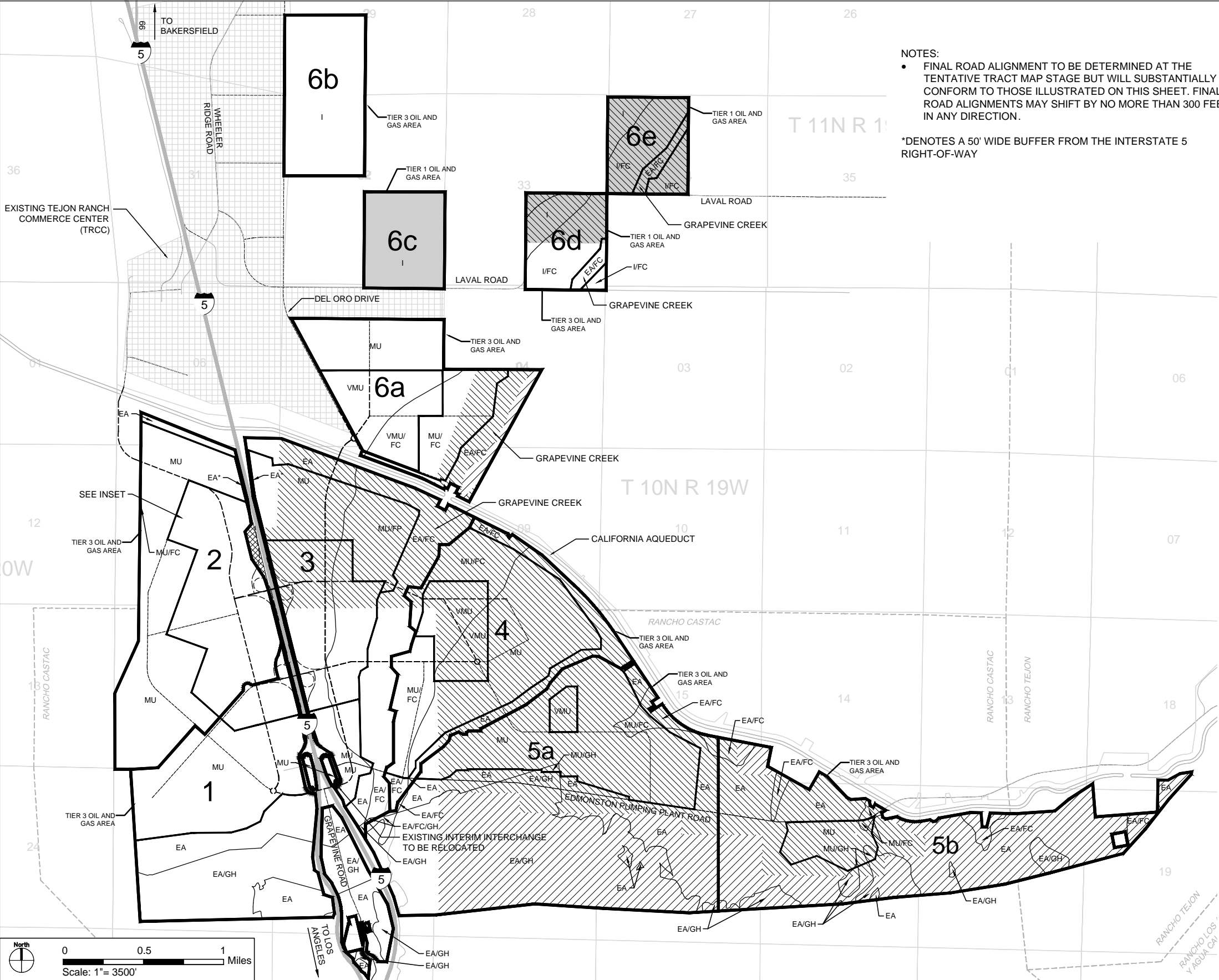
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### **2.6.3. Recreation Implementation Measures**

*(Note: Numbering deliberately continued)*

The Grapevine Special Plan (Appendix A) contains specific development and resource standards to implement the recreation goals and policies of the Grapevine Specific Plan, based on the implementation measures below:

- (bb) Require the provision of 2.5 acres of parks per 1,000 people living within Grapevine.
- (cc) Work with appropriate entities to establish joint use agreements for park and adjacent schools and other municipal-serving facilities, including libraries, community centers, and senior centers.
- (dd) Identify an integrated trails network throughout open space and development areas and include standards for trails in the Grapevine Special Plan (Appendix A).
- (ee) Require the inclusion of trailhead improvements at appropriate locations on roadway improvement plans to facilitate the connection between vehicular and trail systems.
- (ff) Adopt Complete Streets Policies for each Sub Area and all new streets in the Grapevine Special Plan (Appendix A).
- (gg) Include bicycle parking standards in the Grapevine Special Plan (Appendix A) development standards for all uses except single-family residential development.



NOTES:

- FINAL ROAD ALIGNMENT TO BE DETERMINED AT THE TENTATIVE TRACT MAP STAGE BUT WILL SUBSTANTIALLY CONFORM TO THOSE ILLUSTRATED ON THIS SHEET. FINAL ROAD ALIGNMENTS MAY SHIFT BY NO MORE THAN 300 FEET IN ANY DIRECTION.

\*DENOTES A 50' WIDE BUFFER FROM THE INTERSTATE 5 RIGHT-OF-WAY

**LEGEND**

NOTE: Districts identified on the Grapevine Special Plan District Map (Figure 1-3) are the same as the Grapevine Specific Plan land use districts identified here.

VMU

Mixed Use

MU

Mixed Use

I

Industrial

EA

Exclusive Agriculture

FC

Floodplain Combining District

GH

Geologic Hazard Combining District

Williamson Act Status:

Non-Renewal Filed 2014

Non-Renewal Filed 2016

Existing Weigh Station

Tier 1 Oil and Gas Areas

Tier 3 Oil and Gas Areas

Freeway

Framework Circulation - Arterials & Collectors

Existing Roads

Relocated Interchange (Conceptual Location)

Option A

Option B

1

Special Plan Sub Area Boundary & Number

8 9

9 N 17 W

17 16

Township & Range & Section

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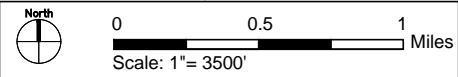


**LEGEND**

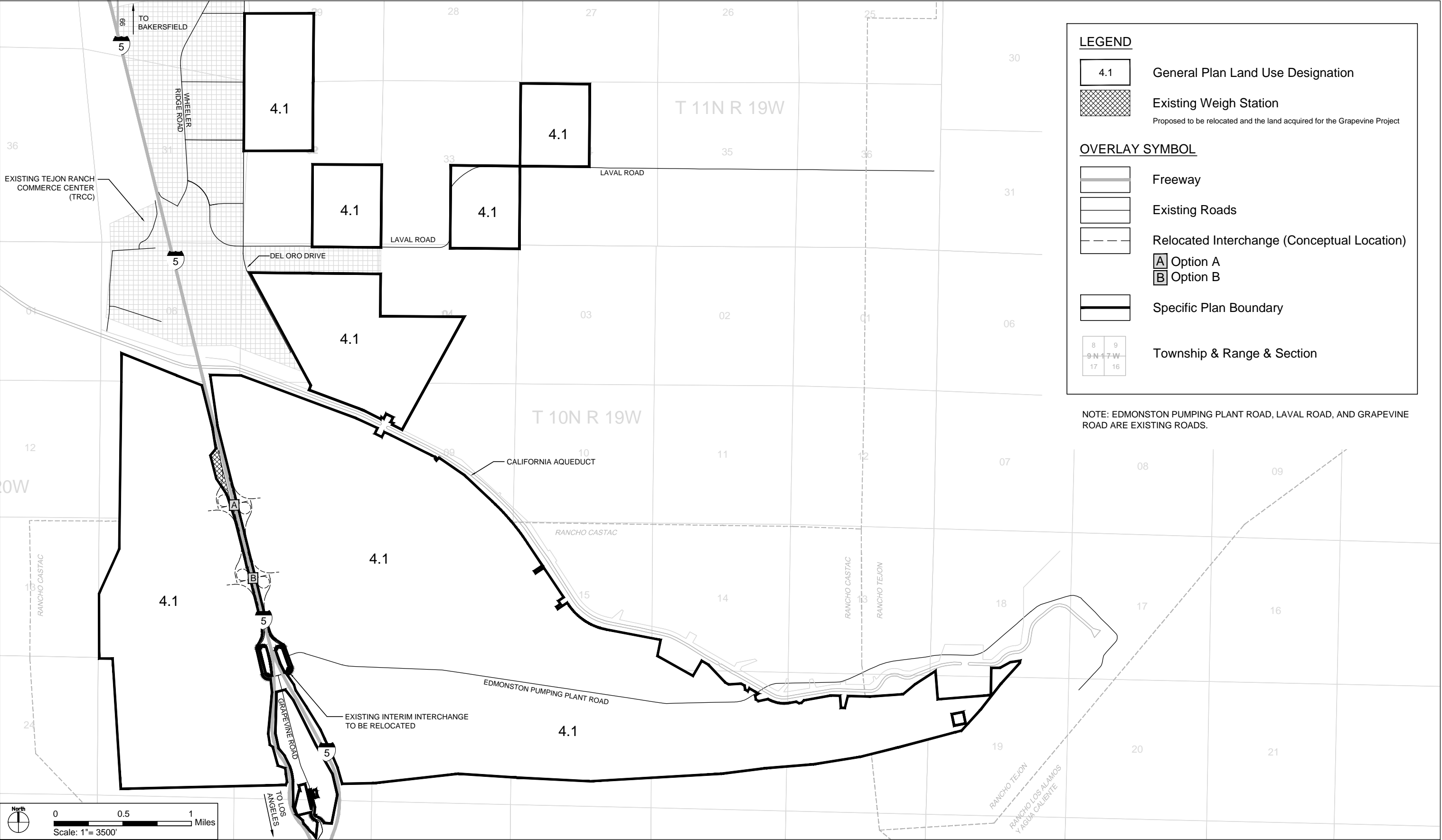
- Village Center
- 1/4 Mile Walking Radius
- 1/2 Mile Bicycling Radius
- Freeway
- Primary Arterial with Class I Bike Path
- Major Arterial/Collector with Class I Bike Path
- Minor Arterial/Collector with Class II Bike Lane
- Multipurpose Trails
- Unpaved Existing Trails
- Unpaved Trails
- Existing Off-Site Roads
- Relocated Interchange (Conceptual Location)
- Option A
- Option B
- Specific Plan Boundary
- Existing Weigh Station  
Proposed to be relocated and the land acquired for the Grapevine Project
- Township & Range & Section
- Transit Facility

NOTE:

- LOCATIONS OF VILLAGE CENTERS ARE CONCEPTUAL AND WILL BE DETERMINED AT THE TENTATIVE TRACT MAP STAGE
- FINAL ROAD ALIGNMENT TO BE DETERMINED AT THE TENTATIVE TRACT MAP STAGE BUT WILL SUBSTANTIALLY CONFORM TO THOSE ILLUSTRATED ON THIS SHEET. FINAL ROAD ALIGNMENTS MAY SHIFT BY NO MORE THAN 300 FEET IN ANY DIRECTION



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## **CHAPTER 3**

# **CIRCULATION AND INFRASTRUCTURE**

### **3.1. Purpose and Scope**

This chapter describes the circulation and infrastructure concepts for the Grapevine Specific Plan, and provides an overview of how the Specific Plan is linked to the existing and planned major commercial uses located immediately to the north at the Tejon Ranch Commerce Center (TRCC) and surrounding uses.

The circulation system consists of vehicular and non-vehicular facilities, including roads, multi-purpose trails, and transit facilities. Establishing a guide for future development of the system, this chapter identifies the general distribution, location, and type of circulation components to be developed within the Grapevine community. The circulation system has been designed to maximize the use of existing roadways and access points as depicted on the Circulation Plan (Exhibit 3-1), which classifies the backbone vehicular facilities according to their function and depicts the alignment of the backbone bikeways and trails network.

This chapter also addresses the infrastructure concept for the Specific Plan. Existing major utilities and infrastructure are identified in Exhibit 3-2. The circulation system provides the principal alignment for water and sewer distribution, collection, and conveyance facilities, as well as the principal system that will cross the drainage courses on the site. Water, sewer, drainage/flood management, and dry utilities plans (Exhibits 3-3, 3-4, 3-5, and 3-6) also depict the respective backbone infrastructure systems.

### **3.2. Circulation Plan Concept**

The Grapevine Specific Plan has been designed to create a multi-modal transportation community to support multiple forms of transportation and to reduce internal and external single-occupancy vehicle trips. The Grapevine land use concept establishes a balanced mix of employment and housing with the adjacent TRCC and the commercial allowed in Grapevine, while providing for residential and community land uses. This full service and complete mixed-use community will include a series of dense village centers, as shown on Exhibit 2-2, that will facilitate walking and bicycling between uses within the ¼-mile and ½-mile radii of the village centers. Development intensity and density will be greatest in the village centers and will decrease as it radiates out providing a transition to lower density areas. This development pattern will provide housing, retail, service, and employment opportunities within a complete and integrated circulation network, thereby reducing external trips, shortening trips between land uses, and providing an opportunity to utilize alternative modes of transportation. Grapevine is committed to the goal of moving this new community to a focus on mobility choice and associated community livability in a manner that is efficient and cost effective.

## **Circulation and Infrastructure**

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The Grapevine circulation plan establishes a comprehensive framework for the creation of a multi-modal street system in the Grapevine Specific Plan. The circulation plan also establishes connections to adjacent existing and proposed streets, trails, and land uses. Exhibit 3-1, Circulation Plan, identifies the functional hierarchy and location of transportation facilities. The ultimate roadway alignments may shift from those shown on Exhibit 3-1 by no more than 300 feet in any direction. The following describes the street classification hierarchy, proposed public transportation facilities, and the trails system that make up the Grapevine circulation plan.

### **3.2.1. Vehicular Circulation**

Freeway interchanges and roadway classifications for the Grapevine circulation system are defined below. Standards for each classification are set forth in the Grapevine Special Plan (see Appendix A to this document).

#### **3.2.1.1. Freeway Interchanges**

Primary access to the Grapevine Specific Plan Area will be from I-5. The existing I-5/Laval Road interchange, and if operational enhancements approved by Caltrans are implemented, the existing I-5/Grapevine Road interchange will be used for initial development phase access. A new interchange will be constructed on I-5 to serve the Specific Plan before applicable level of service (LOS) standards are exceeded at any existing interchange providing interim access to the Specific Plan. There are two options for relocating the interchange, Option A and Option B, as shown on Exhibit 3-1, Circulation Plan.

Under Option A, the new interchange would be constructed approximately 1 mile north of the existing I-5/Grapevine interchange and would connect with planned Street A. Sufficient right of way would be reserved to facilitate a 6-lane overpass at the interchange, if required. A 2-lane overpass connecting sub areas east and west of I-5 would be constructed at planned Street B about ½-mile south of the interchange. The existing I-5/Grapevine Road underpass would be maintained, and freeway access at the existing interchange would be closed. Four-lane arterials would be constructed east (planned Street D) and west (planned Street C) of I-5 and would extend north/south approximately parallel with the freeway. Two new overcrossings of the California Aqueduct would be constructed east and west of I-5 to extend the arterials north to the existing Laval Road/I-5 interchange system and the Tejon Ranch Commerce Center (TRCC). A network of 2-lane connectors would be constructed generally to the east and west of the Grapevine Specific Plan Area north/south arterials.

An existing California Commercial Vehicle Enforcement Facility (CVEF) is operated by the California Highway Patrol at the approximate location of the new I-5 interchange in Option A. To facilitate interchange construction, and to improve the capacity and operation of the facility, the CVEF would be moved north to the west side of the junction of I-5 and SR 99 on land owned by Tejon RanchCorp. Access and bypass ramps would be constructed to connect the new CVEF with I-5 and SR 99, and an additional ramp would be constructed on the east side of I-5 from the new CVEF to the Laval Road/I-5 interchange to accommodate truck movement. The northbound Laval Road/I-5 onramp would be metered. Sufficient right of way would also be reserved from the northbound Laval Road/I-5 onramp north to the I-5/SR 99 junction to construct an auxiliary lane if required to meet applicable LOS and safety standards. An existing agricultural road (the “Haul Road”) east of the Specific Plan would be improved from the existing Edmonston Pumping Plant Road north to Laval Road. The Haul Road would route utility and quarry truck traffic from activities outside of the Grapevine Specific Plan around the planned development.

## Circulation and Infrastructure

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Under Option B, the new I-5 interchange would be constructed approximately ½-mile south of the preferred location and would connect with planned Street B. Sufficient rights of way would be reserved at the interchange in Option B to facilitate a 6-lane overpass, if required. As shown in Exhibit 3-1, the 2-lane I-5 overpass in Option A would be moved approximately ½-mile north to connect with planned Street A in Option B. The CVEF would remain in its existing location, and a braided onramp would be constructed east of I-5 to accommodate truck movement south from the existing CVEF to the new I-5 interchange.

Interim access from I-5 to the Grapevine Specific Plan Area would be provided from the existing Laval Road/I-5 interchange (Interim A) until the new I-5 interchange is constructed. Interim A would allow for initial development east of I-5. A portion of the eastern north/south arterial would be constructed south from Laval Road and connect with 2-lane roadways to the east. The California Aqueduct overcrossing to the east of I-5 would be constructed to extend the arterial approximately 0.5 mile south of the intersection with planned Street A. There would be no connection with or access through the existing I-5/Grapevine interchange in Interim A. In addition, no development would occur west of I-5, the CVEF would remain in its existing location, the Haul Road would not be improved, the California Aqueduct overcrossing west of I-5 would not be constructed, and no improvements to the Laval Road northbound onramp or the CVEF would be required.

Subject to Caltrans approval, certain operational enhancements could be made to the northbound on- and offramps at the existing I-5/Grapevine interchange to provide additional interim access to the Grapevine Specific Plan Area (Interim B). Operational enhancements to the northbound offramp would include flashing warning lights prior to the offramp curve, super-elevation along the ramp, gore point and diverge lighting, and overhead ramp exit signs approximately ½ mile and 1 mile south of the offramp gore point. Operational enhancements to the northbound onramp would include an approximately 1,000-foot acceleration lane and gore point and merge lighting. If the existing I-5/Grapevine interchange is enhanced for interim project use, the eastern arterial (planned Street D) would be extended to existing Grapevine Road and development would occur west of I-5 in Plan Sub-Area 1. The CVEF would remain in its existing location, the Haul Road would not be improved, and no improvements to the Laval Road northbound onramp or the CVEF would be required in Interim B.

Prior to the construction of the new I-5 interchange, a traffic monitoring program will be implemented and traffic studies will be required with each application for a tentative tract map or parcel map to evaluate existing interchange LOS levels and on-freeway queuing. The monitoring program and traffic studies will assess the extent to which interchange operations are approaching levels that would exceed applicable LOS or queuing standards. The new I-5 interchange will be constructed before interim access to the Grapevine Specific Plan through an existing interchange would cause an exceedance of LOS or queuing requirements.

The selection of either option will be made in consultation with Caltrans and be implemented through future tentative tract map(s) as described in the implementation procedures set forth in the Special Plan (Appendix A). The street network and intersection locations nearest the interchange may be adjusted to account for the final Grapevine/I-5 interchange location and design.

## Circulation and Infrastructure

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### 3.2.1.2. Internal Street Network

Internal street classifications are set forth in Exhibit 3-1, Circulation Plan. The ultimate roadway alignments may shift from those shown on Exhibit 3-1 by no more than 300 feet in any direction. The street network is primarily composed of two- and four-lane arterials, collector streets, local streets, lanes, and alleys. Standards for each classification are set forth in the Grapevine Special Plan (see Appendix A to this document).

**Arterials.** Arterials are limited-access and high-capacity six-, four-, and two-lane roadways that are primarily intended to deliver traffic from collector roads to freeways at the highest level of service and speed possible. Within the Specific Plan, arterials will travel in an east-west direction from the I-5 off-ramps to interior collector roads. In addition, arterials will cross over the California Aqueduct in a north-south direction on either side of I-5: an arterial on the west side of I-5 will connect Sub Area 2 (south of the California Aqueduct) with the TRCC (north of the California Aqueduct); the second arterial crossing on the east side of I-5 will connect Sub Area 3 with Sub Area 6a and the TRCC. Additionally, the existing Edmonston Pumping Plant Road will be widened to accommodate vehicular traffic.

**Collector Streets.** Collector roads are low-to-moderate capacity four- and two-lane roadways that primarily serves to move traffic from local streets to arterial roads, and will be the main link between each sub area in the Specific Plan. Within the Specific Plan, collector roads connect to arterials and sub areas in a north-south and east-west direction. They are spaced approximately half-mile apart to resemble the County's traditional roadway network and facilitate multi-modal mobility between village centers and surrounding neighborhoods.

Design standards for both arterials and collectors place emphasis on pedestrians by providing reduced crossing widths, street bulb-outs, shade trees, street furniture, and other features that invite walking and shopping on both sides of the street (refer to Grapevine Special Plan (Appendix A)). Roads are optimized for slow traffic (e.g., looking for parking or destinations, watching for pedestrians), cycling, and pedestrian crossings, while also accommodating larger vehicles by providing turn lanes and wider turning radii where needed.

**Local Streets.** Local streets consist of all roads not defined as arterials or collectors, and primarily provide direct access to individual sites with little or no through movement. Local streets are either two-lane roadways or one-lane roadways when limited to one-way traffic. The detailed local street network will be designed in subsequent subdivision maps. Local streets may use a grid pattern that provides for greater mobility.

The local street network will incorporate shared public ways (i.e., public rights-of-way designed for pedestrian use that permit vehicles and bicycles to share the open space). Shared public ways are a street typology of smaller, narrower streets that favor pedestrian activity, limit vehicular access, and slow vehicle speeds. Unlike other local streets designed for direct vehicular access, shared public ways prioritize pedestrian use while allowing slow-moving vehicles to access local land uses and parking and provide necessary services. Shared public ways are designed with special paving, a variety of amenities, landscaping, seating, and pockets of on-street loading and parking, which will create an environment that encourages public space use and slows occasional vehicles.

### 3.2.2. Public Transportation

Public transportation will be a viable travel option for Grapevine residents, workers, and visitors, while also resulting in benefits to the community and region. Providing for a comprehensive public transportation network will help discourage single-occupancy vehicle travel, resulting in lower emissions and improving the overall air quality in the region. Public transportation service would also encourage the use of active transportation modes, such as walking and bicycling, especially where linkages to the planned trail system would occur between the transit stop and ultimate destination, resulting in improved public health. The Grapevine Specific Plan provides for efficient movement through the community and the region via a transit-supportive land use and circulation plan. Transit-supportive development patterns that generate consistent transit ridership include higher density areas around transit stops, pedestrian-oriented development, paid parking areas, and where transit service connects high-density and diverse developments to one another. For example, the village centers (see Exhibit 2-2) are prime locations for transit stops as they include higher-density and pedestrian-friendly residential and employment uses supported by a comprehensive pedestrian network.

There are currently three transit providers serving the greater Grapevine region, Kern Transit, Golden Empire Transit (GET), and Arvin City Bus. Future Kern Transit service to Grapevine may include stops at the Grapevine transit facilities as Kern Transit proceeds between the mountain communities and Bakersfield, providing Grapevine residents and guests with transit service to those communities. The Grapevine Specific Plan includes two transit hubs to be located on either side of I-5 to provide convenient, centralized access for both local and regional transit service.

During the early phases of the Specific Plan, public transportation service within the Grapevine Specific Plan will be provided by Kern Transit using a demand-based approach, similar to the ultimate transit service to be provided, but offered less frequently and with smaller vehicles until demand warrants additional capacity. Fixed service will be provided if determined feasible by the transit provider. This service will be supported by the initial phases of development and may be partially-funded through a local Transportation Management Association (TMA). The TMA will also be responsible for implementation of transportation demand management (TDM) strategies to reduce vehicle trips, including coordinating employer work schedules and transit schedules, providing discounted bus passes to users, organizing employer-sponsored shuttle/vanpool services, and offering incentives to employees to reduce single-occupancy vehicle travel. This transit service could also connect the initial phases of the Specific Plan to existing regional transit service provided between the TRCC, Bakersfield, and Arvin. The location of transit stops and routes will be coordinated with the land use plan and transit service providers and will evolve and expand over time as the Specific Plan develops. At buildout, Grapevine may be able to support both local and intercity transit services, similar to those currently offered within the Bakersfield metropolitan area.

### 3.2.3. Trail System

The circulation plan provides a network of pedestrian, bikeways, equestrian, and multi-use trails located both within the road system and adjacent to Grapevine Creek, Cattle Creek, the southern foothills, the open space area adjacent to the California Aqueduct, and at other locations throughout the Specific Plan. These include multi-purpose trails (12 feet wide), recreational trails on existing Ranch roads, new recreational trails (5 feet wide), and public roads with Class I or II bike lanes. Separated bikeways and other bike-



## **Circulation and Infrastructure**

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friendly facilities will be used in high-traffic areas to create a safer and more comfortable cycling environment. The alignments of trails and bikeways are shown in the Circulation Plan (Exhibit 3-1). Final alignments will be determined with each subdivision map that covers the geography of the trail or bikeway.

Class I and Class II bikeways that conform to the National Association of City Transportation Officials (NATCO) standards are integrated throughout the circulation system, as provided for in the Grapevine Special District Plan (Appendix A). Class I bikeways provide a completely separated right of way for the exclusive use of bicycles and pedestrians with crossflow by motorists minimized. Class II bikeways provide a striped lane for one-way bike travel on a street or highway. As the details of the street network are established during the subdivision mapping process, the exact location and classification of bikeways will be defined. As described above, the bikeway and trail system will be coordinated with the location of transit facilities to maximize multi-modal accessibility throughout the Specific Plan. The bikeways will also be integrated and connected to the regional bikeway network and support the implementation of the Kern County Bicycle Master Plan and Complete Streets Recommendations – Final Report (October 2012).

Multi-use paths and trail alignments located both within and outside of the public right-of-way are subject to the standards set forth in the Grapevine Special District Plan (Appendix A). Where those standards are silent, path and trail alignments are subject to County road standards. In the foothills, outside of the public right-of-way and development area, the multi-use trail design has more flexibility to use variable dimensions that would generally follow existing Ranch roads to minimize environmental impacts and provide for resource sensitivity. The multi-use trail would be paved with asphalt or concrete and/or stabilized with earthen materials, such as decomposed granite. Pedestrian, equestrian, or mountain biking trails may be constructed with earthen materials.

### **3.3. Infrastructure Concept**

This section identifies the wet and dry utility infrastructure that will be necessary to support growth and provide an adequate level of service for implementation of the Grapevine Specific Plan. Grapevine's infrastructure concept is based on the same themes as the entire Specific Plan: the opportunity to leverage and build upon existing investments in major regional and local infrastructure, including I-5, the California Aqueduct, and existing gas, electric, and telecommunications facilities, similar to the goal of building upon the economic expansion underway at TRCC. Important to the infrastructure concept as new infrastructure is added to the existing base of infrastructure is the strategic design of new facilities to conserve and protect natural resources, and be thoughtful in the siting of sensitive uses. Existing and planned infrastructure includes water (potable and recycled), wastewater, storm drain facilities and dry utilities. Infrastructure improvements will be designed and installed utilizing best management practices and environmentally sensitive methods in accordance with all applicable and current laws and regulations.

#### **3.3.1. Potable Water**

The water supply for potable use will be provided by the Tejon Castac Water District (TCWD), a California water district that currently serves the adjacent TRCC and other areas of the Ranch. The water supply will consist of water delivered by the Kern County Water Agency (KCWA) under the terms of a 2001 water transfer agreement with KCWA and the Nickel Family LLC (the "Nickel Agreement"). The Nickel Agreement obligates KCWA to supply 10,000 acre-feet per year of potable water, with 100% annual reliability, for 70 years, at the Tupman turnout of the California Aqueduct located north of the Specific Plan.

Tejon Ranchcorp has acquired rights to receive 6,693 acre-feet per year of the Nickel Agreement water through approximately 2079, which will fully meet or exceed the Specific Plan's annual potable water demand. Additional water sources, including contractual extensions of the Nickel Agreement, other water transfers and acquisitions, and use of other supplies (including Grapevine-generated recycled water and potential local groundwater) will be secured over time as required for longer-term, future use. TCWD will provide water and wastewater services to the Specific Plan, requiring approval by the Kern County Local Agency Formation Commission (LAFCO) to expand TCWD's existing service area to include the Specific Plan. The Water System Plan is shown in Exhibit 3-3.

TCWD will be responsible for coordinating the delivery of Nickel Agreement water with KCWA from the Tupman turnout to turnout(s) along the California Aqueduct within or near the Specific Plan. Once exiting the turnouts, the water will be piped to TCWD off-site or on-site water treatment plant(s) that will be constructed and operated to meet all applicable potable water standards and regulations of the Safe Drinking Water Act and California Department of Public Health. The treatment plant(s) will be expanded in phases to meet the growing demand of the Grapevine community. Sub Area 6A may receive water from the TRCC water treatment plant.

The potable water system distribution pipelines and storage tanks will be sized to meet anticipated maximum-day, peak-hour, and fire flow requirements. The alignment of the potable water distribution system will generally follow the internal roadway system, and the specific location of pipelines will be specified in subdivision maps. TCWD will also secure and operate on-site or off-site water supply and storage facilities with adequate capacity and conveyance system access to meet the Specific Plan's daily potable water consumption requirements.

### **3.3.2. Wastewater**

The wastewater system and sewer service will be operated by TCWD. On-site wastewater treatment plants (WWTP) will be located at various locations within the Specific Plan. The WWTPs will treat wastewater to tertiary sanitary levels that meet the requirements of Title 22 of the California Code of Regulations for unrestricted reuse. The wastewater collection system will consist of both gravity lines and lift stations with force mains. All facilities will be constructed in accordance with design requirements of TCWD, Kern County Health Department, and the Central Valley Regional Water Quality Control Board (RWQCB). The WWTPs will be designed to avoid wastewater discharges and will produce only tertiary-treated recycled water and biosolids.

An existing wastewater disposal facility consisting of unlined basins currently serves existing commercial uses adjacent to the Grapevine Road/I-5 interchange and is located east of the interchange. Additionally, existing TCWD water treatment and wastewater treatment facilities exist west of the Specific Plan and within TRCC to serve TRCC. The existing TRCC facilities may be used on an interim basis during initial phases of the Specific Plan development while surplus capacity remains available and until other WWTPs are constructed. Once a new WWTP is constructed in the Specific Plan, the existing Grapevine Road/I-5 interchange wastewater disposal facility will be decommissioned, and wastewater generated by the existing commercial uses will be transitioned to treatment at the WWTP.

The WWTPs will produce recycled water that will be piped through a non-potable water distribution system for various uses within the Specific Plan, as described below. The non-potable water distribution

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system will include pump stations and storage tanks, and may include on-site storage ponds that will store surplus recycled water when production exceeds non-potable water demand (e.g., in the winter months when irrigation demand is low).

In addition to tertiary-treated recycled water, the WWTPs will produce and treat residual solid waste as a component of the on-site wastewater treatment process. The residual solids will be pelletized and sold, or subject to disposal in accordance with all applicable laws and regulations, including Kern County ordinance and policies. The Wastewater System Plan is depicted in Exhibit 3-4.

### **3.3.3. Recycled Water**

The Grapevine Specific Plan is designed to be water efficient and will use tertiary-treated recycled water to the maximum extent feasible to reduce potable and non-potable water demands. The Specific Plan will generate wastewater from residential, commercial, and industrial indoor water uses. Wastewater will be conveyed by the wastewater collection system to the project's wastewater treatment plants (WWTPs). All wastewater produced by water use within the Specific Plan will be collected and treated to California Title 22 unrestricted reuse standards to supply irrigation water for all appropriate irrigation, including landscaping within roundabouts, streetscapes, commercial and industrial areas, other common areas, and residential landscaping. Recycled water will be supplemented as needed with filtered, non-potable water to meet irrigation demands.

Recycled water will be distributed through a separate system that will convey recycled water from the WWTPs for use throughout the site. Piping will be polyvinyl chloride (PVC) or high-density polyethylene (HDPE), colored purple to help guard against cross-connections. All pipelines will be installed with appropriate clearance from other utilities. All recycled water produced by the WWTPs will be used on site for irrigation consistent with applicable laws and regulations. The potable and non-potable water systems will be designed and operated in accordance with TCWD and California Department of Public Health standards.

### **3.3.4. Drainage and Flood Management**

The proposed drainage system for the Grapevine Specific Plan is designed to maintain, to the maximum extent possible, existing drainages in their natural state consistent with public safety requirements, and to protect development from flood risks. Grapevine Creek and Cattle Creek (tributary) watercourses will be maintained in permanently preserved open space areas buffered from development. The existing Pastoria Creek, Cattle Creek, and Live Oak Creek watercourses will be avoided by development. Road crossings over Grapevine Creek or Cattle Creek will be constructed with culverts, boxes, arched culverts, or bridges that are sufficient to accommodate anticipated flows and to maintain or enhance existing biological functions and values while protecting roadways, adjacent properties, and drainage hydrology. Drainage crossings will be designed to meet applicable Kern County Drainage Development Standards and Kern County Stormwater Ordinance (Chapter 14.26 of the Ordinance Code of Kern County) requirements.

Water quality and runoff volumes will be managed through the use of roadside bioswales, water quality basins, and other on-site measures that implement appropriate water quality management practices. Development will comply with applicable water quality objectives for designated surface water and groundwater beneficial uses and meet the requirements of the general permit for small municipal separate storm sewer systems adopted by the State Water Resources Control Board in February 2013. Post-

construction hydrology, including flow rates and durations, will be managed to protect applicable biological functions and values, including the preserved watercourses and aquatic habitats within the Specific Plan. The Drainage System Plan is depicted in Exhibit 3-5.

### **3.3.5. Dry Utilities**

Dry utilities including gas, electricity, phone, and cable services are shown on Exhibit 3-6. Gas service will be provided by an existing natural gas pipeline and new distribution facilities. Electricity and phone systems serving the Grapevine development will be new, but will link up to existing electric transmission and phone trunk lines in or near the Specific Plan. New utility, electricity, gas, and communication, and media service transmission lines for the Grapevine community generally will be placed within, alongside, or beneath existing roads or the proposed road network. Communication facilities, including microwave and cellular facilities, will be screened from view to the maximum extent possible. The location of on-site utility facilities may change based on site-specific physical constraints and land use considerations.

## **3.4. Circulation Goals, Policies and Implementation Measures**

The following goals, policies and implementation measures have been set forth in order to implement the plan concepts described in Section 3.2:

### **3.4.1. Circulation Goals**

- A. A comprehensive, integrated and multi-modal circulation system that accommodates the type, location, and extent of vehicular and non-vehicular facilities and embraces all aspects of design, including functionality, economic efficiency, connectivity between sub areas and the surrounding region, and alternative modes of transportation.
- B. A circulation system that emphasizes the concepts of sustainable mixed-use land use patterns, walkable neighborhoods, narrow pedestrian-scale streets, non-vehicular facilities, and aesthetic quality that provide enhancements that offset any impediments that they may create for vehicular movement.
- C. A circulation system that increases transit accessibility through a comprehensive network of pedestrian, bicycle and transit routes that connect transit hubs, residential areas, and major employment and activity centers.
- D. Roadway design that meets all State and County roadway requirements, adequate levels of service, safety standards, and fire and emergency vehicle circulation and turning movements.
- E. A well-maintained roadway and trail system that is expanded and improved overtime as the Specific Plan develops.

### **3.4.2. Circulation Policies**

- 1. Establish a multi-modal road network designed to accommodate vehicular and non-vehicular circulation throughout the Specific Plan.
- 2. Establish a roadway hierarchy within the Specific Plan that is designed to provide appropriate levels of service for the intended use of each roadway classification, achieves a highly interconnected system, and supports mobility for all modes of transportation (automobiles, bicycles, walking, and transit use).

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3. Establish a road network that includes linkages to the adjacent existing and approved major employment uses at the TRCC.
4. Establish a road network that includes linkages to surrounding bicycle and trail routes (both existing and proposed), in accordance with the Kern Council of Government's Regional Transportation Plan/Sustainable Communities Strategy and Kern County Bicycle Master Plan and Complete Streets Recommendations – Final Report (October 2012), or any updated reports.
5. Allow for a diverse compliment of permitted uses to create a full service and complete mixed-use community that provides housing, retail, service, and employment opportunities, to reduce external trips generated by the project, shorten trips between land uses, and provide opportunities to utilize alternative modes of transportation.
6. Civic and other uses which are neither residential nor commercial should be located in or near village centers. Schools may be located outside of village centers due to traffic and siting constraints.
7. Encourage pedestrian and bicycle circulation within higher use activity nodes such as the Village Mixed Use centers and Mixed Use commercial areas, as well as areas surrounding schools and parks, through the use of trails and safe routes to school.
8. In Village Mixed Use districts buildings should be oriented toward the street with pedestrian features along frontage and architectural features that clearly identify the first story and primary entrances. Uninterrupted walls or roofs should be avoided, and windowless walls on lower floors shall be discouraged.
9. Provide at least two streets/routes connecting each village center with the surrounding neighborhoods (i.e., one east-west street, one north-south street) that use devices such as trails, bike lanes, sharrows, and enhanced sidewalks for pedestrians and cyclists.
10. Require pedestrian and bicycle-friendly connections between neighborhoods, village centers, schools, and parks.
11. Clearly delineate pedestrian and bicycle routes through large parking areas with pavers, paint, or other methods.
12. Establish flexible design standards for arterial and collector streets that place emphasis on walkability, bikeability, and alternative modes of transportation by providing reduced crossing widths, minimum 4-foot wide clear sidewalks, street bulb-outs, shade trees, street furniture, and other features, while still accommodating vehicular travel and allowing for emergency and service vehicle access.
13. In the VMU District, establish a connective local street network with block sizes averaging 600 feet in length to facilitate enhanced mobility. Where blocks lengths are larger than 1,000 feet, walks, paseos, or trails should be provided through the block.
14. Provide publicly-accessible pedestrian and bicycle routes throughout the Grapevine Specific Plan.
15. Incorporate bulb-outs where pedestrians or bicycles are primary in the user hierarchy.
16. Where developments comprise multiple blocks, provide multiple access points to the major street network as well as stubs to adjacent parcels where appropriate.
17. Establish design standards for local streets and shared public ways (i.e., public right-of-ways that prioritize pedestrian use while allowing slow-moving vehicles to access local land uses and parking and provide necessary services). Design standards may include special paving, a variety of amenities, landscaping, seating, and pockets of on-street loading and parking.
18. Identify a hierarchy of users for each street. Optimize each street design for its primary users and accommodate all users appropriately.
19. Multi-purpose paths suitable for bicyclists, scooters and pedestrians shall connect village centers to residential and commercial neighborhoods, and open space areas.

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20. Provide a comprehensive bicycle network that includes a network of protected bike lanes, cycle tracks, or off-street bike trails, and bike parking for non-residential and residential uses near transit.
21. Provide a range of transit, bicycle, and pedestrian amenities, such as secure street parking, drinking fountains, public restrooms, shaded streets, paths, bikeways, and street furniture, to discourage reliance on single-occupancy peak hour automobile use into each neighborhood during the Tentative Tract Map or Site Development Review process.
22. Bicycle parking shall be provided, as required. At minimum, this shall include:
  - Customer/visitor bicycle parking in highly visible locations.
  - Facilities for a minimum of 5% of all regular building occupants, in a secure location.
  - Weather protected facilities and access to changing and/or shower facilities in major commercial developments.
  - Lighting for bicycle and pedestrian paths and routes.
23. Proactively encourage the use of alternative forms of transportation as a means to improve public health and reduce local and regional greenhouse gas emissions.
24. Establish a public transportation strategy that provides an approach for meeting public transportation needs as the Specific Plan builds out over time.
25. Establish two transit facilities on the east and west sides of the Grapevine Road/I-5 interchange to serve as transit hubs, and ensure that these hubs are visible from and spaced appropriately to the freeway off-ramps; provide secure parking for bicycles and adequate vehicular parking; provide attractive transit amenities; and are well connected to the local community through well-defined linkages to the existing and planned trail system.
26. Ensure that public transit services within the Specific Plan provide service at appropriate intervals to major destinations outside the community, including TRCC, Arvin, and Bakersfield to the north and east; to the mountain communities and Tejon Mountain Village to the south; and to Shafter and other communities to the west.
27. Coordinate the location of potential transit connections and connections to intercity services where appropriate with Kern Regional Transit, Golden Empire Transit, and Arvin.
28. Coordinate the design and location of multi-use trails with transit facilities to ensure that each mode supports the other and is able to provide first mile/last mile connections from transit facilities to ultimate destinations.
29. Develop all roads within the Specific Plan in accordance with the standards set forth in the Grapevine Special Plan (Appendix A) ensuring that all roads comply with State and County roadway standards, projected traffic demands, safety standards, fire and emergency access requirements, and the County's complete streets objectives.
30. Allow for limited level-of-service (LOS) D or lower operational standards on local road segments provided that bicycle and pedestrian facilities and transit services are installed and linked to higher capacity roadways, in order to accommodate and encourage alternative modes of travel between destinations.
31. Develop all multi-use paths and trail alignments within the Specific Plan in accordance with the standards set forth in the Grapevine Special Plan (Appendix A). Where those standards are silent, path and trail alignments shall be subject to County road standards.
32. Provide adequate maintenance of roadway and trail systems in developed and open space areas of the Specific Plan.



## Circulation and Infrastructure

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### 3.4.3. Circulation Implementation Measures

- (a) Incorporate design criteria in the Grapevine Special Plan (Appendix A) development standards for the road network to ensure that the design and siting of roadways meets the circulation goals and policies, and is consistent with the Kern County Bicycle Master Plan and Complete Streets Recommendations – Final Report (October 2012), or any updated reports.
- (b) Reserve right-of-way for travel needs at build-out of the Specific Plan along backbone circulation routes. Allocate additional open space where future needs such as turn lanes, transit stops, additional travel lanes, and bike lanes, may be necessary.
- (c) Prior to the issuance of building permits for each tract map, the master developer shall complete the installation of the backbone circulation plan necessary to serve the proposed phase of development pursuant to the approved circulation and phasing plan and roadway and trails standards as established in the Grapevine Special Plan (Appendix A).
- (d) During the subdivision mapping process, verify that roadways meet all State and County level of service standards, emergency services and safety standards, and that performance functioning of key intersections as analyzed in the Environmental Impact Report is maintained.
- (e) Implement the “complete streets” concept during the tentative tract mapping process. Complete street design measures shall incorporate the following:
  - Adequate connectivity, where each local street block is spaced no more than 600-feet apart, and where each street connects to at least two other streets
  - Well-defined Class I, II, or III bike paths, as dictated by the approved circulation plan
  - Bicycle storage racks in the commercial and recreational centers and multi-family residential areas
  - Street parking within ¼ mile of village centers, diagonal or parallel, to act as a traffic-calming tool
  - Wayfinding to trails, key destinations, parking garages, loading areas, etc.
  - Street furniture, including benches, trash receptacles, bike racks, drinking fountains, etc.
  - Transit stops and shelters, coordinated with bikeways and trails
  - Reduced pedestrian crossing street widths
  - Street bulb-outs/curb extensions at key intersections
  - Sidewalks that provide adequate widths depending on the type of street, as specified in the Special Plan
  - Parkways and planting strips that enhance the pedestrian experience and meet goals for sustainability performance and long-term durability
  - Safe routes to schools and parks
  - Shade trees adequately spaced 25-30 feet on center
- (f) Before each subdivision map approval, the master developer shall verify adequate traffic volumes and service levels at the Grapevine Road/I-5 interchange, verifying that portions of I-5 serving the Specific Plan meet level-of-service (LOS) D. If adequate traffic capacity will be exceeded by the subdivision map development, then mitigation acceptable to the County and Caltrans (and included in the Mitigation Monitoring and Reporting Program (MMRP), included as Appendix C to this document) must be provided as a condition of approval for the subdivision map. Mitigation may include improving the capacity of the existing interchange and/or relocating the interchange slightly to the north, as referenced in the MMRP. All interchange improvements shall be made in compliance with Caltrans design standards.
- (g) Work with transit providers to develop and facilitate the implementation of a public transit strategy for the Specific Plan. The public transit strategy shall identify connections between

Grapevine and intercity transit services (e.g., Kern Transit, Arvin), and destinations such as TRCC, Arvin, and Bakersfield to the north and east; the mountain communities and Tejon Mountain Village to the south; and Shafter and other communities to the west.

- (h) Establish a TMA to implement TDM strategies to reduce vehicle trips. TDM strategies to be employed by the TMA may include:
  - Coordinating employer work schedules and transit schedules
  - Providing discounted bus passes to users
  - Organizing ridesharing programs
  - Offering a bike-share or car-share program
  - Offering formal rideshare programs
  - Offering employer-sponsored shuttle/vanpool services
  - Offering incentives to employees to reduce single-occupancy vehicle travel
- (i) Construct park and ride lots to facilitate ride sharing and transit use.
- (j) Implement the Grapevine Special Plan (Appendix A) sign guidelines that promote wayfinding and consistency throughout the Specific Plan.
- (k) Implement a trail system in accordance with the Circulation Plan that links developed areas with open space recreational resources within and surrounding the Specific Plan. Final trail alignments shall be determined with each subdivision map that covers the geography of the trail or bikeway.
- (l) Provide residents with a pamphlet of the trail system to educate the community, advertise the connectivity of the trails system, and encourage the use of the trails as an alternative mode of transportation.
- (m) Prepare roadway improvement plans that include trailhead improvements at appropriate locations to facilitate the interconnection of the vehicular and trail systems, and to ensure that the design and siting of trails are integrated into the natural setting with as little disruption as possible.
- (n) The master developer shall create, before the approval of the first subdivision map, a maintenance plan and funding mechanism for the installation and long-term maintenance of the off-road trail networks.

### 3.5. Infrastructure Goals, Policies and Implementation Measures

The following goals, policies and implementation measures have been set forth in order to implement the plan concepts described in Section 3.3:

#### 3.5.1. Infrastructure Goals

*(Note: Goal numbering deliberately continued)*

- F. Adequate wet and dry utility service throughout the Specific Plan.
- G. Reliable recycled water from on-site wastewater treatment plant(s) as a permanent source of water for landscaped areas and other authorized uses.
- H. Flexibility for next-generation technologies that help deliver sustainable infrastructure strategies.
- I. People, property, and infrastructure protected from flood risks while maintaining drainages in their natural state to the maximum extent possible.

## **Circulation and Infrastructure**

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### **3.5.2. Infrastructure Policies**

*(Note: Policy numbering deliberately continued)*

33. Ensure the provision of adequate wet and dry utilities to serve the residents and businesses of the Grapevine community in accordance with the policies of Kern County's General Plan.
34. Provide for adequate wet and dry utility services and networks concurrent with development. Require sewer and water utilities to be served and managed by a public utility company.
35. Utilize existing infrastructure capacity where available (TCWD, TRCC water and wastewater treatment plants, etc.)
36. Ensure that all infrastructure is installed by the master developer, developers of individual projects, or other entities in accordance with all applicable and current laws and regulations, as may be approved by Kern County.
37. Ensure the provision of an adequate distribution system for on-site oil and gas production.
38. Require that all new major utilities, including all wet and dry utilities and oil and gas distribution lines, are placed underground to the maximum extent feasible and are protective of natural resources and sensitive uses.
39. Design, develop and manage infrastructure improvements utilizing Best Management Practices and environmentally sensitive methods.
40. Allow the residual solids produced and treated at the Grapevine wastewater treatment plants to be pelletized and sold, in accordance with all applicable laws and regulations, including Kern County ordinance and policies.
41. Design common-area landscaping and recreational uses to accommodate the use of reclaimed water for irrigation once the wastewater treatment plant is constructed and has adequate supply of reclaimed water for distribution.
42. Protect natural water storage and conveyance functions of drainage areas, giving preference, wherever practicable, to non-structural water management methods such as water quality basins and bioswales.
43. Ensure that development within flood hazard areas is done in accordance with the County's Floodplain Management Ordinance.
44. Require development to comply with the requirements of the National Flood Insurance Program Regulations, Parts 59 and 60 of Title 44 of the Code of Federal Regulations.
45. Require water conservation as part of the development of the community and provide a safe and reliable water source for the residents.
46. Require that adequate solid waste disposal service and recycling are available for proposed development.
47. Require the use of drought tolerant plants for ornamental landscaping.
48. Require implementation of Best Management Practices (BMPs) for managing storm waters.
49. Encourage the use of reclaimed water for irrigation purposes from the on-site wastewater treatment plant to the extent it is available and practical.
50. Encourage the use of low-impact development (LID) for stormwater quality protection and management.
51. Require compliance with the Best Management Practices (BMPs) required by the State Water Resources Control Board General Permit pertaining to discharges associated with construction activities.
52. Require compliance with Best Management Practices (BMPs) from the San Joaquin Air Quality Management District to reduce dust and other emissions from construction activities.

### 3.5.3. Infrastructure Implementation Measures

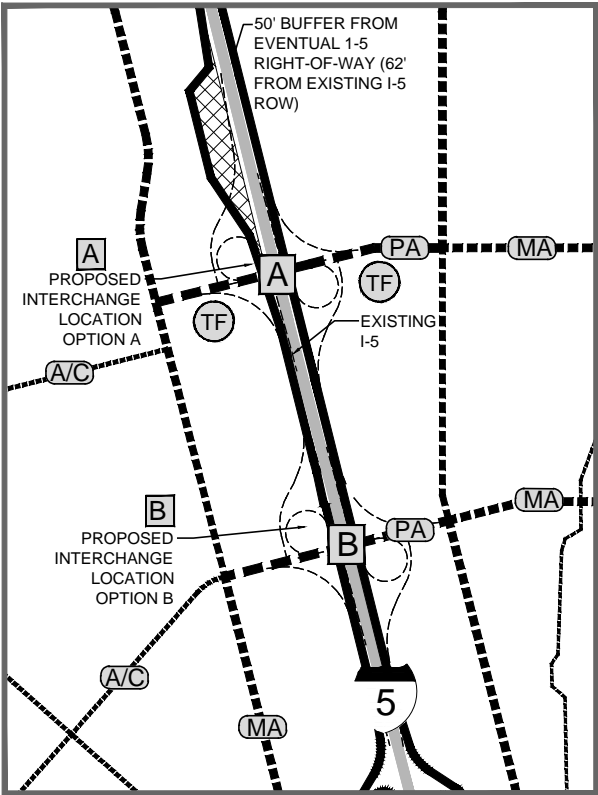
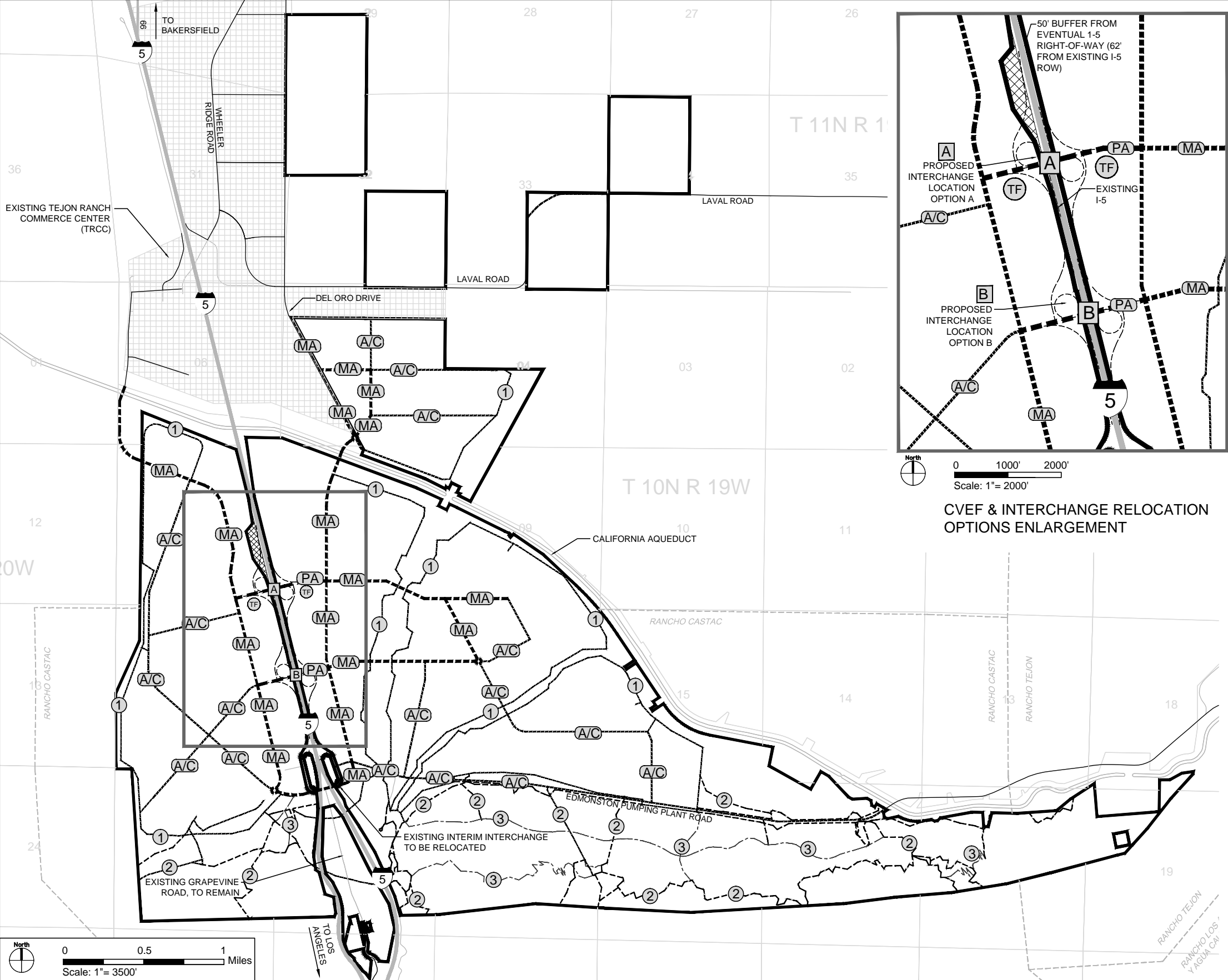
*(Note: Implementation Measure lettering deliberately continued)*

- (o) Require that all development project submittals provide documentation through the tentative map review process showing that all water, electricity, phone, television, internet, gas, and sewer system (or Kern County-approved alternative) services are available at the time of development.
- (p) Require that all methods of sewage collection, sewage disposal, and water supply meet the requirements of the Tejon Castac Water District and Kern County Environmental Health Services Department and all appropriate state and federal agencies.
- (q) Implement the Grapevine Special Plan (Appendix A) criteria for the undergrounding of all new infrastructure with the following exceptions: (a) surface-mounted transformers and utility pedestals; (b) water tanks; (c) electrical substations, temporary utilities, wastewater treatment plants, and disposal ponds; and (e) relocated overhead utilities.
- (r) Water and wastewater services shall be provided by the Tejon Castac Water District or other similar agency.
- (s) Design and site water and wastewater facilities to comply with the requirements of the TCWD, Kern County Environmental Health Services Department, and all applicable state and federal laws and regulations.
- (t) Design the Grapevine wastewater treatment plant and any temporary package sewage treatment plants to use a treatment system producing effluent that meets or exceeds tertiary treatment water quality criteria under Title 22 of the California Water Code and all criteria identified by the Central Valley Regional Water Quality Control Board for reuse on landscaped and recreational areas.
- (u) Include green infrastructure improvement goals in the Grapevine Sustainability Principles document (Appendix C) to encourage environmentally sensitive design throughout the project area through such items as but not limited to, low-impact development (LID) porous pavement, swales, and rain gardens.
- (v) Include feasible measures in the Grapevine Special Plan (Appendix A) development standards and Grapevine Sustainability Principles document (Appendix C) that serve to reduce water and energy use (e.g., for interior fixtures, require low flow plumbing).
- (w) Require a restricted landscape palette for all development in order to conserve water and promote the use of plant species that are reflective of agricultural heritage or native to the San Joaquin Valley.
- (x) Require the use of native and other drought-resistant or drought-tolerant plants. Landscape and irrigation shall comply with the Water-Efficient Landscape requirements set forth in the Grapevine Special Plan (Appendix A) development standards and the Grapevine Sustainability Principles document (Appendix C).
- (y) The master developer shall construct a reclaimed water treatment facility and use reclaimed water for community landscape irrigation systems to the extent that supply is available and practical. Biosolids from the wastewater treatment facility shall be treated in conformance with applicable legal requirements and sustainability practices, as approved by Kern County.
- (z) Include a Water Quality Management Plan in the Grapevine Sustainability Principles document (Appendix C), which identifies BMPs to be used during construction.
- (aa) Incorporate energy-efficient design goals into the Grapevine Sustainability Principles document (Appendix C) outlining energy and water conservation techniques for site planning and building design. Include air quality emission reduction programs; construction-related energy efficiency programs; passive solar site orientation; low impact development (LID) and renewable energy strategies.

## **Circulation and Infrastructure**

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- (bb)Implement the Grapevine Sustainability Principles document (Appendix C), which includes feasible measures that serve to reduce water and energy use (e.g., for interior fixtures, require tank-less water heaters and low flow plumbing) and establishes the need for a Maximum Applied Water Allowance (MAWA) budget for each land use.



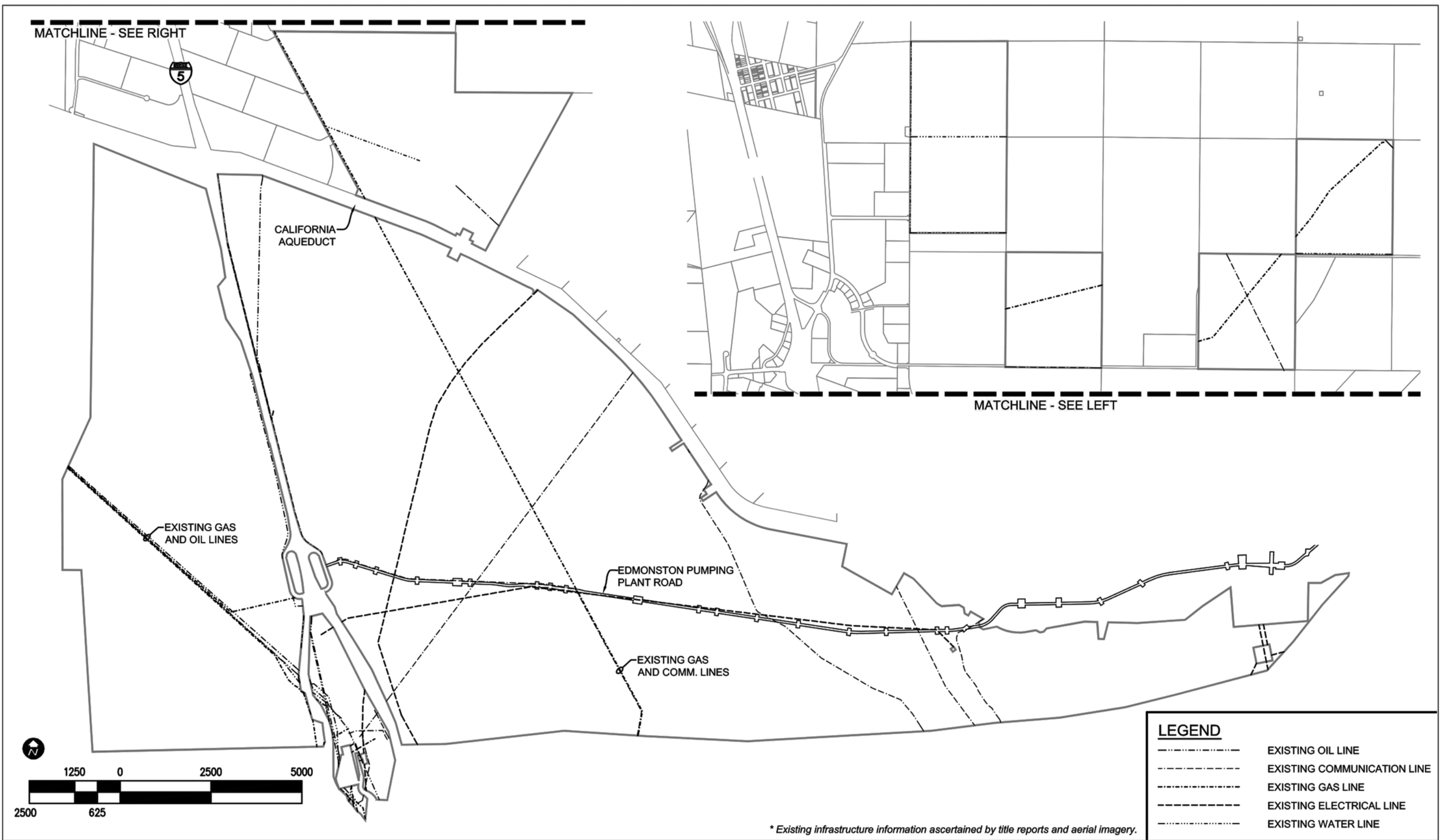
**LEGEND**

	Freeway
	Primary Arterial with Class I Bike Path
	Major Arterial/Collector with Class I Bike Path
	Minor Arterial/Collector with Class II Bike Lane
	Multipurpose Trails
	Unpaved Existing Trails
	Unpaved Trails
	Existing Off-Site Roads
	Relocated Interchange (Conceptual Location)
	Option A
	Option B
	Specific Plan Boundary
	Existing Weigh Station Proposed to be relocated and the land acquired for the Grapevine Project
	Township & Range & Section
	Transit Facility

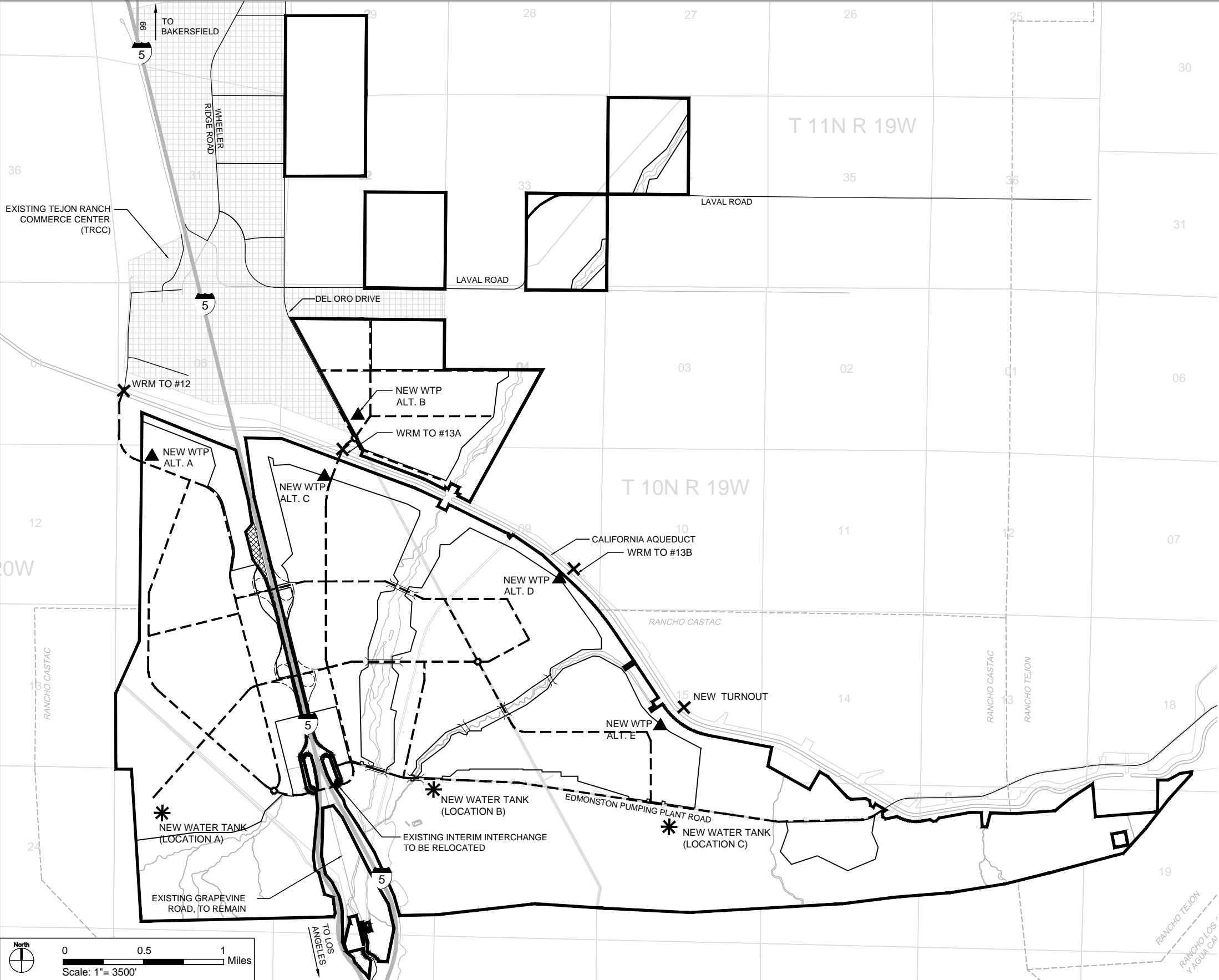
- NOTES:**
- EDMONSTON PUMPING PLANT ROAD, LAVAL ROAD AND GRAPEVINE ROAD ARE EXISTING ROADS.
  - ALL ROADS WITHIN THE SPECIFIC PLAN WILL BE DEVELOPED IN ACCORDANCE WITH SPECIAL PLAN STANDARDS, WITH THE EXCEPTION OF LAVAL ROAD AND THE PORTION OF GRAPEVINE ROAD LOCATED BETWEEN THE NORTHBOUND AND SOUTHBOUND LANES OF I-5.
  - SEE SPECIAL PLAN ROADWAY AND OFF-ROADWAY STREET SECTIONS FOR DESIGN OPTIONS (SPECIAL PLAN FIGURES 3-4 THRU 3-10).
  - FINAL ROAD ALIGNMENT TO BE DETERMINED AT THE TENTATIVE TRACT MAP STAGE BUT WILL SUBSTANTIALLY CONFORM TO THOSE ILLUSTRATED ON THIS SHEET. FINAL ROAD ALIGNMENTS MAY SHIFT BY NO MORE THAN 300 FEET IN ANY DIRECTION.
  - TRAFFIC IMPACT ASSESSMENT SHALL DETERMINE FINAL ROADWAY OPTION SELECTION AND LANE REQUIREMENTS.
  - THE PRIMARY ARTERIAL WILL OCCUR AT THE SELECTED INTERCHANGE LOCATION. THE NON-INTERCHANGE LOCATION WILL REVERT TO A MAJOR ARTERIAL.



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**LEGEND**

New Water Treatment Plant Locations Alternative

New Water Tank Location  
(More Than One Tank May Be Constructed)

California Aqueduct Turnout

Potable Water System

Specific Plan Boundary

Existing Weigh Station  
Proposed to be relocated and the land acquired for the Grapevine Project

Township & Range & Section

KEY:

TRCC = TEJON RANCH COMMERCE CENTER  
WTP = WATER TREATMENT PLANT  
ALT. = ALTERNATE

- NOTES:
- SEE SPECIAL PLAN ROADWAY AND OFF-ROADWAY STREET SECTIONS FOR DESIGN OPTIONS.
  - POTABLE WATER TREATMENT FACILITIES MAY BE CONSTRUCTED AT ONE OR MORE OF THE ALTERNATIVE LOCATIONS IF FOUND COST-EFFECTIVE TO SERVE THE SUCCESSIVE DEVELOPMENT PHASES. THE ALTERNATIVE LOCATIONS WILL BE DETERMINED AT THE TENTATIVE MAP PHASE.
  - ADDITIONAL GROUND LEVEL WATER STORAGE TANKS MAY BE LOCATED WITHIN THE DEVELOPED AREA IF FOUND APPROPRIATE TO SERVE CERTAIN PRESSURE ZONES. LOCATIONS OF SUCH TANKS, WHICH MAY BE EQUIPPED WITH BOOSTER DISINFECTANT FACILITIES AND BOOSTER PUMPING FACILITIES, WILL BE DETERMINED AT THE TENTATIVE MAP PHASE.

EXHIBIT ORIGINATED BY McINTOSH & ASSOCIATES  
UPDATED BY KENKAY ASSOCIATES

EXHIBIT 3-3

Water System Plan

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**LEGEND**

●

Existing WWTP (see Note 2)

▲

Planned WWTF (see Note 3)

Wastewater Collection System

Recycled Water System

Specific Plan Boundary

Existing Weigh Station

Proposed to be relocated and the land acquired for the Grapevine Project

89

9

17

16

Township & Range & Section

KEY:

TCWD = TEJON CASTAC WATER DISTRICT

WWTF= WASTEWATER TREATMENT FACILITY

- NOTES:
- RECYCLED WATER STORAGE PONDS, DISTRIBUTION PUMP STATIONS, AND RELATED INFRASTRUCTURE WILL OCCUPY A TOTAL OF APPROXIMATELY 190 ACRES THROUGHOUT THE PROJECT. THE NUMBER AND LOCATIONS OF THE RECYCLED WATER STORAGE PONDS AND PUMP STATIONS WILL BE DETERMINED AT THE TENTATIVE MAP PHASE. THE SELECTED NUMBER OF PONDS AND THEIR LOCATIONS WILL BE CONSISTENT WITH THE PERMITTED USES IN THE GRAPEVINE SPECIAL PLAN.

•

EITHER (1) THE EXISTING TEJON-CASTAC WATER DISTRICT EAST WWTF WOULD BE EXPANDED OR (2) THE EXISTING TEJON-CASTAC WATER DISTRICT WEST WWTF WOULD BE REPLACED TO TREAT FLOWS FROM SUB AREAS 6A - 6E. THE PLANT THAT RECEIVES WASTEWATER FLOW FROM THE PROJECT WILL BE DETERMINED AT THE TENTATIVE MAP PHASE.

•

TWO ALTERNATIVE LOCATIONS ARE SHOWN FOR THE GRAPEVINE PROJECT WWTF AND THE SCALPING WWTF. THE FINAL LOCATIONS FOR THE WWTFs WILL BE SELECTED DURING THE TENTATIVE MAP STAGE BASED ON PROJECT PHASING AND OTHER SITING CONSIDERATIONS.

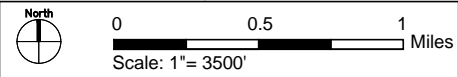
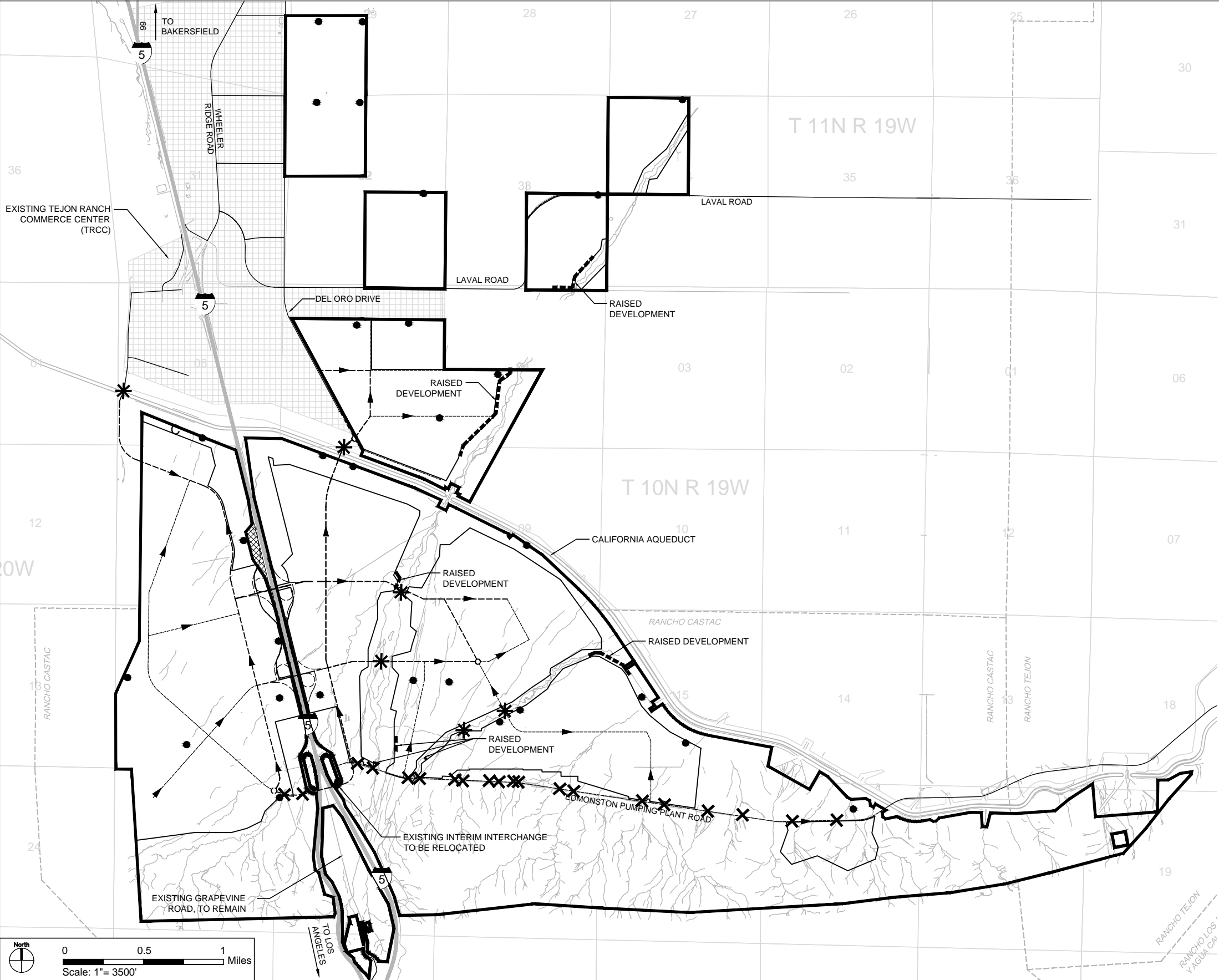


EXHIBIT ORIGINATED BY McIntOSH & ASSOCIATES

UPDATED BY KENKAY ASSOCIATES



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**LEGEND**

●

Sump Locations

✱

Bridge Crossing

✕

Extended/New Culvert Crossing

➔

Proposed Drainage

Existing Streams

Raised Development

Specific Plan Boundary

Existing Weigh Station  
Proposed to be relocated and the land acquired for the Grapevine Project

8	9
17	16

Township & Range & Section

- NOTES:
- SEE SPECIAL PLAN ROADWAY AND OFF-ROADWAY STREET SECTIONS FOR DESIGN OPTIONS.
  - THIS DRAINAGE SYSTEM PLAN IS TO BE USED FOR CONCEPTUAL PURPOSES ONLY. ACTUAL DRAINAGE FACILITIES AND LOCATIONS MAY VARY.

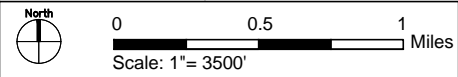


EXHIBIT ORIGINATED BY McINTOSH & ASSOCIATES  
UPDATED BY KENKAY ASSOCIATES

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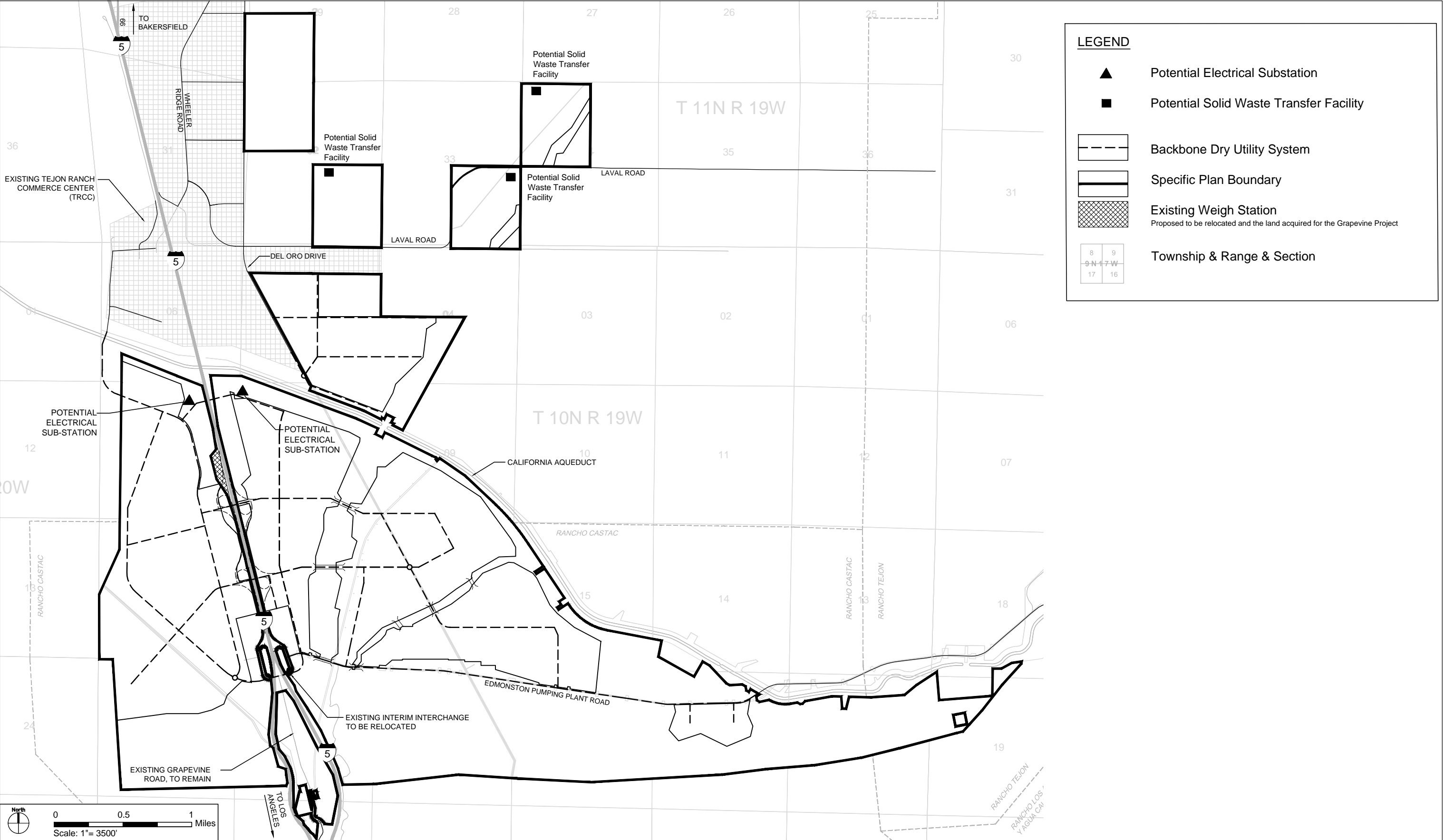


EXHIBIT 3-6  
Dry Utilities System Plan

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## **CHAPTER 4**

### **NOISE**

#### **4.1. Purpose and Scope**

Noise is generally defined as unwanted sound. High sound levels may affect people's health and well-being, the economic well-being of a community, and cause annoyance. The purpose of this chapter is to identify sources of noise within the Grapevine Specific Plan, quantify noise impacts, and provide a noise-reduction implementation program if necessary. This chapter identifies goals, policies, and implementation measures to attenuate adverse noise levels within the Grapevine Specific Plan.

#### **4.2. Noise Concept**

Existing noise sources in the Grapevine Specific Plan include Interstate 5 (I-5), primary arterials, major local streets, oil and gas production activities, construction, aircraft, and certain types of industrial uses. The noise concept for the Grapevine Specific Plan is to protect existing and future development within the Specific Plan from adverse noise impacts. Noise contour maps will be defined at the tentative tract map stage to reflect the relationship between future development boundaries and noise sources. Possible future noise sources within the Specific Plan were used to develop the following goals, policies, and implementation measures that are intended to protect future development from noise impacts.

#### **4.3. Noise Goals, Policies, and Implementation Measures**

##### **4.3.1. Noise Goal**

- A. Protect noise-sensitive land uses in the Grapevine Specific Plan areas adjacent to I-5, primary arterials, and major local streets from long-term operational noise impacts.

##### **4.3.2. Noise Policies**

1. Noise requirements for new development shall conform to the standards in the Kern County General Plan Noise Element.
2. Noise contour maps shall be prepared at the tentative tract map stage to reflect the relationship between proposed development boundaries and noise sources, and identify potential adverse noise impacts.



## Noise

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3. All development shall comply with County operational noise standards for noise-sensitive uses as follows:

Location	Noise Level
Outdoor Activity Areas	65 dB Ldn or less
Indoor Living Spaces or Other Noise-Sensitive Interior Spaces	45 dB Ldn or less

4. Disclose to future residents noise impacts from I-5, primary arterials, and major local streets, some types of industrial and commercial uses, and oil and gas production activities.
5. Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into the design of such new uses. Such mitigation shall be designed to reduce noise to the following levels:
- 65-decibel day-night average sound level (dB Ldn) or less in outdoor activity areas.
  - 45 dB Ldn or less within interior living spaces or other noise-sensitive interior spaces.
6. Uses that are considered noise sensitive, including, but not limited to, those listed below, shall require noise studies at the subdivision map approval stage to confirm that such uses are outside any excessive noise impact area (i.e., nearest to I-5) or that buildings include adequate noise protection design features to avoid excess levels of indoor noise:
- Residential areas;
  - Schools;
  - Convalescent and acute-care hospitals;
  - Urban parks with children's play areas; and
  - Houses of worship.
7. Require that noise-sensitive land uses be located away from existing commercial and industrial land uses that generate noise in excess of 65 dB Ldn at the property line, unless indoor noise levels at the sensitive receptors can be mitigated to remain below applicable County standards with building design or other features.
8. New commercial and industrial uses that generate noise in excess of 65 dB Ldn at the property line shall be located away from existing noise-sensitive land uses, unless noise levels at the sensitive receptors can be mitigated to remain below applicable County standards with building design or other features.
9. Construction activities shall comply with Kern County's Noise Control Ordinance (Municipal Code Chapter 8.36, Noise Control) and comply with State Noise Insulation Standards (California Administrative Code Title 24) and Chapter 35 of the Uniform Building Code concerning construction of new multiple-occupancy dwellings, such as hotels, apartments, and condominiums.
10. No oil or gas well shall be drilled within 210 feet of any sensitive receptors (single or multi-family dwelling unit, place of public assembly, institution, school, or hospital); or within 100 feet of any building used for commercial purposes, not used for oil and gas operations.

### 4.3.3. Noise Implementation Measures

- (a) If located within a defined noise impact area of traffic noise from I-5, primary arterial, or major local street, at the time of individual project approval, projects shall submit an acoustical report

indicating the means by which the project will mitigate noise impacts to Kern County's Noise Element standards.

- (b) Development plans for multiple-occupancy dwellings, such as hotels, apartments, and condominiums shall ensure conformance with Title 24 and Chapter 35 of the Uniform Building Code noise insulation requirements at time of submittal for a building permit and through the Site Development Plan review process.
- (c) Noise attenuation measures, such as setbacks, clustering, berms, insulation, double-paned windows, landscaping, and sound walls shall be incorporated as site or building design features to mitigate noise to an acceptable level as a requirement of the Site Development Plan review process.
- (d) Protect noise-sensitive land uses proposed to be located in areas with future noise levels exceeding 65 dBA CNEL through establishment of sound barriers, proper siting, and development configuration that shields exterior use areas from elevated transportation-related noise levels.
- (e) Within residential land uses of the Grapevine Specific Plan, or for noise sources affecting residential land uses, noise levels at the property line of any residence shall not exceed 70 Leq<sub>hour</sub> during the daytime (7:00 a.m. to 7:00 p.m.) and 50 Leq<sub>hour</sub> during the nighttime (7:00 a.m. to 7:00 p.m.).
- (f) Require new residential development to comply with Title 24 standards of the State Health and Safety Code. These standards require that sufficient insulation be provided to reduce interior ambient noise levels to 45 dB community noise equivalent level (CNEL). Compliance with these standards shall be reviewed during the Site Development Plan review process.
- (g) All commercial or industrial developments adjacent to noise-sensitive uses shall submit a noise study as part of the Site Development Plan review process to show compliance with the Noise Element standards through site and/or building design features. Implementation of design features to minimize the adverse effects of land uses that generate excessive noise on sensitive land uses shall include, but not be limited to, noise barriers (e.g., walls, fences, berms, trees, and shrubs), buffer strips, building orientation, setbacks, and site/interior design.
- (h) Consistent with performance standards contained in the Kern County Zoning Ordinance for commercial and industrial uses, all non-mobile sources of noise produced by commercial and industrial uses and located within 500 feet of property developed residentially, or zoned to allow residential use, shall comply with the following exterior noise standards:

*The use shall not generate noise that exceeds an average 65 dB Ldn (24-hour median) between the hours of 7:00 a.m. and 10:00 p.m. and shall not generate noise that exceeds 65 dB, or which would result in an increase of 5 dB or more from ambient sound levels, whichever is greater, between the hours of 10:00 p.m. and 7:00 a.m. Noise-level measurements shall be taken at the exterior of the closest residential dwelling within the boundary of the affected residential districts with a sound-level meter using the A-weighted network (scale). Where practical, the microphone shall be positioned 5 feet above the ground and away from reflective surfaces. Public complaints alleging violation of this standard may be required to submit documentation of actual noise-level measurements. The Planning Director, in consultation with Kern County staff, may authorize deviations or exceptions to these standards and may require noise attenuation measures in conjunction with such authorization.*

- (i) No construction activities involving heavy equipment generating noise or ground vibration shall be allowed within 300 feet of sensitive wildlife areas. Acceptable construction activities (e.g., quiet and/or low-impact activities) within 300 feet of an occupied breeding site shall be allowed at the discretion of the project biologist.

- (j) As a note and/or a condition of approval of a subdivision map, grading and building plans will state:

*“Pursuant to the Ordinance Code of Kern County (Title 8 – Health and Safety, Chapter 8.36 – Noise Control, Section 8.36.020 (H)), it is unlawful for any person within the unincorporated areas of Kern County to create noise from construction between the hours of 9:00 p.m. and 6:00 a.m. on weekdays and 9:00 p.m. and 8:00 a.m. on weekends, which is audible to a person with average hearing faculties or capacity at a distance of 150 feet from the construction site, if the construction site is within 1,000 feet of an occupied residential dwelling, except as provided below:*

- The Planning Director or designated representative may for good cause exempt some construction work for a limited time; and*
- Emergency work is exempt from these restrictions.”*

Implementation will be through the Site Development Plan review process for each development phase. Verification of compliance with this statement will be the responsibility of the Kern County Building Inspection Division.

## **CHAPTER 5**

### **HOUSING**

#### **5.1. Purpose and Scope**

The Housing Element of the Kern County General Plan addresses the need to provide housing for residents within Kern County, including the Grapevine Specific Plan, and provides goals and policies to guide this effort. The Kern County Housing Element, as adopted on December 9, 2008, and updated subsequently thereafter should be consulted for overarching direction relating to housing. Additional goals, policies, and implementation measures are provided in this chapter, which are specific to the Grapevine Specific Plan.

It is important to acknowledge that the Housing Element's goal of pursuing sustainable development and energy efficiency will be achieved through the Grapevine Specific Plan's goals, policies, and implementation measures, which promote sustainable development concepts as well as energy efficiency and conservation related to building siting, construction methods, development standards, landscaping, and solar access.

#### **5.2. Housing Concept**

Consistent with the goals and policies of the Housing Element of the Kern County General Plan, the Grapevine Specific Plan will facilitate the provision of adequate housing to meet the needs of both owners and renters. The accommodation of up to 12,000 housing units of various types will provide a diversity of housing to accommodate different income levels and preferences. Furthermore, the Grapevine Specific Plan's provision of new housing proximate to the Tejon Ranch Commerce Center (TRCC) will enhance housing choices for those existing and future employees wishing to minimize commute distances.

The residential component of the Grapevine Specific Plan includes a broad range of permitted housing types that have been designed to complement existing and new employment opportunities within a walkable new community that respects the region's ranching and agricultural heritage and the vast open space preservation areas within and near Tejon Ranch.

#### **5.3. Housing Goals, Policies, and Implementation Measures**

##### **5.3.1. Housing Goal**

- A. Create a vibrant new community with a range of housing types.
- B. Provide for affordability and equal opportunity in housing.

## **Housing**

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### **5.3.2. Housing Policies**

1. Provide a broad range of housing types, including multi-family and single-family rental and for-sale housing of varying sizes and densities.
2. Fully integrate housing and transportation solutions into community design to maximize the opportunity for new residents and employees to take advantage of pedestrian, bicycle, and transit travel modes, to promote sustainability and also minimize transportation costs for residents and businesses.
3. Partner with lenders and other stakeholders to increase affordability, including pursuing opportunities to increase affordable development and improve the affordability of homeowner financing opportunities.
4. Ensure the fair treatment of people of all races, cultures, incomes, and age groups with respect to the development, adoption, implementation, and enforcement of land use and environmental programs.

### **5.3.3. Housing Implementation Measures**

- (a) Density bonuses for affordable housing shall be permitted for all residential developments in Grapevine consistent with the Kern County Housing Element.
- (b) Implement flexible development standards in the Grapevine Specific Plan (Appendix A), which encourage the provision of affordable housing through a wide range of allowed densities and small lot size minimums.
- (c) In administering land use and environmental programs, implementation of the Specific Plan shall not deny any individual or group the enjoyment of the use of land due to race, sex, color, religion, ethnicity, national origin, ancestry, lawful occupation, or age.
- (d) The Fair Housing Law for renting and selling or residential property shall be adhered to throughout implementation of the Specific Plan.
- (e) Energy conservation, renewable energy features such as optional rooftop solar, and water conservation designs, shall be fully integrated into the residential product requirements to promote affordability by lowering electric and water utility costs.

## CHAPTER 6

# SAFETY AND CONSTRAINTS

### 6.1. Purpose and Scope

The purpose of this chapter is to identify physical and environmental constraints within the Grapevine Specific Plan, including seismic and other geologic hazards (such as fault rupture, strong ground shaking, landslides, debris flow, collapsible and expansive soils, and steep slopes) and flood hazards. The following physical and environmental constraints are identified using the Map Code designations identified in the Kern County General Plan, and as shown in Exhibits 6-1 through 6-5:

- Seismic Hazard (Exhibit 6-1) – Alquist-Priolo Special Study Zone and other recently active fault zones
- Landslide (Exhibit 6-2) – Areas of downslope ground movement identified on the Kern County Seismic Hazard Atlas
- Steep Slope (Exhibit 6-3) – Land with an average slope of 30% or steeper
- Flood Hazard (Exhibit 6-4) – Special Flood Hazard Areas (Zone A), as identified on the Flood Insurance Rate Maps (FIRM) of the Federal Emergency Management Agency (FEMA) and supplemented by floodplain delineating maps that have been approved by the Kern County Engineering and Survey Services Department.
- Fire Hazard Severity Zones (Exhibit 6-5) – Fire Hazard Severity Zones (Exhibit 6-5) – The County identifies wildfire risk using criteria established by the California Department of Forestry and Fire Protection and further refined by the Kern County Fire Department (KCFD). Fire hazard severity is classified from “very high” to “moderate.”

Wildfires are also a potential safety concern in a portion of the Grapevine Specific Plan, given the location of the development area adjacent to the foothills of the San Emigdio and Tehachapi Mountains. The Specific Plan is within areas designated as either a moderate or high fire hazard severity zone; therefore, wildfires and fuel modification zones are also discussed in this chapter (Exhibit 6-5), along with proposed standards that are consistent with KCFD requirements.

Following the physical and environmental constraints identified in the Kern County General Plan, this chapter contains goals, policies, and implementation measures set forth to mitigate adverse safety concerns relevant to the Grapevine Specific Plan.

### 6.2. Safety and Constraints Concept

The safety and constraints concept for the Grapevine Specific Plan is to avoid locating development or occupied uses in areas affected by risk factors such as earthquake faults and landslide hazards to the

## **Safety and Constraints**

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maximum extent feasible. Thus, the proposed location of land uses in the Specific Plan are situated to avoid identified safety constraints. The community's overall design, as depicted in Exhibit 2-1, Specific Plan Districts, is consistent with this strategy. Where development is proposed within these potentially constrained areas, policies and implementation measures are provided to minimize any safety hazards associated with site-specific development.

The Grapevine Special Plan (Appendix A) applies the Geologic Hazard (GH) Combining District to areas identified in Exhibits 6-1, 6-2, and 6-3, and these areas will be subject to the regulations identified in Chapter 19.68 of the Kern County Zoning Ordinance (KCZO). Similarly, the Floodplain (FC) Combining District will be applied to areas identified on Exhibit 6-4 and these areas will be subject to the regulations identified in Chapter 19.70 of KCZO until such a time that the areas are reclassified. Other impacts from geology and soils will be mitigated by typical design and construction methods such as adherence to applicable California Building Code and County building code and grading ordinance requirements, and by proper geotechnical characterization and design.

### **6.3. Safety and Constraints Goals**

#### **6.3.1. General Safety and Public Services**

- A. Assist in the allocation of public resources in Kern County to develop information regarding geologic, fire, and flood safety hazards and to develop a systematic approach toward the protection of public health, safety, and welfare from such hazards.
- B. Manage existing and future on-site uses, such as utility systems, to ensure compliance with applicable County and state standards for avoiding hazards.

#### **6.3.2. Geologic Hazards**

*(Note: Goal numbering deliberately continued)*

- C. Minimize the risk of injury, loss of life, and property damage from seismic hazards, landslides, and debris flow hazards.
- D. Reduce economic and social disruption resulting from earthquakes, fire, flooding, and other geologic hazards by ensuring the continuity of vital emergency services and functions.
- E. Protect the natural landscape in areas of steep slope from loss of vegetative cover and subsequent erosion, sedimentation, and potential for landslides.

#### **6.3.3. Flood Hazards**

*(Note: Goal numbering deliberately continued)*

- F. Protect community residents from personal injuries and property damage, and minimize economic loss resulting from flooding.



**6.3.4. Wildfire Fuel Modification**

*(Note: Goal numbering deliberately continued)*

- G. Protect people and structures from wildland fires through vegetation management that incorporates a balance between preserving natural habitats and wildlife and protecting structures, private property, and human safety.
- H. Develop infrastructure and support systems that provide appropriate protection against the risk of wildland fires.
- I. Mandate the use of fire-resistant building materials within the building design for residential and commercial structures consistent with the requirements of the Kern County Building Code and other applicable legal requirements.

**6.3.5. Oil and Gas Exploration and Production**

*(Note: Goal numbering deliberately continued)*

- J. Reduce the public's exposure to hazards related to the production of oil and gas and ensure land use compatibility with sensitive land use receptors.

**6.4. Safety and Constraints Policies****6.4.1. General Safety and Public Services**

- 1. Support continuation of the County's program of identifying, mapping, and evaluating geologic, fire, and flood hazard areas and significant concentrations of hydrogen sulfide in oilfield areas, presently under way by various County departments.
- 2. Encourage public support and funding of local, state, and federal research programs on geologic, fire, and flood hazards, valley fever, and other safety hazards so that the acceptable level of risk may be continually re-evaluated and kept current with contemporary values.
- 3. Adhere to policies contained in the adopted Kern County, California, Multi-Hazard Mitigation Plan, a multi-jurisdictional plan approved in compliance with the "Disaster Mitigation Act of 2000." This plan provides long-term planning to reduce the impacts of future disasters.
- 4. Support the construction of new fire and sheriff facilities if needed to ensure public safety of the Grapevine community.
- 5. Coordinate with public service agencies to ensure adequate fire, police, and emergency medical response services are available to serve proposed development.

**6.4.2. Geologic Hazards**

*(Note: Policy numbering deliberately continued)*

- 6. Consider areas identified as geologic hazards in land use allocation decisions.
- 7. Conduct site-specific geotechnical analyses and designate open space uses such as agriculture, wildlife habitat, and limited recreation to be the preferred uses for known and potential fault zones.
- 8. Establish site approval requirements and construction standards to incorporate practices and techniques that reduce potential damage from seismic events.
- 9. Adhere to Alquist-Priolo Special Studies Zone development setback standards during site planning.

## **Safety and Constraints**

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10. Reduce exposure of property and people to landslide risk through avoidance of development within steep slope areas.
11. Route major lifeline installations around potential areas of liquefaction or otherwise protect them against significant damage from liquefaction in an earthquake.
12. Develop and maintain maps, at an appropriate scale, showing the location of all geologic hazards, including active faults, Alquist-Priolo Earthquake Fault Zones, 100-year flood hazard boundary, the extent of projected dam failure inundation and time arcs, depth of inundation, land subsidence, slope failure and earthquake-induced landslides, and liquefaction potential.

### **6.4.3. Flood Hazards**

*(Note: Policy numbering deliberately continued)*

13. Minimize the alteration of stream channels and provide adequate flood protection to areas of development.
14. Manage the floodplains' flow conveyance capacities with appropriate measures, and provide for compatible passive recreation uses within open space areas also serving flood management purposes.
15. Identify and incorporate all practical erosion control measures designed to minimize the potential for erosion in areas disrupted by development activities.

### **6.4.4. Wildfire Fuel Modification**

*(Note: Policy numbering deliberately continued)*

16. Require the adherence of all development adjacent to open space to the establishment and maintenance of fuel modification zones, the use of a restricted low-fire-hazard plant palette, and adherence to County and other legal requirements regarding fire safety.

### **6.4.5. Oil and Gas Exploration and Production**

*(Note: Policy numbering deliberately continued)*

17. Allow for ongoing and new oil and gas production in the Specific Plan while ensuring the safety of residents, employees, and guests.

## **6.5. Safety and Constraints Implementation Measures**

### **6.5.1. General Safety and Public Services (Police, Fire, Emergency Medical Service)**

- A. Create financing mechanisms for providing additional fire and emergency medical service capabilities whereby the costs are borne by the master developer in conjunction with available private and public financing. Future residents and occupants of Grapevine will contribute to ongoing services and for some public facility capital costs through property taxes and sales taxes paid in the community. The increased fire and emergency medical service capabilities will be coordinated with the phases of development to ensure that needed resources keep pace with proposed development.
- B. Create financing mechanism for providing additional sheriff service whereby the costs are borne by the master developer in conjunction with available private and public financing. Future

residents and occupants of Grapevine will contribute to ongoing services and for some public facility capital costs through property taxes and sales taxes paid in the community. The increased fire and emergency medical service capabilities will be coordinated with the phases of development to ensure that needed resources keep pace with proposed development.

- C. Development of Specific Plan infrastructure would be implemented in a manner whereby the costs of initial infrastructure development are borne by the master developer in conjunction with available private and public financing and funding, except where public services agencies, such as school districts, have primary responsibility for construction and/or funding exists for construction.
- D. Develop public service facilities, including fire, police, and library facilities, to serve community residents, in accordance with fire and life safety standards and best practices.
- E. Identify public facilities as permitted uses within each district, and where applicable, provide standards for siting these uses in proximity to sensitive uses.

### 6.5.2. Geologic/Seismic

*(Note: Implementation Measure lettering deliberately continued)*

- F. The adopted multi-jurisdictional Kern County, California Multi-Hazard Mitigation Plan, as approved by FEMA, and any successor plan, will be used to direct emergency planning and response activities to mitigate impacts from future disasters and other threats of public safety.
- G. Known geologic hazards within the area of a proposed subdivision shall be referenced on the final subdivision map.
- H. The fault zones designated in the Kern County Seismic Hazard Atlas shall be considered significant geologic hazard areas. Proper precautions shall be instituted to reduce seismic hazard, whenever possible, in accordance with California and County regulations.
- I. The location of active faults will be reflected in zoning and subdivision approvals through locations of lot lines and public rights-of-way to allow adequate flexibility in placement of buildings, such that active fault traces can be avoided.
- J. Geological and soils engineering investigations shall be required for all development and infrastructure facilities in areas with the Geologic Hazard (GH) Combining District designation, as shown in the Grapevine Special Plan (Appendix A).
- K. Existing low-intensity land uses, such as agriculture and limited recreation, may be located in the Geologic Hazard (GH) Combining District, as set forth in the Grapevine Special Plan (Appendix A).
- L. All new construction in the Grapevine Specific Plan shall comply with the most current Chapter 23 of the Uniform Building Code (UBC), which includes building pad and foundation design standards for structures in UBC Seismic Zone IV.
- M. Prior to approval of a final map containing habitable structures within a Geologic Hazard (GH) Combining District, as shown in the Grapevine Special Plan (Appendix A), which includes the Alquist-Priolo Earthquake Fault Zone, the tentative map review process shall include a more detailed technical evaluation of seismic risks, and shall include any appropriate geotechnical setbacks and/or engineering measures (e.g., over-excavation and placement of geo-grid soil reinforcement, strengthened foundations such as post-tensioned slabs) to ensure building safety. Buildings for human occupancy shall be set back at least 50 feet from the trace of an active fault, and for critical facilities such as fire stations, the setback shall be at least 300 feet.
- N. Plans and permits for installation of major new infrastructure, such as modifications to highways, utilities, and pipelines, will incorporate design features to the extent feasible, and work will be

## **Safety and Constraints**

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done with utility operators to accommodate potential fault movement in areas of active faults without prolonged disruption of essential service or threat to health and safety.

- O. As part of the tentative tract map review process, more detailed technical evaluations of geological and soil conditions shall be provided for areas within the Geologic Hazard (GH) Combining District, as set forth in the Grapevine Special Plan (Appendix A). Recommended design measures as identified in the investigation shall be implemented.
- P. Remedial grading and slope stabilization proposed on plans submitted for tentative map review under the Grapevine Special Plan (Appendix A) must demonstrate compliance with the Uniform Building Code (UBC) and County Grading Code.

### **6.5.3. Flood Hazard**

*(Note: Implementation Measure lettering deliberately continued)*

- Q. As part of the tentative tract map review process, require detailed engineering studies for development within the Floodplain (FC) Combining District, to ensure that adequate flood protection facilities are or will be in place prior to occupancy as needed to comply with state and federal laws, as set forth in the Grapevine Special Plan (Appendix A). These investigations shall be submitted with the tentative tract map review of the Grapevine Special Plan (Appendix A) for the development.
- R. Grading design shall incorporate appropriate Stormwater Pollution Prevention Plan erosion control measures.
- S. Grapevine Creek will be maintained within a wide natural cross-section.

### **6.5.4. Fuel Modification Zones**

*(Note: Implementation Measure lettering deliberately continued)*

- T. Within open space areas, cattle grazing (a permitted use) is an acceptable way to manage vegetation.
- U. Require a full 100 feet of fuel modification for residential structures located along the perimeter of the Specific Plan, adjacent to steep slopes and within the designated high fire hazard severity zone. Since these areas will be adjacent to grazed annual grasslands within the conservation area, it is recommended that the fuel modification zone is 100 feet of mowed or grazed grasses. This area would include the first 100 feet from structures outward. If landscaped yards, green spaces or similar areas occur within the 100 feet zone, they shall be maintained in a condition that will not readily transmit fire.
- V. Require a 30-foot minimum fuel modification zone (may be mowed non-native grasses, thinned area or irrigated landscaped area including yards, parkways, roads, ornamental agriculture such as orchards and vineyards, etc.) for areas located along the perimeter of the Specific Plan within the moderate fire hazard severity zone. This fuel modification area shall be applicable for perimeter structures' exposed side that is adjacent to conservation areas or off-site fuels.
- W. Require that all trees planted within fuel modification zones conform to the requirements of the KCFD and would not be a species or distribution that would readily transmit fire.

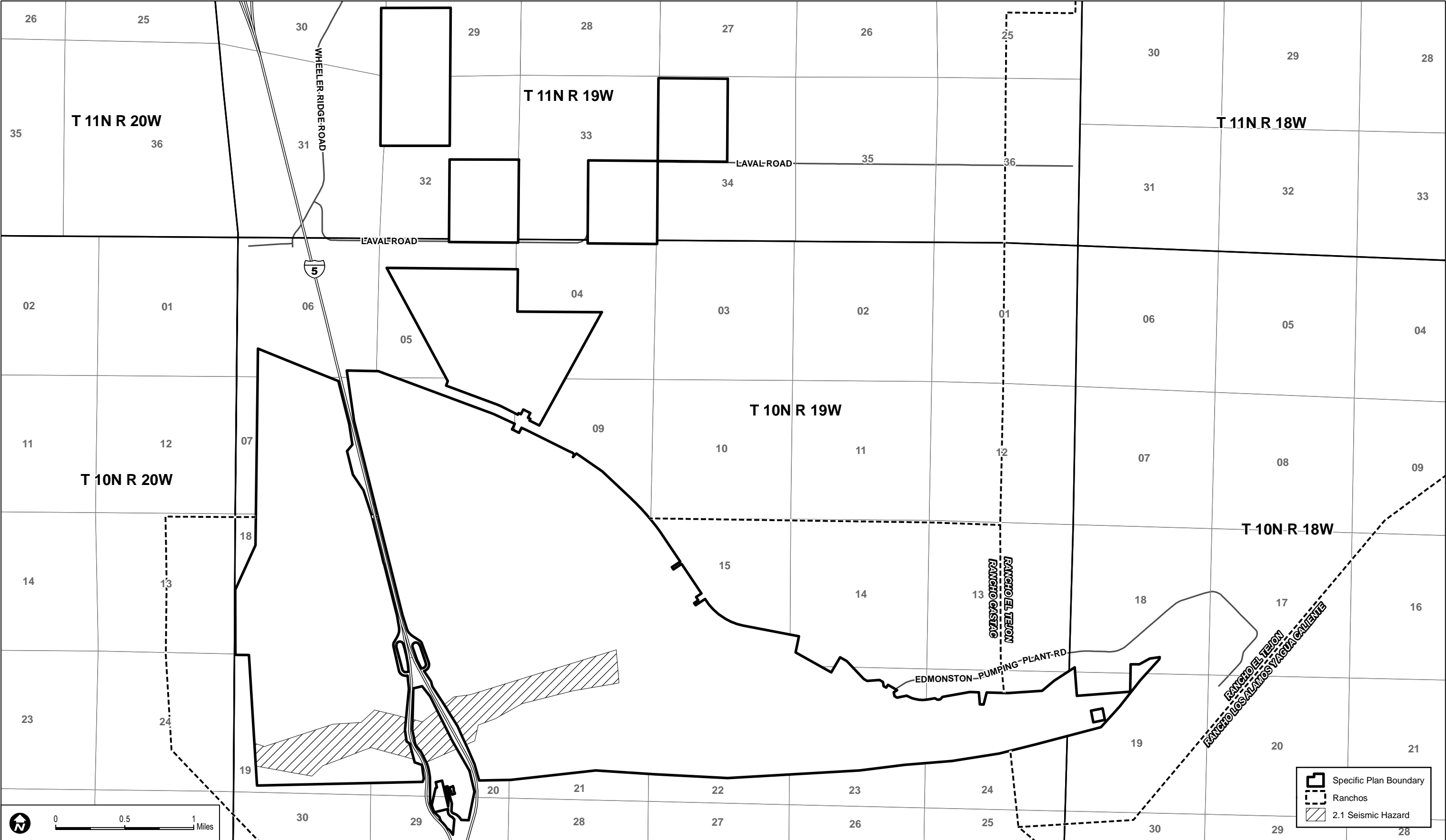
### **6.5.5. Oil and Gas Exploration**

*(Note: Implementation Measure lettering deliberately continued)*

- X. Require as part of tentative and final map subdivisions that include residential, park, or school uses that Special Plan Drilling Islands (DI) be designated when necessary to

- accommodate oil and gas exploration and production activities. Within each DI, oil and gas applicants must comply with the Tier 3 requirements of Chapter 19.98 of the KCZO. The minimum parcel size for a DI within the Grapevine Specific Plan is 2.5 acres.
- Y. Provide as part of tentative and final parcel maps for industrial uses in Sub Areas 6c, the north half of 6d and 6e include any provisions for Tier 1 oil and gas permitting requirements (where oil and gas activities would continue to be the dominant use), and all other lands would be subject to the Tier 3 requirements of Chapter 19.98 of the KCZO.

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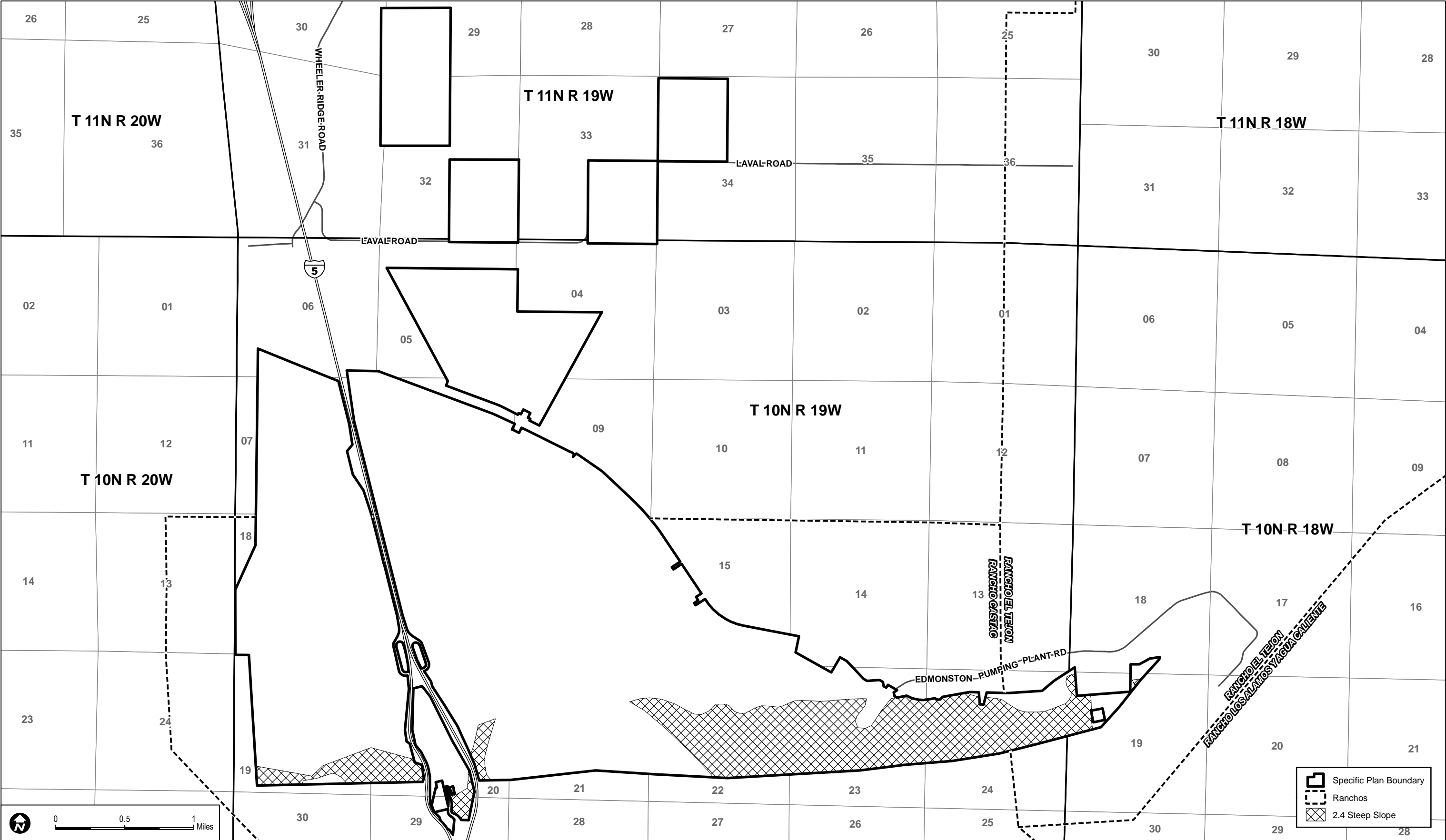


SOURCES: McIntosh & Associates 2013; TRC 2013b; Kern County 2013

EXHIBIT 6-2

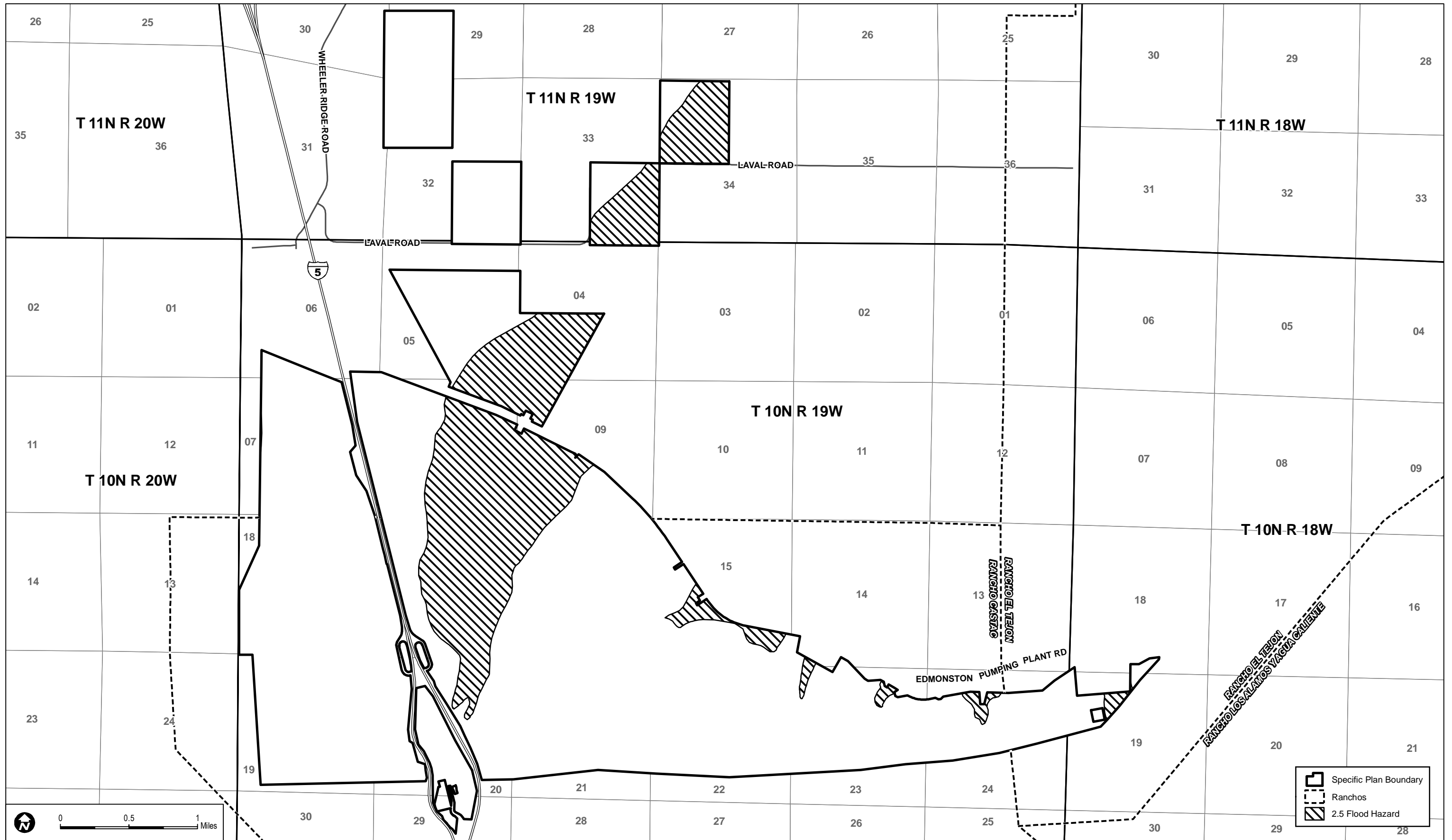
## 2.2 Landslide - General Plan Environmental Constraint

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SOURCES: McIntosh & Associates 2013; TRC 2013b; Kern County 2013

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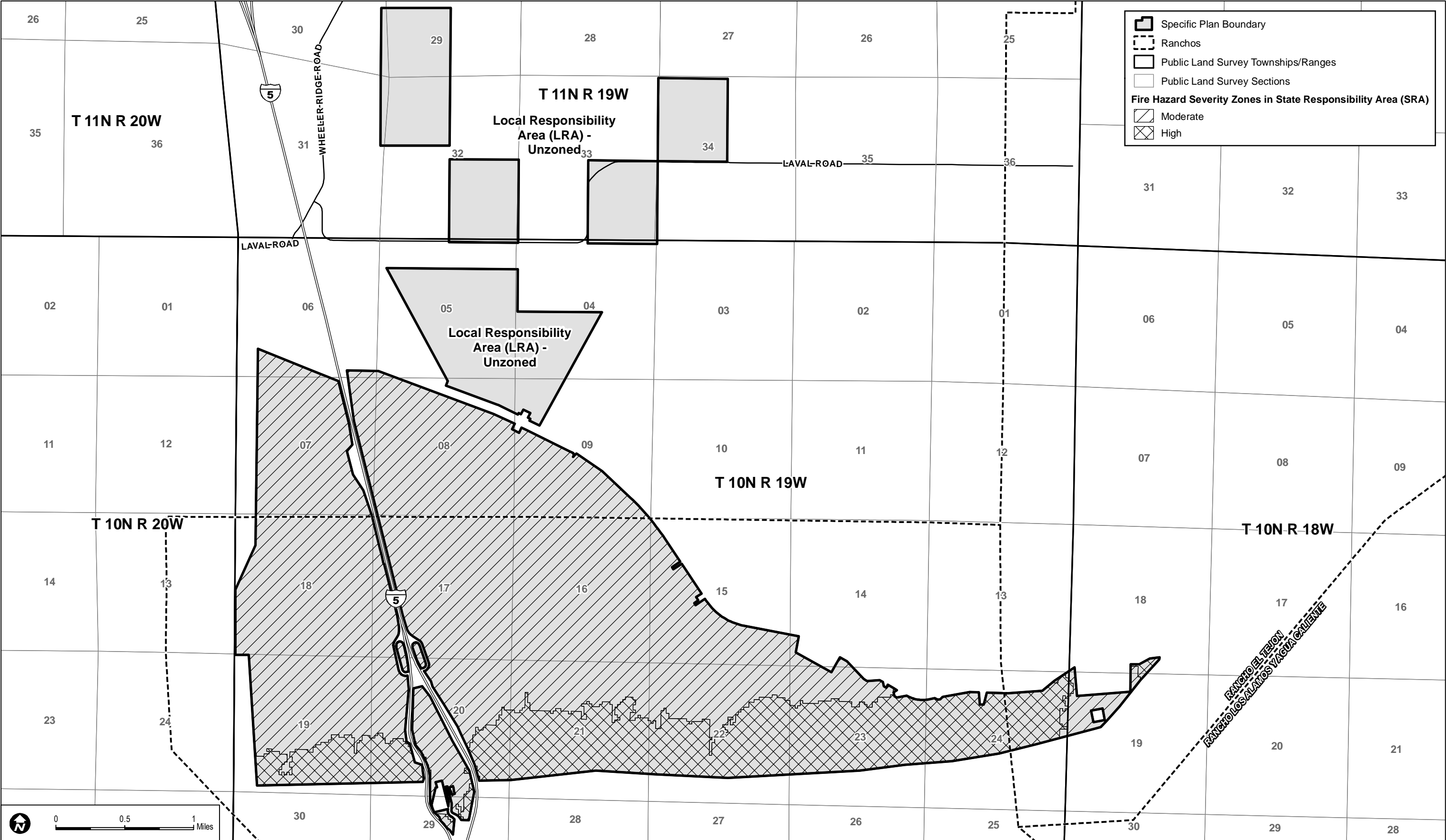
SOURCES: McIntosh & Associates 2013; TRC 2013b; Kern County 2013

EXHIBIT 6-4

## 2.5 Flood Hazard - General Plan Environmental Constraint

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SOURCES: McIntosh & Associates 2013; TRC 2013b; BLM 2013; CALFIRE 2006

EXHIBIT 6-5

Fire Hazard Severity Zones

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## CHAPTER 7

# FINANCING AND MAINTENANCE

### 7.1. Purpose and Scope

This chapter outlines planned financing and maintenance provisions for the Grapevine Specific Plan. Specifically, it outlines the public benefits and infrastructure intent for Grapevine, presents financing and maintenance opportunities for public services and infrastructure, and outlines conceptual financing mechanisms and/or operational entities that may be engaged as infrastructure and public services are established in the Grapevine Specific Plan.

### 7.2. Public Services and Infrastructure Intent

It is the intent of Tejon Ranch Company that Grapevine be developed as a full-service master-planned community with a suite of local public services to serve existing and new Kern County residents who will live and work in the community. The features of the community, including extensive open space dedications, mixed-use development patterns, walkable village centers, and diverse housing and employment offerings, will result in an attractive community offering when combined with local public services that will attract businesses and residents seeking a value-oriented lifestyle to southern Kern County.

In addition to bringing a new community offering to Kern County, Grapevine will also bring substantial benefits to Kern County's economy. Development of Grapevine will bring new annual revenues to the County at community buildout. Additionally, the phased construction of Grapevine will create construction jobs and permanent jobs when the community is operational. The Grapevine Specific Plan has been designed to continue an orderly pattern of development in this area, adding a master-planned community to complement the existing and planned employment uses at the Tejon Ranch Commerce Center (TRCC).

#### 7.2.1. Public Services Approach

The development of Grapevine will require the installation of new public services infrastructure and ongoing operation. The Grapevine Specific Plan includes VMU, MU, and I districts which allow for public services facilities to be constructed and appropriately located throughout the plan area. The following public services facilities will be required to be developed and operated as part of the development of the Grapevine Specific Plan, and other public services support facilities may be also identified over time:

- Fire station(s)
- Sheriff station
- Transit facilities and/or park & rides

## **Financing and Maintenance**

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- Solid waste transfer stations
- Library
- Schools – elementary and middle (K-8) schools, and high school
- Parks – major community or regional parks, neighborhood parks, and local parks
- Multi-use trails
- Internal street network
- Water treatment plant
- Waste water treatment plants
- Wet and dry utility distribution and conveyance systems.

### **7.3. Phasing**

#### **7.3.1. Purpose and Intent**

The primary intent of phasing is to correlate appropriate infrastructure requirements to the progress of site development. The Grapevine Specific Plan does not strictly define geographical phases, but instead acknowledges that the rate and sequence of development of Grapevine is influenced by the following factors: market demand, the economy, interest rates, availability of capital, demographics, occupancy, construction scheduling, competitive projects, regional infrastructure, and public facilities conditions and needs. As these factors change during the course of the buildout process, it is expected that the order, size and duration of each increment of the development will change over time.

The Specific Plan is divided into six individual sub areas, containing 11 sub areas (1, 2, 3, 4, 5a, 5b, 6a, 6b, 6c, 6d, and 6e), each of which could be developed independently and in any order, partially or completely, or developed concurrently to allow for maximum efficiency of infrastructure implementation, as long as infrastructure, including roads, water, sewer, and drainage infrastructure are in place as development occurs. The six sub areas range in size from approximately 450 to 1,400 acres. Development would be phased over a period of more than 19 years. It is anticipated that development would start with Sub Area 3 and/or Sub Area 6a, and would continue with the balance of the sub areas nearest to the initial phase(s). Certain phasing areas could also be developed concurrently to efficiently develop infrastructure and meet demand. Buildout of each phase is projected to take approximately two to four years (Phase 1: 2 years; Phase 2: 4 years; Phase 3: 3 years; Phase 4: 4 years; Phase 5: 4 years; Phase 6: 2 years), with the first phase commencing in 2017.

#### **7.3.2. Phasing Mechanisms**

The fundamental phasing mechanisms of the Specific Plan are tentative tract maps and parcel maps. As each map is processed, infrastructure requirements for that subdivision area will be clearly defined and established. Following tentative tract map and/or parcel map approval and concurrent with the submittal of each Site Development Plan Review of the Grapevine Special Plan, the Tentative Tract Map and Site Plan Submittal Tracking Summary is updated and filed with the County, as set forth in the Grapevine Special Plan (Appendix A).

## **7.4. Financing and Maintenance**

The master developer is committed to ensuring that the Specific Plan is executed in a fiscally sustainable and self-sufficient manner that places no fiscal burden on existing County taxpayers. Development of infrastructure would be implemented in a manner whereby the costs are borne by the master developer in conjunction with available private and public financing. Future residents and occupants of the Specific Plan will contribute to ongoing services, for operation and maintenance of infrastructure, and for some public facility capital costs through property taxes and sales taxes paid in the community.

Furthermore, it is anticipated that the Specific Plan will result in significant economic benefits for the County and its residents as the Specific Plan is developed. Various techniques are available for financing of the improvements associated with Specific Plan development. The exact financing method that would be utilized for specific improvements and maintenance would be determined as each infrastructure phase is completed. Some services, such as transit, may also be coordinated with the TRCC.

### **7.4.1. Public Services**

As stated above, the Specific Plan would be economically sustainable and self-sufficient. Sources of revenue to fund public services related to the Specific Plan, including the reimbursement of all County processing and staff costs associated with development applications; police, fire, paramedic, and other emergency services; recreation and cultural improvements; stormwater conveyance, storage, and treatment systems; water and wastewater treatment, storage, and distribution/collection systems; solid waste disposal; schools and general governmental administration, and could include:

- (a) General property tax (ad valorem);
- (b) Sales tax;
- (c) Other direct or indirect taxes;
- (d) Bond funds from one or more Community Facilities Districts (CFDs);
- (e) License and franchise fees;
- (f) Utility fees;
- (g) Development impact fees;
- (h) Transportation management association fees;
- (i) Business district improvement fees;
- (j) Geologic hazard and abatement district fees;
- (k) Landscape lighting and maintenance districts; and
- (l) Water and sewer hook-up and use charges.

### **7.4.2. Infrastructure**

The Grapevine Specific Plan will require investment in the local community to ensure the successful establishment and operation of the Grapevine community. It is anticipated that the master developer will fund the initial costs of infrastructure improvements, with those costs partially reimbursed through a variety of designated public and private financing mechanisms, the proceeds of which will be used to finance infrastructure that would be constructed to serve the Specific Plan and benefit the County as a whole. Long-term debt obligations, including payment of debt service on various bond issuances or other

## Financing and Maintenance

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financing instruments, will be an obligation of the master developer or property owners. Tejon Ranch anticipates the establishment of at least one of the following financing mechanisms to support the development and maintenance of public facilities for the Grapevine community:

- **Community Facilities District (CFD).** A Grapevine CFD may be established through the existing Joint Powers Authority with Kern County. A Master CFD would be established for the Grapevine community, with Sub Area-level Improvement Areas defined as subordinate CFDs as development proceeds. The CFD would be funded through special taxes levied on residential and commercial properties throughout the community and would facilitate the initial development of community infrastructure such as streets, public buildings such as schools, libraries, and fire and sheriff stations.
- **Homeowner's Association/Maintenance Corporation.** A Homeowner's Association may be established to manage and maintain community major and minor parks, trails, private community clubs, and associated amenity facilities. The Homeowner's Association would be funded through monthly fees paid by all residents in the community on a tiered scale depending upon their access to these private facilities.
- **Commercial Properties Association.** A Commercial Properties Association may be established to manage and maintain commercial area specific landscape and design features, community parks and trails, and to contribute to the development and maintenance of community amenities that will in turn support commercial success. The Commercial Properties Association will be funded through monthly fees paid by commercial tenants.
- **Enhanced Infrastructure Financing Districts (EIFD).** EIFDs may be used to finance the construction or rehabilitation of a wide variety of public infrastructure and/or private facilities. Using property tax increment generated within the EIFD, to pay debt service, a Public Financing Authority can issue tax-exempt bonds, the proceeds of which can pay for public projects of community wide significance.
- **Transportation Management Association.** Transportation Management Associations (TMAs) are non-profit, member-controlled organizations that pool resources, including member fees, grant funding, and local and regional infrastructure to provide transportation services in a particular area. TMAs provide an institutional framework for Transit Demand Management programs and services. They are usually more cost effective than programs managed by individual businesses. TMAs can increase transportation options, provide financial savings to businesses and employees, reduce traffic congestion and parking problems, and reduce pollution emissions. They are an important strategy for creating more efficient land use patterns. A Grapevine TMA may be formed at project initiation or prior to development to coordinate transportation planning between Grapevine, TRCC, and Kern County resources.

The exact method of financing that will be used for specific improvements will be determined as each major infrastructure component, and/or each phase of development, is commenced.

## Financing and Maintenance

### 7.4.3. Operation and Maintenance

Given the extensive level of infrastructure, improvements, and features unique to the Specific Plan, tax and fee revenues generated by the Specific Plan will be allocated primarily to fund on-site maintenance and operating costs not typically funded by the County. Potential operation and maintenance financing options for major maintenance and operational activities include, but are not limited to, the following:

Item	Funding Vehicle	Maintenance/Operation Activities
a)	Property owner association fees	Open space, parks, sports fields, recreation, landscape and paths/trails; interpretive education center; street cleaning
b)	Business Improvement District fees	Transit systems; street cleaning
c)	Transportation Management Association fees	Transit systems; transit center; transportation demand management program and measures; parking meters
d)	Geological Hazard Abatement District	Levees; stormwater management best management practices; emergency preparedness and disaster relief
e)	Community Service Districts	Schools, streets, parks, library
f)	Tejon Castac Water District	Potable and non-potable water source, conveyance, storage, and treatment; wastewater conveyance, storage, and treatment
g)	Infrastructure Finance District	Infrastructure costs
h)	Landscape and lighting districts	Open space, parks, sports fields, recreation, landscape and paths/trails; common area lighting; street lighting; signage
i)	Community Facilities Districts	Public facilities – schools, streets, parks, library
j)	Joint facilities agreements	Sports field complex serving community and school sports teams



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## CHAPTER 8

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## CHAPTER 9

### GLOSSARY

All terms used in this Specific and Community Plan (Specific Plan) have the same definitions as provided in the Kern County Zoning Ordinance (KCZO), Chapter 19.04, Definitions, except the following terms, which are governed by the definitions listed below.

**Caltrans** – California Department of Transportation.

**development caps** – Plan-wide development maximums or yield maximums to be implemented through the broad land use designations for dwelling units and commercial/industrial square footage.

**final map** – A map showing a subdivision for which a tentative and final map are required by the California Subdivision Map Act or Land Division Ordinance of Kern County, prepared in accordance with the provisions of Land Division Ordinance of Kern County and the California Subdivision Map Act, and designed to be recorded in the office of the county recorder.

**finance map** – A parcel map or subdivision map solely for the purpose of finance or conveyance of parcels. Recordation of a finance map does not require bonding for improvements or construction of any kind and does not permit construction.

**fuel modification zone** – A strip of land where combustible native or ornamental vegetation is partially or totally removed and/or replaced with drought-tolerant, low-fuel-volume plant materials. These zones may have prescribed widths and may consist of multiple zones with varying fuel modification treatments.

**master developer** – Tejon Ranchcorp and its successors or assigns.

**maximum non-residential building square footage** – The maximum non-residential building square footage allowed for a given Planning Area as set forth in the Special Plan. (Applies only to commercial industrial square footage.)

**Special Plan** – The Grapevine Special Planning (SP) Area Plan.

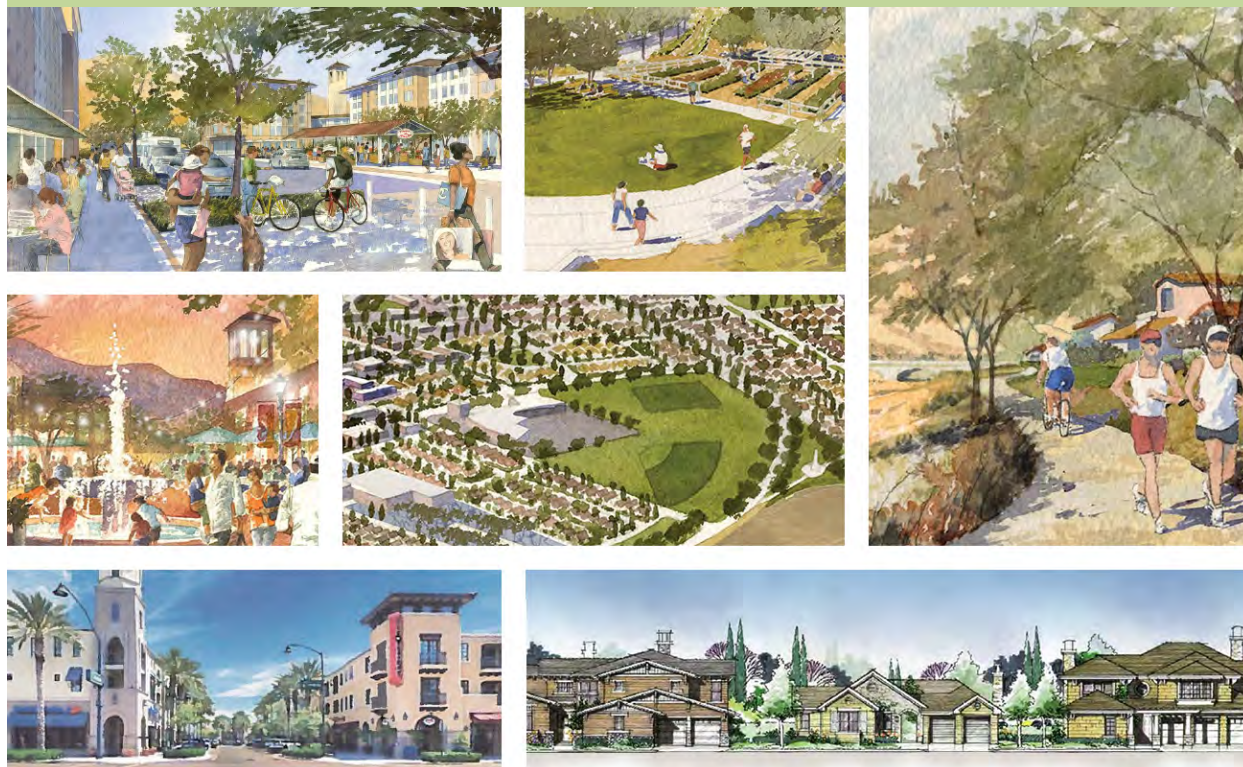
**Specific Plan area** – The area of Grapevine specifically designated in the Specific Plan Legal Description, as adopted by the Kern County Board of Supervisors.

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**APPENDIX A**  
*Grapevine Special Planning (SP) District Plan*

# Grapevine

## SPECIAL PLANNING (SP) DISTRICT PLAN



**Kern County Planning and Community  
Development Department**



March 2016





# **Grapevine**

## **SPECIAL PLANNING (SP) DISTRICT PLAN**

**Kern County Planning and  
Community Development  
Department**  
2700 M Street, Suite 100  
Bakersfield, CA 93301  
(661) 862-8600

**Applicant:**  
Tejon Ranchcorp  
P.O. Box 1000, 4436 Lebec Road  
Lebec, CA 93243  
661-663-4253  
Contact: Derek Abbott

**Special Plan No. 1, Map 202**  
**Special Plan No. 2, Map 218R**  
**Special Plan No. 2, Map 219**

**Technical Assistance by:**  
Dudek  
465 Magnolia Avenue  
Larkspur, CA 94939  
415-758-9812  
Contact: Heather Ivey, AICP

March 2016



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## ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
BMP	best management practice
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFD	Community Facilities District
CHP	California Highway Patrol
CLOMR	Conditional Letter of Map Revision
County	Kern County (government agency)
CVEF	Commercial Vehicle Enforcement Facility
DU	dwelling unit
EA	Exclusive Agriculture (district)
EIR	environmental impact report
EVA	Emergency Vehicle Access
ETAF	evapotranspiration adjustment factor
ETo	Evapotranspiration
ETWU	Estimated Total Water Use
FC	Floodplain Combining
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FPP	Floodplain Primary
FPS	Floodplain Secondary
GH	Geologic Hazard
GHAD	Geologic Hazard Abatement District
HDPE	high-density polyethylene
I	Industrial (district)
I-5	Interstate 5
KCDS	Kern County Development Standards
KCHM	Kern County Hydrology Manual

**Acronyms and Abbreviations**

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<b>Acronym/Abbreviation</b>	<b>Definition</b>
KCZO	Kern County Zoning Ordinance
LAFCO	Local Agency Formation Commission
LID	Low Impact Design
LOS	level of service
MAWA	Maximum Applied Water Allowance
MD	Master Developer
MMRP	Mitigation Monitoring and Reporting Program
mph	miles per hour
MU	Mixed-Use (district)
O&G	Oil and Gas
PI	Point of Intersection
PVC	Polyvinyl chloride
ROW	right-of-way
SP	Special Planning
Special Plan	Special Planning (SP) District Plan
Specific Plan	Grapevine Specific and Community Plan
sq. ft.	square feet
SR-99	State Route 99
TCWD	Tejon-Castac Water District
TRCC	Tejon Ranch Commerce Center
UBC	Uniform Building Code
VMU	Village Mixed-Use (district)
WUCOLS	Water Use Classification of Landscape Species
WWTP	wastewater treatment plant



# Section 1

## PROJECT OVERVIEW

### 1.1. Purpose

The Special Planning (SP) District Plan (Special Plan) provides the implementation mechanisms and development standards for the Grapevine Specific Plan Area. The Special Plan works in tandem with the Grapevine Specific Plan as the tailored development standards within the Special Plan constitute the principal measures to implement the principles, goals, and policies established in the Grapevine Specific Plan. The Grapevine Special Plan is adopted by ordinance and includes all standards and conditions approved in connection with the review of the site development plan application.

The adoption of the Grapevine Special Planning (SP) District Map (Special Plan District Map) and the Special Plan together satisfy the requirements of Chapter 19.52 of the Kern County Zoning Ordinance (KCZO 2012). The Special Plan provisions contained herein in the form of permitted and accessory uses, definitions, and development standards facilitate the creative and innovative use of the property through the use of tailored development standards that respond to the special and unique character of the Grapevine Specific Plan Area.

Consistent with the Specific Plan goals, objectives, and policies, the provisions of the Special Plan are designed to allow diversity in the relationship between buildings and open spaces or public rights-of-way to create unique and interesting physical environments and civic spaces while at the same time preserving public health, welfare, and safety. The Special Plan provisions allow design flexibility beyond that provided by standard Kern County zoning regulations to allow for more complete and creative urban and community design necessary to implement the vision for the Grapevine project. The regulations, standards, and guidelines contained in the Special Plan provide the framework upon which all subsequent implementation and planning decisions are based, as well as criteria for determining consistency of site-specific design with the Special Plan objectives.

### 1.2. Project Description

The Grapevine Special Plan is situated just south of the junction of Interstate 5 (I-5) and State Route 99 (SR-99) in an area that acts as the gateway to California's Central Valley and the Los Angeles basin (see Figure 1-1, Regional Location Map). Grapevine consists of an 8,010-acre portion of the 270,000-acre Tejon Ranch. Primary access to the Grapevine community will be from I-5. The existing I-5/Laval Road interchange, and if operational enhancements approved by Caltrans are implemented, the existing I-5/Grapevine Road interchange will be used for initial development phase access. A new interchange will

## Project Overview

be constructed on I-5 to serve Grapevine before applicable level of service (LOS) standards are exceeded at any existing interchange providing interim access to the Specific Plan.

Grapevine is a new community built on the principles of balance between job creation and new home sites, ecological sensitivity, and a continued dedication to agriculture. It is a community that serves as the gateway to and from the San Joaquin Valley and provides for a wide variety of lifestyles and income levels, all the while carrying forward the ranching heritage of Tejon Ranch and the agricultural traditions at the southern edge of the valley. Grapevine is a residential community and employment center that will build on the economic development occurring nearby at the Tejon Ranch Commerce Center (TRCC) while maintaining the zoning for 40% of the Plan Area as Exclusive Agriculture, with ongoing uses including grazing and open space.

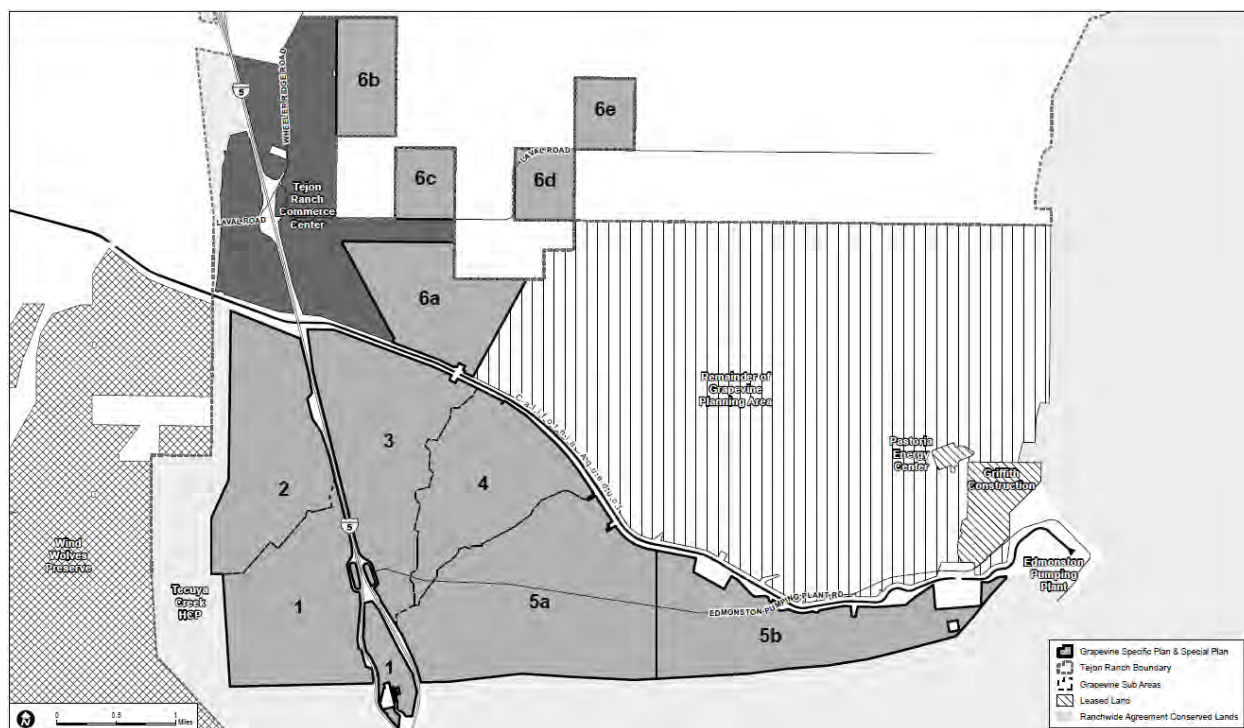


**Figure 1-1 Regional Location Map**

*Sources: TRC 2013; McIntosh & Associates 2013*

### 1.2.1. Special Plan Boundary and Sub Areas

The boundaries of the Special Plan are the same as those for the Grapevine Specific and Community Plan (referred to jointly as the Grapevine Specific Plan). The plan boundary includes six sub areas, as shown in Figure 1-2: two large areas that straddle I-5 near the Grapevine Road interchange, and four smaller areas directly to the north that are adjacent to Laval Road. Figures 1-5 through 1-12 identify the districts and combining districts within each sub area, which are described in Section 1.2.2. The sub areas are not indicative of phasing sequence or in any way limiting to tentative tract maps, which may cross sub area boundaries.



**Figure 1-2 Grapevine Specific Plan and Special Plan Boundary and Sub Areas**

### 1.2.2. Special Plan Districts and Combining Districts

All of the land within the Special Plan is assigned one of four specialized districts, as shown in Figure 1-3, Special Plan District Map, including the Village Mixed-Use (VMU), Mixed-Use (MU), Industrial (I), or Exclusive Agriculture (EA).<sup>1</sup> These four specialized districts are consistent with those identified in the Grapevine Specific Plan. The precise boundaries of each district will be established at the parcel or tract map stage during the entitlement phase for future projects. In addition, the Grapevine Special Plan includes two combining districts. The Geologic Hazard (GH) Combining and Floodplain Combining (FC) Districts are applied to areas identified in the Grapevine Specific Plan (Chapter 6, Safety and Constraints) as having potential geologic or flooding hazards. The two combining districts are identified in Figure 1-3, Special Plan District Map, and described in detail in Section 2.

Notices of non-renewal have been filed for all Williamson Act contracts within the Special Plan and expiration for these contracts will occur on December 31, 2023 and December 31, 2025. Until the Williamson Act contracts expire or are terminated, the existing terms of use remain in effect and the Exclusive Agriculture (A) zoning remains in place. Upon expiration or termination of the contracts, the Specific Plan's EA district will replace the existing A zoning designation. The Special Plan District Map (Figure 1-3) identifies the proposed districts for those areas held in suspense until Williamson Act contracts have expired or have been terminated.

<sup>1</sup> The boundaries and districts shown in Figure 1-3 are the same as the districts shown in the Grapevine Specific Plan Districts, Exhibit 2-1 of the Grapevine Specific Plan.

## **Project Overview**

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### **1.2.3. Development Cap**

The overall development cap for the entire Grapevine Special Plan is a maximum of 5,100,000 square feet of commercial/industrial floor area and a maximum of 12,000 residential dwelling units. However, based on the built and permitted commercial/industrial uses at the adjacent TRCC, Grapevine may ultimately support up to 2,000 additional dwelling units. The additional 2,000 units would be authorized only with a commensurate reduction of commercial/industrial square footage, based on vehicle trip equivalency ratios identified in the Grapevine Specific Plan (and included in Section 3.3 of this Plan). This would be permitted only to the extent that the additional units would not cause any significant new adverse impacts, or increase the severity of previously identified adverse impacts as analyzed in the environmental impact report (EIR). Other mechanisms identified in Section 3 of this Plan will allow flexibility for development to respond to market demands and ensure a jobs-housing balance over time.

The Grapevine Development Maximums outlined in Table 1-1 provide the maximum residential units and commercial/industrial floor area that may be developed in each sub area, consistent with the Grapevine Specific Plan goals for flexibility in future allocation of land use. The number of residential units and the amount of commercial/industrial area that would be developed in any one sub area would be specified at the tentative map stage, falling within the development maximums for the relevant land use and subject to the overall development cap.

### **1.2.4. Public Facilities and Infrastructure**

The Grapevine Special Plan reserves approximately 157 acres for schools and 96-112 acres for parks. Parks may be constructed and operated in a joint-use manner with schools, serving as school recreation yards during school hours and public parks when not in use by schools. Other public facilities will also be provided, including a fire station, a sheriff substation, transit facilities/park-and-rides, and water and wastewater treatment facilities. The Tejon-Castac Water District (TCWD) will provide potable water and wastewater services. Recycled water supplied by the wastewater treatment plants will be used primarily for landscape irrigation.

A foundational circulation plan is set forth in Figure 1-4, Circulation Plan. The circulation network is composed of two-, four-, and six-lane arterials, collector streets, and local streets (including lanes and alleys) and organized to provide greater mobility for all travel modes, including pedestrians and bicyclists. Design standards for each street typology are defined in Section 3 of this Special Plan and are consistent with the Specific Plan.

As described previously, primary access to the Grapevine community will be from I-5. The existing I-5/Laval Road interchange, and if operational enhancements approved by Caltrans are implemented, the existing I-5/Grapevine Road interchange will be used for initial development phase access. A new interchange will be constructed on I-5 to serve Grapevine before applicable LOS standards are exceeded at any existing interchange providing interim access to the Specific Plan. There are two options for relocating the interchange, Option A and Option B, as shown on Figure 1-4, Circulation Plan.

Under Option A, the new interchange would be constructed approximately 1-mile north of the existing I-5/Grapevine interchange and would connect with planned Street A. Sufficient right of way would be

## Project Overview

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reserved to facilitate a 6-lane overpass at the interchange, if required. A 2-lane overpass connecting sub areas east and west of I-5 would be constructed at planned Street B about ½-mile south of the interchange. The existing I-5/Grapevine Road underpass would be maintained, and freeway access at the existing interchange would be closed. Four-lane arterials would be constructed east (planned Street D) and west (planned Street C) of I-5 and would extend north/south approximately parallel with the freeway. Two new overcrossings of the California Aqueduct would be constructed east and west of I-5 to extend the arterials north to the existing Laval Road/I-5 interchange system and the Tejon Ranch Commerce Center (TRCC). A network of 2-lane connectors would be constructed generally to the east and west of the Grapevine Specific Plan Area north/south arterials.

An existing California Commercial Vehicle Enforcement Facility (CVEF) is operated by the California Highway Patrol at the approximate location of the new I-5 interchange in Option A. To facilitate interchange construction, and to improve the capacity and operation of the facility, the CVEF would be moved north to the west side of the junction of I-5 and SR 99 on land owned by Tejon RanchCorp. Access and bypass ramps would be constructed to connect the new CVEF with I-5 and SR 99, and an additional ramp would be constructed on the east side of I-5 from the new CVEF to the Laval Road/I-5 interchange to accommodate truck movement. The northbound Laval Road/I-5 onramp would be metered. Sufficient right of way would also be reserved from the northbound Laval Road/I-5 onramp north to the I-5/SR 99 junction to construct an auxiliary lane if required to meet applicable LOS and safety standards. An existing agricultural road (the “Haul Road”) east of the Specific Plan would be improved from the existing Edmonston Pumping Plant Road north to Laval Road. The Haul Road would route utility and quarry truck traffic from activities outside of the Grapevine Specific Plan around the planned development.

Under Option B, the new I-5 interchange would be constructed approximately ½-mile south of the preferred location and would connect with planned Street B. Sufficient rights of way would be reserved at the interchange in Option B to facilitate a 6-lane overpass, if required. As shown in Exhibit 3-1, the 2-lane I-5 overpass in Option A would be moved approximately ½-mile north to connect with planned Street A in Option B. The CVEF would remain in its existing location, and a braided onramp would be constructed east of I-5 to accommodate truck movement south from the existing CVEF to the new I-5 interchange.

## Project Overview

**Table 1-1**  
**Grapevine Development Maximums by Sub Area<sup>1,2</sup>**

<b>Land Use <sup>3</sup></b>	<b>Area 1</b>	<b>Area 2</b>	<b>Area 3</b>	<b>Area 4</b>	<b>Area 5a</b>	<b>Area 5b</b>	<b>Area 6a</b>	<b>Area 6b</b>	<b>Areas 6c-e</b>
<b>Residential Total (DU)</b>	<b>2,075</b>	<b>3,865</b>	<b>2,675</b>	<b>3,390</b>	<b>2,890</b>	<b>50</b>	<b>1,870</b>	<b>n/a</b>	<b>n/a</b>
SFR-Detached (DU)	1,750	2,490	1,650	2,590	2,425	50	820	n/a	n/a
SFR/MFR-Attached (DU)	325	1,375	1,025	800	465	n/a	1,050	n/a	n/a
<b>Commercial/Industrial Total (SF)</b>	<b>1,130,000</b>	<b>2,210,000</b>	<b>2,280,000</b>	<b>565,000</b>	<b>600,000</b>	<b>n/a</b>	<b>2,155,000</b>	<b>400,000</b>	<b>30,000-450,000</b>
Retail (Gross Leasable Area/SF)	70,000	670,000	990,000	165,000	100,000	n/a	350,000	n/a	n/a
Office/R&D (Gross Floor Area/SF)	560,000	1,090,000	910,000	250,000	250,000	n/a	405,000	n/a	n/a
Industrial/Warehouse (Gross Floor Area/SF)	500,000	450,000	380,000	150,000	250,000	n/a	1,400,000	400,000	450,000

**Notes:** DU = dwelling unit, SF = square feet

<sup>1</sup> The area to be dedicated and developed for elementary, middle, and high schools, parks, and institutional uses is not included in the numerical values presented.

<sup>2</sup> The development maximums for each Sub Area are subject to the overall development caps of 5,100,000 square feet of commercial/ industrial uses and 12,000 residential dwelling units plus the 2,000 additional units available if commercial/industrial square footage is reduced.

<sup>3</sup> These land uses are tied to the uses listed in Table 2-1, Permitted Uses in Section 2, Districts and Permitted Uses.



### 1.3. General Project Data

- a. Total Special Plan Area: 8,010 acres
  - 1) Sub Area 1: 1,041 acres
  - 2) Sub Area 2: 939 acres
  - 3) Sub Area 3: 1,081 acres
  - 4) Sub Area 4: 820 acres
  - 5) Sub Area 5a: 1,631 acres
  - 6) Sub Area 5b: 975 acres
  - 7) Sub Area 6a: 620 acres
  - 8) Sub Areas 6b–6e: 903 acres
- b. Proposed General Plan Land Use Designation: Accepted County Plan (Map Code 4.1)
- c. Proposed Zoning: Special Planning (SP) District (Chapter 19.52 of the Kern County Zoning Ordinance)
- d. Estimated Net Population Increase at Buildout: 38,400 people
- e. Existing and Potential Infrastructure Providers:
  - Domestic and Fire Protection Water Supply: Tejon-Castac Water District
  - Proposed Sewer Disposal: Tejon-Castac Water District
  - Gas & Electric: Pacific Gas & Electric, Southern California Gas Company
  - Telephone: AT&T
  - Solid Waste: Price Disposal, Kern County Waste Management Department, or other contracted provider.
  - Drainage: Geologic Hazard Abatement District (GHAD), Tejon-Castac Water District (TCWD) or other government entity
  - Proposed Streets: Kern County
- f. Landscaping maintenance managed by: Home Owners Association, Community Facilities District, Assessment District, or similar entity.

### 1.4. General Provisions

#### 1.4.1. Special Plan Enactment

The Grapevine Special Plan is adopted by ordinance and includes all standards and conditions approved in connection with the review of the site development plan application. This Special Plan shall be referenced by ordinance number on the official zoning maps.

#### 1.4.2. Relationship to Specific Plan and Community Plan

The Grapevine Special Plan shall be consistent with the Grapevine Specific Plan and Community Plan. Development approved per this Special Plan (Appendix A of the Specific Plan) must be consistent with the Specific Plan, including its appendices (i.e., Grapevine Design Principles (Appendix B of the Specific Plan), Grapevine Sustainability Principles (Appendix C of the Specific Plan), and Mitigation Monitoring and Reporting Program (Appendix D of the Specific Plan).



## **Project Overview**

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### **1.4.3. Relationship to Kern County Zoning Ordinance**

The Grapevine Special Plan is adopted by ordinance, providing regulatory development guidance for property under the policy direction of the Grapevine Specific Plan. The regulations and standards contained in the Special Plan supersede other corresponding zoning sections in the KCZO. Where the Special Plan provisions are silent on a development regulation, enforcement procedure, or where reference is made to a specific ordinance section, the applicable section(s) of the KCZO, Kern County Land Division Ordinance, Kern County Development Standards, and/or other applicable County ordinances prevail. Reference in the Special Plan for using specified provisions of the KCZO for permitting oil and gas activities is one such example. Where the regulations and guidelines of the Specific Plan and Grapevine Special Plan do not agree with other County ordinances, the Specific Plan and/or Grapevine Special Plan provisions prevail. Subsequent project-related development plans and any other actions requiring discretionary or ministerial approval must be consistent with this Plan.

### **1.4.4. Deviation from Standards**

As described above, all development within the Special Plan shall conform to the Kern County Development Standards with the exception of the standards identified in Table 4-1, Deviations from Standards, in Section 4 of this Plan. Table 4-1 lists the current Kern County Standards and the Special Plan Deviations from such standards, as well as a discussion of the benefits of the proposed deviations.

### **1.4.5. Relationship to Other Agency Regulations**

Neither the Grapevine Specific Plan and/or Special Plan provisions nor any of their component parts shall supersede the regulations or requirements of the Regional Water Quality Control Board, the San Joaquin Valley Air Quality Management District, the TCWD, or any other local, state, or federal agency that has jurisdiction by law over uses and development within the Specific Plan Area, whether adopted prior to or subsequent to the adoption of the Grapevine Specific Plan and/or Special Plan.

### **1.4.6. Conformance with Special Planning (SP) District Plan**

It is unlawful for any building or structure to be moved, erected, used, altered, enlarged, or rebuilt or for any use to be established or changed that does not conform to the provisions of this Special Plan. Non-conforming uses can be renovated or reestablished, consistent with KCZO Chapter 19.108, Nonconforming Uses, Structures, and Lots.

### **1.4.7. Minor Changes to Boundaries and Acreages**

Minor boundary and acreage changes to the Special Plan zoning districts may be permitted at the tentative map stage as final road alignments, grading plans, final maps, and/or other technical refinements or typographical corrections are made, including, but not limited to, changes related to the I-5 interchange relocation, without requiring an amendment to the Specific Plan or Special Plan. The Special Plan minor modifications process is set forth in Section 5 of this Plan.

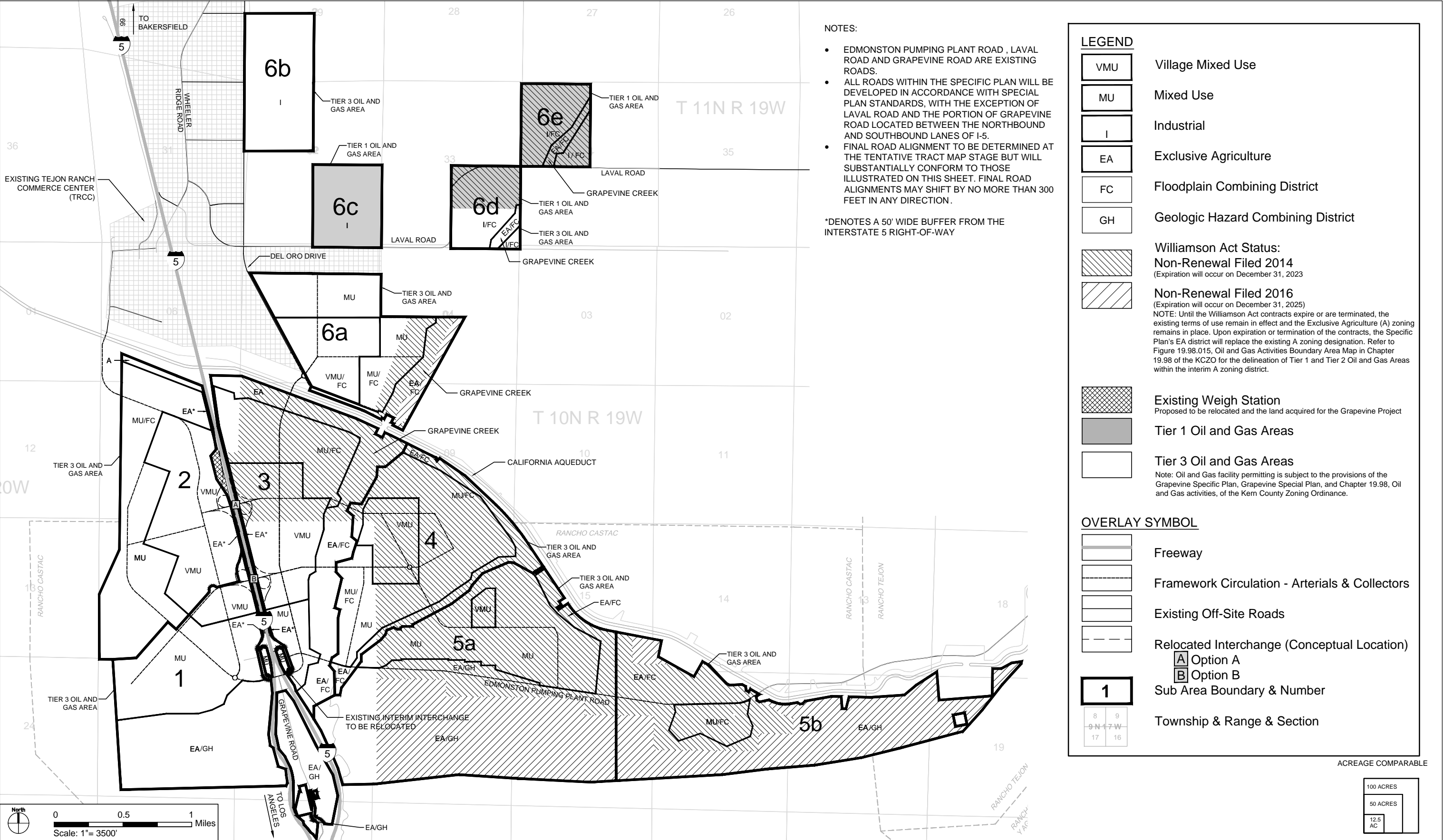
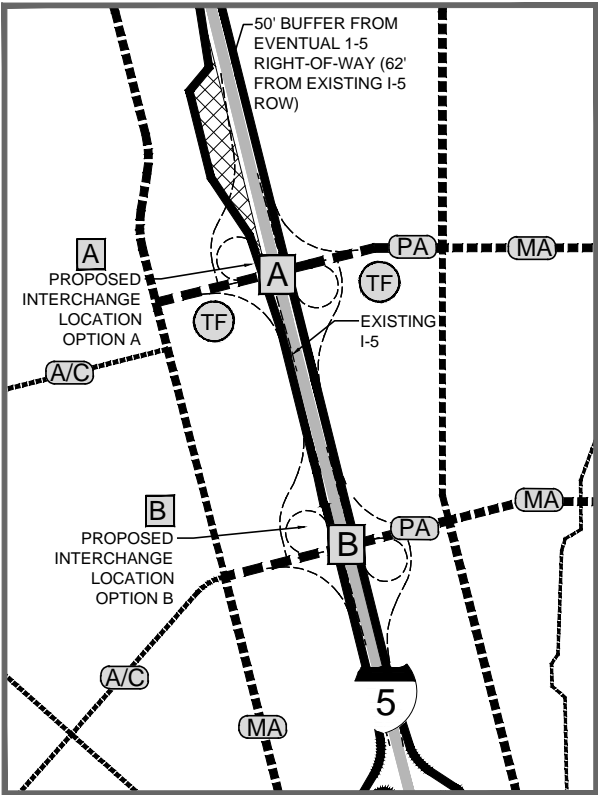
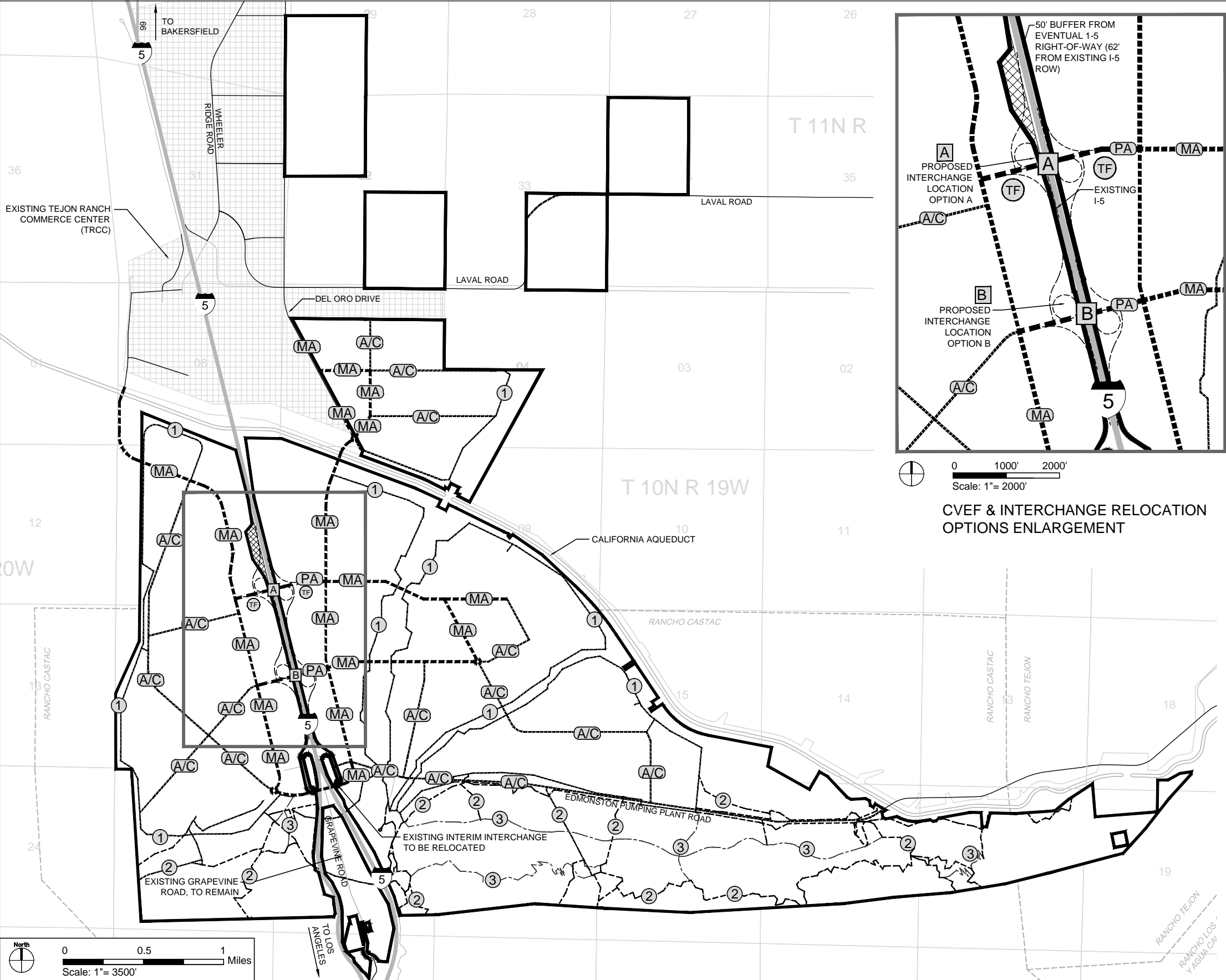


FIGURE 1-3  
Special Plan District Map

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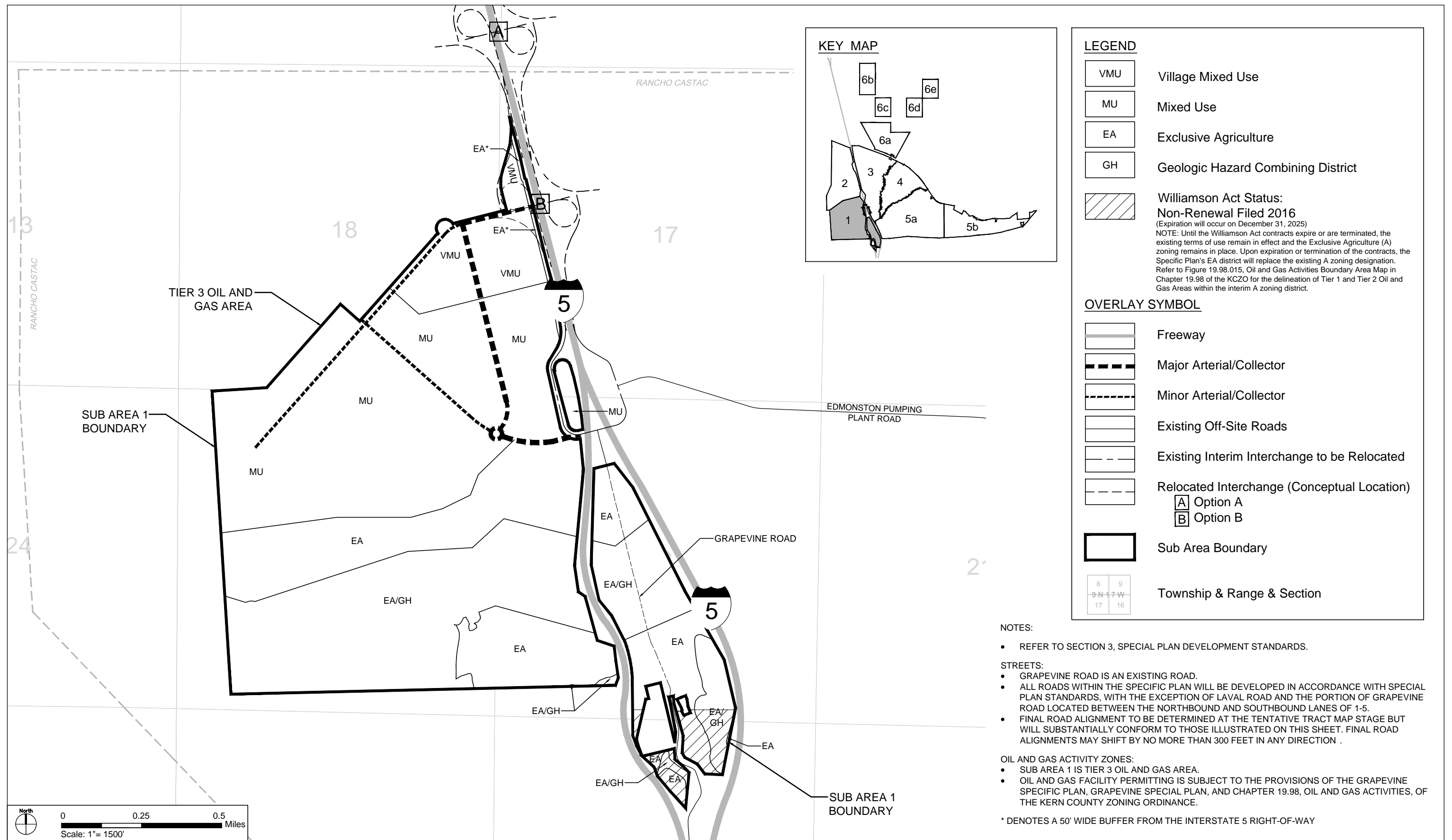
**LEGEND**

	Freeway
	Primary Arterial with Class I Bike Path
	Major Arterial/Collector with Class I Bike Path
	Minor Arterial/Collector with Class II Bike Lane
	Multipurpose Trails
	Unpaved Existing Trails
	Unpaved Trails
	Existing Off-Site Roads
	Relocated Interchange (Conceptual Location)
	Option A
	Option B
	Specific Plan Boundary
	Existing Weigh Station Proposed to be relocated and the land acquired for the Grapevine Project
	Township & Range & Section
	Transit Facility

- NOTES:**
- EDMONSTON PUMPING PLANT ROAD, LAVAL ROAD AND GRAPEVINE ROAD ARE EXISTING ROADS.
  - ALL ROADS WITHIN THE SPECIFIC PLAN WILL BE DEVELOPED IN ACCORDANCE WITH SPECIAL PLAN STANDARDS, WITH THE EXCEPTION OF LAVAL ROAD AND THE PORTION OF GRAPEVINE ROAD LOCATED BETWEEN THE NORTHBOUND AND SOUTHBOUND LANES OF I-5.
  - SEE SPECIAL PLAN ROADWAY AND OFF-ROADWAY STREET SECTIONS FOR DESIGN OPTIONS (SPECIAL PLAN FIGURES 3-4 THRU 3-10).
  - FINAL ROAD ALIGNMENT TO BE DETERMINED AT THE TENTATIVE TRACT MAP STAGE BUT WILL SUBSTANTIALLY CONFORM TO THOSE ILLUSTRATED ON THIS SHEET. FINAL ROAD ALIGNMENTS MAY SHIFT BY NO MORE THAN 300 FEET IN ANY DIRECTION.
  - TRAFFIC IMPACT ASSESSMENT SHALL DETERMINE FINAL ROADWAY OPTION SELECTION AND LANE REQUIREMENTS.
  - THE PRIMARY ARTERIAL WILL OCCUR AT THE SELECTED INTERCHANGE LOCATION. THE NON-INTERCHANGE LOCATION WILL REVERT TO A MAJOR ARTERIAL.

FIGURE 1-4  
Circulation Plan

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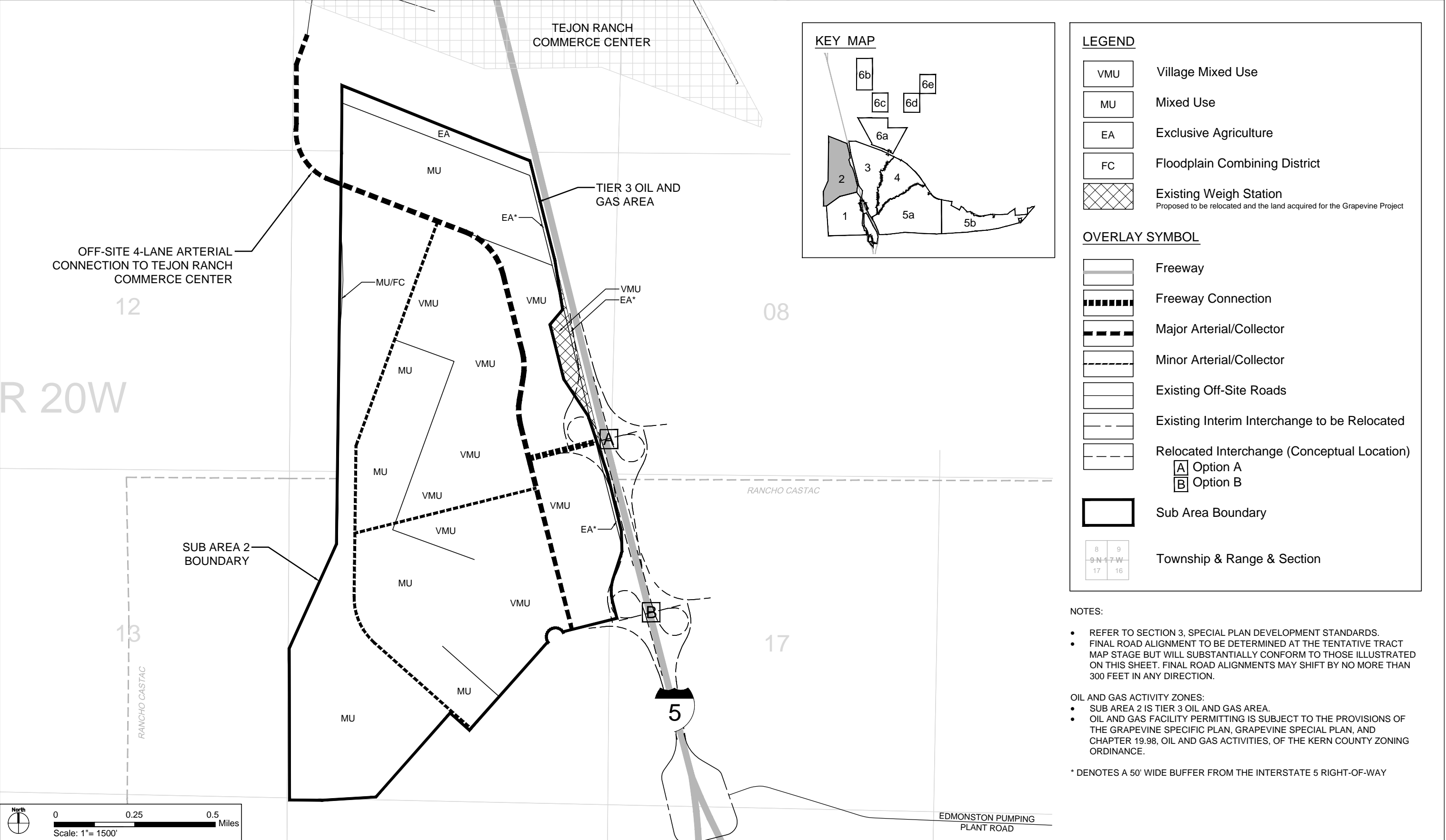
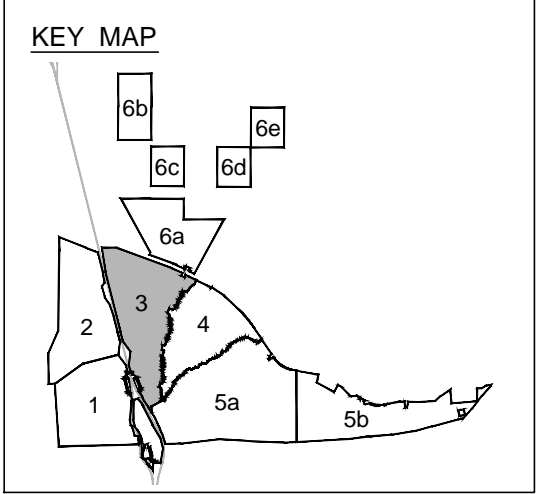
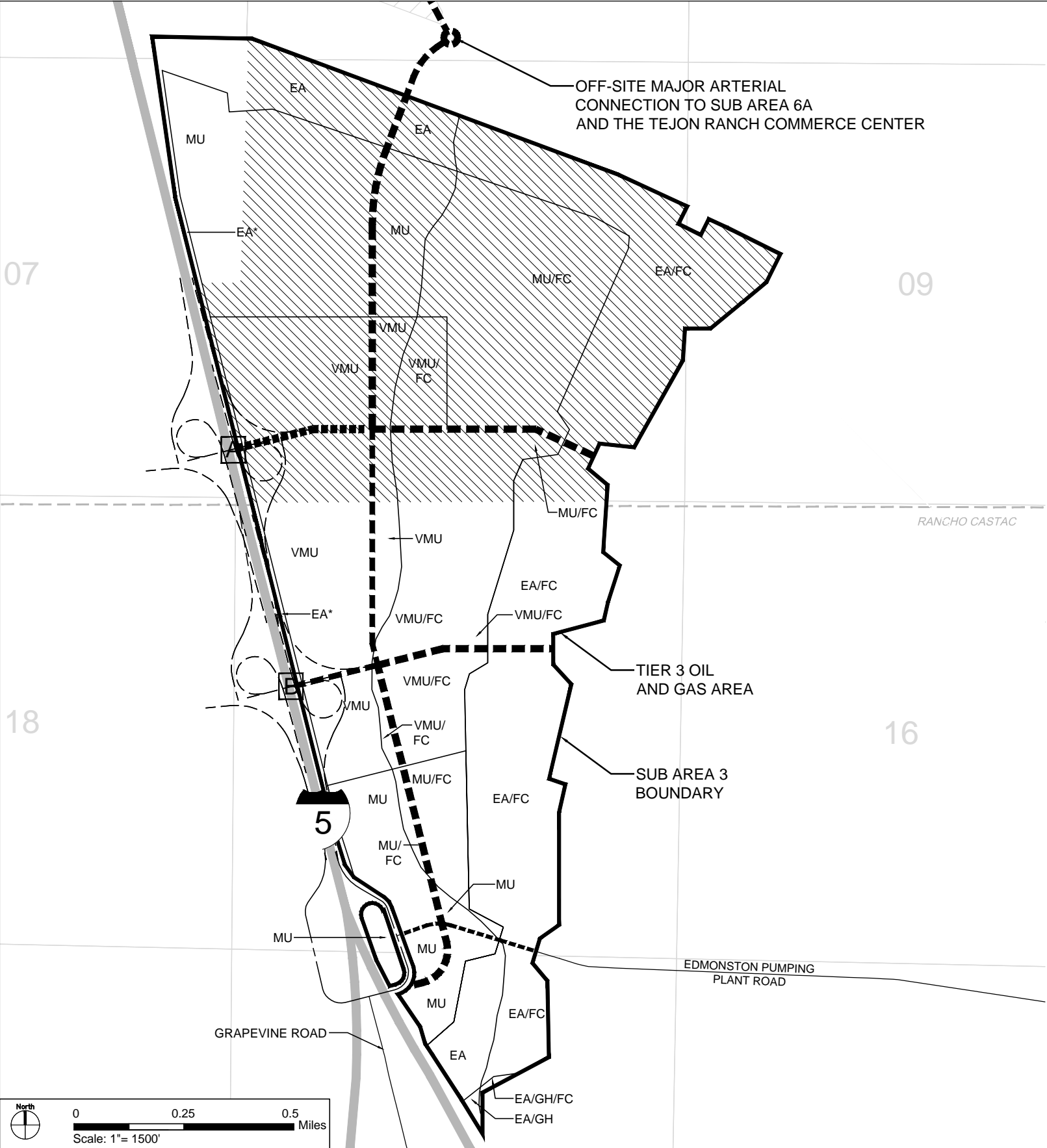


FIGURE 1-6  
Sub Area 2 Districts

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- NOTES:
- REFER TO SECTION 3, SPECIAL PLAN DEVELOPMENT STANDARDS.
- STREETS:
- EDMONSTON PUMPING PLANT ROAD IS AN EXISTING ROAD.
  - ALL ROADS WITHIN THE SPECIFIC PLAN WILL BE DEVELOPED IN ACCORDANCE WITH SPECIAL PLAN STANDARDS, WITH THE EXCEPTION OF LAVAL ROAD AND THE PORTION OF GRAPEVINE ROAD LOCATED BETWEEN THE NORTHBOUND AND SOUTHBOUND LANES OF I-5.
  - FINAL ROAD ALIGNMENT TO BE DETERMINED AT THE TENTATIVE TRACT MAP STAGE BUT WILL SUBSTANTIALLY CONFORM TO THOSE ILLUSTRATED ON THIS SHEET. FINAL ROAD ALIGNMENTS MAY SHIFT BY NO MORE THAN 300 FEET IN ANY DIRECTION.
- OIL AND GAS ACTIVITY ZONES:
- SUB AREA 3 IS TIER 3 OIL AND GAS AREA.
  - OIL AND GAS FACILITY PERMITTING IS SUBJECT TO THE PROVISIONS OF THE GRAPEVINE SPECIFIC PLAN, GRAPEVINE SPECIAL PLAN, AND CHAPTER 19.98, OIL AND GAS ACTIVITIES, OF THE KERN COUNTY ZONING ORDINANCE.
- \* DENOTES A 50' WIDE BUFFER FROM THE INTERSTATE 5 RIGHT-OF-WAY

**LEGEND**

VMU	Village Mixed Use
MU	Mixed Use
EA	Exclusive Agriculture
FC	Floodplain Combining District
GH	Geologic Hazard Combining District
	Williamson Act Status: Non-Renewal Filed 2014 <small>(Expiration will occur on December 31, 2023)</small> <small>NOTE: Until the Williamson Act contracts expire or are terminated, the existing terms of use remain in effect and the Exclusive Agriculture (A) zoning remains in place. Upon expiration or termination of the contracts, the Specific Plan's EA district will replace the existing A zoning designation. Refer to Figure 19.98.015, Oil and Gas Activities Boundary Area Map in Chapter 19.98 of the KCZO for the delineation of Tier 1 and Tier 2 Oil and Gas Areas within the interim A zoning district.</small>

**OVERLAY SYMBOL**

	Freeway
	Freeway Connection
	Major Arterial/Collector
	Minor Arterial/Collector
	Existing Off-Site Roads
	Existing Interim Interchange to be Relocated
	Relocated Interchange (Conceptual Location)
	Option A
	Option B
	Sub Area Boundary
	Township & Range & Section

FIGURE 1-7  
Sub Area 3 Districts

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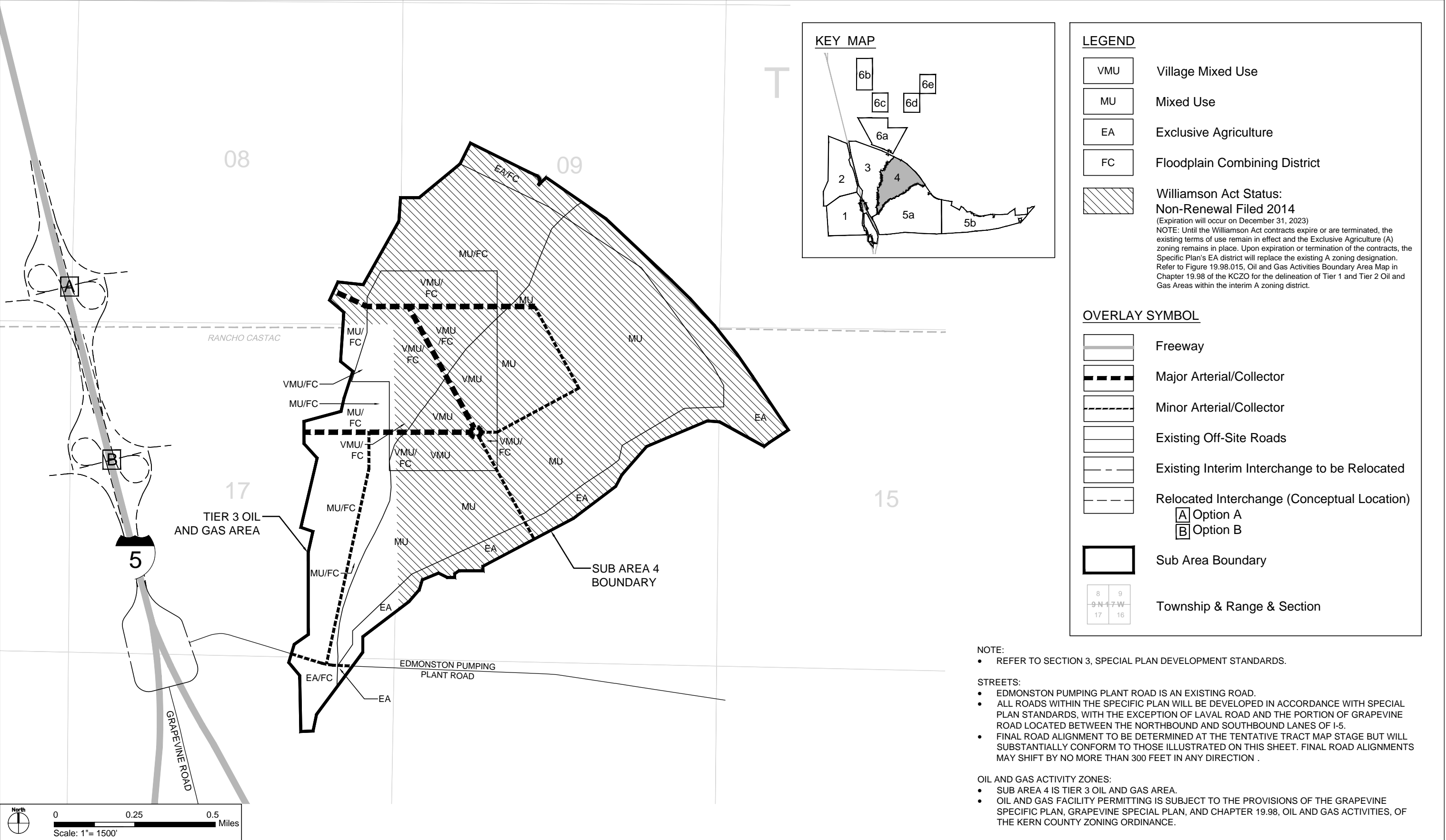
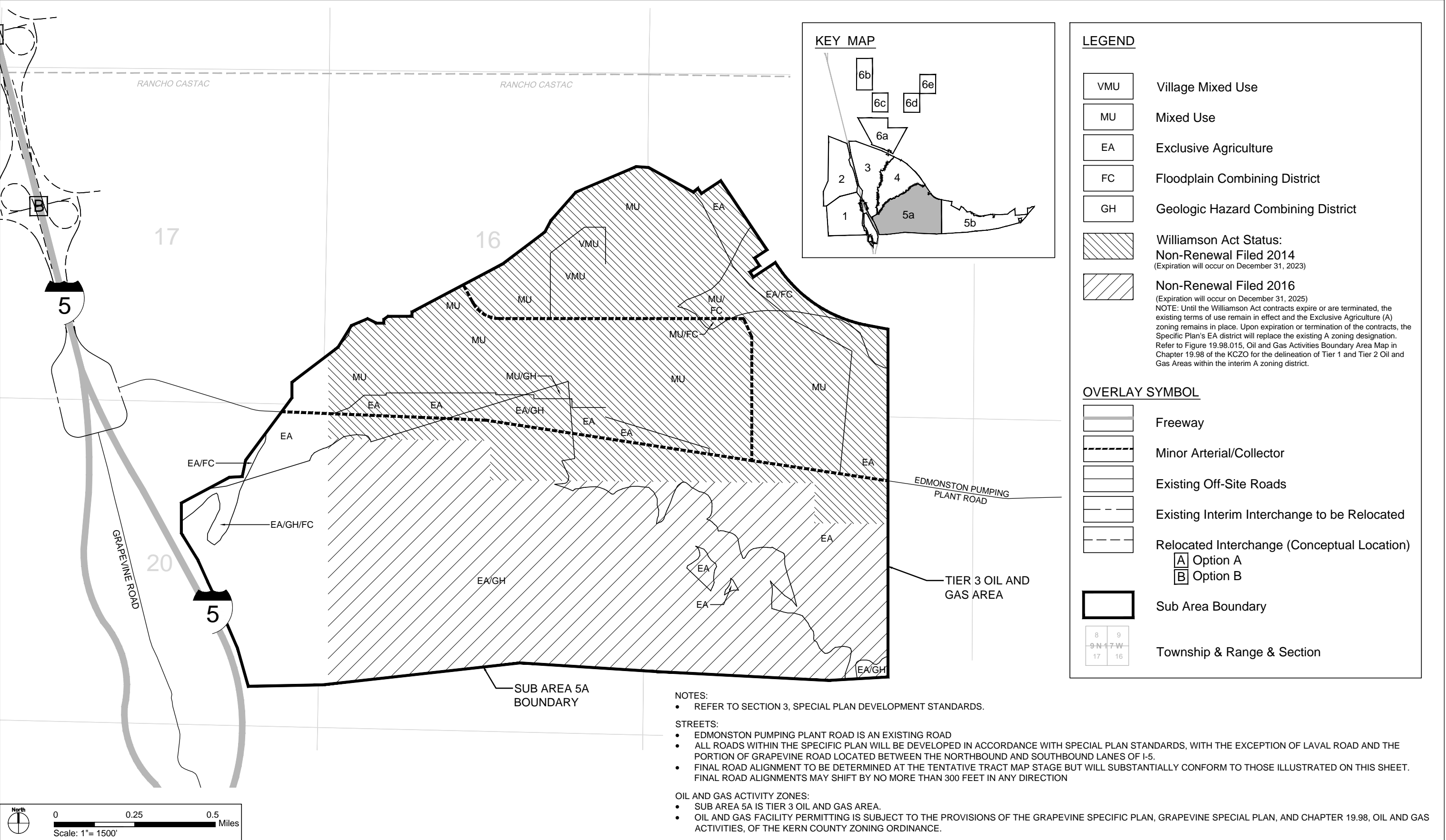


FIGURE 1-8  
Sub Area 4 Districts

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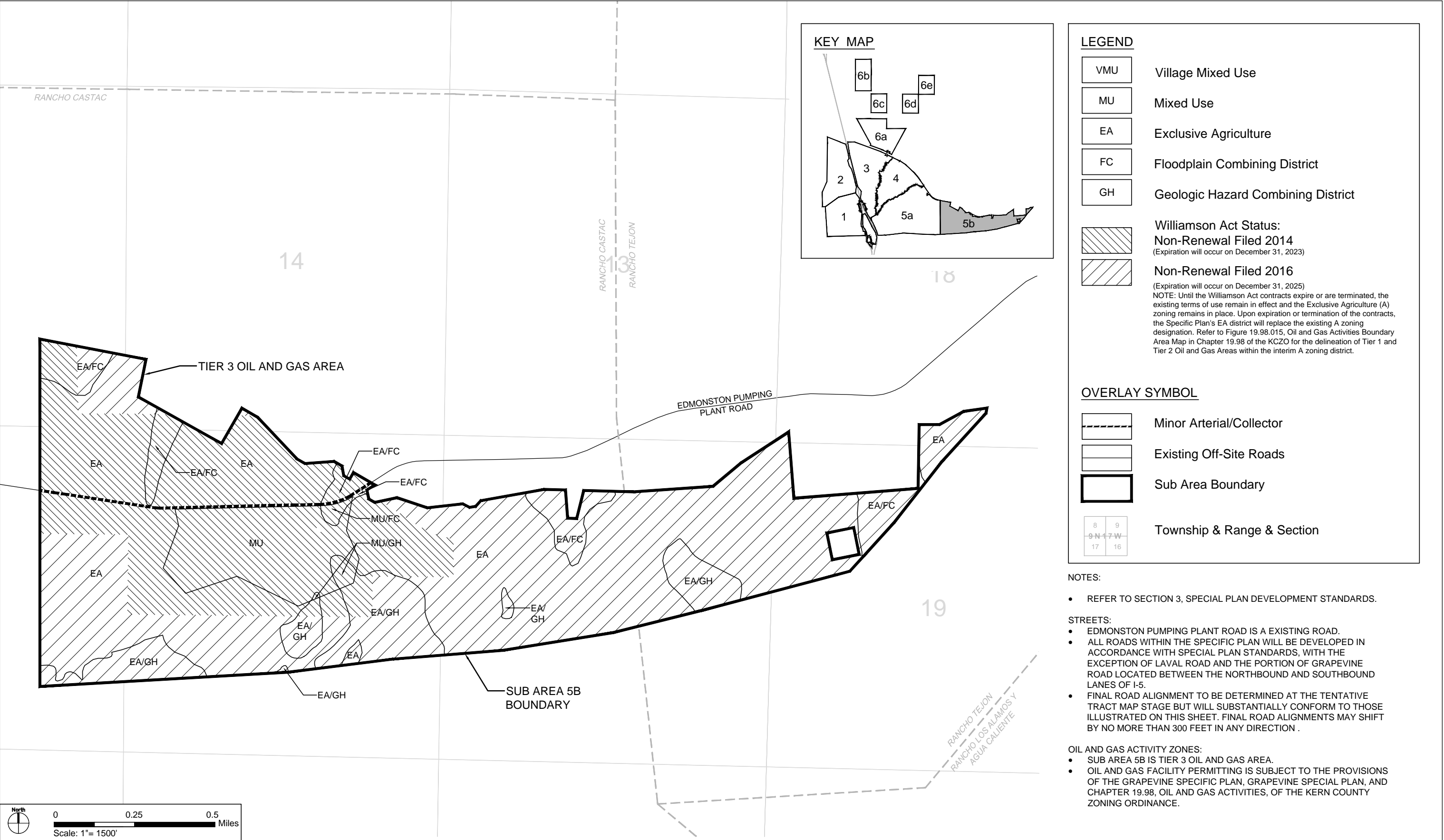


FIGURE 1-10  
Sub Area 5B Districts

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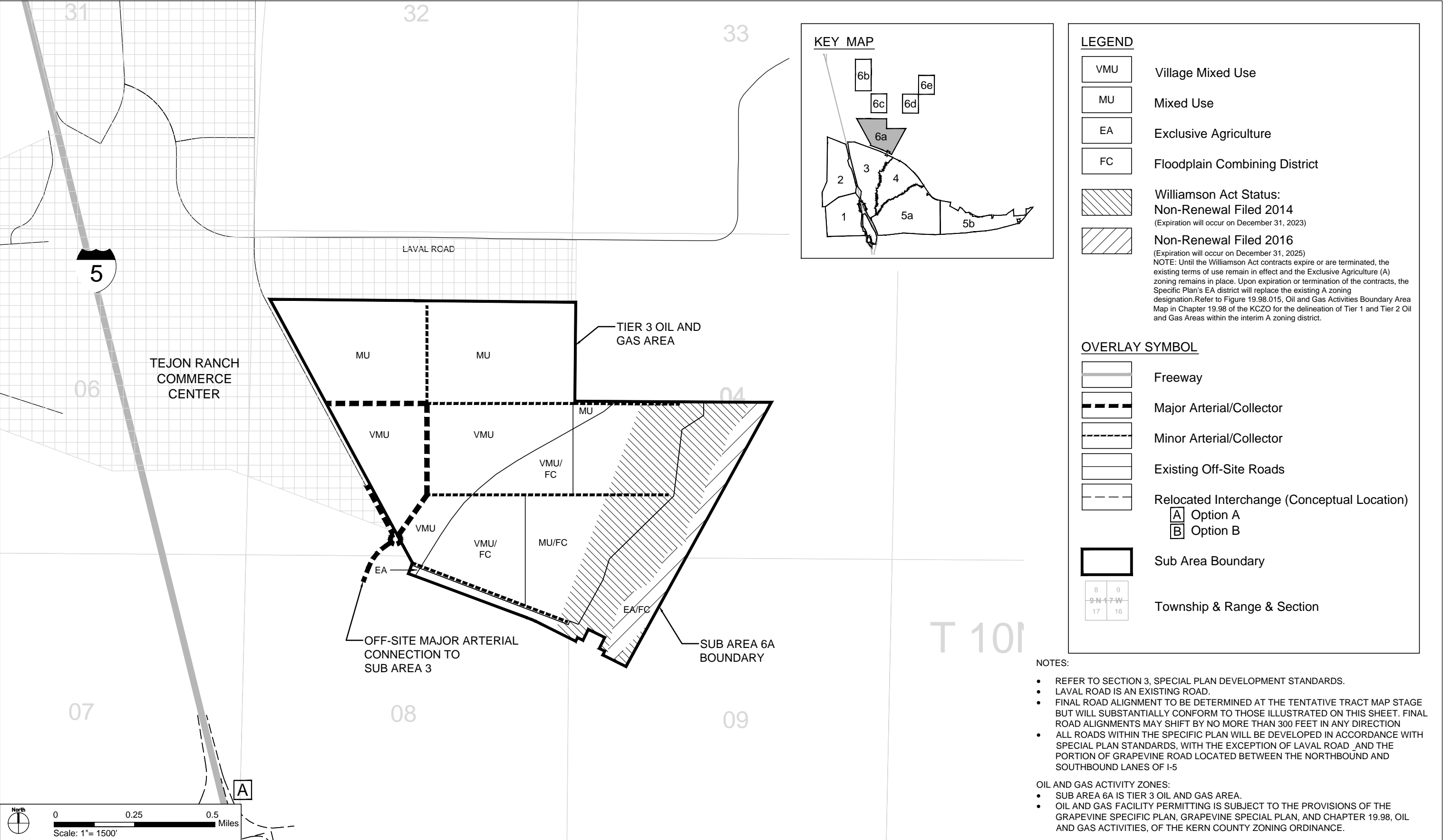


FIGURE 1-11  
Sub Area 6A Districts

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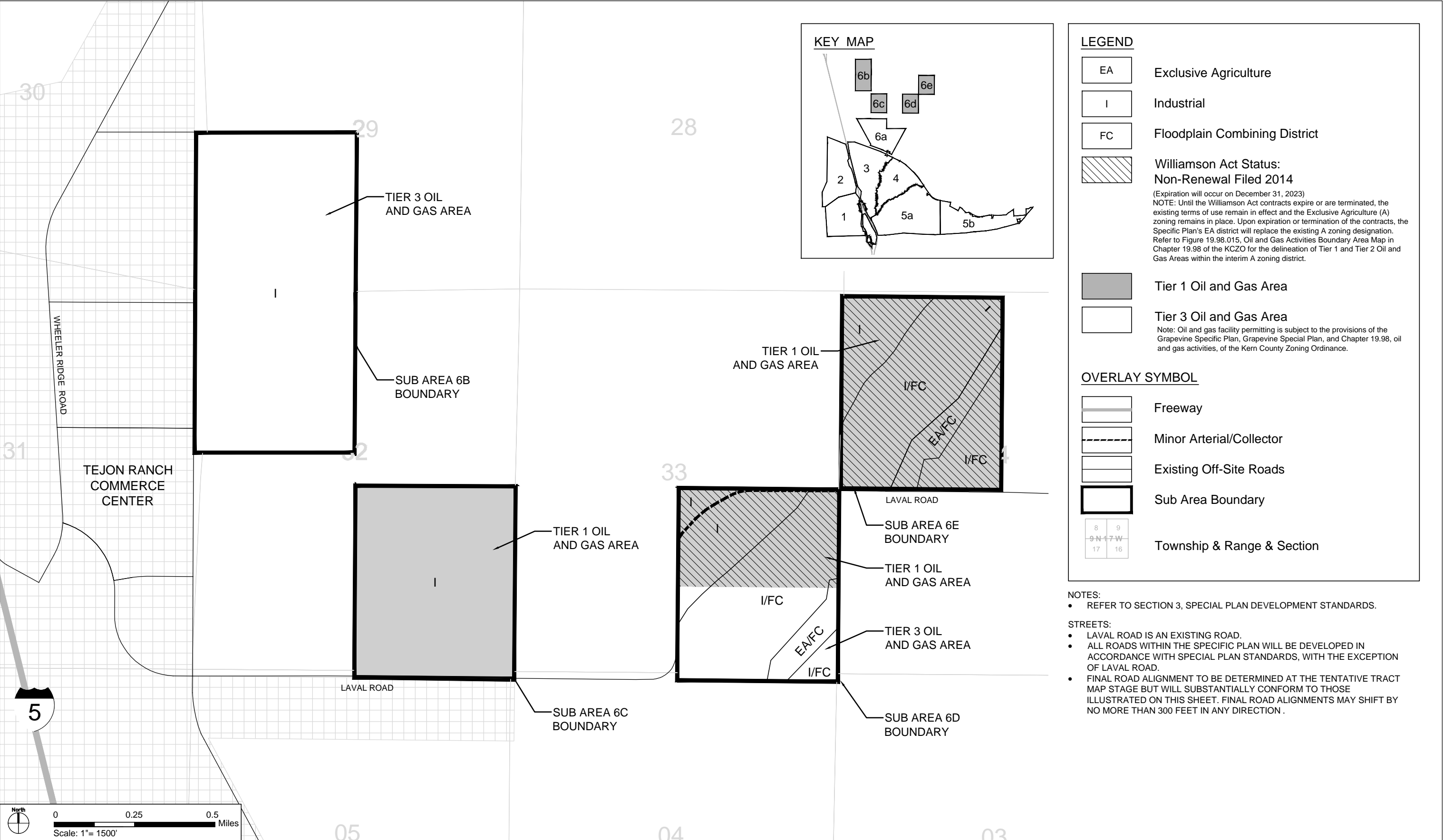


FIGURE 1-12  
Sub Areas 6B, C, D, & E Districts

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# Section 2

## DISTRICTS AND PERMITTED USES

### 2.1. Districts and Combining Districts

The Grapevine Special Planning (SP) District constitutes the formal zoning designation for the Grapevine Specific Plan. Within the SP District are four specialized districts and two combining districts, as defined below and shown in Figures 1-5 through 1-12:

- **Village Mixed Use (VMU).** This district is intended to create pedestrian-friendly village centers by providing for a variety of compatible land uses including service-oriented commercial, office, and higher-density residential dwellings (6 to 72 dwelling units/net acre). Complimentary land uses are compact and designed to provide a pedestrian-scale environment with convenient access to everyday needs within the village centers. This district integrates multi-modal elements and development densities that will support pedestrian, bicycle, and transit modes as alternatives to automobile travel. The village centers within the VMU districts will be located approximately 1/2-mile apart to create a community identity for each village.
- **Mixed Use (MU).** This district provides gradually decreased density from the VMU districts, creating neighborhoods and employment centers. Uses in this district are distinct from the VMU including a wide variety residential dwellings (1 dwelling unit per 5 net acres to 40 dwelling units/net acre), office, retail commercial, light industrial, warehouse, and other uses compatible with adjacent land uses. The MU district allows the flexibility to create suburban residential neighborhoods in close proximity to jobs, shopping, and civic uses at lower densities than found within the VMU district.
- **Industrial (I).** This district is limited to the northern project parcels located closest to the TRCC, and provides for a variety of industrial park, research and development, commercial, manufacturing, warehouse, energy generation, and other uses that are compatible with adjacent land uses.
- **Exclusive Agriculture (EA).** This district is generally consistent with the intent and purpose of the existing Exclusive Agriculture Zone Classification within Chapter 19.12 of the Kern County Zoning Ordinance. This district will provide for a wide variety of agricultural and incidental nonagricultural uses, and activities that are compatible with agricultural uses, such as permanent produce stands, farmers markets, and telecommunications facilities. Grazing, open space, and recreation such as hiking and biking trails are the predominant land uses in this district. Existing residences at the time of Specific Plan approval will be retained; however, no new residences are authorized, except those

## **Districts and Permitted Uses**

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accessory to a primary permitted use. Notices of non-renewal have been filed in 2014 and 2016 for the Williamson Act Contract lands within the Specific Plan. Until the Williamson Act contracts expire on December 31, 2023 and December 31, 2025, or are terminated, the existing Kern County Exclusive Agriculture (A) zoning remains in effect. Accordingly, the existing A zoning is determined to be a consistent implementing zone classification for the Special Plan districts.

- **Geologic Hazard (GH) Combining District.** The purpose of the Geologic Hazard (GH) Combining District is to protect the public's health and safety and minimize property damage by designating areas that are subject to or potentially subject to surface faulting, ground shaking, ground failure, landslides, mudslides, or other potential geologic hazards, including liquefaction, lateral spreading, and seismically induced densification and settlement by establishing restrictions on land use in such areas. These areas will be subject to the regulations identified in the Kern County Zoning Ordinance (KCZO) Chapter 19.68 (KCZO 2012).
- **Floodplain (FC) Combining District.** The purpose of the Floodplain (FC) Combining District is to protect the public health and safety and minimize property damage by designating areas that are potentially subject to flooding and by establishing reasonable restrictions on land use in such areas. The FC Combining District shall be applied to those areas lying within Zone A on the Flood Insurance Rate Maps (FIRM) or those areas potentially subject to flooding as designated by the Kern County Public Works Department pending reclassification of such areas into Floodplain Primary (FPP) or the Floodplain Secondary (FPS) delineated areas. The regulations established by the FC Combining District shall be in addition to the regulations of the base zoning classifications with which the FC Combining District is combined.

The special flood hazard area designated as Zone A is based on historical flood flows where no quantitative determination of the frequency of flooding has been made. Detailed engineering studies will be performed and/or approved by the Kern County Public Works Department prior to the reclassification of the FC Combining District into the FPP District and/or the FPS Combining District.

Flood-prone areas identified in the FC Combining District shall be subject to the requirements specified until further studies demonstrate either removal from the FC Combining District or the placement in other more specific mapped overlay designations (FPP or FPS) subject to the review and approval of a Conditional Letter of Map Revision (CLOMR) by the Federal Emergency Management Agency (FEMA) and the Floodplain Management Section, Kern County Public Works Department.

## **2.2. Permitted Uses**

Use types set forth in Table 2-1 are defined in the KCZO, Section 19.04, except for those that are defined in the glossary of the Special Plan (Section 6). The definitions in the glossary take precedence over definitions in the KCZO. For uses not included in Table 2-1, the Kern County Planning Director may make a Determination of Similar Use per KCZO Section 19.08.030.

## Districts and Permitted Uses

**Table 2-1  
Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i>				
	<i>P = Permitted Use</i>				
	<i>SR = Requires Sensitivity Review</i>				
	<i>SUP = Requires Special-Use Permit</i>				
<i>* = Sensitive Use</i>					
Use Types		District			
		VMU	MU	I	EA
Residential Uses (SFR-Detached, SFR/MFR-Attached)					
Apartment <sup>3*</sup>		P	P		
Agricultural home stays			P		P
Condominium <sup>3*</sup>		P	P		
Bed-and-breakfast inn <sup>3*</sup>		SR	SR		
Boarding or rooming house <sup>3*</sup>		SR	SR		
Community care facility <sup>3*</sup>		SR	SR		
Duplex <sup>3*</sup>		P	P		
Dwelling units located entirely above the ground floor of a commercial building <sup>3*</sup>		P	P		
Emergency shelter <sup>3*</sup>			P	P	
Fraternity or sorority house when located within 500 feet of associated educational facility <sup>3*</sup>		SUP	SUP		
Home occupations, including, but not limited to, cottage food operations, in accordance with California Homemade Food Act (Assembly Bill 1616)		P	P		P
Live/work		P	P		
Manager, caretaker, or proprietor quarters		P	P	P	P
Mobile home (as an accessory to permitted use), occupied by the owner or full-time on-site employee			P	P	P
Mobile home park			SUP <sup>4</sup>	SUP <sup>4</sup>	
Model home complex <sup>3*</sup>		P	P		
<b>Notes:</b>					
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.					
2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO.					
3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination.					
4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.					

## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i>			
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	<i>SR = Requires Sensitivity Review</i>			
	<i>SUP = Requires Special-Use Permit</i>			
	<i>* = Sensitive Use</i>			
Use Types	District			
	<i>VMU</i>	<i>MU</i>	<i>I</i>	<i>EA</i>
Quadruplex <sup>3*</sup>	P	P		
Residential accessory structures	P	P		P
Residential facility, serving six or fewer persons when located within 500 feet of supportive services <sup>3*</sup>	SUP	SUP		
Residential hotel <sup>3*</sup>	SR	SR		
Residential “lock-out” units	P	P		
Retirement or rest home <sup>3*</sup>	P	P		
Secondary residential unit <sup>3*</sup>	P	P		
Senior housing <sup>3*</sup>	P	P		
Single-family dwelling <sup>3*</sup>	P	P		
Supportive or transitional housing when located within 500 feet of supportive services <sup>3*</sup>	SR	SR		
Tiny house village	P	P		
Townhouse <sup>3*</sup>	P	P		
Triplex <sup>3*</sup>	P	P		
Retail Uses				
Eating and Drinking Establishments				
Bar, tavern, or cocktail lounge	P	P		
Ice cream parlor	P	P		
Mobile food vendor/food truck	P	P		
Outdoor dining	P	P		
Notes:				
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.				
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## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i>			
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	<i>SR = Requires Sensitivity Review</i>			
	<i>SUP = Requires Special-Use Permit</i>			
	<i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Restaurant, cafe, or coffee shop	P	P	P	
Restaurant, fast-food (including drive-through)	P	P		
Wine tasting – may include food service	P	P	P	SR
Food and Beverage Retail Sales				
Bakery or pastry, including accessory dining	P	P	P	
Brewery, micro – may include tasting room and food service	P	P	P	
Catering	P	P	P	
Convenience market	P	P		
Distillery, micro – may include tasting room and food service	P	P	P	
Drive-in food market or dairy	P	P		
Farmers’ market – outdoors	P	P		P
Farmers’ or multi-vendor market – indoors	P	P	P	
Food Hub – artisan products	P	P	P	
Food store/grocery store	P	P		
Liquor store	P	P		
Specialized, including meat, fruit, vegetables, health foods, or candy	P	P	P	
General Retail Sales				
Adult novelty and bookstore <sup>1</sup>	SR	SR		
Animal husbandry instruction and classes – without live animal exhibits	P	P	P	P
Notes:				
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.				
2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO.				
3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination.				
4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Animal husbandry instruction and classes – with live animal exhibits	SUP <sup>4</sup>	SUP <sup>4</sup>	P	P
Antiques	P	P		
Appliances, including service and repair, provided there is no outside storage	P	P	P	
Ambulance	P	P	P	
Arts and craft supplies	P	P		
Art gallery	P	P		
Artist studio	P	P	P	
ATM	P	P	P	
Auto body repair and painting, wholly conducted within an enclosed building		SR	P	
Auto or equipment auction, temporary, not to exceed 4 days		P	P	
Auto leasing		P	P	
Auto, new		P	P	
Auto parts and accessories		P	P	
Auto/vehicle recharge station – electric or hydrogen	P	P	P	
Auto rental		P	P	
Auto towing		P	P	
Auto service or repair		SR	P	
Auto/gas service station including smog inspection	P	P	P	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Auto tire, including service, pursuant to Subsection 19.32.130.D of the KCZO		P	P	
Auto, used		P	P	
Auto wash (includes recreational vehicles)	P	P	P	
Bank, savings and loan, credit union or other similar financial service	P	P		
Barber or beauty shop	P	P		
Bath house, including sauna, spa, Turkish, steam, or tanning	P	P		
Bicycle, including rental and service	P	P		
Bait and tackle	P	P		
Boat sales , including service and parts		SR	P	
Boat service and parts		SR	P	
Bookstore, general	P	P		
Carpet cleaning		P	P	
Carpet or mattress sales	P	P	P	
Check cashing	P	P		
Christmas tree or pumpkin/holiday, temporary	P	P	P	
Clothing and apparel	P	P		
Computer, including service and repair	P	P		
Department store	P	P		
Drugs and pharmaceuticals	P	P		
Electric appliances, including service and repair	P	P	P	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				



## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Electric equipment, including service and repair		P	P	
Equipment, small, rental	P	P	P	
Equipment, heavy, and truck or trailer rental		SR	P	
Feed, provided outside storage areas are screened from public view		SR	P	
Fireworks stand, temporary	P	P	P	
Flea market or swap meet, wholly conducted within an enclosed building		P	P	
Flea market or swap meet, with outdoor activity		SUP	P	
Floor covering, drapery, or upholstery	P	P		
Florist	P	P		
Fruit and vegetable stand, temporary	P	P		P
Fruit and vegetable stand, permanent	P	P		P
Furniture cleaning, refinishing, or upholstery	SUP	P	P	
Furniture Sales	P	P		
Gardening and landscaping supply, provided outside storage areas are screened from public view	P	P	P	
Gift and card	P	P		
Gun sales, including repair	P	P		
Gun sales, including repair and practice range when range is completely enclosed indoors		P	P	
Hardware, general, including lumber sales, provided areas devoted to outside storage of materials are screened from public view	P	P		
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1  
Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Health and nutrition	P	P		
Hobby supplies	P	P		
Home or office furnishings	P	P	P	
Home improvement	P	P	P	
Horse boarding and training		SUP <sup>4</sup>		P
Hotel or motel <sup>3</sup> *	P	P	SUP	
Interior decorator	P	P		
Janitorial service		P	P	
Jewelry and watches	P	P		
Laboratory, medical, dental, optical, or biological	P	P	P	
Laboratory, testing, classifying, or experimental, not involving the use of explosives or hazardous materials stored in containers larger than five gallons		P	P	
Lapidary	SUP	P	P	
Laundromat, self-service	P	P		
Laundry and dry cleaning, drop off and pick up only	P	P		
Lawnmower, including repair, when located entirely within a building		P	P	
Leather goods and luggage	P	P		
Locksmith or key and lock shop	P	P		
Medical marijuana dispensary	Subject to County Regulations			
Military surplus, provided there is no outside storage	P	P	P	
<b>Notes:</b>				
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.				
2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO.				
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## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Mini-warehouse, for storage of personal household goods, provided there is no outside storage; excludes cargo containers and other temporary storage structures		SUP <sup>4</sup>	P	
Mini-warehouse, for storage of personal household goods and vehicles, including outside storage		SUP <sup>4</sup>	P	
Mobile home, including rental and service		P	P	
Mortuary or funeral parlor		P	P	
Motorcycles	P	P	P	
Motorcycle, service and repair	SUP	SR	P	
Moving and shipping services		SR	P	
Musical instruments (including repair)	P	P	P	
Nail Salon	P	P		
Newspaper or magazine stand	P	P	P	
Nursery, plant, provided outside storage areas are screened from public view	P	P	P	
Office machines and equipment	P	P	P	
Packaging and mailing services	P	P		
Paint and wallpaper	P	P	P	
Pawn shop	SUP	SUP	P	
Pest control, administrative offices only	P	P	P	
Pest control, sales and service		SUP	P	
Pet day-care	SUP <sup>4</sup>	SUP <sup>4</sup>	P	
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## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Pet grooming	P	P	P	
Pet store	P	P		
Pet supply	P	P	P	
Photography studio	P	P		
Photographic supply or camera	P	P		
Picture framing	P	P	P	
Plumbing supply, provided there is no outside storage	P	P	P	
Pottery	P	P	P	
Printing, lithography, or blueprinting	P	P	P	
Prop Storage (TV/film)		P	P	
Recreational vehicles, including service		SUP	P	
Shoe repair	P	P		
Shoe Sales	P	P		
Shoe-shine stand	P	P	P	
Shooting range – indoors, when completely enclosed	SUP <sup>4</sup>	SUP <sup>4</sup>	P	
Shooting range – outdoors, provided it is not less than 1,000 feet from the nearest habitable building		SUP <sup>4</sup>	SUP <sup>4</sup>	P
Smog inspection station		P	P	
Sporting goods and athletic equipment	P	P		
Stationery and office supply	P	P		
Studio, radio, television, recording, or movie	P	P	P	
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Use Types	District			
	VMU	MU	I	EA
Tailor or dressmaker	P	P		
Tanning salons	P	P		
Tattoo parlor and body piercing	P	P		
Taxidermist		P	P	
Telegraph	P	P	P	
Ticket agency	P	P		
Tire sales and service	P	P	P	
Toy Store	P	P		
Travel agency	P	P		
Truck fueling station (includes truck wash), with repair facilities <sup>1</sup>		SUP	P	
Truck, including rental, new or used, sales and leasing		P	P	
Truck tire and battery facilities		P	P	
Urgent care facility	P	P		
Used clothing and household goods, provided there is no outside storage	P	P	P	
Variety	P	P		
Vending Machines	P	P	P	
Veterinary, household pets only, provided there are no outside kennels	P	P	P	
Veterinary – large animal including outdoor facilities		SUP	P	P
Video and audio tape sales and rentals	P	P		
Wedding chapel	P	P		
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Use Types		District			
		<i>VMU</i>	<i>MU</i>	<i>I</i>	<i>EA</i>
Office and R&D Uses					
Business and professional		P	P	P	
Call center			SUP	P	
Chiropractic or massage therapy		P	P	P	
Clinic, medical or physical therapy, out-patient only		P	P	P	
Fabrication – custom or specialized, under 6,000 SF		SUP	P	P	
Fabrication – custom or specialized, over 6,000 SF			SUP	P	
Information Centers		P	P		
Manufacturing or machining – custom or specialized, under 6,000 SF		SUP	P	P	
Manufacturing or machining – custom or specialized over, 6,000 SF			SUP	P	
Medical office		P	P		
Office park		SUP	P	SUP	
Real estate, temporary on-site for tract sales, including commercial coaches		P	P	P	
Real estate, permanent		P	P	P	
Research and development facilities – with or without direct sales, under 6,000 SF		P	P	P	
Research and development facilities – with or without direct sales, over 6,000 SF		SUP	SUP	P	
Studio, radio, television, recording, or movie		P	P	P	
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Use Types	District			
	VMU	MU	I	EA
Industrial/Warehouse Uses				
Industrial Manufacturing or Assembly				
Acetylene or other gas			P	
Aircraft, assembly, when conducted wholly within a building		SUP	P	
Alcohol distillery			SUP	
Arts and craft products or supplies		P	P	
Auto/truck, assembly, when conducted wholly within a building		SUP	P	
Batteries, excluding battery recycling or disposal, when conducted wholly within a building		SUP	SUP	
Brewery <sup>1</sup>			P	
Building material		SUP	P	
Cabinet shop		SUP	P	
Cannery <sup>1</sup>			SUP	
Cargo containers, when accessory to a permitted use		SUP	P	
Carpet and mattress		SUP	P	
Ceramics		SUP	P	
Chemical blending or manufacture, when conducted wholly within a building, 10,000 SF or less		SUP	SUP	
Chemical blending or manufacture, when conducted wholly within a building, greater than 10,000 SF			SUP	
Clothing, garments, or shoes		SUP	P	
Concrete blocks			P	
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Use Types	District			
	VMU	MU	I	EA
Cosmetics, perfumes, or toiletries		SUP	P	
Cotton compress <sup>1</sup>			P	
Creamery <sup>1</sup>			P	
Drugs and pharmaceuticals		SUP	P	
Electronic equipment		SUP	P	
Ethanol <sup>1</sup> 10,000 SF or less		SUP	SUP	
Ethanol <sup>1</sup> greater than 10,000 SF			SUP	
Fiberglass or silicone products <sup>1</sup> when conducted wholly within a building, 10,000 SF or less		SUP	SUP	
Fiberglass or silicone products when conducted wholly within a building, greater than 10,000 SF <sup>1</sup>		SUP	SUP	
Flour mill <sup>1</sup>			P	
Food or beverage products		SUP	P	
Foundry or metal casting		SUP	P	
Furniture		SUP	P	
Ice		SUP	P	
Manufacture, compounding, assembling, or treatment of articles or merchandise from the following previously prepared materials: bone, cellophane, canvas, cloth, feathers, felt, fiber, fur, glass, hair, horn, leather, paper, plastics, plastic compounds, precious or semiprecious metals or stones, shell, cured or finished wood, yarns, and paint provided that none of the above employ a boiling process.		SUP	P	
Musical instruments		P	P	
Neon signs		SUP	P	
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Use Types	District			
	VMU	MU	I	EA
Oil extraction and processing, non-mineral (from sources such as but not limited to nuts and seeds)	P	P	P	P
Oil refining <sup>2</sup>			SUP	
Paint mixing, not employing a boiling process <sup>1</sup>		SUP	P	
Paper or pulp <sup>1</sup>		SUP	SUP	
Pharmaceuticals		SUP	P	
Pipe, pipe product, and pipe filter, assembly only		SUP	P	
Plastic products, involving pre-manufactured plastic pellets or compounds and which do not employ a boiling process		SUP	P	
Plastics, assembly and extrusion <sup>1</sup>		SUP	P	
Prefabricated buildings and structures		SUP	P	
Shoes		SUP	P	
Soap, cold mix only		SUP	P	
Soil amendments, not involving liquid chemical blending or organic materials		SUP	P	
Steel fabrication, excluding smelting		SUP	P	
Textiles		SUP	P	
Toy manufacturing and assembly		SUP	P	
Trusses		SUP	P	
Wind-driven electrical generators, manufacture or assembly		SUP	P	
Winery		P	P	P
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Use Types		District			
		VMU	MU	I	EA
Industrial Storage					
Automobile			SUP	P	
Bottled gas				P	
Cargo containers				P	
Chemical storage when accessory to a permitted use			P	P	
Chemical storage as main use			SUP	SUP	
Cold storage			SUP	P	
Contractor's storage yard			SUP <sup>4</sup>	P	
Draying or freight			SUP	P	
Equipment and building materials			SUP <sup>4</sup>	P	
Feed and wood yards			SUP	P	
Liquefied petroleum gas, bulk storage or distribution in excess of 2,000 gallons capacity, when located at least ½ mile from property designated for residential use and at least ½ mile from existing residential development with a density greater than one dwelling unit per acre and at least ½ mile from any motel or hotel				SUP <sup>4</sup>	
Liquid fuel storage tanks, above ground, for dispensing purposes <sup>1</sup>			SUP <sup>4</sup>	P	
Lumber or log storage				P	
Mineral and ore storage and loading, with product storage and loading facilities wholly enclosed			SUP	P	
Mineral and ore storage, unenclosed				P	
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Use Types		District			
		VMU	MU	I	EA
Moving and storage, yards or warehouse			SUP	P	
Petroleum				P	
Recreational vehicle			SUP	P	
Recyclable materials, collection and storage, provided there is no more than 3,000 square feet of outside storage and all compression and bailing operations are conducted wholly within an enclosed structure			SUP <sup>4</sup>	P	
Recyclable materials, collection and storage				P	
Salvage or junk yard				P	
Tank farm			SUP <sup>4</sup>	P	
Tire storage as a main use				P	
Truck and heavy equipment				P	
Vehicle wrecking yard				P	
Warehouse			SUP <sup>4</sup>	P	
Other Industrial Uses					
Asphaltic concrete batch plant <sup>1</sup>				SUP <sup>4</sup>	
Assaying			SUP	P	
Bakery, small, 10,000 SF or less			SUP	P	
Bakery, large, greater than 10,000 SF				SUP	
Beverage Bottling			SUP	P	
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Use Types	District			
	VMU	MU	I	EA
Billboard sign fabrication and storage		SUP	P	
Boat building and major repair		SUP	P	
Concrete batch plant			P	
Construction or demolition waste material collection, recovery, or recycling, excluding recovery or recycling operations involving incineration		SUP <sup>4</sup>	SUP <sup>4</sup>	
Cotton gin <sup>1</sup>			SUP	
Electroplating, when conducted wholly within an enclosed building			P	
Fertilizer, bulk storage and distribution <sup>1</sup>			P	
Fruit, vegetable, and plant products processing, including packing, canning, preserving, and shipping			SUP	
Glucose processing <sup>1</sup>			P	
Grain elevator or storage			P	
Light machining		SUP	P	
Lumber drying kiln <sup>1</sup>			P	
Machine shop		SUP	P	
Metal electroplating		SUP	SUP	
Metal casting, extrusion or fabrication			P	
Newspaper, magazine, or book printing		P	P	
Oil field service yard		SUP	P	
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Use Types		District			
		<i>VMU</i>	<i>MU</i>	<i>I</i>	<i>EA</i>
Pallets, including repair			SUP	P	
Photographic processing plant and/or wholesale supply			SUP	P	
Powder coating, spray painting, and sandblasting, all enclosed			SUP	P	
Sandblasting, unenclosed				SUP	
Saw or planing mill <sup>1</sup>				P	
Sheet metal shop and supply			SUP	P	
Sign fabrication and storage			SUP	P	
Tanning, curing, or storing animal hides <sup>1</sup>				SUP	
Timber processing				SUP	
Tire recycling, excluding recycling operations involving incineration				SUP	
Tire retreading				P	
Welding or blacksmith			SUP	P	
Well drilling service			SUP	P	
Wholesale distribution			SUP	P	
Agriculture/Natural Resources					
Growing and Harvesting Crops					
Agricultural produce stand		P	P	P	P
Berry crops		P	P	P	P
Bush crops		P	P	P	P
Christmas trees		P	P	P	P
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Use Types	District			
	<i>VMU</i>	<i>MU</i>	<i>I</i>	<i>EA</i>
Community farm	P	P	P	P
Field crops, dryland	P	P	P	P
Field crops, irrigated	P	P	P	P
Flowers and horticultural specialties	P	P	P	
Flowers and horticultural specialties, wholesale only	SUP <sup>4</sup>	P	P	P
Greenhouse, retail only	SUP <sup>4</sup>	P	P	
Greenhouse, wholesale only	SUP <sup>4</sup>	P	P	P
Herbs	P	P	P	P
Honey extraction	SUP <sup>4</sup>	P	P	P
Hydroponically grown plants	SUP <sup>4</sup>	P	P	P
Incubator farm	P	P	P	P
Nursery, plant, wholesale only	SUP <sup>4</sup>	P	P	P
Orchard, nut and fruit trees	P	P	P	P
Vegetables	P	P	P	P
Vine crops	P	P	P	P
Winery	P	P	P	P
<b>Breeding and Raising Animals</b>				
Alpacas (1 animal per ½ acre)		P		P
Beekeeping – not more than 1 hive	P	P	P	P
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Use Types		District			
		VMU	MU	I	EA
Beekeeping – 3 hives or less			P	P	P
Beekeeping – more than 3 hives			SUP	P	P
Beef cattle or livestock grazing (1 animal per ½ acre)			P	P	P
Birds, including show or racing				P	P
Pigeons and other small fowl			P	P	P
Dairy stock grazing (maximum 1 animal per ½ acre in MU District)			P	P	P
Fish and frogs				P	P
Hogs, excluding a hog farm or ranch (1 animal per ½ acre)			P	P	P
Horses, donkeys, llamas, or mules (1 animal per ½ acre)			P	P	P
Poultry (3 hens or less), including chickens or other similar fowl, excluding roosters and ostrich		P	P	P	P
Poultry, including chickens, ostriches, turkeys, or other fowl (more than 3 hens), excluding commercial poultry farms or ranches in which poultry are kept in confined facilities			SUP	P	P
Rabbits or furbearing animals (3 adults or less)			P	P	P
Rabbits or furbearing animals (More than 3 adults)			SUP	P	P
Sheep or goats (3 animals per ½ acre)			P	P	P
Vermiculture (Commercial)			SUP	P	P
Resource Extraction and Energy Development Uses					
Cogeneration facility or steam generators, excluding coal fired <sup>1</sup>			SUP <sup>4</sup>	P	
<b>Notes:</b>					
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.					
2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO.					
3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination.					
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## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i>				
	<i>P = Permitted Use</i>				
	<i>SR = Requires Sensitivity Review</i>				
	<i>SUP = Requires Special-Use Permit</i>				
	<i>* = Sensitive Use</i>				
Use Types		District			
		<i>VMU</i>	<i>MU</i>	<i>I</i>	<i>EA</i>
Electrical power generating plant, excluding nuclear or coal <sup>1</sup>			SUP <sup>4</sup>	P	
Electrical power distribution facilities, including substation		P	P	P	P
Oil or gas exploration and production pursuant to Chapter 19.98 of Kern County Zoning Ordinance <sup>2</sup>		P	P	P	P
Ore reduction <sup>1</sup>				SUP	
Potash manufacture <sup>1</sup>				SUP	
Rock, gravel, sand, concrete, aggregate, or soils crushing, processing, or distribution <sup>1</sup>				SUP <sup>4</sup>	
Solar energy electrical generators which are accessory to a permitted or conditionally permitted use and where the power generated does not exceed the total on-site power demand		P	P	P	P
Solar energy electrical generators when not accessory to a permitted or conditionally permitted use			SUP <sup>4</sup>	P	
Solar energy electrical generators as a primary use where the power generated does not significantly exceed the net amount of electricity consumed on site		SUP	P	P	P
Utilities and Public Facilities					
Utilities and Communications					
Community sewage or septic disposal system <sup>1</sup>		P	P	P	P
Drainage sump		P	P	P	P
Flood control facilities		P	P	P	P
Greenwaste home collection, recovery, and composting – 2 acre or less			SUP <sup>4</sup>	P	P
Notes:					
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.					
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## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

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Use Types	District			
	VMU	MU	I	EA
Greenwaste collection, recovery, and composting – over 2 acre			P	
Managed wetlands	P	P	P	P
Nonhazardous oil production water disposal facility <sup>1</sup>		SUP	SUP	
Nonhazardous oilfield waste treatment or recycling <sup>1</sup>		SUP	SUP	
Nonhazardous oily or liquid waste treatment or recycling <sup>1</sup>		SUP	SUP	
Radio, television, microwave, or commercial communications transmitter, receiver, or translator – building mounted only	SUP	SUP	P	P
Radio, television, microwave, or commercial communications transmitter, receiver, or translator – free standing	SUP	SUP	SUP	
Sewage treatment plant – fully screened	P	P	P	P
Septage disposal site – fully screened <sup>1</sup>		SUP	P	
Septage storage and transfer site <sup>1</sup>			P	
Soil reclamation or remediation for soils contaminated with nonhazardous materials			SUP	
Telecommunication facilities	SUP	SUP	P	
Transfer station <sup>1</sup>			SUP <sup>4</sup>	
Transmission lines and supporting towers, poles, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company or other company under the jurisdiction of the California Public Utilities Commission	P	P	P	P
Utility substation	P	P	P	P
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i>			
	<i>P = Permitted Use</i>			
	<i>SR = Requires Sensitivity Review</i>			
	<i>SUP = Requires Special-Use Permit</i>			
	<i>* = Sensitive Use</i>			
Use Types	District			
	<i>VMU</i>	<i>MU</i>	<i>I</i>	<i>EA</i>
Water system, small or large	P	P	P	P
Water storage or groundwater recharge facilities	P	P	P	P
Water and waste water treatment facilities – fully screened	P	P	P	P
Waste-to-energy facility, using conversion technology excluding incineration including anaerobic digestors and similar technologies <sup>1</sup>			SUP <sup>4</sup>	
Microwave relay station	P	P	P	P
Transportation Facilities				
Airport, private <sup>1</sup>		SUP	P	
Airport, public use <sup>1</sup>		P	P	
Auto parking garage or lot, when accessory to a primary use and located within five hundred (500) feet of the business or businesses it is intended to serve	P	P	P	
Auto parking garage or lot, as primary use	SUP <sup>4</sup>	SUP <sup>4</sup>	P	
Bus depot, including service and storage	SUP <sup>4</sup>	SUP <sup>4</sup>	P	
Heliport, public	P	P	P	P
Heliport <sup>1</sup> , private	SUP <sup>4</sup>	SUP <sup>4</sup>	P	P
Railroad freight classification or switching yard <sup>1</sup>			P	
Railroad station	P	P	P	
Taxi, fleet, commercial coach depot, including service and storage		SUP <sup>4</sup>	P	
Transit facilities, excluding storage or maintenance	P	P	P	P
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## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

LEGEND	Empty Cell = Not Permitted				
	P = Permitted Use				
	SR = Requires Sensitivity Review				
	SUP = Requires Special-Use Permit				
* = Sensitive Use					
Use Types		District			
		VMU	MU	I	EA
Institutional/Recreational Uses					
Schools					
Preschool <sup>3*</sup>		P	P		
Elementary school <sup>3*</sup>		P	P		
Junior high/middle school school <sup>3*</sup>		P	P		
Senior high school <sup>3*</sup>		P	P		
College or university		P	P	P	
Research Institute		P	P	P	
Agricultural extension or field office		P	P	P	P
Animal training		P	P	P	P
Art, craft, music or other fine art school		P	P	P	
Business or trade school, provided that all instruction is conducted within a building and that there is no outside storage of materials or supplies associated with the school		P	P	P	
Dance school		P	P	P	
Driving school		P	P	P	
Fitness or exercise training		P	P	P	
Martial arts school		P	P	P	
Police/security training facility			SUP <sup>4</sup>	P	
Sport or athletic training facility			SUP	P	
Notes:					
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## Districts and Permitted Uses

**Table 2-1  
Permitted Uses**

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Use Types	District			
	VMU	MU	I	EA
Swim school	P	P	P	
<b>Institutional - General</b>				
Auditorium, public	P	P		
Cemetery, mausoleum, columbarium, or mortuary		P	P	
Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary <sup>1</sup>		SUP	SUP	
Charitable or public service organization	P	P	P	P
Church	P	P	P	
Club or lodge	P	P		
Community/neighborhood garden	P	P	P	
Community or regional correctional and similar involuntary detention facilities <sup>1</sup>			SUP	
Community or senior citizens center <sup>3*</sup>	P	P		
Convalescent hospital <sup>3*</sup>	P	P		
Day-care, adult <sup>3*</sup>	P	P		
Day-care center, with or without extended overnight services <sup>3*</sup>	P	P		
Day-care home, large family <sup>3*</sup>	SR	P		
Day-care home, small family <sup>3*</sup>	P	P		
Fire or police station	P	P	P	
Government office or building	P	P	P	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

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Use Types	District			
	VMU	MU	I	EA
Hospital <sup>3*</sup>	P	P	SUP	
Kennel, fully enclosed	SUP	SUP	P	
Kennel, including outdoor kennels, provided they are screened from public view		SUP	P	
Labor union hall		P		
Library <sup>3*</sup>	P	P		
Museum, with or without outdoor exhibits <sup>3*</sup>	P	P		SUP <sup>4</sup>
Post office	P	P	P	
Public agency	P	P	P	
Public utility buildings and facilities	P	P	P	P
Rehabilitation facilities		P	P	
Skilled nursing facility	SUP	SUP		
Wildlife or nature preserve	P	P		P
Zoological (Zoo) or Botanical Gardens <sup>3*</sup>	SUP <sup>4</sup>	SUP <sup>4</sup>		P
Recreational				
Amphitheater	SUP <sup>4</sup>	SUP <sup>4</sup>		
Batting cage	P	P	SUP	
Bingo parlor	P	P		
Bowling alley	P	P	SUP	
Card room	SUP	SUP	SUP	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				



## Districts and Permitted Uses

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**Permitted Uses**

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Use Types	District			
	VMU	MU	I	EA
Circus or carnival, temporary, not to exceed four (4) days	SR	SR	SUP	
Community recreational facilities	P	P	SUP	
Country club	P	P		
Dance hall, ballroom, or discotheque	P	P	SUP	
Equestrian establishment		SUP <sup>4</sup>	SUP	P
Fitness studio	P	P	SUP	
Golf course	P	P	SUP	
Golf driving range	P	P	SUP	
Health club	P	P	SUP	
Health spa	P	P		
Hunting or fishing club, not involving structures				P
Miniature golf course	P	P	SUP	
Movie theater, walk-in	P	P		
Movie theater, drive-in		SUP <sup>4</sup>	P	
Night club/live dancing/entertainment	P	SUP		
Park or playground*	P	P		P
Plaza, paseo, pass-thru	P	P	P	
Pool or billiard parlor	P	P		
Racetrack or test track, automobile, motorcycle, or horse <sup>1</sup>			P	
Skateboard arenas, enclosed	SUP <sup>4</sup>	P	P	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

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Use Types	District			
	VMU	MU	I	EA
Skateboard arenas, unenclosed <sup>3*</sup>	SUP <sup>4</sup>	P		
Sport arena, indoor <sup>3*</sup>	SUP <sup>4</sup>	SUP <sup>4</sup>		
Sport arena, outdoor <sup>3*</sup>	SUP <sup>4</sup>	SUP <sup>4</sup>		
Swimming pool, public <sup>3*</sup>	P	P		
Swim club <sup>3*</sup>	P	P		
Tennis club <sup>3*</sup>	P	P		
Theater or playhouse	P	P		
Trade fairs and exhibitions (including festivals), temporary (14-day maximum), excluding flea markets and swap meets	SR	SR		
Video game arcade	P	P	P	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## 2.3. Prohibited Uses

### 2.3.1. Village Mixed-Use (VMU), Mixed-Use (MU), Industrial (I), and Exclusive Agriculture (EA) Districts

All other uses not listed in Table 2-1 are prohibited, except that the Kern County Planning Director may make a Determination of Similar Use per KCZO Section 19.08.030.

**2.3.2. Geologic Hazards (GH) Combining District**

Prohibited uses in a GH Combining District are those uses prohibited by the base district with which the GH Combining District is combined.

**2.3.3. Floodplain (FC) Combining District**

All other uses not permitted in the underlying district or accessory thereto are prohibited in an FC Combining District, except that the Kern County Planning Director may make a Determination of Similar Use per KCZO Section 19.08.030, including:

- a. All uses prohibited by the base district with which the FC Combining District is combined.
- b. All uses that will likely increase the flood hazard or affect the water-carrying capacity of the floodplain beyond the limits resulting from encroachment as specified in Section 3, Development Standards.
- c. Dumping, stockpiling, or storage of floatable substances or other materials which, in the opinion of the Kern County Public Works Department, will add to the debris loads of the stream or watercourse, unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with Section 3, Development Standards.
- d. Storage of junk or salvage operations.
- e. Oil storage tanks or processing equipment, unless flood proofed or sufficiently elevated above the Base Flood Elevation, as determined by the Kern County Public Works Department.
- f. Individual sewage disposal systems (e.g., septic tank systems), unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters into the systems and discharges from the systems into the floodwaters.
- g. Sources of water supply (e.g., wells, springs) unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with the requirements of the Kern County Health Department to minimize infiltration of floodwaters.
- h. Any use that endangers the temporary safeguards erected for flood protection.

## **Districts and Permitted Uses**

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# Section 3

## DEVELOPMENT STANDARDS

### 3.1. Development Standards

- a. **Purpose.** Where the Special Plan provisions are silent on a development regulation, enforcement procedure, or where reference is made to a specific ordinance section, the applicable section(s) of the KCZO, Kern County Land Division Ordinance, Kern County Development Standards, and/or other applicable County ordinances prevail. Where the regulations and guidelines of the Specific Plan and Special Plan do not agree with other County ordinances, the Specific Plan and/or Special Plan provisions prevail.

The development standards presented in Table 3-1 are specific to the districts in the Grapevine Special Plan (Village Mixed-Use [VMU], Mixed-Use [MU], Industrial [I], and Exclusive Agriculture [EA]).

**Table 3-1**  
**Lot and Building Standards**

Land Use	Min. Lot Size (sq. ft.)	Min. Setbacks (ft.) <sup>1</sup>			Max. Building Height (ft.)	Min. Distance Between Structures (ft.)
		Front	Side <sup>2</sup>	Rear <sup>2,3</sup>		
VMU						
SFR—Detached <sup>4,5</sup>	1,200 <sup>6</sup>	0	0	0	48	0
SFR/MFR—Attached <sup>4,5</sup>	1,200	0	0	0	108	0
Commercial/Retail	7,500	5	0	0	135	10
Office/R&D	N/A	5	0	0	135	10
Industrial/Warehouse	N/A	15	0	0	108	10
Agriculture/Natural Resources	N/A	0	0	0	108	10
Utilities and Public Facilities	N/A	0	0	0	81	10
Institutional/Recreational	N/A	5	0	0	108	10

## Development Standards

**Table 3-1**  
**Lot and Building Standards**

Land Use	Min. Lot Size (sq. ft.)	Min. Setbacks (ft.) <sup>1</sup>			Max. Building Height (ft.)	Min. Distance Between Structures (ft.)
		Front	Side <sup>2</sup>	Rear <sup>2,3</sup>		
MU						
SFR—Detached <sup>4,5</sup>	1,500 <sup>6</sup>	0	0	0	36	0
SFR/MFR—Attached <sup>4,5</sup>	1,500	0	0	0	81	0
Commercial/Retail	7,500	5	0	0	81	10
Office/R&D	N/A	5	0	0	81	10
Industrial/Warehouse	N/A	15	0	0	81	10
Agriculture/Natural Resources	N/A	0	0	0	81	10
Utilities and Public Facilities	N/A	0	0	0	81	10
Institutional/Recreational	N/A	5	0	0	81	10
I						
SFR—Detached <sup>4,5</sup>	N/A	N/A	N/A	N/A	N/A	N/A
SFR/MFR—Attached <sup>4,5</sup>	N/A	N/A	N/A	N/A	N/A	N/A
Commercial/Retail	7,500	5	0	0	81	10
Office/R&D	N/A	5	0	0	81	10
Industrial/Warehouse	N/A	15	0	0	81	10
Agriculture/Natural Resources	N/A	0	0	0	81	10
Utilities and Public Facilities	N/A	0	0	0	81	10
Institutional/Recreational	N/A	5	0	0	81	10
EA						
SFR—Detached <sup>4,5</sup>	N/A	N/A	N/A	N/A	N/A	N/A
SFR/MFR—Attached <sup>4,5</sup>	N/A	N/A	N/A	N/A	N/A	N/A
Commercial/Retail	N/A	5	0	0	81	10
Office/R&D	N/A	N/A	N/A	N/A	N/A	N/A

## Development Standards

**Table 3-1**  
**Lot and Building Standards**

Land Use	Min. Lot Size (sq. ft.)	Min. Setbacks (ft.) <sup>1</sup>			Max. Building Height (ft.)	Min. Distance Between Structures (ft.)
		Front	Side <sup>2</sup>	Rear <sup>2,3</sup>		
Industrial/Warehouse	N/A	N/A	N/A	N/A	N/A	N/A
Agriculture/Natural Resources	N/A	0	0	0	81	10
Utilities and Public Facilities	N/A	0	0	0	81	10
Institutional/Recreational	N/A	5	0	0	81	10

**Notes:**

SFR = Single-family residential

MFR = Multiple-family residential

N/A = Not applicable/available

R&amp;D = Research and design

<sup>1</sup> All setbacks are measured from the property line and/or the edge of the nearest public right of way.<sup>2</sup> If a non-residential use is proposed adjacent to an existing residential use, or if a residential use is proposed adjacent to an existing non-residential, a minimum 10-foot setback is required from the property line. The setback area shall be landscaped consistent with the requirements of Section 3.8, Landscaping. No setback from property line, landscape, or otherwise, is required if the uses are buffered by an alley.<sup>3</sup> Where downspouts are disconnected from the building (per Section 3.15 of this Plan), the minimum rear yard setback is 5 feet to allow for low-impact development drainage improvements and/or landscaping.<sup>4</sup> Residential uses in conjunction with commercial buildings are allowed as specified in Section 2. The square footage devoted to residential uses shall not be included in any commercial square footage calculation, but the number of residential units will count towards residential development caps.<sup>5</sup> Secondary residential units are permitted uses within all districts that allow residential uses. Such units will not be included in the residential dwelling unit calculations.<sup>6</sup> The minimum lot size for SFR-Detached may be reduced to 600 square feet for mobile home parks or tiny house clusters/villages.

**b. Lot Design Options.** In order to encourage the creation of walkable neighborhoods, several options for residential and non-residential lot design are provided in Figures 3-1 through 3-3, as described below.

1. Residential Lot Design and Building Placement: Figure 3-1 presents options for residential lot design that allow for a variety of lot sizes and configurations for both single- and multi-family attached and detached housing. The lot design options include the potential use of alleys, paseos, and internal lanes to break up blocks and create walkable neighborhoods. Figure 3-2 provides options for residential building placement within a lot, including possible setbacks and lot sizes.
2. Non-Residential Lot Design: Figure 3-3 provides several options for non-residential lot design and building placement for a variety of non-residential uses.

**c. Residential Densities.**

- The residential density in the VMU district shall range from 6–72 dwelling units/net acre.
- The residential density in the MU district shall range from 1 unit per 5 net acres–40 dwelling units/net acre.



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- d. **Flood Plain.** All development within the FC Combining District shall comply with the requirements of the Floodplain Management Ordinance (Chapter 17.48 of the Kern County Code) and the following standards:
1. Generally, development within the floodplain may not cumulatively increase the Base Flood Elevation at any point more than 1 foot.
    - i. Computations of increased flood heights caused by development in the floodplain shall be based upon the reasonable assumption that there shall be an equal loss of conveyance on opposite sides of the stream.
    - ii. Cases for supercritical flow, or where velocity conditions are such that normal encroachment analyses are not possible or inappropriate, the allowable increase of 1 foot shall be applied to the energy grade line instead of the Base Flood Elevation.
    - iii. Cases for overbank velocities exceeding 7 feet per second, the floodway boundary shall coincide with the 100-year floodplain boundaries.
    - iv. All such computations shall be made or approved by the Kern County Public Works Department.

### 3.2. Development Caps

- a. **Development Caps.** The overall development caps for the Grapevine Specific Plan are provided in Table 3-2.

**Table 3-2  
Overall Grapevine Development Caps**

<b>Residential Dwelling Units Total<sup>1</sup></b>	<b>12,000</b>
Retail (Gross Leasable Area/SF)	1,200,000
Office/R&D (Gross Floor Area/SF)	2,450,000
Industrial/Warehouse (Gross Floor Area/SF)	1,450,000
<b>Commercial/Industrial Total (SF)</b>	<b>5,100,000</b>

**Note:** The area to be dedicated and developed for elementary, middle, and high schools (approximately 157 acres), and parks uses (approximately 96-112 acres) is not included in the numerical values presented above.

<sup>1</sup> Up to 2,000 additional residential units may be allowed through a land use exchange that would ensure a commensurate reduction of commercial/industrial square footage based on vehicle trip equivalency ratios. Trip equivalency will be demonstrated by employing the trip conversions outlined in Table 3-4.

- b. **Maximums.** The Grapevine Development Maximums outlined in Table 3-3 provide maximum residential units and commercial/industrial area to be developed in each sub area, consistent with the Grapevine Specific Plan goals for flexibility in future allocation of land use. The number of residential units and the amount of commercial/industrial area that would actually be developed in any one sub area would be specified at the tentative map stage, falling within the development maximums for the relevant land use and subject to the overall development cap. Land uses not listed in Table 3-3 would be converted to equivalent units and would be subject to, and would count towards, the development caps for the equivalent use.
- c. **Tracking.** The County and Grapevine will track the overall development caps through the use of the forms presented in Section 5.3, Development Cap Review Process, of this Plan.

### 3.3. Land Use Exchange Mechanism

To ensure a balance in land use development over time and respond to the demand for housing, the proportion of land use types may change, provided no additional transportation trips are generated. Table 3-4, Land Use Exchange, provides trip equivalencies for conversion of each land use to a different desired land use. Based on the built and permitted commercial/industrial uses at the adjacent Tejon Ranch Commerce Center (TRCC), Grapevine may ultimately support up to 2,000 additional dwelling units. The additional 2,000 units would be authorized only with a commensurate reduction of commercial/industrial square footage based on vehicle trip equivalency ratios (as shown in Table 3-3). This would be permitted only to the extent that the additional units would not cause any significant new adverse impacts, or increase the severity of previously identified adverse impacts. Land uses not listed in Table 3-4 are not eligible for the land use exchange. Authorization of the land use exchange mechanisms would be supported based on available documentation (e.g., Mitigation Monitoring and Reporting Program Annual Reports and Development Agreement Annual Reports) confirming that such changes would not cause any new or more severe significant adverse impacts.

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**Table 3-3**  
**Grapevine Development Maximums by Sub Area<sup>1,2</sup>**

Land Use <sup>3</sup>	Area 1	Area 2	Area 3	Area 4	Area 5a	Area 5b	Area 6a	Area 6b	Areas 6c-e
<b>Residential Total (DU)</b>	<b>2,075</b>	<b>3,865</b>	<b>2,675</b>	<b>3,390</b>	<b>2,890</b>	<b>50</b>	<b>1,870</b>	<b>n/a</b>	<b>n/a</b>
SFR-Detached (DU)	1,750	2,490	1,650	2,590	2,425	50	820	n/a	n/a
SFR/MFR-Attached (DU)	325	1,375	1,025	800	465	n/a	1,050	n/a	n/a
<b>Commercial/Industrial Total (SF)</b>	<b>1,130,000</b>	<b>2,210,000</b>	<b>2,280,000</b>	<b>565,000</b>	<b>600,000</b>	<b>n/a</b>	<b>2,155,000</b>	<b>400,000</b>	<b>30,000-450,000</b>
Retail (Gross Leasable Area/SF)	70,000	670,000	990,000	165,000	100,000	n/a	350,000	n/a	n/a
Office/R&D (Gross Floor Area/SF)	560,000	1,090,000	910,000	250,000	250,000	n/a	405,000	n/a	n/a
Industrial/Warehouse (Gross Floor Area/SF)	500,000	450,000	380,000	150,000	250,000	n/a	1,400,000	400,000	450,000

**Notes:** DU = dwelling unit, SF = square feet

<sup>1</sup> The area to be dedicated and developed for elementary, middle, and high schools, parks, and institutional uses is not included in the numerical values presented.

<sup>2</sup> The development maximums for each Sub Area are subject to the overall development caps of 5,100,000 square feet of commercial/ industrial uses and 12,000 residential dwelling units plus the 2,000 additional units available if commercial/industrial square footage is reduced.

<sup>3</sup> These land uses are tied to the uses listed in Table 2-1, Permitted Uses in Section 2, Districts and Permitted Uses

## Development Standards

**Table 3-4**  
**Land Use Exchange**

Land Use	Conversion Information <sup>1,2</sup>			Conversion Rate	
	ITE Code	Units	Daily Trip Rate <sup>2</sup>	SFR-Detached	SFR/MFR-Attached
SFR-Detached	210	1 DU	9.52	1	1.43
SFR/MFR-Attached	220	1 DU	6.665	0.7	1
Commercial/Retail	820	1,000 SF gross leasable area	42.7	225 SF = 1 DU	155 SF = 1 DU
Office/R&D	710	1,000 SF GFA	11.03	865 SF = 1 DU	600 SF = 1 DU
Industrial/Warehouse	150	1,000 SF GFA	3.56	2,675 SF = 1 DU	1,865 SF = 1 DU

**Source:** Trip Generation Manual, 9th Edition (ITE 2012).

**Notes:**

DU = dwelling unit, GFA = gross floor area, SF = square feet, SFR = single-family residential, MFR = multi-family residential

<sup>1</sup> At time of transfer request, the most current ITE information shall be used and reflected in all calculations

<sup>2</sup> Average trip rate for weekday (ITE 2012)

### 3.4. Parking Requirements

The parking requirements for the land uses permitted in the Special Plan are presented in Table 3-5.

**Table 3-5**  
**Parking Requirements**

Land Use	Required Parking <sup>1,2,3</sup>
SFR-Detached	2 spaces per dwelling unit
SFR/MFR-Attached	<ul style="list-style-type: none"> <li>• <i>Studio/One Bedroom:</i> 1 space per dwelling unit</li> <li>• <i>Two or More Bedrooms:</i><sup>4</sup> 1.5 spaces per dwelling unit</li> <li>• <i>Second Dwelling Unit:</i> 1 space in addition to that required for a single dwelling unit</li> <li>• <i>Guest Parking:</i><sup>5</sup> 1 space per 10 dwelling units (or portion thereof)</li> </ul>
Commercial/Retail <sup>6</sup>	1 space per 250 square feet GFA. If parking is made available for the general public, 1 space per 500 square feet GFA shall be provided.
Office/R&D <sup>6</sup>	1 space per 250 square feet GFA. If parking is made available for the general public, 1 space per 500 square feet GFA shall be provided.
Industrial/Warehouse <sup>6</sup>	1 space per 5,000 square feet GFA
Agriculture/Natural Resources	<ul style="list-style-type: none"> <li>• <i>Animal Grazing, Beekeeping, Crop Cultivation:</i> 1 space per 1,000 square feet GFA for all habitable buildings associated with the use</li> </ul>
Utilities and Public Facilities	3 spaces per 1,000 square feet of office area, plus 1 per vehicle required to service each facility

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**Table 3-5**  
**Parking Requirements**

Land Use	Required Parking <sup>1,2,3</sup>
Institutional/Recreational	<ul style="list-style-type: none"> <li>• <i>Parks</i>: 3 spaces for the first acre of park area, plus 2 spaces for each additional acre</li> <li>• <i>Places of public assembly having fixed seating (e.g., auditoriums, theaters, assembly halls)</i>: 1 space for every four seats</li> <li>• <i>Public Safety Facilities</i>: 1 space per 1,000 square feet plus 2 additional spaces for station vehicles</li> <li>• <i>Governmental Office</i>: 1 space per 500 square feet GFA</li> <li>• <i>Schools/Education Institutions</i>: 1 space per classroom, plus 1 space per five fixed seats in auditorium, gymnasium, or similar public assembly facility, or 1 space per 35 square feet GFA of assembly area where there are no fixed seats. For high schools, 1 space per classroom plus 1 space per five students based on maximum student capacity.</li> </ul>

**Notes:**

GFA = gross floor area, SFR = single-family residential, MFR = multi-family residential, R&D = research and development

<sup>1</sup> On-street parking along street frontages of parcels may be counted toward the parking requirement. When a space falls on the line of two properties, it may be counted toward the requirement for each.

<sup>2</sup> Partial spaces shall be rounded to the next whole number.

<sup>3</sup> Off-street parking may be reduced following approval of a Transportation Demand Management plan for the project (or the project component that is included in the site plan review). Off-street parking may be reduced by 25% or more of off-street parking requirements to promote walkability and other goals.

<sup>4</sup> Tandem parking is allowed in attached residential and mixed-use developments when 2 spaces are required per unit.

<sup>5</sup> Residential units within a mixed-use building are exempt from this standard.

<sup>6</sup> For uses that agree to restrict the allowable number of employees, 1 space shall be provided per employee with a minimum of 5 visitor spaces and handicap/accessibility requirements based on total number of spaces.

**a. Mixed-Use Parking Requirements**

1. For mixed-use developments, when two or more uses are located on the same lot or parcel or within the same building, the number of off-street parking spaces required shall be the sum of the total of the requirements of the various individual uses computed separately.
2. In cases where operators of uses wish to cooperatively establish and operate shared parking facilities, and certain uses generate parking demands primarily during hours when the remaining uses are not in operation or have a low demand, a reduction of up to 25% in the total number of spaces may be granted by the Kern County Planning Director upon provision of an approved Transportation Demand Management Plan for the project (or the project component that is included in the site plan review).

**b. Parking Lots and Structures**

1. New parking lots in the VMU district shall not front the roadway on parcels located along arterials and parcels located at intersections. In such areas, parking lots and structured parking shall be located at the rear or side of buildings. Unless they are designed in such a way that the nature of the use is screened from public views.
2. Compact parking spaces (as defined in Section 3.4.d.1.i below), may not exceed 20% of the total required parking.
3. Shared-vehicle (e.g., vanpools) and electric or plug-in hybrid vehicle (electric/hybrid vehicle) use is encouraged. To promote shared-vehicle use, preferential parking for shared-vehicle spaces and

## Development Standards

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electric/hybrid vehicles shall be provided at a ratio of 1 space for every 50 spaces. This ratio may be further adjusted based on an approved Transportation Demand Management Plan for the project (or project component included in the site plan review). Parking spaces for shared-vehicles and electric/hybrid vehicles shall count towards required parking.

4. Non-residential uses shall provide one electric vehicle charging station for every 50,000 square-feet of gross leasable area. Partial spaces shall be rounded up to the next whole number.
5. Multi-family residential uses shall provide one electric vehicle charging station for every 15 dwelling units (or portion thereof).

### c. Parking Space Dimensions

1. All parking spaces shall be at least 9 feet by 18 feet, except that:
  - i. Compact automobile parking spaces, not to exceed 20% of the total number of parking spaces, shall be at least 8 feet by 16 feet.
  - ii. Handicapped automobile parking spaces shall comply with the requirements of Chapter 2-71 of Title 24 of the California Administrative Code.
  - iii. Where a raised curb or wheel blocks are provided, parking spaces may be permitted a 2-foot overhang, except where such an overhang would interfere with the use of a pedestrian walkway or landscape planter.
  - iv. Parallel spaces shall be at least 9 feet by 20 feet.
  - v. When provided, motorcycle parking spaces shall be at least 4 feet by 8 feet.
2. The minimum length for the first loading space required shall be 25 feet and the minimum vertical clearance shall be 12 feet. Subsequent spaces shall have a minimum length of 35 feet, a minimum width of 10 feet, and a minimum vertical clearance of 14 feet. Further adjustments to loading space dimensions may be made based on the loading uses specified in the site plan review process.
3. Width of parking aisles shall be 24 feet or less.
4. Aisle width between parking rows should be minimized as should total pavement not used for actual parking.
5. All parking lots shall drain to a water quality best management practice (BMP) feature before entering the public storm drain conveyance facilities (pipes) in the nearest public street.

### d. Bicycle Parking

Bicycle use is encouraged, and common area bicycle parking that promotes bicycle utilization is a required amenity, as specified in Table 3-6.

1. Short-Term Bicycle Parking. Short-term bicycle parking shall be provided in order to serve shoppers, customers, messengers, guests, and other visitors to a site who generally stay for a short time. A short-term bicycle space shall consist of either a lockable enclosure or a rack or other fixed feature with an ability to lock a bicycle. Short-term bicycle parking shall be provided within highly visible locations that are close to the main entrance of a destination and should be covered where feasible.
2. Long-Term Bicycle Parking (Class 1 Bicycle Parking). Long-term or Class 1 bicycle parking shall be provided in order to serve employees, students, residents, commuters, and others who generally stay at a site for 4 hours or longer. A Class 1 space shall consist of a locker, room, or similar facility where entry is controlled by locking mechanism and bicycles are protected from inclement weather.

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**Table 3-6  
Bicycle Parking Requirements**

Land Use	Required Bicycle Parking
SFR-Detached	No requirements
SFR/MFR-Attached	<ul style="list-style-type: none"> <li>• <i>Four or more dwelling units with common access:</i> 1 short-term space per unit</li> <li>• <i>Four to 50 dwelling units:</i> In addition to 1 short-term space per unit, 1 Class 1 space for every 10 units (or portion thereof)</li> <li>• <i>Over 50 dwelling units:</i> In addition to 1 short-term space per unit, 5 Class 1 spaces, and 1 Class 1 space for every 10 additional units over 50 (or portion thereof)</li> </ul>
Commercial/Retail <sup>1</sup>	<p>Short-term bicycle parking spaces shall be at least 10% of the number of required automobile parking spaces</p> <p>Class 1 Spaces:</p> <ul style="list-style-type: none"> <li>• <i>0–25,000 square feet GFA:</i> 1 space</li> <li>• <i>25,000–50,000 square feet GFA:</i> 2 spaces</li> <li>• <i>50,000–100,000 square feet GFA:</i> 4 spaces</li> <li>• <i>Over 100,000 square feet GFA:</i> 8 spaces</li> </ul>
Office/R&D <sup>1</sup>	<p>Short-term bicycle parking spaces shall be at least 10% of the number of required automobile parking spaces</p> <p>Class 1 Spaces:</p> <ul style="list-style-type: none"> <li>• <i>0–25,000 square feet GFA:</i> 1 space</li> <li>• <i>25,000–50,000 square feet GFA:</i> 2 spaces</li> <li>• <i>50,000–100,000 square feet GFA:</i> 4 spaces</li> <li>• <i>Over 100,000 square feet GFA:</i> 8 spaces</li> </ul>
Industrial/Warehouse	<p>Short-term bicycle parking spaces shall be at least 10% of the number of required automobile parking spaces</p> <p>Class 1 Spaces:</p> <ul style="list-style-type: none"> <li>• <i>0–25,000 square feet GFA:</i> 1 space</li> <li>• <i>25,000–50,000 square feet GFA:</i> 2 spaces</li> <li>• <i>50,000–100,000 square feet GFA:</i> 4 spaces</li> <li>• <i>Over 100,000 square feet GFA:</i> 8 spaces</li> </ul>
Agriculture/Natural Resources	Any establishment with 25 or more full-time equivalent employees shall provide Class 1 bicycle parking at a minimum ratio of one space per 20 vehicle spaces
Utilities and Public Facilities	Any establishment with 25 or more full-time equivalent employees shall provide Class 1 bicycle parking at a minimum ratio of one space per 20 vehicle space
Institutional/ Recreational	Any establishment with 25 or more full-time equivalent employees shall provide Class 1 bicycle parking at a minimum ratio of one space per 20 vehicle spaces

**Notes:**

GFA = gross floor area, SFR = single-family residential, MFR = multi-family residential, R&D = research and development



<sup>1</sup> Where commercial/office buildings include an enclosed off-street parking facility on the same block as the building served, a minimum of 25% of the required Class 1 bicycle spaces shall be provided within the parking facility.

### 3.5. Circulation Standards

- a. **Circulation Plan.** The backbone circulation system envisioned for Grapevine is shown in Figure 1-4, Circulation Plan. More detailed local street network within the overall circulation framework will be designed in subsequent subdivision and tract maps, but will substantially conform to those illustrated in Figure 1-4. Final road alignments may shift by no more than 300 feet in any direction.
- b. **Interstate 5 Interchange.** The final location of the proposed Interstate 5 interchange within the Special Plan Boundary, as identified as Option A and Option B on Figure 1-4, is subject to Caltrans and County approval and may therefore be adjusted on Figure 1-4 without requiring a major modification to the Special Plan. Adjustments to road alignments generally identified on Figure 1-4, Circulation Plan, may be made to address the final location of interstate improvements and the refined design details in tentative maps.
- c. **General Standards.** All engineering and design for roads, vehicle, and life safety access shall conform to the Kern County Development Standards (KCDS) with the following exceptions:
  1. Owners of adjoining properties shall develop shared facilities to the greatest extent feasible such as driveways, parking areas, pedestrian plazas, and walkways to increase connectivity and ease of movement between uses, especially for pedestrians and non-vehicular traffic.
  2. Two thirds of the cul-de-sacs proposed in a tract map or site plan review shall provide pedestrian/bicycle pass-throughs with a permanent public easement dedicated to the County or maintenance entity, as shown on Figure 3-1, Residential Lot Design Options. Utility connections may also be made through the public easement. An exception may be granted at the tract map or site plan development review stage if pedestrian/bicycle connectivity can be demonstrated without pass-throughs.
  3. Where residential areas are adjacent to neighborhood-serving commercial uses, the adjacent properties shall be developed with pedestrian/bicycle pass-throughs to enable residents to access services without use of automobiles. Pass-throughs shall be developed in such a way as to provide for visibility and safety, and deter undesirable activities and uses.
    - i. Alley loaded product shall front streets with parking on one side only or with no parking if accommodations are made for visitor parking at a rate of 1 per 10 single-family units
    - ii. For single-family development with driveways accessed from the public street, the public street shall have parking on one side only if the driveway length is at least 16 feet from back of sidewalk.
  4. A hierarchy of roadway and off-roadway options is provided for in Figures 3-4 through 3-8. The project has a goal to reduce the total amount of pavement to the greatest extent possible while still providing for multi-modal travel. The following notes provided on those exhibits are referenced for ease here:
    - i. Public right-of-way (ROW) is located at back of walk (the walkway edge furthest from the road).
    - ii. Dimensions shown are typical and are possibilities within the final design. This represents only a selection of the potential roadway and off-roadway combinations.

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Final roadway option selection and lane requirements shall be determined at the tentative tract map stage in coordination with appropriate service agencies, including the Kern County Public Works Department.

- iii. Street cross-sections without parking may be approved by the Kern County Planning Director during the subdivision map review process if all parking requirements are met with off-street parking or as defined above.
- iv. Median widths may vary with the approval of the Kern County Public Works Department. Medians may be used as stormwater BMPs and to convey drainage. Any off-roadway section may be paired with any roadway section based on surrounding land uses and character.

- d. **Roadway and Off-Roadway Standards.** Figures 3-5 through 3-10 provide several roadway and off-roadway options. Street sections may be narrowed to increase pedestrian safety, reduce vehicle speeds, enhance the project character, minimize travel lane width, reduce pavement, impervious surface, and stormwater runoff.

e. **Roadway Types**

- 1. Local Streets (Figure 3-5, Details 1A–1E):
  - i. Two lanes with parking on one side (29 feet curbface to curbface), Detail 1A
  - ii. Two lanes with parking on both sides (34 feet curbface to curbface), Detail 1B
  - iii. Two lanes with no parking (22 feet curbface to curbface), Detail 1C
  - iv. One-way travel with protected bike lanes and parking on one side (27 feet curbface to curbface), Detail 1D
  - v. One-way travel with parking on one side (17 feet curbface to curbface), Detail 1E
- 2. Alleys and Lanes (Figure 3-5, Details AA–LA):
  - i. Standard alley (16 feet paved, 20 feet clear), Detail AA
  - ii. Emergency vehicle access (EVA) alley (20-foot width), Detail AB
  - iii. One-way travel alley (12 feet paved, 20 feet clear), Detail AC
  - iv. Internal Lane Loaded (20 feet flowline to flowline), Detail LA
- 3. Minor Arterials and Collectors (Figure 3-6, Details 2A–2G):
  - i. Two lanes with parking (36 feet flowline to flowline), Detail 2A
  - ii. Two lanes with median/turn pocket and protected bike lanes (70 feet flowline to flowline), Detail 2B
  - iii. Two lanes with median/turn pocket (48 feet flowline to flowline), Detail 2C
  - iv. Two lanes with protected bike lanes (58 feet flowline to flowline), Detail 2D
  - v. Two lanes with class II bike lanes (50 feet flowline to flowline), Detail 2E
  - vi. Two lanes with median/turn pocket with no parking (38 feet flowline to flowline), Detail 2F
  - vii. Two lanes with no parking (24 feet flowline to flowline), Detail 2G
- 4. Major Arterials and Collectors (Figure 3-7, Details 3A–3H):
  - i. Four lanes with parking (58 feet flowline to flowline), Detail 3A
  - ii. Six lanes with median/turn pocket (90 feet flowline to flowline), Detail 3B
  - iii. Four lanes with median/turn pocket and protected bike lanes (92 feet flowline to flowline), Detail 3C
  - iv. Four lanes with median/turn pocket (72 feet flowline to flowline), Detail 3D
  - v. Four lanes with protected bike lanes (78 feet flowline to flowline), Detail 3E

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- vi. Four lanes with Class II bike lanes (56 feet flowline to flowline), Detail 3F
  - vii. Four lanes with median/turnpocket and no parking (60 feet flowline to flowline), Detail 3G
  - viii. Four lanes with no parking (46 feet flowline to flowline), Detail 3H
  - 5. Primary Arterial Sections (Figure 3-8, Detail 4A)
    - i. Six lanes with median or turn pocket (80 feet flowline to flowline), Detail 4A
  - 6. Semi-Rural Roadways (Figure 3-9, Details 1R–3R):
    - i. Two lane Local with stabilized shoulders (20' flowline to flowline), Detail 1R
    - ii. Two lane Minor Arterial/Collector with stabilized shoulders (26' flowline to flowline), Detail 2R
    - iii. Four lane Major Arterial/Collector with stabilized shoulders (46' flowline to flowline), Detail 3R
    - iv. Off-Roadway Options (Details PR–NR)
- f. **Off-Roadway Standards.** Figure 3-10 provides several off-roadway options. The following are general guidelines for off-roadway access and landscaping features. Low-Impact Design (LID) stormwater management practices, BMPs, and surface drainage conveyance shall be incorporated in all of the following:
- 1. Standard Streetscape (sidewalk width 5 to 8 feet, tree lane width 7 feet), Detail S
  - 2. Village Streetscape (sidewalk and tree wells width 13 feet), Detail SA
  - 3. Bike Streetscapes
    - i. Pedestrian/Bike Multi-Use Trail (minimum 12-foot width), Detail P
    - ii. Standard Bike Path (6 feet, 6 inches width), Detail PA
    - iii. Bike Path at Windrow (12-foot width), Detail PB
    - iv. Bike path widths shall generally conform to street sections provided in the Special Plan Figure 3-10. Alternative widths may be used with approval of the maintenance entity.
    - v. Bike path material and detailing shall be 2 inches of asphalt concrete paving over 6 inches of native material compacted to 95% relative density. Alternative material (i.e., pervious pavement) may be used with approval of the maintenance entity.
- g. **Street Widths**
- 1. Street widths shall generally conform to the street sections included in Special Plan Figures 3-5 through 3-13.
  - 2. Unloaded streets shall not be required when the number of units accessed from a single point of entry exceeds 300.
  - 3. Streets may be designed with single cross-slope to minimize grading and increase efficiency of stormwater management system.
  - 4. Wherever possible, street drainage shall flow to a landscape area prior to entering piped drainage system.
  - 5. Consideration shall be given to providing sidewalks on one side only for low-density single-family residential streets. Where the sidewalk is provided on one side only it shall be a minimum of 6 feet wide.
  - 6. Block length goals may be met by providing pedestrian and bicycle access rather than traditional vehicular access every other block.
  - 7. Concrete strips and/or porous pavers shall be encouraged in driveways instead of traditional concrete to reduce impervious surface.

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8. The landscaped area between the curb and sidewalk should be used for passive stormwater BMPs and to convey drainage on the surface wherever adequate slope exists.
9. Street ROW may be shifted from the center line to better accommodate stormwater management facilities on one side of the street cross-section.
10. Average block length where lot width is at least 50 feet shall be a maximum of 1,000 feet.
11. Double-loaded one-way loop roads may be used for access up to a maximum of 40 homes (20 on each side).
12. One-way couplets may be used to promote pedestrian crossings and reduce total pavement.

**h. Alignment Criteria for Streets**

1. Minimum centerline radius of horizontal curvature shall be as follows:
  - i. Local/Alley Streets – 100 feet
  - ii. Arterial/Collector Streets – 300 feet
  - iii. Alternate horizontal curvature may be approved as part of the site plan review process provided that adequate access widths are maintained for at least one side of every occupied commercial or residential structure for emergency response vehicles

**i. Intersections (Figures 3-11 and 3-12)**

1. Curb return radii shall be 30 feet in residential, commercial, and industrial areas.
2. Property line cut-off dimensions at intersections shall include wheelchair ramps within the road ROWs.
3. Mid-block crossings may be implemented on arterial and collector streets in consultation with Kern County Public Works. Design shall be coordinated with Kern County Public Works and shall utilize alternative paving materials, striping, and/or signage and lighting identify mid-block crossings. Raised crosswalks may be used at mid-block crossings on minor collector streets as needed.
4. All streets entering upon any given street shall have their centerlines directly opposite each other or separated by at least 150 feet.
5. Tangent distance between end of horizontal curve and intersection shall be a minimum of 50 feet.
6. Alternate curb radii, centerline separation distances, and tangent distances, may be approved as part of the site plan review process, provided that the alternative provides for adequate access to at least one side of every occupied commercial or residential structure for emergency response vehicles.

**j. Roundabouts (Figure 3-13).** Roundabouts shall be designed based on accepted Caltrans standards and guidelines, and may be adjusted during the site plan review process based on the anticipated types and volumes of vehicles using the roundabout.**k. Dead-End Streets (Figure 3-1)**

1. Dead-end streets in excess of 200 feet in length shall be constructed to permit vehicles to turnaround at the end. The turnaround shall meet the Kern County Fire Code requirements.
2. The maximum length of a dead-end street shall not exceed 120% of the values listed in KCDS Section 104-1.03.

**l. Gradient Criteria for Streets.** The maximum grade on any street or alley shall be as follows:

1. Arterial and Collector Streets: 8% maximum
2. Local Streets and Alleys (excluding street turning areas in cul-de-sacs) –15% maximum.

3. Vertical curves shall be designed according to KCDS Section 104-2.04, except Arterials and Collectors shall be designed with a minimum vehicle speed of 45 miles per hour (mph).
4. The Point of Intersection (PI) method shall be used at curb returns, except on streets with gutter slopes of 0.5% or less. In these flatter areas, grade breaks at the curb returns will be allowed with a minimum gutter slope of 0.5%.

**m. Pavement Structural Sections**

1. Road surfacing shall conform to KCDS Section 104-4, except on all classes of streets and alleys pervious pavement shall be allowed outside of normal travel lanes (e.g., parking areas, alleys). Permeable pavement may also be utilized in public rights of way where the maintenance entity and safety agencies agree to such use.
2. Pervious pavement shall be designed according to accepted Caltrans standards.

- n. Access.** Full access intersection spacing and design shall be consistent with the Framework Circulation Plan (Figure 1-4) and the Special Plan typical intersection and street section design as shown in Figures 3-5 through 3-13. Alternative configurations may be approved during the site plan review process based on the specific planned land uses and vehicular and non-vehicular access needs, including intersection configurations designed to discourage through traffic by slowing traffic flows to promote walkability.

### 3.6. Signs

All signs permitted under this section shall be located outside the public street ROWs unless otherwise specified below, with the exception of directional kiosk signs per Section 19.84.070.C of the Kern County Zoning Ordinance (KCZO 2012). Project proponents may prepare design guidelines for street signs as long as the guidelines comply with the standards presented in this section. All signage shall conform to Chapter 19.84 of the KCZO, except as follows:

- a. Flags, banner, and pennants.** Permitted within the street ROW. Must be attached to existing light or other utility poles and must not obstruct traffic. Permitted in the landscape buffer area adjacent to Interstate 5 (I-5). Banner signs and seasonal pennants may be posted for no longer than 90 consecutive days.
- b. Billboards.** Billboards are permitted only along the frontage of the I-5 freeway at a minimum spacing of 1 per 0.75 mile, and may be placed at these intervals on both sides of the freeway.
- c. Pole Signs.** The maximum height of pole signs shall be 24 feet, with the exception of along the I-5 corridor where a maximum height of 120 feet is allowed, or as otherwise determined necessary (topography, sightline, public safety) by the master developer through an Architectural Committee, CC&Rs, Home Owner's Association, or other governing entity. Exceptions may be granted as outlined in Section 3.6.g below.
- d. Freestanding Post Signs.** Used primarily to identify office uses and are similar to monument signs utilizing only support posts, with a single sign face, and oriented parallel to the sidewalk.
  1. Freestanding post sign materials and colors must be compatible with the associated building design. Lettering must be carved, routed, or applied rather than painted on a flat board.

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2. The maximum sign area for freestanding post signs shall be 20 square feet and shall not be taller than 6 feet.
  3. Freestanding post signs may be externally illuminated by any means consistent with the provisions of Section 3.7.f, Accent Lighting of Other Objects.
  4. Freestanding post signs are allowed in all zoning districts.
- e. **Projecting Signs (Shingle Signs).** Projecting signs are attached to a building face and project out perpendicular to the building wall.
1. Projecting signs must be attached to building facades having a public entrance and must maintain a minimum clearance of 8 feet above the public ROW.
  2. Projecting signs may have a maximum sign area of 12 square feet
  3. Projecting signs may be illuminated by any means consistent with the provisions of Section 3.7.f, Accent Lighting of Other Objects. Projecting signs are allowed in the VMU, MU, and I Districts.
- f. **Awning Signs.** Signs on awnings shall be allowed where no alternatives for wall signs or projecting signs exist. Signage shall be limited to the skirt of the awning.
1. One awning sign is permitted per tenant space and must maintain a minimum clearance of 8 feet above any public ROW or private sidewalk.
  2. Signs on awnings shall not cover more than 25% of the main area of the skirt of the awning, or exceed 25 square feet in size, whichever is smaller.
  3. Awning signs shall be allowed in the VMU, MU, and I Districts.
- g. **Murals.** Certain building walls present opportunities for murals and should be considered public art.
1. Specific commercial messages shall not be comprised of more than 20% of the surface area of the mural.
  2. All murals are subject to the approval of the master developer through an Architectural Committee, CC&Rs, Home Owner's Association, or other governing entity.
  3. Murals may be located in all districts, subject to the approval of the master developer through an Architectural Committee, CC&Rs, Home Owner's Association, or other governing entity.
- h. **Directional Kiosks and Signs.** Directional/Directory signs are used for multi-tenant buildings to provide a directory of tenant locations; serve as the address sign for the property; identification of residential projects including subdivisions, apartments, townhouses, condominiums; and directional information to public amenities and open spaces.
1. Design and location of the temporary Directional/Directory Signs shall comply with the Design and Development Standard per KCZO Section 19.84.070.C.
  2. Design and location of the permanent Directional/Directory Signs shall comply with the Design and Development Standard per KCZO Section 19.84.080.
  3. Directory signs may be freestanding, or shall be fixed on an exterior wall where a 0-foot setback is allowed.
  4. One directory sign may be permitted per premises. Directory signs may be externally illuminated by any means consistent with 19.84.080 of the KCZO.
  5. Directory signs are allowed in all districts.
- i. **Exceptions.** Granting an exception to the sign regulations is subject to the approval of the Master Developer, and inclusion in the site plan.



1. An exception may be based on site-specific design considerations, such as:
  - i. Visual obstructions
  - ii. Unusual building location on site
  - iii. Unusual building design, architectural style, or historical significance
2. The exception must be consistent with the intent and purpose of the sign regulations.
3. The sign exception must include a superior design (e.g., will reduce visual clutter).

### 3.7. Lighting

It is the intent that lighting within the Specific Plan Area be consistent with the general provisions of the Dark Sky Ordinance in Section 19.81 of the Kern County Ordinance Code. Project proponents may prepare design guidelines for lighting as long as the guidelines comply with the standards presented in this section.

**a. Exceptions.**

1. Airports and Other Lighting Required by the Federal Aviation Administration: Outdoor lighting for public and private airports and any other uses that are regulated by the Federal Aviation Administration.
2. Emergency Light: Temporary emergency lighting needed by the sheriff's department, police department, fire department, public utility, rescue operation, or in conjunction with any other emergency service.
3. Temporary Construction: All temporary lighting used for the construction or repair of roadways, utilities, and other public infrastructure.
4. Neon, Argon, or Krypton: All fixtures illuminated solely by neon, argon, or krypton.
5. Lighting Required by Building Codes or other Regulations: Communication towers, exit signs, lighting for stairs/ramps, lighting for points of ingress/egress to buildings, and all other illumination required by air navigation safety provisions, building codes, OSHA standards, and other permitting requirements from state or federal agencies.
6. Fossil Fuel Light: All outdoor light fixtures producing light directly by the combustion of fossil fuels (e.g., kerosene lanterns, gas lamps)
7. Seasonal Displays: Displays using multiple low-wattage bulbs or lasers, provided that they do not constitute a fire hazard, create a nuisance, and are maintained in a safe condition. Such displays shall not be illuminated for more than 45 days per calendar year.

**b. Minimal Glare to Adjoining Properties.** All outdoor lighting fixtures shall be fully shielded, and shall be oriented downward to prevent direct uplighting and to prevent light spillover onto adjacent properties, in compliance with Section 19.81 of the KCZO.

**c. Energy Provision.** Provide energy-efficient exterior light fixtures. All exterior lighting shall meet or exceed the most current California Energy Commission standards for lighting efficiency.

**d. Height Allowances.** Maximum fixture height shall be as follows, unless site-specific design considerations warrant adjustments to ensure safe lighting conditions during the site approval process:

1. Residential
  - i. Freestanding shall not exceed 20 feet
  - ii. Attached shall not exceed the height of the structure



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2. Commercial, institutional, and industrial
    - i. Freestanding shall not exceed 40 feet
    - ii. Attached shall not exceed the height of the structure
  3. Special activities (see also Section 3.7.e below)
    - i. Freestanding shall not exceed 120 feet
    - ii. Attached shall not exceed height of structure
  4. Maximum fixture height shall be measured from the finished interior grade of the mounting area to the top point of the lighting fixture.
- e. **Special Activities.** Where playing fields or other special activity areas are to be illuminated by floodlight, lighting fixtures shall be mounted, aimed, and shielded so that beams fall within the primary playing area and immediate surroundings, and off-site light spillover onto any residential property is minimized.
1. Recreational facilities shall be illuminated for public or private use only when the facility is being utilized, except for security lighting.
  2. All non-security lighting must be turned off no later than 11:00 p.m. or 30 minutes after the termination of the event and/or use, whichever occurs last. At the conclusion of the event and/or use, a reduced-level lighting system shall be used to facilitate patrons leaving the facility, cleanup, nighttime maintenance, and other closing activities.
- f. **Accent Lighting of Other Objects.** For statues, public art, or other objects of interest where the light cannot be effectively contained by the structure and where objects cannot be illuminated with down lighting, upward lighting may be used in the form of narrow-cone spotlights that confine the illumination to the object of interest. Unrestricted uplighting of a displayed United States flag or the State of California flag shall be permitted.
- g. **All Other Lighting Aimed Against Structures.** An outdoor lighting fixture may be aimed against a structure only if: (1) the light is effectively contained by the structure, (2) no glare is visible from off site, and (3) the fixture is fully shielded so that none of the light that is emitted above the horizontal plane crosses over the property line of the parcel where the subject light is located.
- h. **Landscape Lighting.** Low-voltage landscape lighting, such as that used to illuminate fountains, shrubbery, trees, walkways, etc., shall be permitted provided that such lighting is limited to fixtures not mounted to poles or buildings, and the fixture is shielded to eliminate glare and light spillover onto adjacent properties.
- i. **Street lighting.** Design of street lighting shall be based on minimum foot-candles of illumination criteria rather than standard spacing. Consideration shall be given to providing street lighting in residential areas at intersections only. Where street lights are only provided at residential intersection, alternative lighting shall be provided to illuminate walkways (e.g., lighted bollards or inset wall lighting) and should be equipped with motion sensors.
- j. **Non-residential exterior lighting.** Design shall not exceed 0.2 horizontal and vertical foot-candles at the site boundary and no more than 0.01 horizontal foot-candles 15 feet beyond the site boundary. The Master Developer shall provide a narrative demonstrating specific site needs to exceed this lighting level for pedestrian safety, if necessary, at site plan review.

- k. **Integrated interior lighting systems and controls.** Design shall be shielded from the exterior of the building, or include a 50% reduction in lighting output between the hours of 11:00 p.m. and 5:00 a.m.
- l. **Energy Provision.** Only low mercury or LED lamps shall be used in new non-residential projects.

### 3.8. Landscaping

- a. **Exceptions.**
  - 1. Production farmland and community and school farms and gardens.
  - 2. Botanical gardens, arboretum, and zoos open to the public.
  - 3. Recreational playfields with turf (e.g., for football, baseball, and soccer use).
- b. **Landscaping within fuel modification zones.** All landscaping shall be consistent with the State Fire Safe regulations contained in Section 4290 of the Public Resources Code and in Title 14, California Code of Regulations, Division 1.5, Chapter 7, Subchapter 2. In addition, the following requirements shall be adhered:
  - 1. Roadside plantings within fuel modification zones, i.e., where a road occurs between the project and the conservation areas, fire-resistant trees shall be planted as long as vertical clearance is maintained at street edge. Tree selection shall be columnar and shall not encroach into the roadway or produce a closed canopy effect.
  - 2. Limit planting of large unbroken masses, especially trees and large shrubs within the fuel modification zones. Groups shall be two to three trees maximum, with mature foliage of any group separated horizontally by at least 10 feet if planted on a slope less than 20%, and 20 feet if planted on a slope greater than 20%.
  - 3. If shrubs are located underneath a tree's drip line, the lowest tree branch shall be at least three times as high as the understory shrubs at maturity or 10-feet, whichever is greater.
  - 4. Existing trees shall be pruned 15-feet away from roof, eave, or exterior siding, depending on the tree's physical or flammable characteristics and the building construction features.
  - 5. Wood mulch, jute netting, fiber matting, and straw wattle shall be prohibited within fuel modification zones.
  - 6. All tree branches shall be removed within 10-feet of a fireplace chimney or outdoor barbecue.
- c. **Stormwater Landscaping Provision.** Landscape areas will be used to help implement the LID features of Section 3.15, Stormwater Management Standards, where feasible.
- d. **Landscape Minimums.** A minimum of 5% of the total developed lot area shall be landscaped in the VMU District and a minimum of 10% in the MU District. A maximum of 20% of the total required landscaping in commercial areas may be turf, excluding common area recreational fields.
- e. **Landscape Turf Maximums.** A maximum of 25% of the total landscaped area in residential areas may be turf. A maximum of 20% of the total landscaped area in commercial areas may be turf.
- f. **Setback Landscaping.** If provided, front-yard and street side-yard setback areas, excluding approved driveway entrances, outdoor gathering areas, maneuvering areas, and public sidewalks,

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shall be landscaped. Within this area, trees are required and shall be planted no farther than 50 feet apart and no closer than 2.5 feet from the back of the sidewalks.

- g. **Landscape Medians.** No plant material planted in the street ROW shall be allowed to grow to a height of more than 3 feet measured from planting surface, excluding street trees.
- h. **Commercial and Industrial Landscape Buffering.** Where commercial or industrial uses abut residential uses, any interior property line abutting the residential uses shall be landscaped. The landscaping shall be sufficiently large and dense enough to provide a visual and sound buffer between the uses. Solid wood fencing may be incorporated into the landscaping to provide an additional buffer between the uses.
- i. **Water-Efficient Landscape Calculations and Alternatives**
  - 1. Native and other drought-resistant or drought-tolerant landscaping will be used, and landscaped areas will be grouped by water need, as required to limit outdoor irrigation water consumption to the levels identified in the Water Supply Assessment. Irrigation shall be low volume irrigation (i.e., low volume spray heads, bubblers, and spider bubblers) directed where needed.
  - 2. The project shall provide the calculated Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use (ETWU) for the landscaped areas as part of a landscape documentation package submitted to the Master Developer. The MAWA and ETWU shall be calculated based on completing the Water-Efficient Landscape Worksheets as provided for in the State of California Model Water Efficient Landscape Ordinance dated July 2015 (MWELO).
  - 3. The ETWU allowable for the landscaped area shall not exceed the MAWA. The MAWA shall be calculated using an evapotranspiration adjustment factor (ETAF) of 0.55 for residential and 0.45 for non-residential except for the portion of the MAWA applicable to any special landscaped areas within the landscape project, which shall be calculated using an ETAF of 1.0. Where the design of the landscaped area can otherwise be shown to be equivalently water efficient, the project applicant may submit alternative or abbreviated information supporting the demonstration that the annual ETWU is less than the MAWA, at the discretion of, and for the review and approval of, the County.
  - 4. Water budget calculations shall adhere to the following requirements:
    - i. The MAWA shall be calculated using the Water-Efficient Landscape Worksheet and the Water Budget Calculations Worksheet as provided for in the KCZO Section 19.86.065.
    - ii. For the calculation of the MAWA and the ETWU, a project applicant shall use the reference Evapotranspiration (ET<sub>o</sub>) value listed for Arvin, CA located in Kern County in Appendix A of the MWELO. For the purpose of determining the MAWA, an average irrigation efficiency of 0.75 for overhead spray devices and 0.81 for drip systems shall be used. Irrigation systems shall be designed, maintained, and managed to meet or exceed these average irrigation efficiencies.
    - iii. For calculation of the ETWA, the plant water use factor shall be determined as appropriate to the project location from the Water Use Classification of Landscape Species (WUCOLS), prepared by the University of California Cooperative Extension. The plant water use factor ranges from 0 to 0.1 for very low water use plants, 0.1 to 0.3 for low-water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high-water use plants.

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- iv. Except for swimming pools and water spray parks used for recreational purposes, water features shall be defined as a high-water use hydrozone with a plant water use factor of 1.0.
  
- j. **Irrigation Design Plan.** As part of the site plan review, an Irrigation Design Plan shall be submitted with a landscape documentation package for review and approval by the Master Developer and shall demonstrate the efficient use of water. The irrigation system and its related components, including an irrigation schedule, shall be planned and designed to allow for proper installation, management, and maintenance.
  
- k. **Irrigation Schedule.** For the efficient use of water, the Irrigation Design Plan shall include an irrigation schedule designed to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:
  - 1. Irrigation scheduling shall be regulated by automatic weather-based irrigation controllers.
  - 2. Irrigation shall be scheduled to occur between the hours of 8:00 p.m. and 10:00 a.m. unless weather conditions such as frost or evening temperatures require temporary daytime irrigation to maintain plant health. Operation of the irrigation system outside the normal watering window is allowed for auditing and system testing and maintenance.
  - 3. For implementation of the irrigation schedule, irrigation run times, emission device types, flow volumes and rates, and evapotranspiration rates shall be taken into consideration so that the amount of applied water meets the ETWU. The total amount of annually applied water shall be less than or equal to the MAWA.
  - 4. Irrigation scheduling shall take into account the different phases of vegetative growth, including the vegetation establishment period and the mature established vegetation period. Temporary irrigation needs, such as areas devoted to native vegetation that will not be supported by permanent irrigation, shall also be considered and all such areas shall clearly be identified in the Landscape Design Plan. Goals for phasing out irrigation usage shall be included in this submittal.
  - 5. Exceptions to the irrigation scheduling and MAWA restrictions shall be permitted during plant establishment as follows:
    - i. Daytime irrigation with compliant irrigation systems shall be permitted for plant establishment between April and September and at other times of year as necessary to facilitate deep root encouragement and prevent plant mortality.
    - ii. Monitoring of flow by monthly meter reports and tracking of water application shall be used in place of MAWA during plant establishment.
  - 6. The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, sidewalks, parking lots, roadways, or structures.
  
- l. **Landscape Plans Preparation.** All landscape plans shall be prepared by either a licensed landscape architect or landscape designer and all irrigation plans shall be prepared by a licensed landscape architect, certified irrigation designer, or licensed landscape contractor.
  
- m. **Occupancy Requirements.** No use shall commence nor occupancy permit issued until:
  - 1. The landscaping and irrigation system has been completely installed; or
  - 2. The property owner has posted an acceptable financial assurance (performance bond, certificate of deposit, or letter of credit) in an amount equal to 150% of the estimated cost of

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installation of the required landscaping and irrigation system, in which case, the property owner shall have up to 90 days from the date of occupancy or commencement of use to install the required landscaping and irrigation system.

3. The estimated cost of installing the required landscaping and irrigation system shall be submitted in writing for approval prior to the property owner obtaining the required financial assurance.

**n. Drainage and Stormwater Management.**

1. Landscape areas for non-residential projects shall be designed to integrate LID practices and function as stormwater quality management BMPs and all pavement areas shall drain to landscape prior to entering piped systems that connect to the public storm drainage system in the public street.
2. Non-residential projects are required to provide on-site stormwater quality and quantity mitigation as defined in Section 3.15.

### **3.9. Open Space Requirements**

**a. Residential (SFR-Detached, SFR/MFR-Attached)**

1. All development with residential dwelling units shall provide a minimum of 48 square feet per unit of private open space or 50 square feet per unit of useable common open space.
2. Multi-family residential development shall provide active recreation elements for residents in common areas (outdoor, indoor, or both).
3. Residential units within mixed-use developments may meet the standard described in 3.9.a.1, above, by providing private open space (defined as exterior space attached to individual units, such as balconies or secure yard space) and common open space (defined as secure space available to all residents of a project, such as a courtyard, roof deck, or garden above the base of the building).

**b. Commercial/Retail and Office/R&D**

1. Development shall provide 100 square feet of usable public open space for every 2,000 square feet of developed building footprint. This open space may be provided off site in a plaza or paseo if it is immediately adjacent to the development subject to this requirement and approved during site plan review.
2. Legal parcels of less than 10,000 square feet are exempt from open space requirements.
3. Connectivity: All ground-floor public open spaces shall be accessible to the public during daylight hours and in the evening when businesses are open, and shall be designed to connect with public ROWs and adjacent public open spaces in the vicinity.

### **3.10. Service and Refuse Areas**

**a. Trash enclosures.** Trash enclosures, service areas, utility meters, and mechanical and electrical equipment shall be screened from public view and located for convenient access by service vehicles.

1. Enclosures shall be constructed of durable and washable materials and the color, texture, and architectural detailing shall be consistent with the overall site and building design. Materials shall be graffiti-resistant.

2. Trash enclosures shall be designed for collection from a side street, alleyway, or parking area to avoid collection trucks needing to maneuver in busy roadways.
3. Roofs of trash and service enclosures shall be designed to complement the project buildings' roof style and colors.
- b. Loading and service entrances shall not intrude upon the public view, nor interfere with pedestrian and vehicular flows within the Special Plan.
- c. The Master Developer shall provide recycling containers and implement a recycling program in all new buildings.
- d. The Master Developer shall implement a construction waste management plan to divert a minimum of 50% of construction waste from the landfill.

### 3.11. Wood Burning Restrictions

- a. Permanent indoor and outdoor wood-burning devices (such as fireplaces and stoves) are prohibited. However, open-hearth fireplaces with gas or alcohol fuel based log sets or other design features that don't use wood are allowed.
- b. Natural gas or propane hookups and electrical outlets should be provided on patios to support installation of non-wood-burning devices.

### 3.12. Wireless Communication Facilities

All wireless communication facilities shall conform to Chapter 19.91 of the KCZO.

**a. Exceptions.**

1. Wireless communication facilities are permitted in all districts.
2. All wireless communication facilities shall be designed as stealth facilities such that they are effectively unnoticeable to the general public. Acceptable designs in order of preference are:
  - i. Architectural features such as spires, clock towers, facade features, or roof-mounted appurtenances
  - ii. Freestanding features such as public art, statues, flag poles, signs, and crosses.
  - iii. Facilities may be located on existing water towers or tanks, petroleum storage tanks, light fixtures, and public utility structures subject to the following standards:
    - (1) Facilities shall only extend above the structure the minimum necessary to allow transmission.
    - (2) Facilities shall be painted the same color as the structure on which they are located. Where facilities extend beyond the structure they are attached to they will be colored to blend into the background.
    - (3) If it can be determined that such an installation will not adversely impact surrounding properties and roads during site plan review.
3. Treepoles are not permitted unless incorporated into a landscaping design as part of an overall tree-planting scheme.
4. Facilities shall provide for and allow maximum co-location.

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### **3.13. Fire Protection Standards**

A Fire Protection Plan has been prepared for the Grapevine project. The Fire Protection Plan summarizes important requirements that will protect the Grapevine Special Plan area and its essential infrastructure from potential wildfire as well as provide for fire and emergency medical response consistent with Kern County Fire Department standards. All fire protection standards shall conform to the Kern County Fire Code with the following exceptions:

- a. **Fire Hydrant Spacing.** Roadways serving no structures may eliminate hydrants or increase hydrant spacing to one-half mile as approved by the Kern County Fire Department.
- b. **Minimum Road Width Requirements for Dead-End Fire Apparatus Access Roads.** The minimum road width for dead-end fire apparatus access roads is 20 feet.

### **3.14. Water System Standards**

All engineering and design for water systems shall conform to state and local requirements, including the Tejon-Castac Water District (TCWD) Technical Specifications and the Kern County Fire Code.

### **3.15. Sanitary Sewer Standards**

All engineering and design for sanitary sewer systems shall conform to the TCWD Technical Specifications and other applicable state requirements.

### **3.16. Stormwater Management Standards**

All engineering and design for stormwater management facilities shall conform to the TCWD Technical Specifications, the Kern County Hydrology Manual (KCHM), the KCDS, and applicable state laws, with the following exceptions. In all cases, where the KCDS read "...approved/approval by the Director" shall read "...approved/approval by the maintenance entity."

- a. **Pipe Alignments.** The alignment of a closed conduit system shall be parallel or perpendicular with the centerline of the road or easement unless otherwise approved by the maintenance entity.
- b. **Manholes.** Manholes shall be provided at intervals no greater than 400 feet where the conduit diameter is smaller than 48 inches.
- c. **Retention/Detention Basin Design**
  1. Design Volume
    - i. The retention basin design volume should be calculated according to the KCDS; however, the average percentage of impervious area ( $a_i$ ) will be adjusted down based on the use of LID features as defined at the tentative map stage and approved by Kern County or the maintenance entity.



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2. Fencing shall conform with the KCDS Section 408-4, with the following exceptions:
    - i. Basins that are incorporated into other facilities to create a multi-purpose facility (e.g., basin/park site, basin/amphitheater) will not be required to be fenced unless the side slopes of the basin exceed a 4 to 1 slope.
    - ii. Fencing and access gate material shall be approved by the maintenance entity.
  3. General Construction Requirements
    - i. The maintenance way shall be sloped toward the top of bank at a minimum of 2%.
    - ii. Rodent barriers may be omitted with approval by the maintenance entity.
- d. Levee Design.** No levee fencing requirements are imposed for this project.
- e. LID Features.** Bioretention. LID design features will be implemented as part of the project where feasible, including generally:
1. Units shall be sized to meet the volume-base sizing criteria of 80% watershed capture and the 85th percentile, 24-hour storm volume (or other sizing criteria if LID flood control approach is approved).
  2. All non-residential projects shall design, construct, and maintain stormwater BMPs that manage rainfall on site and prevent the off-site discharge of precipitation from the first flush (80% capture of the 85 percentile 24-hour storm) or 0.5 inch of rainfall, whichever is larger from a 24-hour storm preceded by 48 hours of no measureable precipitation. Exceptions may be requested if infiltration cannot be accomplished in 72 hours.
  3. If sheet flow is conveyed to the treatment area over stabilized grassed areas, the site must be graded in such a way that minimizes erosive conditions. Sheet flow velocities shall not exceed 1 foot per second.
  4. The runoff entering the facility must completely drain the ponding area and the planting soil (unsaturated) within 48 hours.
  5. Drawdown of gravel layer below underdrains (if applicable) shall be 72 hours.
  6. Planting soil depth shall be a minimum of 2 feet, although 3 feet is preferred.
  7. Underdrains are required for soils with an underlying infiltration rate less than 0.5 inches per hour.
  8. Flow dispersion is required at the bioretention cell inlet.
  9. An overflow device is required at the 18-inch ponding depth.
  10. Infiltration pathways may need to be restricted due to the close proximity of roads, foundations, or other infrastructure. A geomembrane liner may be placed along the vertical walls to reduce lateral flows. This liner shall have a minimum thickness of 30 mils.
  11. If an underdrain is required, the following apply:
    - i. 6-inch-minimum diameter underdrain pipe(s)
    - ii. Underdrain pipe sloped at a minimum of 0.5%
    - iii. Underdrain shall be slotted pipe with 2 to 4 rows of slots cut perpendicular to the axis of the pipe or at right angles to the pitch of corrugations. Slots shall be 0.04- to 0.1-inch and shall have a length of 1- to 1.25-inch. Slots shall be longitudinally spaced such that the pipe has a minimum of one square inch per lineal foot.
    - iv. Rigid non-perforated observation pipes with a diameter equal to the underdrain diameter shall be connected to the underdrain every 250 to 300 feet to provide a clean-out port as well as an observation well to monitor dewatering rates. The wells/cleanouts shall be connected to the perforated underdrain with the appropriate

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manufactured connections. The wells/cleanouts shall extend 6 inches above the top elevation of the bioretention facility mulch, and shall be capped with a lockable screw cap. The ends of underdrain pipes not terminating in an observation well/cleanout shall also be capped.

- v. Elevate underdrain from the bottom of the bioretention facility by 6 inches within the 1.5-foot-deep gravel blanket.
  - vi. The underdrain must drain freely to an acceptable discharge point. The underdrain can be connected to a downstream open conveyance (vegetated swale), to another bioretention cell as part of a connected treatment system, daylight to a vegetated dispersion area using an effective flow dispersion device, stored for reuse, or to a storm drain.
- 12. The planting media placed in the cell shall be highly permeable and high in organic matter (e.g., loamy sand mixed thoroughly with no more than 25% compost amendment) and a surface mulch layer.
  - 13. Planting media shall consist of 60 to 70% sand, 15% to 25% compost (depends on plant palette), and 10% to 20% clean topsoil. The organic content of the soil mixture should be 8% to 12%; the pH range should be 5.5 to 7.5.
  - 14. The bioretention area shall be covered with 2–4 inches (average 3 inches) of mulch at the start and an annual placement of 1–2 inches of mulch beneath plants.

**f. Disconnected Downspouts**

- 1. Include energy dissipation at the outlet of the downspout
- 2. Direct runoff to another bioretention facility, or at least 5 feet away from foundations, using a downspout extension rock, or vegetated channel, flow spreading, or combination of methods that protect against erosion.
- 3. Maintenance of gutters to ensure performance of disconnected downspouts will be required by the appropriate maintenance entity.

**g. Permeable Pavement.** Permeable pavement is encouraged to be utilized in the development of individual parcels, residences, or commercial sites. Permeable pavement may also be utilized in public rights of way where the maintenance entity and safety agencies agree to such use.

- 1. Concrete pavers shall have a minimum 3.125-inch thickness; other permeable pavement material thickness may vary with design
- 2. Bedding course layer (under permeable pavement) shall be 1.5 to 3 inches minimum thickness (e.g., no. 8 aggregate) for applications with no run-on. For applications with run-on directed onto the permeable pavement, the thickness shall correspond the amount of run-on area divided by the pavement area times the 1.5 to 3 inches to provide the appropriate storage amount.
- 3. Overflow pipes from the subgrade shall be provided if overflows are not managed via perimeter drains to swales, bioretention, or storm water conveyance system inlets. Screens shall be fastened over overflow inlets.
- 4. Connect outfall pipes to downstream stormwater conveyance system. Outfall pipes shall be sloped towards the collection system.
- 5. Soil subgrade shall have zero slope.
- 6. Drawdown time for the subsurface gravel layer shall not exceed 72 hours.

## Development Standards

7. If infiltration or partial infiltration is allowed, a geotextile fabric, choking stone, or both shall be placed on top of the subsurface gravel layer. If no infiltration is allowed, an impermeable liner shall surround the subsurface gravel layer.
8. If an underdrain is required, the following apply:
  - i. 6-inch minimum diameter (or adjusted if bedding course is shallow)
  - ii. Sloped at a minimum of 0.5%
  - iii. Slotted pipe (polyvinyl chloride [PVC] or equivalent high-density polyethylene [HDPE]) shall have 2 to 4 rows of slots cut perpendicular to the axis of the pipe or at right angles to the pitch of corrugations. Slots shall be 0.04 to 0.1 inch and shall have a length of 1 to 1.25 inch. Slots shall be longitudinally spaced such that the pipe has a minimum of one square inch per lineal foot.
  - iv. Rigid non-perforated observation pipes with a diameter equal to the underdrain diameter shall be connected to the underdrain every 250 to 300 feet to provide a clean-out port as well as an observation well to monitor dewatering rates. The wells/cleanouts shall be connected to the perforated underdrain with the appropriate manufactured connections. The wells/cleanouts shall be connected with the perforated underdrain with the appropriate manufactured connections. The wells/cleanouts shall be placed flush with the pavement surface and shall be capped with a lockable screw cap. The ends of underdrain pipes not terminating in an observation well/cleanout shall also be capped.
  - v. Elevate underdrain from the bottom of the permeable pavement by 6 inches within the gravel layer.
  - vi. The underdrain must drain freely to an acceptable discharge point.
9. Permeable pavement shall be laid close to level, the bottom of the base layers must be level to ensure uniform infiltration.
10. Permeable pavement surfaces shall not be used to store site materials during construction, unless the surface is well protected from accidental spillage or other contamination.
11. To prevent/minimize soil compaction in the area of the permeable pavement installation during construction, use light equipment with tracks or oversized tires.
12. Divert storm water from the area as needed (before and during installation).
13. The pavement shall be the last installation done at a development site. Landscaping shall be completed and adjacent areas stabilized before pavement installation to minimize risk of clogging.
14. Vehicular traffic shall be prohibited for at least 2 days after installation.

### **h. Swales.**

1. Meandering bends are recommended where possible for aesthetic purposes and flow dampening.
2. Bottom slope shall be 2%–6%. For slopes less than 2%, an underdrain may be used.
3. Check dams shall be included along length of swale if bottom slope exceeds 4%.
4. Hydraulic residence time shall be at least 10 minutes.
5. Bottom width shall be 2 to 10 feet, or up to 16 feet as long as the 10-minute residence time is retained and a dividing berm is provided for widths over 10 feet.
6. Design flow velocity shall not exceed 1 foot per second.
7. Side slopes shall not exceed 2H:1V.
8. Overall depth of the side walls to the swale bottom shall be at least 12 inches.
9. Length shall be greater than 100 linear feet.
10. A flow spreader shall be used at the inlet, or if applicable, at the toe of each check dam vertical drop.

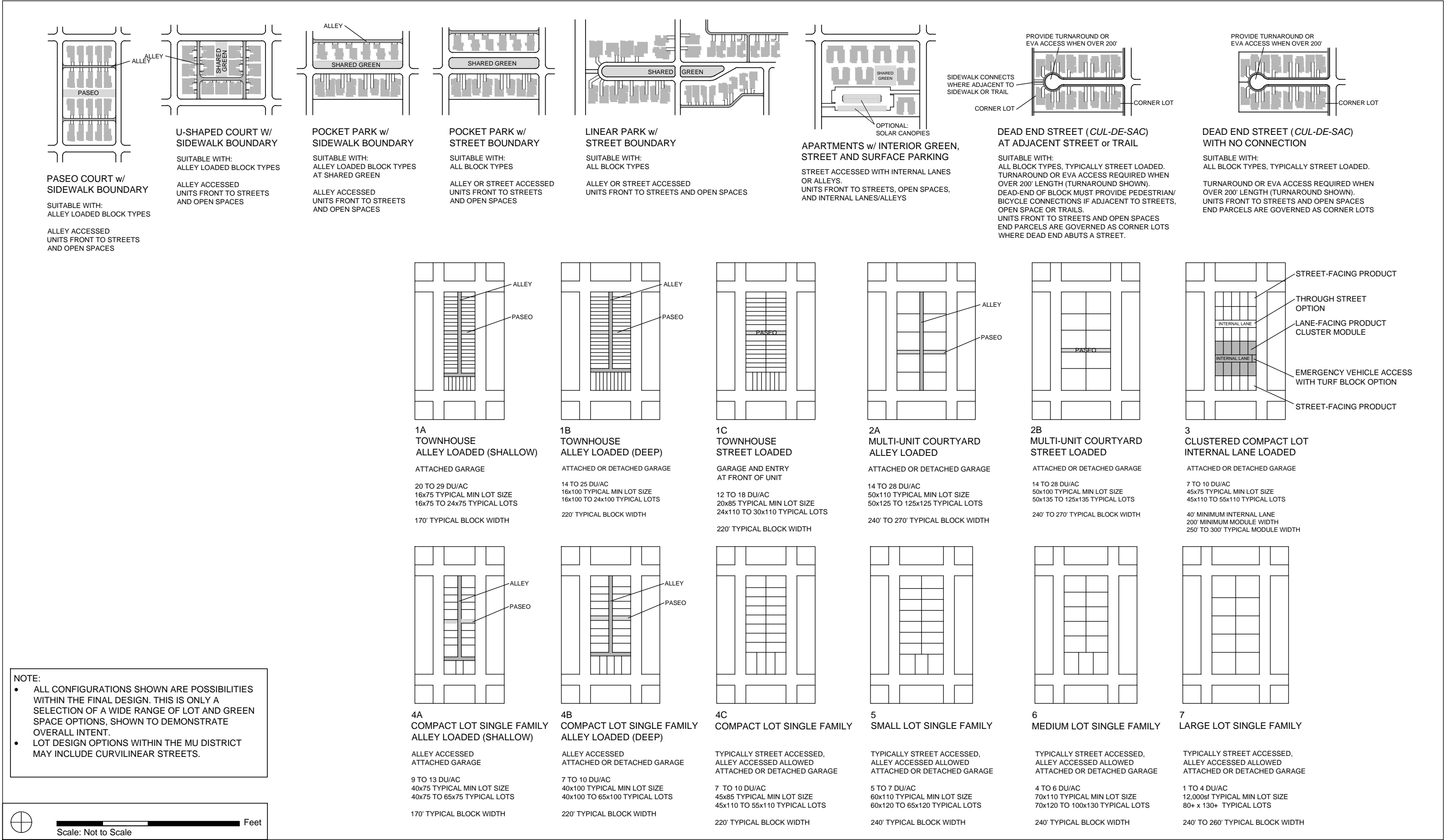
**Development Standards**

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11. Turf swale soils shall be amended with 2 inches of well-rotted compost, unless the organic content is already greater than 10%. The compost shall be mixed into the native soils to a depth of 6 inches to prevent soil layering and washout of compost. The compost will contain no sawdust, green or under-composted material, or any other toxic or harmful substance. It should contain no unsterilized manure, which can lead to high levels of pathogen indicators (coliform bacteria) in the runoff.
12. The swale area should be appropriately vegetated with a mix of erosion-resistant plant species that effectively bind the soil. A diverse selection of low-growing plants that thrive under the specific site, climatic, and watering conditions should be specified by a landscape architect.
13. Vegetative cover should be at least 4 inches in height, ideally 6 inches. Swale water depth should ideally be 2 inches below the height of the shortest plant species and should not exceed 4 inches.

**3.17. Oil and Gas Exploration and Production**

- a. **Oil and Gas Activities.** Oil and gas exploration and production and ancillary activities are permitted subject to the standards and procedures of Chapter 19.98, Oil and Gas Activities, of the KCZO. Figure 1-3, Special Plan District Map, specifies two separate Tier areas (Tier 1 and Tier 3) that relate to the Chapter 19.98 permitting procedures to be followed in allowing oil and gas facilities within the Grapevine Special Plan boundary.
- b. **Interim Exclusive Agriculture (A) District.** Within the interim Exclusive Agriculture (A) District for which no subdivision maps have been filed, oil and gas activities are permitted subject to the applicable Tier 1 or Tier 2 standards and procedures of Chapter 19.98, Oil and Gas Activities, of the KCZO. For purposes of identifying the specific Tier Area standards and procedures for Tier 1 and 2 areas within the interim Exclusive Agriculture (A) District, Figure 19.98.015, Oil and Gas Activities Boundary Area Map in Chapter 19.98 of the KCZO delineates such areas.
- c. **In addition:**
  1. Require as part of tentative and final map subdivisions that include residential, park, or school uses that Special Plan Drilling Islands (DI) be designated when necessary to accommodate oil and gas exploration and production activities. Within each DI, oil and gas applicants must comply with Tier 3 requirements of Chapter 19.98 of the KCZO. The minimum parcel size for a DI is 2.5 acres.
  2. Provide as part of tentative and final parcel maps for industrial uses in Sub Areas 6c, the north half of 6d and 6e include any provisions of Tier 1 oil and gas permitting requirements (where oil and gas activities would continue to be the dominant use), and all other lands would be subject to the Tier 3 requirements of Chapter 19.98 of the KCZO.



NOTE:

- ALL CONFIGURATIONS SHOWN ARE POSSIBILITIES WITHIN THE FINAL DESIGN. THIS IS ONLY A SELECTION OF A WIDE RANGE OF LOT AND GREEN SPACE OPTIONS, SHOWN TO DEMONSTRATE OVERALL INTENT.
- LOT DESIGN OPTIONS WITHIN THE MU DISTRICT MAY INCLUDE CURVILINEAR STREETS.

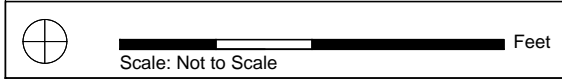


FIGURE 3-1

Residential Lot Design Options

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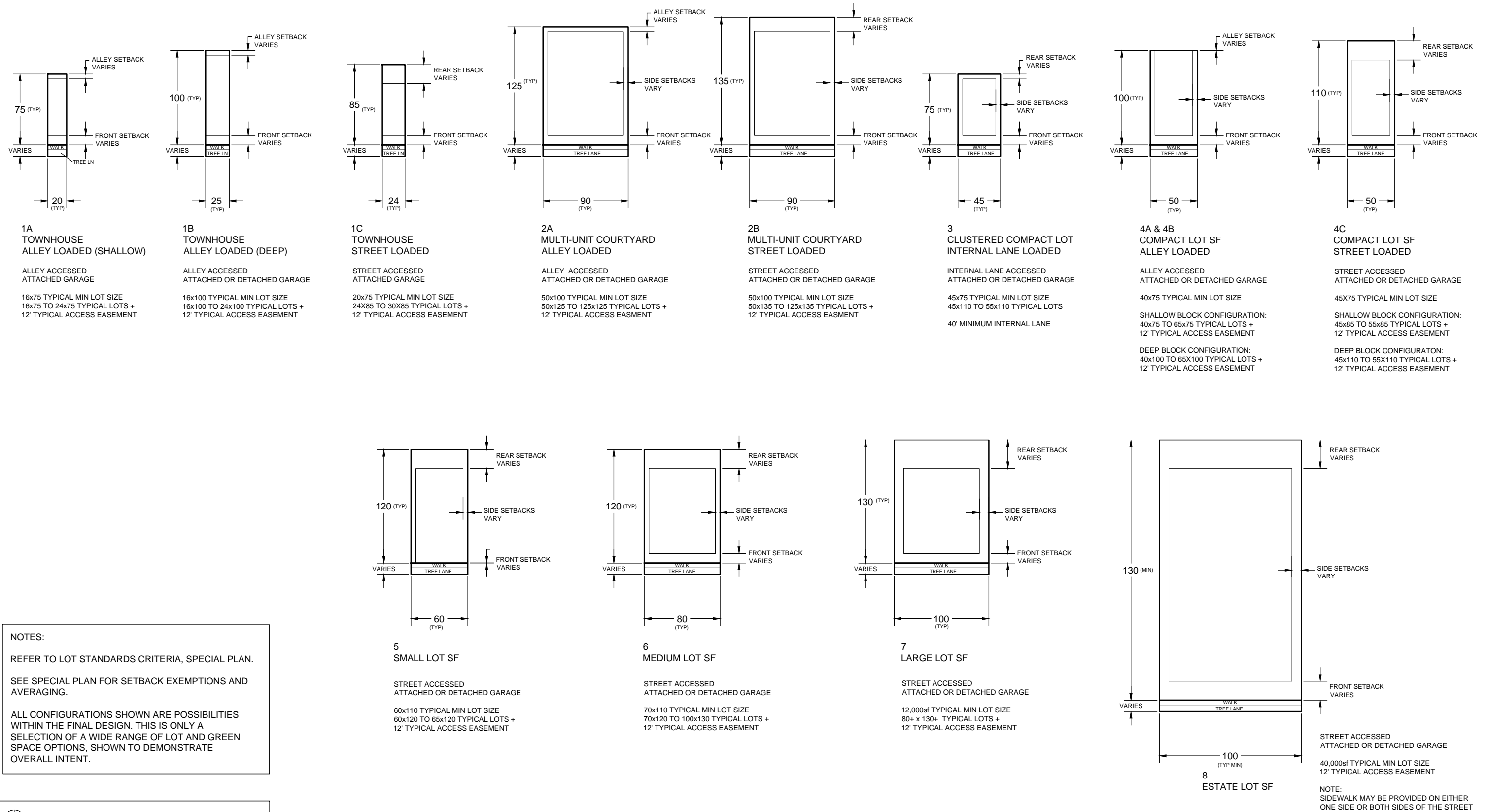
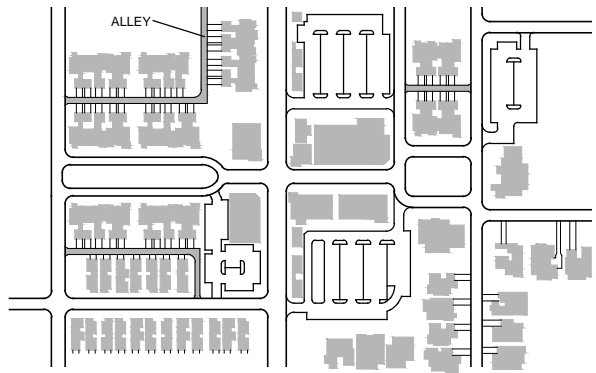


FIGURE 3-2  
 Residential Lot Options



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MIXED-USE MAIN STREET

DEFINING ELEMENTS AND CONDITIONS:

WALKABLE PEDESTRIAN-FOCUSED ENVIRONMENT SETS STAGE FOR ALL LAND USES AND ACTIVITIES.

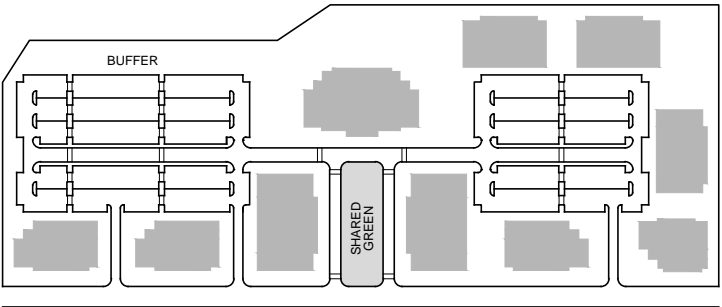
ACTIVE USES LINE MAIN STREET: STOREFRONTS, OFFICES, AND OTHER ACTIVE USES LINE THE SIDEWALK. UPPER FLOOR USES AT CORE: TO FOSTER ACTIVITY WHERE FEASIBLE, OFFICE OR RESIDENTIAL IS ENCOURAGED ON UPPER FLOORS, ESPECIALLY ALONG MAIN STREET.

PARKING: SOME PROVIDED ON-STREET, THE MAJORITY PROVIDED IN LOTS PLACED MID-BLOCK, AWAY FROM MAIN STREET AND SCREENED ON CORNERS AND WHEN ADJACENT TO RESIDENTIAL USES.

CIVIC FOCAL POINT: A PARK, SQUARE, SCHOOL, CHURCH OR OTHER CIVIC USE PROVIDES FOR A RANGE OF ACTIVITIES AND REINFORCES THE MIXED-USE MAIN STREET AS THE NEIGHBORHOOD CENTER.

HIGH AND MEDIUM DENSITY RESIDENTIAL USES SURROUND CORE TO PROVIDE A CRITICAL MASS OF USERS.

SMALLER SCALED "CORNER-STYLE" COMMERCIAL IS ALSO PERMITTED IN RESIDENTIAL NEIGHBORHOODS.



LARGE FORMAT - R&D

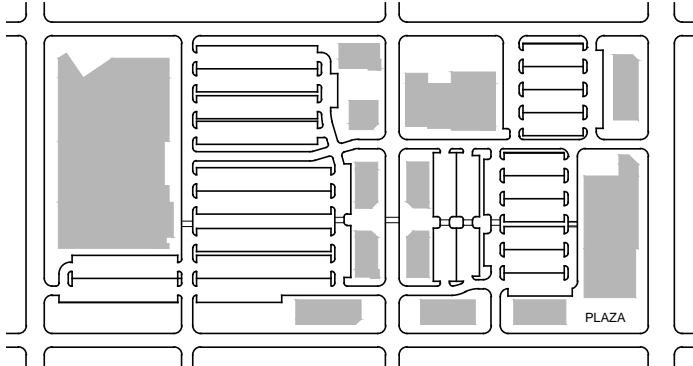
DEFINING ELEMENTS AND CONDITIONS:

BUILDINGS ARE USED TO FORM IMPORTANT PLACES AND TO ADDRESS MAJOR ADJACENCIES, SUCH AS STREETS, FREEWAY FRONTAGES, OR OPEN SPACE AMENITIES.

SOME ADJACENCIES SHOULD HAVE A BUFFERED EDGE TO MINIMIZE UNDESIRABLE VIEWS.

PARKING IS GENERALLY CENTRALLY LOCATED WITHIN THE SITE AND VISUALLY MINIMIZED. SOME GUEST AND ADA PARKING IS USUALLY PROVIDED NEAR MAJOR ENTRANCES. PARKING LOTS MAY BE LANDSCAPED OR SHADED WITH SOLAR PANELS.

ONE OR MORE AMENITY SPACES FOR GATHERING AND/OR RECREATION SHOULD BE PROVIDED, PREFERABLY AS AN ORGANIZING DEVICE FOR THE SITE PLAN.



LARGE FORMAT - RETAIL

DEFINING ELEMENTS AND CONDITIONS:

ANCHOR RETAIL - LARGE FORMAT RETAILERS OFTEN ANCHOR THE DEVELOPMENT. THESE BUILDINGS ARE USUALLY PLACED WITHIN THE BLOCK, VISIBLE FROM THE STREET, BUT DIRECTLY ADJACENT TO PARKING.

PADS - SMALLER RETAIL OR MIXED-USE BUILDINGS ARE USED TO LINE STREETS OR AISLES THROUGH THE SITE. A MINI MAIN STREET FORMED BY PADS ON EITHER SIDE OF AN ENTRY DRIVE IS A COMMON DESIGN FEATURE.

PEDESTRIAN ENVIRONMENT - DIRECT, LANDSCAPED WALKING ROUTES TO DESTINATIONS WITHIN THE SITE HUMANIZE PARKING FIELDS AND PROMOTE THE EFFICIENCY OF "PARK ONCE" CONCEPTS.

PRIVATE GATHERING AND OPEN SPACE AREAS ARE LOCATED AWAY FROM BUSY TRAFFIC OR BUFFERED.

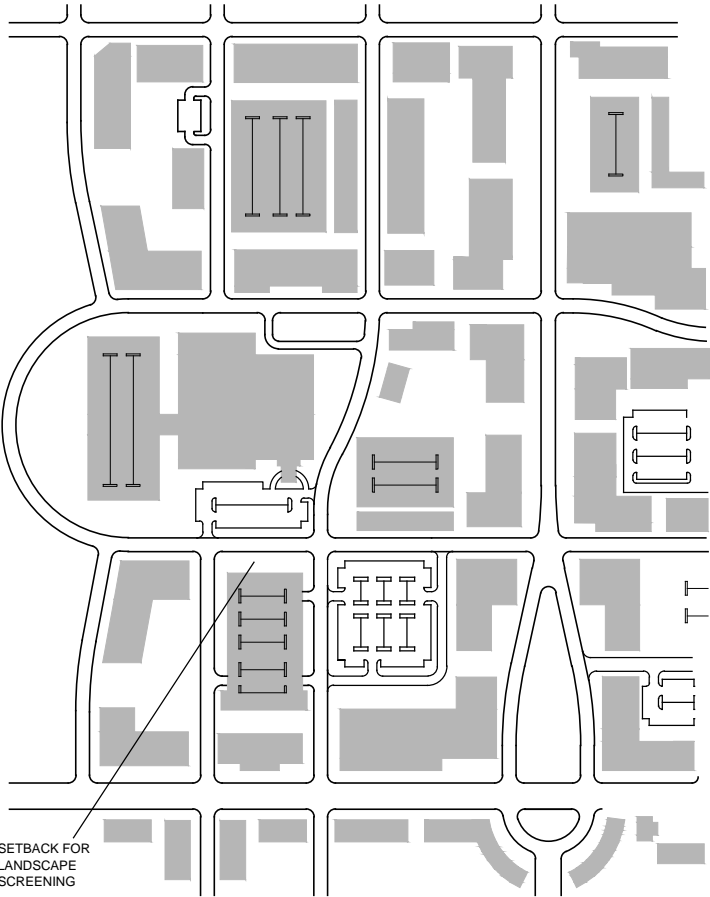
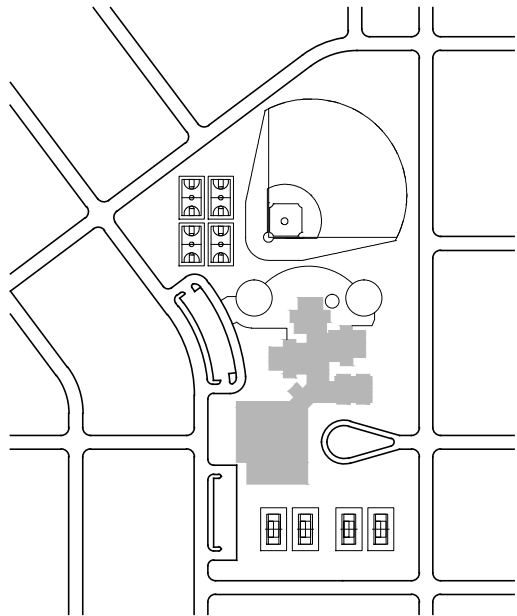
ELEMENTARY SCHOOL / COMMUNITY PARK

DEFINING ELEMENTS AND CONDITIONS:

INTEGRATED INTO AND CONNECTED WITH THE NEIGHBORHOOD

THE SHARED FACILITY COMBINES AN ELEMENTARY SCHOOL WITH SHARED PARK SPACE AND SPORTS FIELDS.

NOTE:  
TYPICAL FOR ELEMENTARY SCHOOLS/PARKS. SIMILAR JOINT USE DESIGN CONCEPT FOR MIDDLE SCHOOLS AND HIGH SCHOOL. (REFER TO SCHOOL SITING CRITERIA, SPECIFIC PLAN).



MEDICAL CENTER

DEFINING ELEMENTS AND CONDITIONS:

THE MEDICAL CENTER CAN BECOME A MULTI-USE DISTRICT, COMBINING A HOSPITAL, CLINIC, OR OTHER PRIMARY MEDICAL FACILITY WITH RELATED OTHER BUSINESSES: MEDICAL OFFICES, MEDICAL SUPPLIES, ANCILLARY SERVICES, FOOD SERVICES, ETC.

A WALKABLE STREET NETWORK AS ORGANIZING ELEMENT CONNECTS FACILITIES AND PROVIDES FOR VERSATILE GROWTH OVER TIME.

BUILDINGS SHOULD LINE STREETS AND PROVIDE STREET ACCESS TO GENERAL INTEREST USES, SUCH AS FOOD SERVICES, PHARMACY, ENTRY LOBBIES, AND OFFICES, WHERE APPROPRIATE.

PARKING SHOULD BE PLACED MID-BLOCK, WITH VERY CLEAR ROUTING AND SIGNAGE.

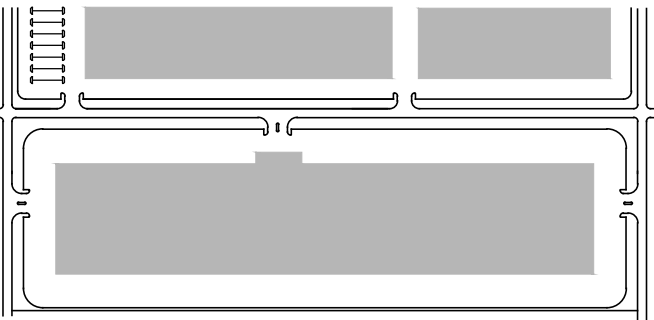
WAREHOUSE / LIGHT INDUSTRIAL

DEFINING ELEMENTS AND CONDITIONS:

BUILDING AND SITE RELATIONSHIPS ARE GENERALLY ARRANGED TO FACILITATE THE EFFICIENT AND SAFE MOVEMENT OF GOODS AND PRODUCTS TO AND FROM THE SITE.

PEDESTRIAN AND BICYCLE ACCESS FROM THE PUBLIC STREET NETWORK TO BUILDING ENTRIES ARE TO BE MAINTAINED WHILE CIRCULATION AND PARKING ARE ACCOMMODATED FOR ALL MANNER OF VEHICLES FROM SEMI-TRUCK AND TRAILER TO EMPLOYEE AND VISITOR PASSENGER VEHICLES.

LANDSCAPE PERIMETERS AT STREET FRONTAGE AND ADJACENT PARCELS, ALONG WITH ADJACENT OPEN SPACE AREAS, ARE TO BE UTILIZED TO HELP SOFTEN EDGES AND SCREEN LONG BUILDING ELEVATIONS.



NOTE:

THE PROTOTYPE DESIGN OPTIONS REPRESENTED IN THIS EXHIBIT ARE CONCEPTUAL AND ARE NOT INTENDED TO PRECLUDE OTHER INNOVATIVE DESIGN SOLUTIONS THAT COMPLY WITH THE DEVELOPMENT STANDARDS AND PERMITTED USES AS DEFINED IN THE SPECIAL PLAN.

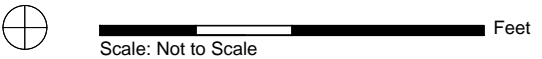


FIGURE 3-3

Non-Residential Lot Design Options

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PALETTE APPROACH  
TO CREATING STREETS

ALL STREET SECTIONS ARE COMPRISED OF TWO COMPONENTS:

**ROADWAY SECTIONS**  
CONDITIONS THAT OCCUR WITHIN THE CURB LINES OF THE STREET. SEE FIGURES 3-5 THROUGH 3-9 FOR ALL POSSIBLE ROADWAY SECTIONS.

**OFF-ROADWAY SECTIONS**  
CONDITIONS OUTSIDE OF THE ROADWAY SECTION, BETWEEN THE CURB LINE AND THE RIGHT-OF-WAY LINE AND/OR EASEMENT. SEE FIGURE 3-10 FOR ALL POSSIBLE OFF-ROADWAY SECTIONS.

EACH STREET TYPE HAS A STANDARD CONDITION, ALONG WITH A PALETTE OF OPTIONS AND ALTERNATIVES THAT MAY BE SELECTED. ANY OFF-ROADWAY SECTION OPTION MAY BE PAIRED WITH ANY ROADWAY SECTION, BASED ON SURROUNDING LAND USES AND CHARACTER TO FIT ITS CONTEXT AND NEED.

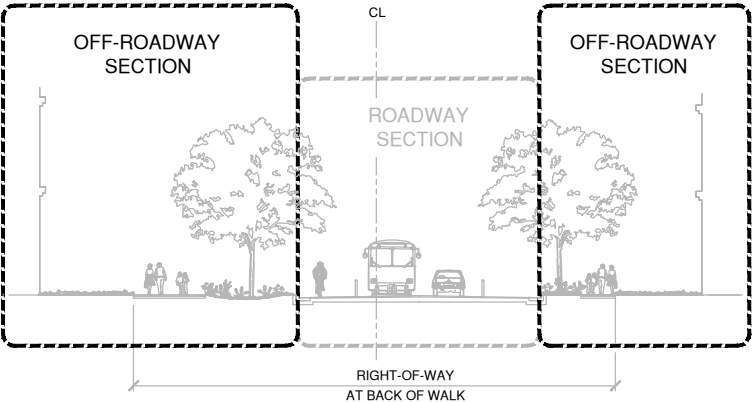
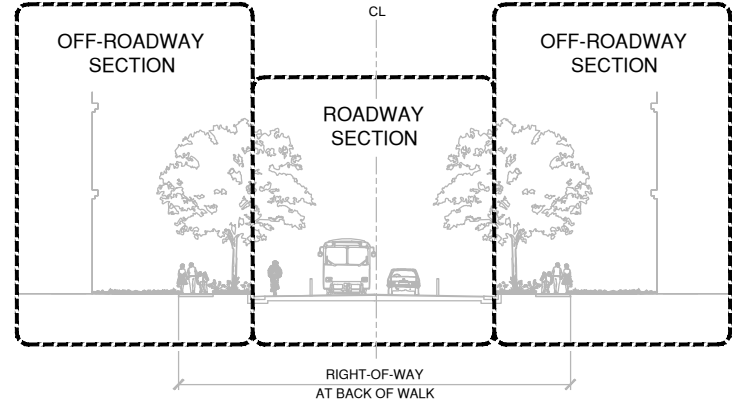
OFF-ROADWAY SECTION  
FLEXIBILITY

THE OPTIONS SHOWN IN THIS EXHIBIT REFLECT THE ALTERNATIVES FOR CONDITIONS OUTSIDE OF THE ROADWAY SECTION.

NOT ALL STREETS WILL HAVE THE SAME OFF-ROADWAY CONDITION ON BOTH SIDES. DETERMINATION OF OFF-ROADWAY SECTION TO BE USED FOR EACH STREET CONDITION SHALL BE MADE DURING THE FINAL DESIGN TO FIT CONTEXT.

STREET SECTION FIGURES

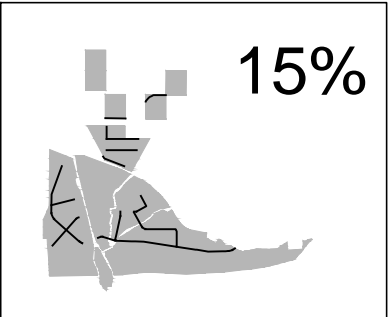
- FIGURE 3-4 PALETTE APPROACH & STREET TYPES
- FIGURE 3-5 TYPE 1 | LOCAL STREET, ALLEY, & LANE SECTIONS
- FIGURE 3-6 TYPE 2 | MINOR ARTERIAL/COLLECTOR SECTIONS
- FIGURE 3-7 TYPE 3 | MAJOR ARTERIAL/COLLECTOR SECTIONS
- FIGURE 3-8 TYPE 4 | PRIMARY ARTERIAL SECTIONS
- FIGURE 3-9 SEMI RURAL ROADWAY SECTIONS
- FIGURE 3-10 OFF ROADWAY SECTION



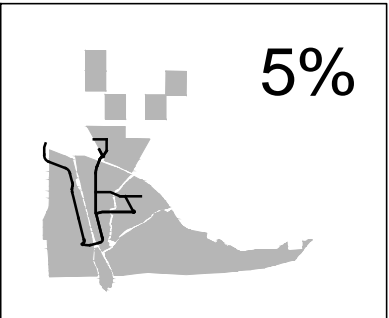
STREET TYPES & APPROXIMATE  
PERCENTAGE OF PROPOSED  
STREETS (LINEAL)



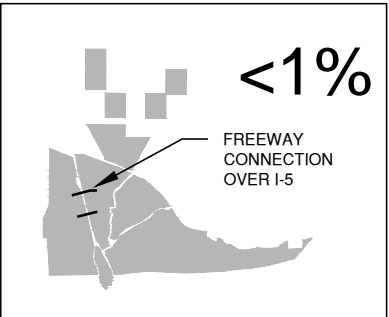
① LOCAL STREETS



② MINOR ARTERIALS/COLLECTORS



③ MAJOR ARTERIALS/COLLECTORS



④ PRIMARY ARTERIAL

NOTES

Notes apply to all street sections

- SEE FIGURE 3-10 FOR OFF-ROADWAY SECTION INFORMATION. SEE FIGURES 3-5 THROUGH 3-9 FOR ROADWAY SECTION INFORMATION.
- PUBLIC RIGHT-OF-WAY IS LOCATED AT THE BACK OF WALK. RIGHTS-OF-WAY VARY DEPENDING ON SELECTED COMBINATION OF ROADWAY AND OFF-ROADWAY OPTIONS.
- TRAFFIC IMPACT ASSESSMENT, IN BALANCE WITH COMMUNITY-SUPPORTIVE GOALS SUCH AS WALKABILITY, SHALL DETERMINE FINAL ROADWAY OPTION SELECTION AND LANE REQUIREMENTS.
- WHERE LEFT TURN MOVEMENTS ARE UNNECESSARY, A MEDIAN MAY BE PLACED IN THE CENTRAL SECTIONS. MEDIAN WIDTHS MAY VARY WITH THE APPROVAL OF THE PLANNING DIRECTOR.
- BIKE PROTECTION MAY INCLUDE, BUT IS NOT LIMITED TO: TUBULAR MARKERS, RAISED MEDIANS/CURBS, MOVABLE PLANTERS, AND STRIPING.
- SIDEWALK AND PED/BIKE MULTI-USE TRAIL WIDTHS MAY INCREASE IN AREAS OF HIGH INTENSITY PEDESTRIAN OR BICYCLE USE.
- MINOR ARTERIALS/COLLECTORS AND LOCAL STREETS MAY BE CROSS-SLOPED OR CROWNED, TO BEST FIT GRADING CONDITIONS AT FINAL DESIGN.
- TREE LANES, LANDSCAPED AREAS, AND MEDIANS MAY BE USED FOR BIORETENTION, OR OTHER APPLICABLE LOW IMPACT DEVELOPMENT PRACTICES.
- LOCAL STREETS MAY HAVE VERTICAL OR ROLLED CURBS.
- ALTERNATIVE PAVING MATERIALS, SUCH AS DECOMPOSED GRANITE, MAY BE USED FOR SIDEWALK OR BIKE PATHS WHERE SUFFICIENT HARDSCAPE SURFACE IS PROVIDED ELSEWHERE.
- CIRCULATION PLAN AND STREET SECTIONS ARE BASED UPON FULL BUILD OUT. DEPENDING UPON PROJECTED TRAFFIC VOLUMES AND CURRENT PROJECT DEVELOPMENT, STREETS MAY BE CONSTRUCTED IN PHASES.
- DIMENSIONS SHOWN ARE TYPICAL.

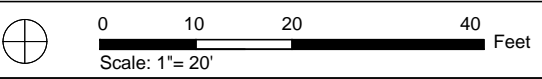
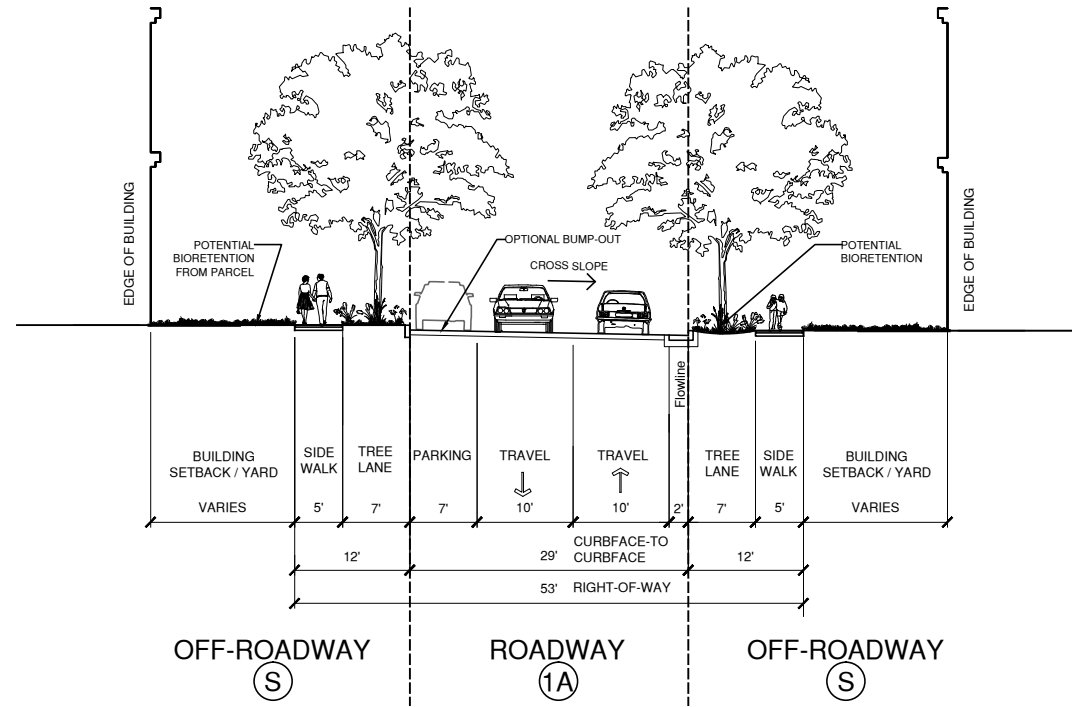


FIGURE 3-4

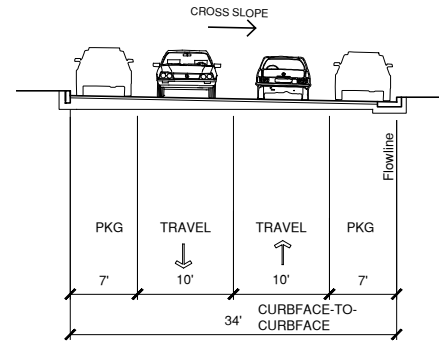
Palette Approach & Street Types

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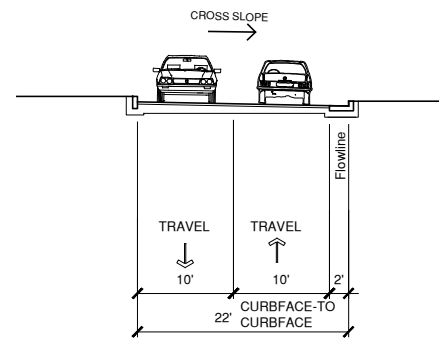


LOCAL STREET - STANDARD CONDITION

1B  
PARKING BOTH SIDES

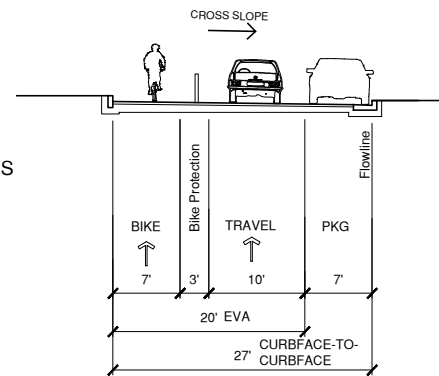


1C  
NO PARKING



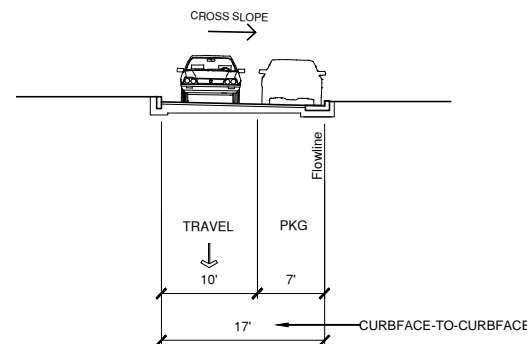
1D  
ONE-WAY TRAVEL  
PROTECTED BIKE LANES

NOTE:  
BIKE PROTECTION MARKERS  
MUST BE EVA COMPLIANT

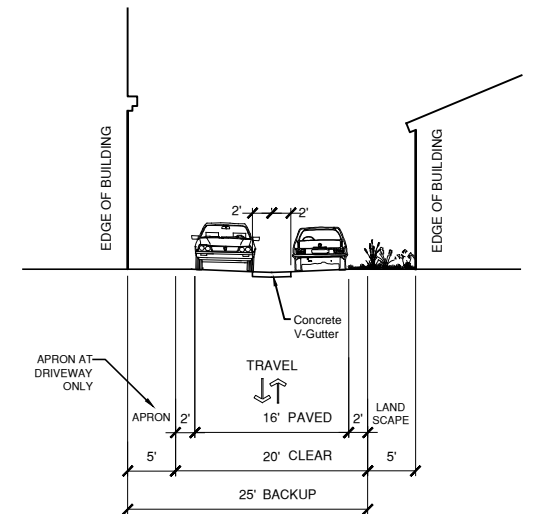


1E  
ONE-WAY

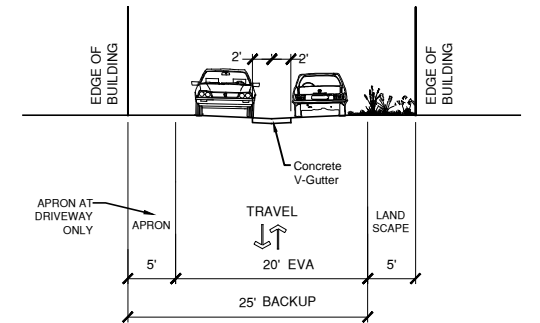
NOTE:  
ONLY USED WHEN EVA IS  
ACCOMMODATED ELSEWHERE



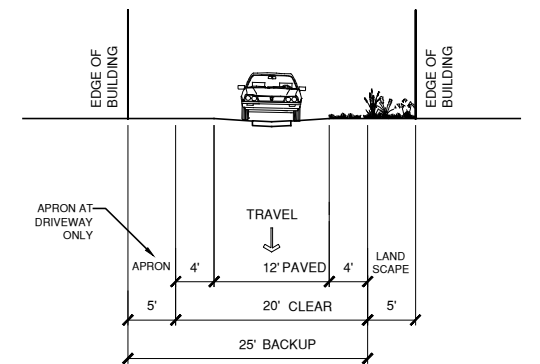
AA  
ALLEY - STANDARD  
CONDITION



AB  
ALLEY - EVA ACCESS

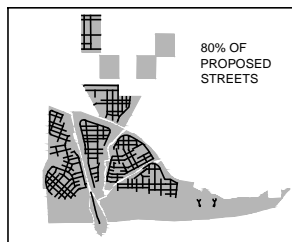
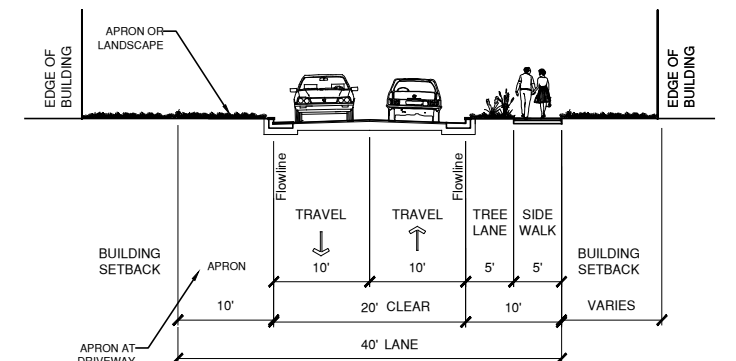


AC  
ALLEY - ONE-WAY TRAVEL



LA  
INTERNAL LANE  
LOADED

NOTE:  
FOR CLUSTERED COMPACT  
LOT TYPES



NOTE:  
TREE LANES, LANDSCAPED  
AREAS, AND MEDIANS MAY  
BE USED FOR BIORETENTION,  
OR OTHER APPLICABLE LOW  
IMPACT DEVELOPMENT  
PRACTICES.

SEE FIGURE 3-10 FOR  
OFF-ROADWAY SECTION  
INFORMATION.

LOCAL STREETS

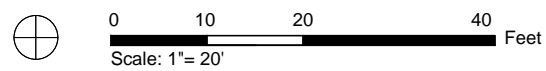
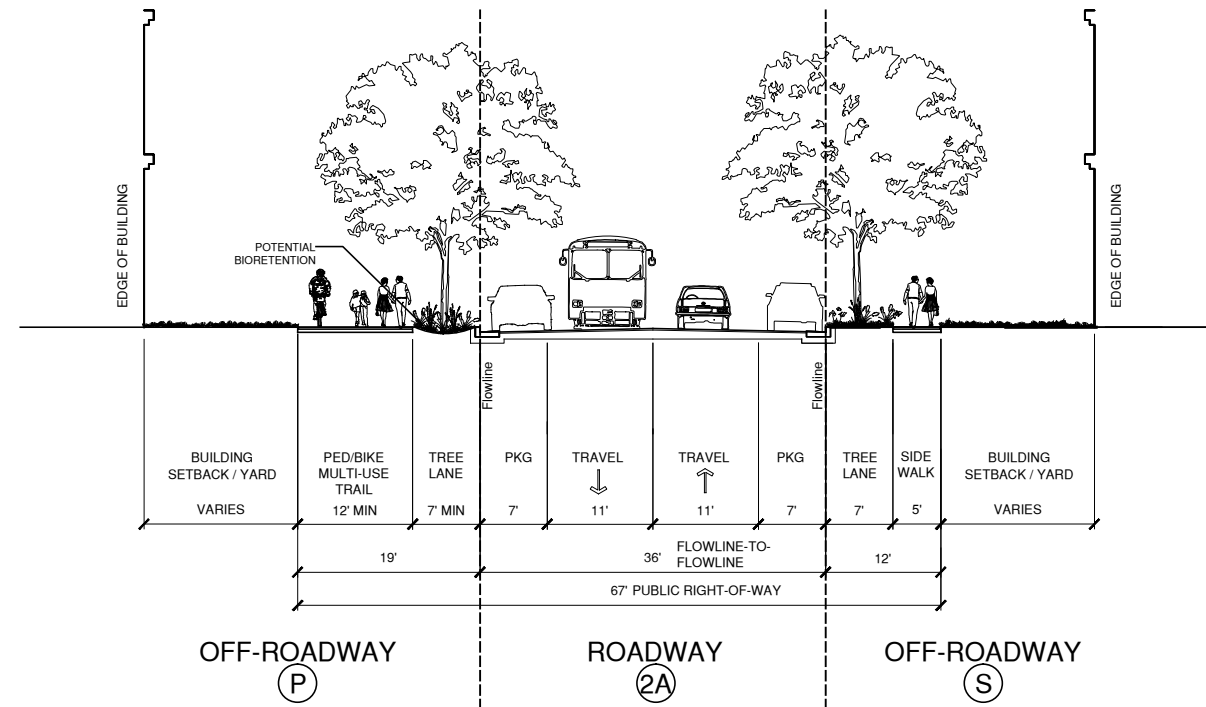


FIGURE 3-5

Types 1 A L | Local Street, Alley, and Lane Sections

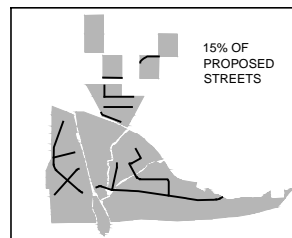
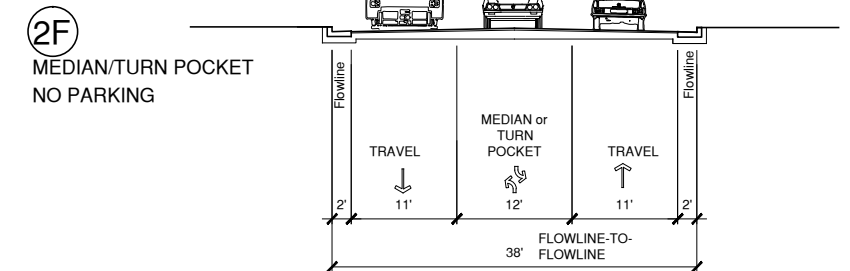
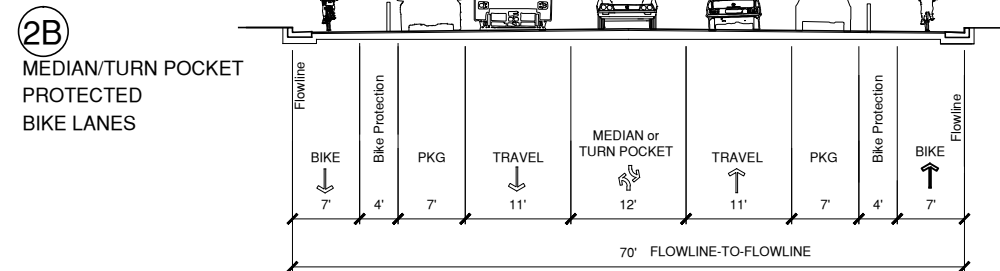
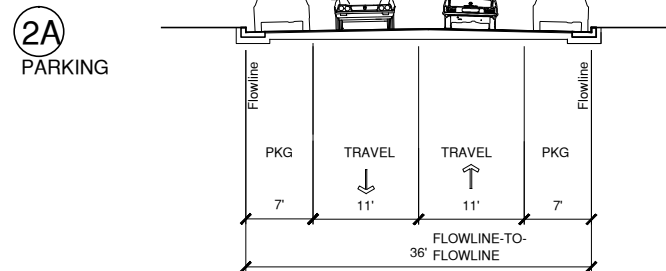
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OFF-ROADWAY (P) ROADWAY (2A) OFF-ROADWAY (S)

**MINOR ARTERIAL/COLLECTOR - STANDARD CONDITION**



NOTE:  
TREE LANES, LANDSCAPED  
AREAS, AND MEDIANS MAY  
BE USED FOR BIORETENTION,  
OR OTHER APPLICABLE LOW  
IMPACT DEVELOPMENT  
PRACTICES.

SEE FIGURE 3-10 FOR  
OFF-ROADWAY SECTION  
INFORMATION.

**MINOR ARTERIAL/COLLECTOR**

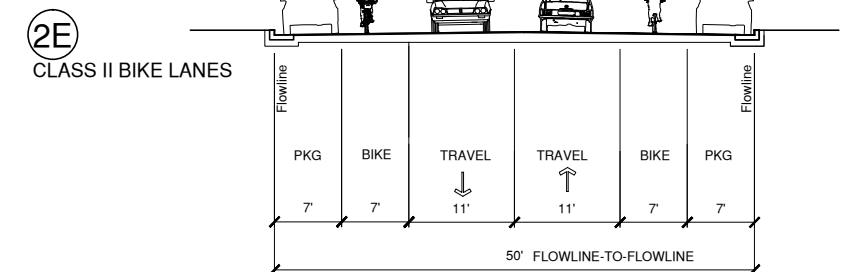
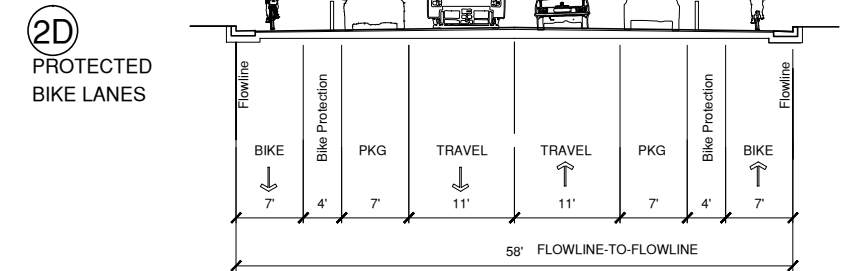
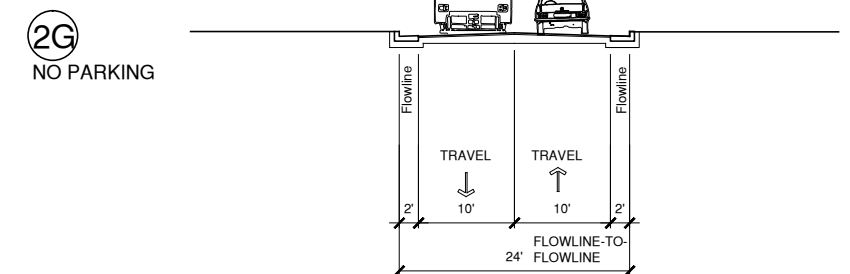
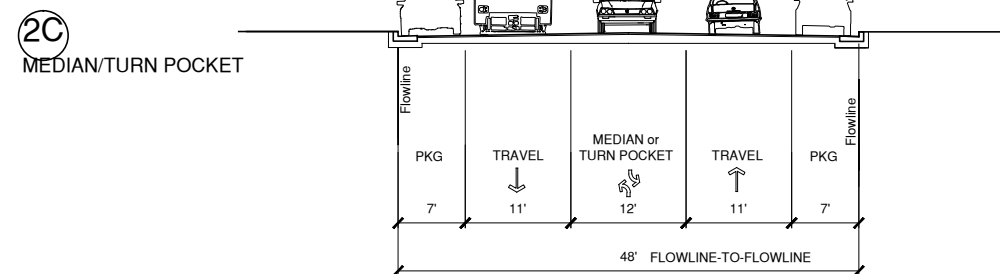
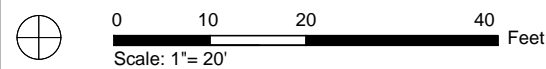
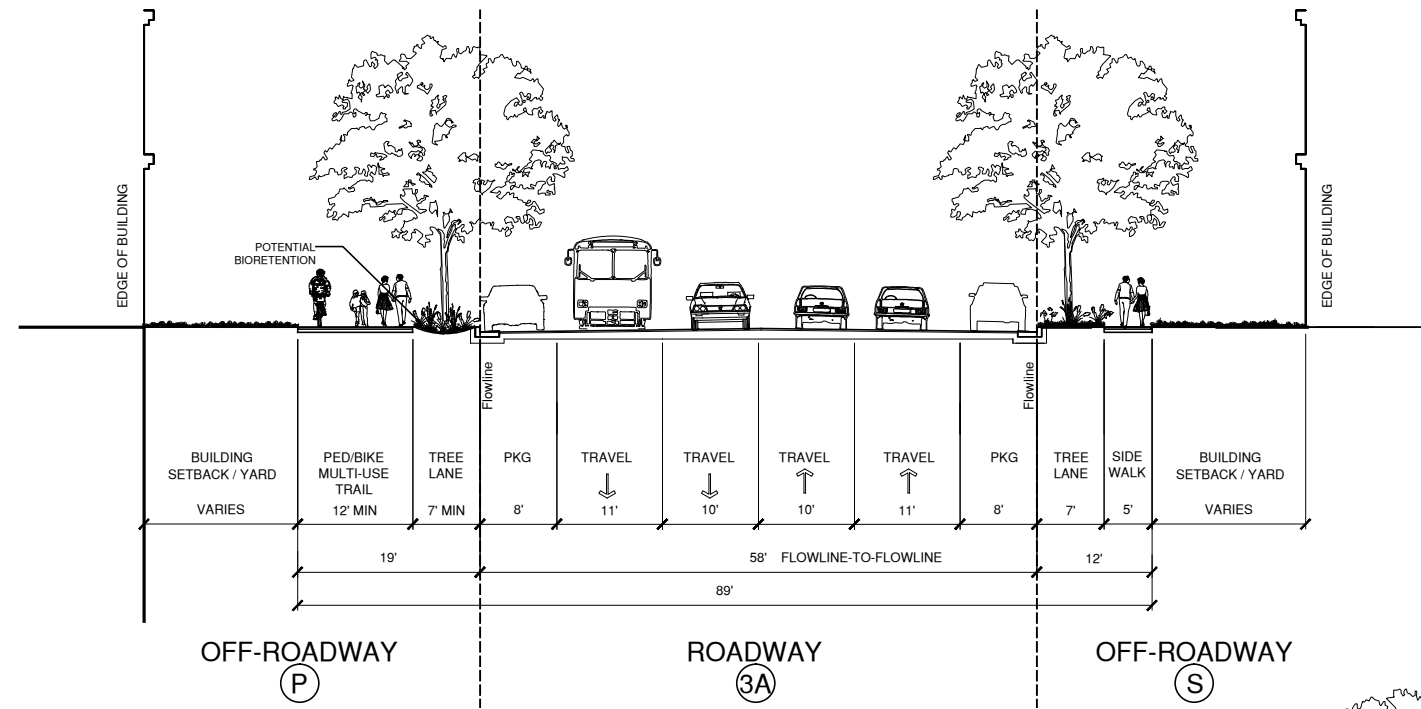


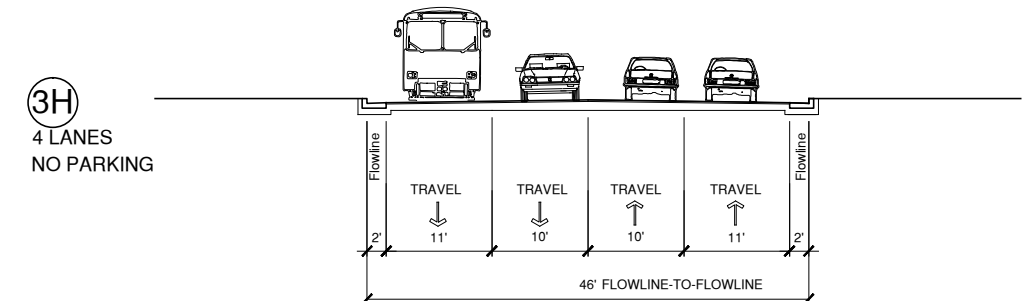
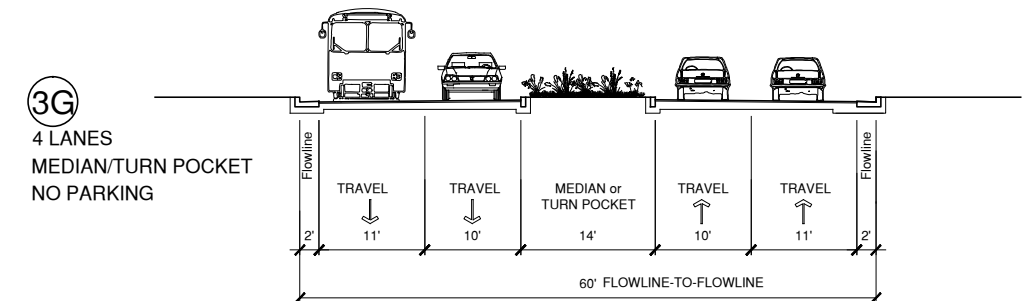
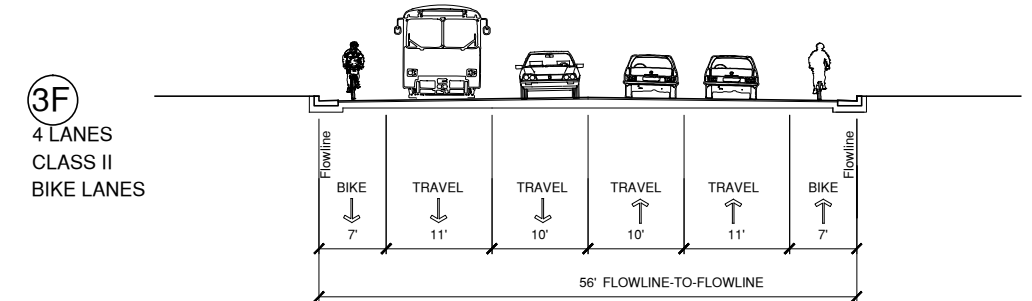
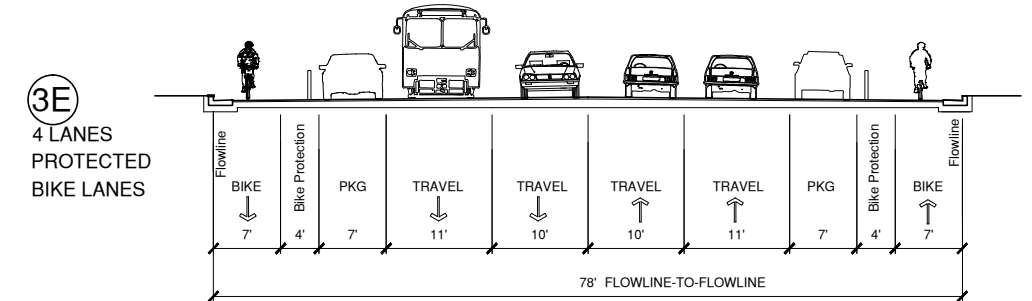
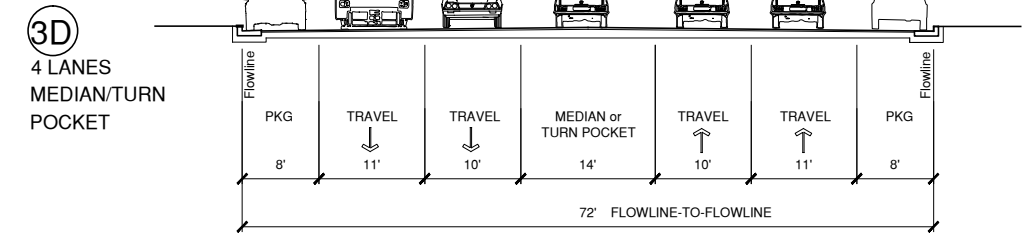
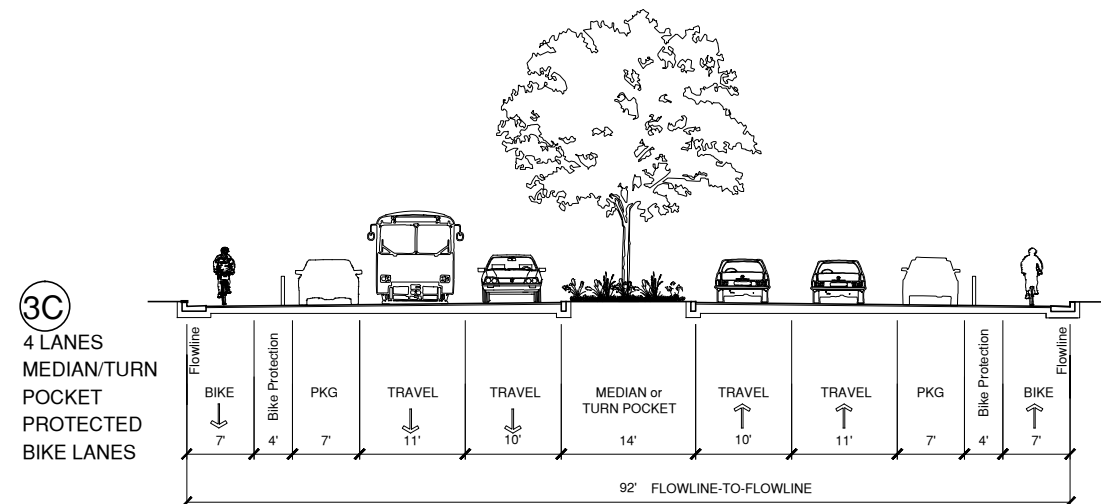
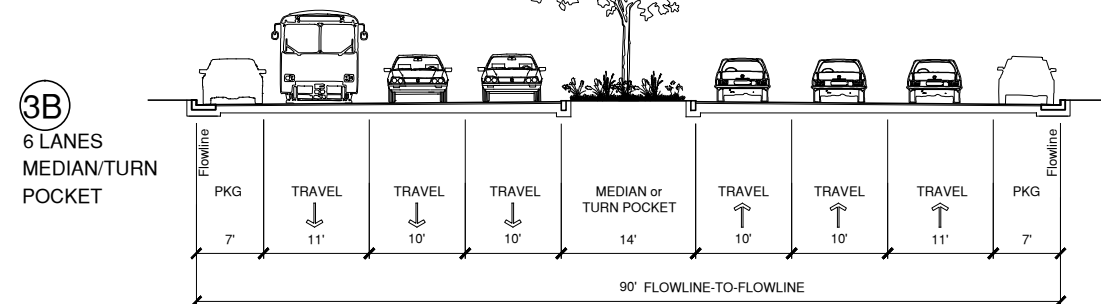
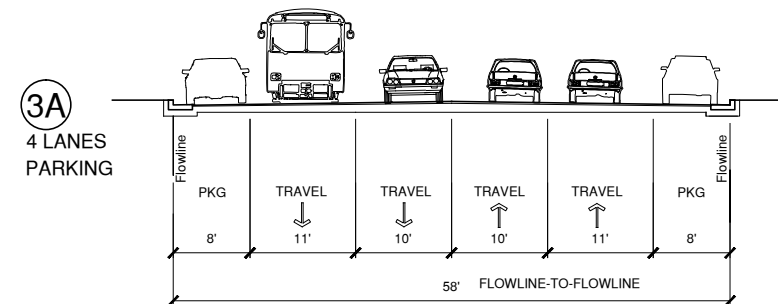
FIGURE 3-6

Type ② | Minor Arterial/Collector Sections

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### MAJOR ARTERIAL/COLLECTOR - STANDARD CONDITION



NOTE: TREE LANES, LANDSCAPED AREAS, AND MEDIANS MAY BE USED FOR BIORETENTION, OR OTHER APPLICABLE LOW IMPACT DEVELOPMENT PRACTICES.

SEE FIGURE 3-10 FOR OFF-ROADWAY SECTION INFORMATION.

### MAJOR ARTERIAL/COLLECTOR

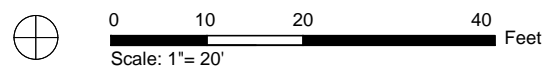
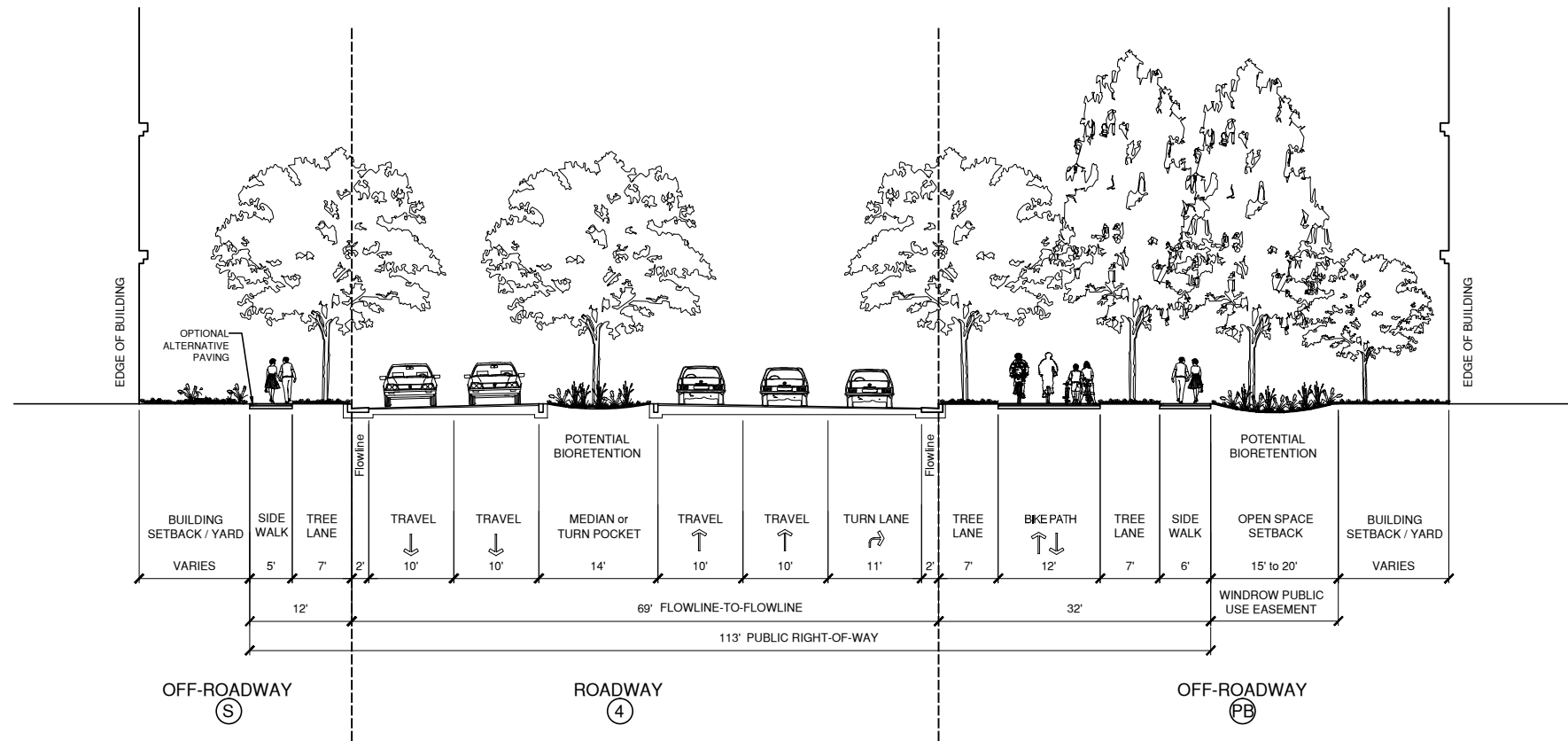


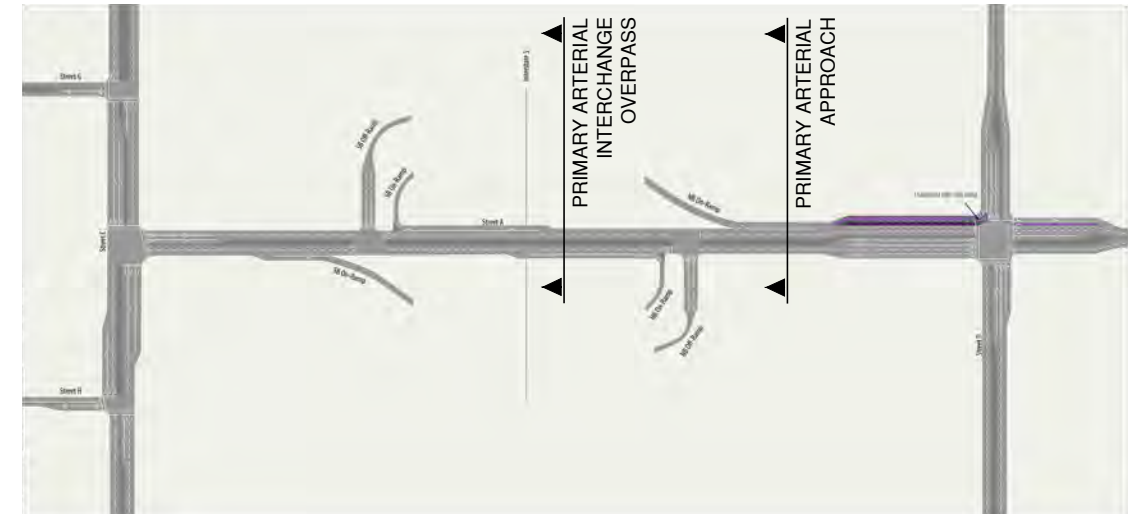
FIGURE 3-7

Type ③ | Major Arterial/Collector Sections

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PRIMARY ARTERIAL APPROACH



I-5 INTERCHANGE AND PRIMARY ARTERIAL CONCEPTUAL LANE CONFIGURATIONS

NOTE:  
ONE INTERCHANGE OVERPASS AND ONE NON-INTERCHANGE OVERPASS WILL BRIDGE OVER THE FREEWAY. SEE FIGURE 1-4 OF THE SPECIAL PLAN FOR THE TWO LOCATION OPTIONS.

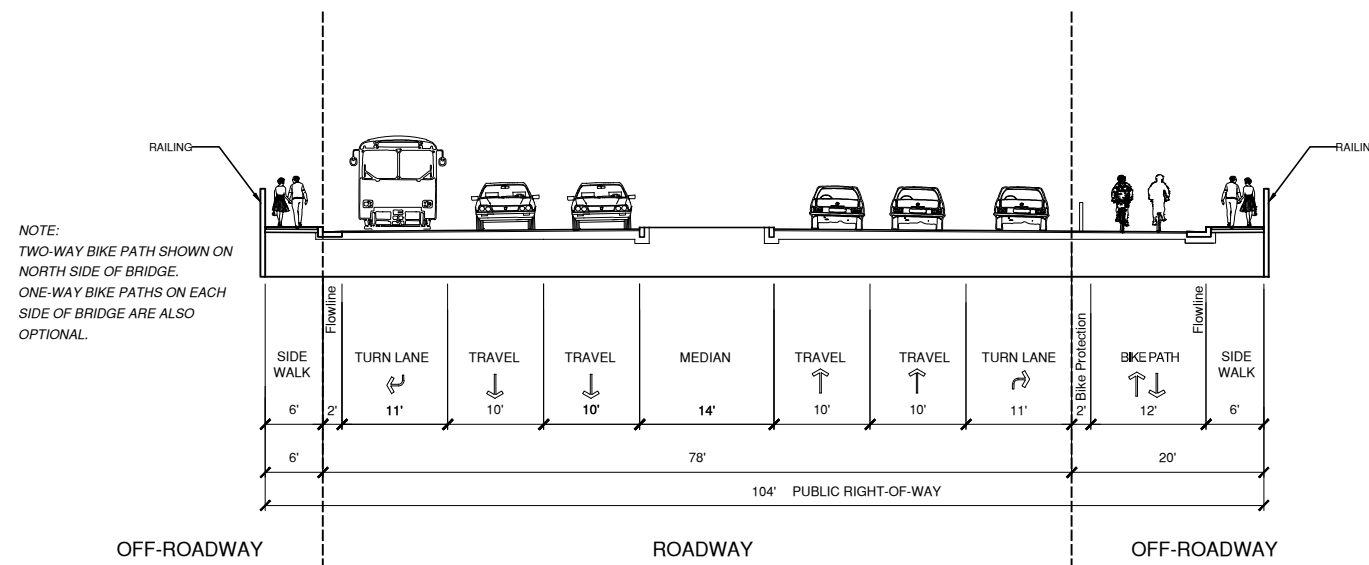
TREE LANES, LANDSCAPED AREAS, AND MEDIANS MAY BE USED FOR BIORETENTION, OR OTHER APPLICABLE LOW IMPACT DEVELOPMENT PRACTICES.

ADDITIONAL TURN LANES PROVIDED AS NEEDED, PER TRAFFIC ANALYSIS AND FINAL DESIGN.

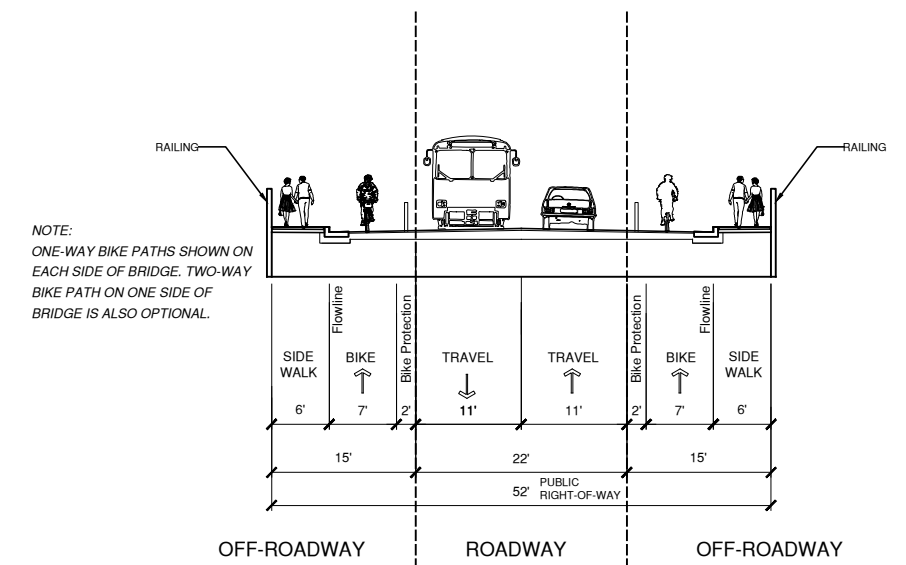
SEE FIGURE 3-10 FOR OFF-ROADWAY SECTION INFORMATION.



PRIMARY ARTERIAL



PRIMARY ARTERIAL INTERCHANGE OVERPASS



NON-INTERCHANGE FREEWAY OVERPASS

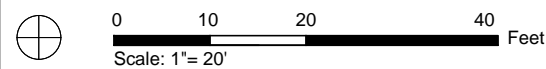
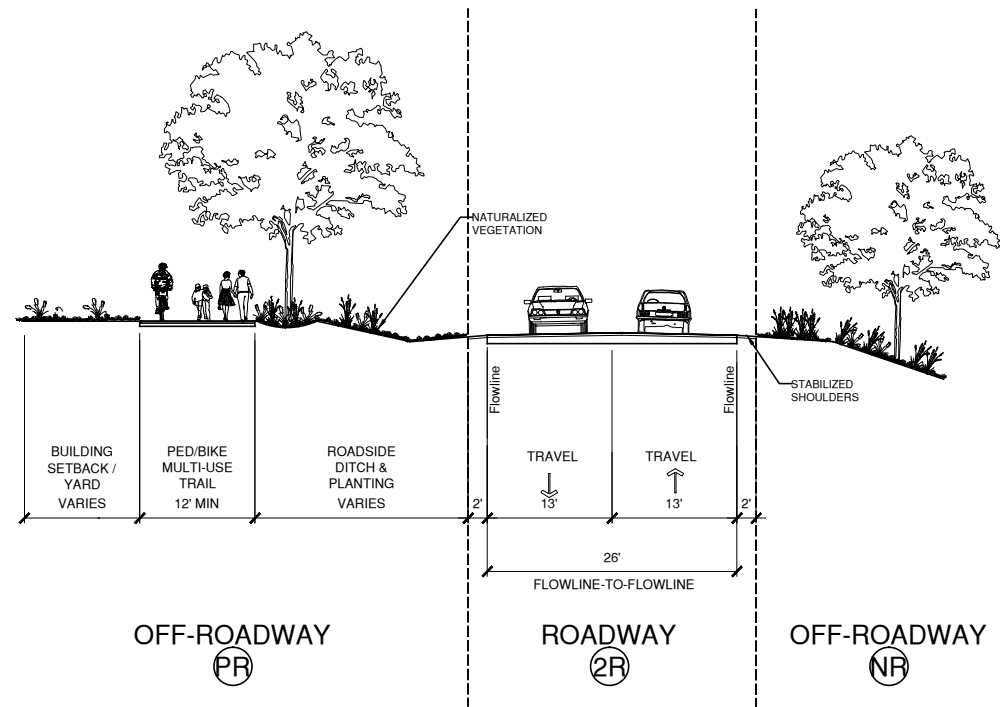


FIGURE 3-8

Type (4) | Primary Arterial Sections

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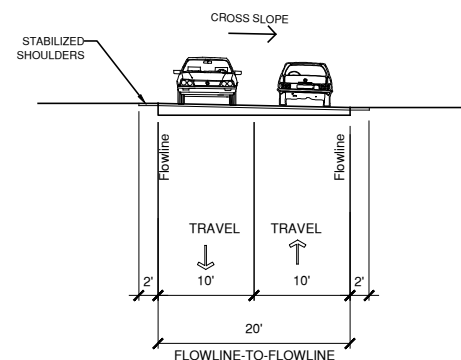


OFF-ROADWAY (PR) ROADWAY (2R) OFF-ROADWAY (NR)

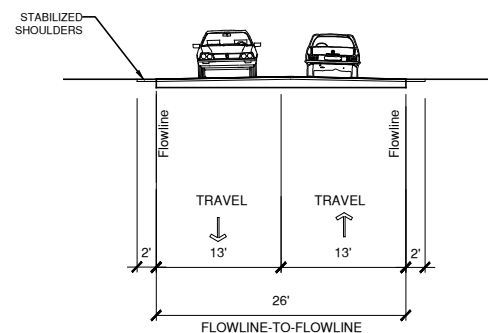
**MINOR ARTERIAL / COLLECTOR, SEMI-RURAL CONDITION**  
(E.G. EDMONSTON PUMPING PLANT ROAD)

## ROADWAY OPTIONS

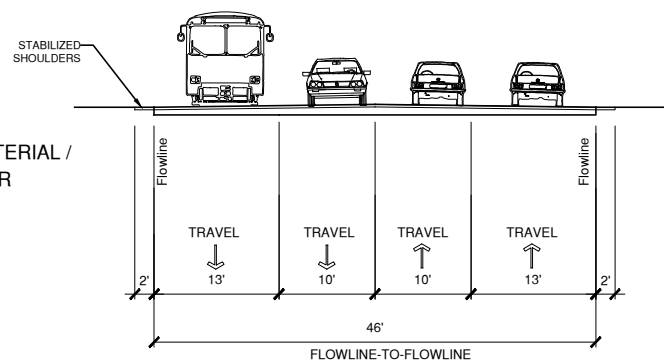
(1R)  
2 LANE  
LOCAL



(2R)  
2 LANE  
MINOR ARTERIAL /  
COLLECTOR

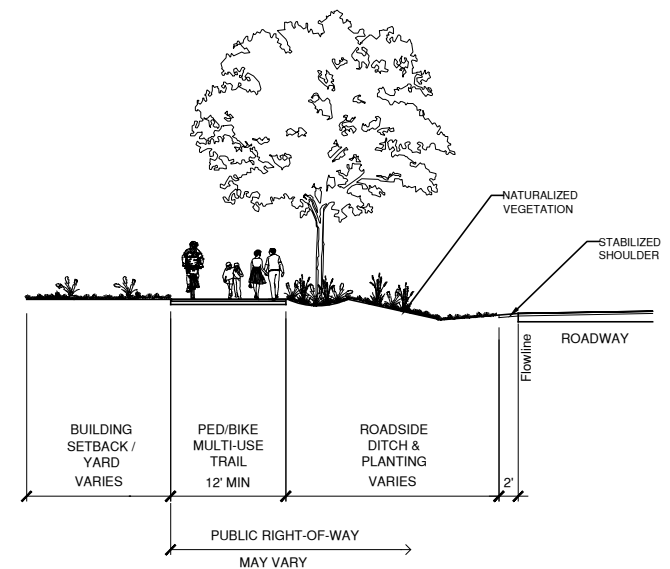


(3R)  
4 LANE  
MAJOR ARTERIAL /  
COLLECTOR

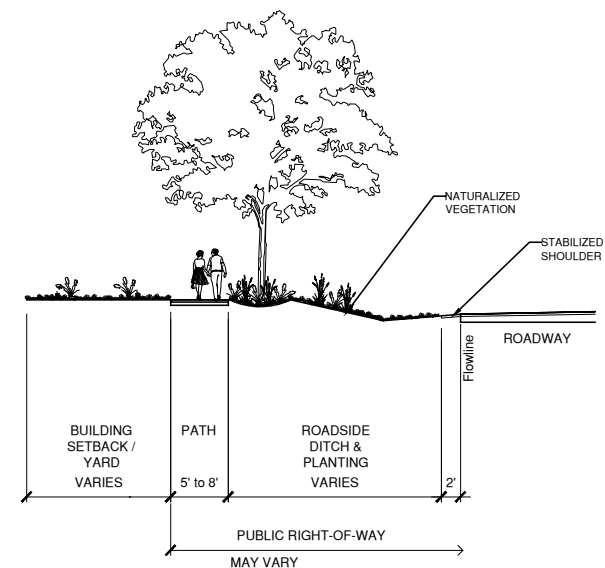


## OFF-ROADWAY OPTIONS

(PR)  
SEMI-RURAL  
PEDESTRIAN / BIKE  
MULTI-USE TRAIL



(SR)  
SEMI-RURAL  
STREETSCAPE



(NR)  
NATURALIZED  
CONDITION

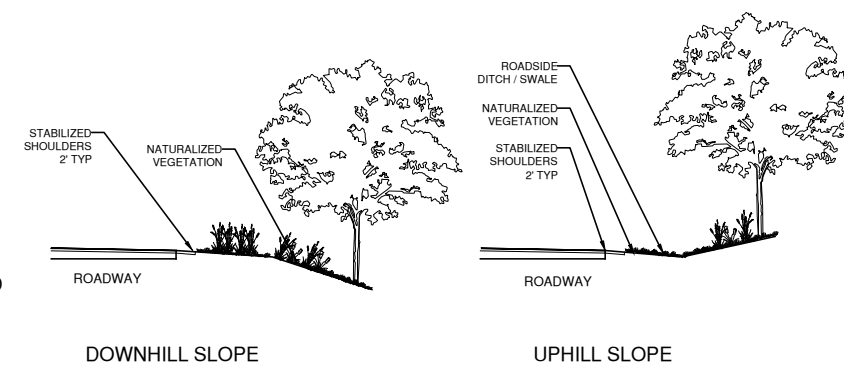
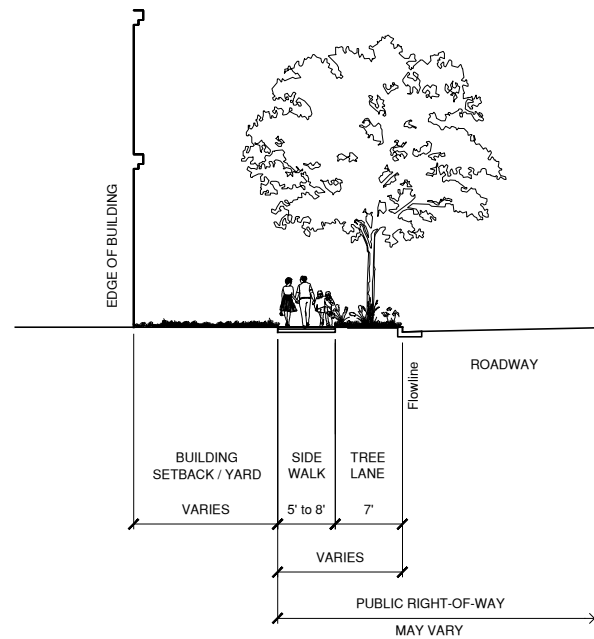


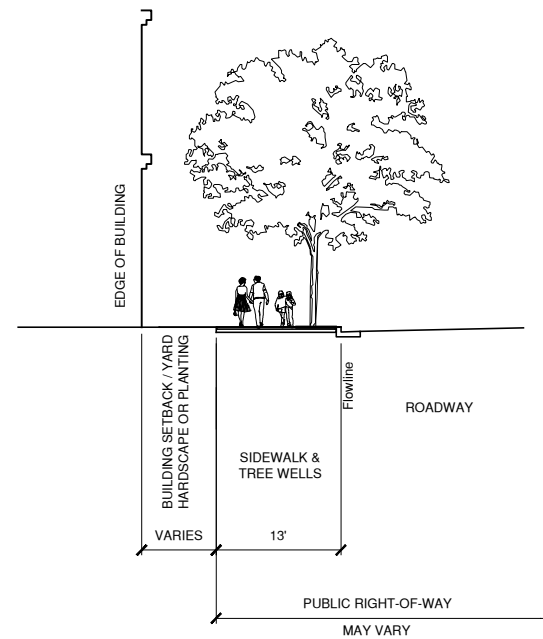
FIGURE 3-9  
**Semi-Rural Roadway Sections**

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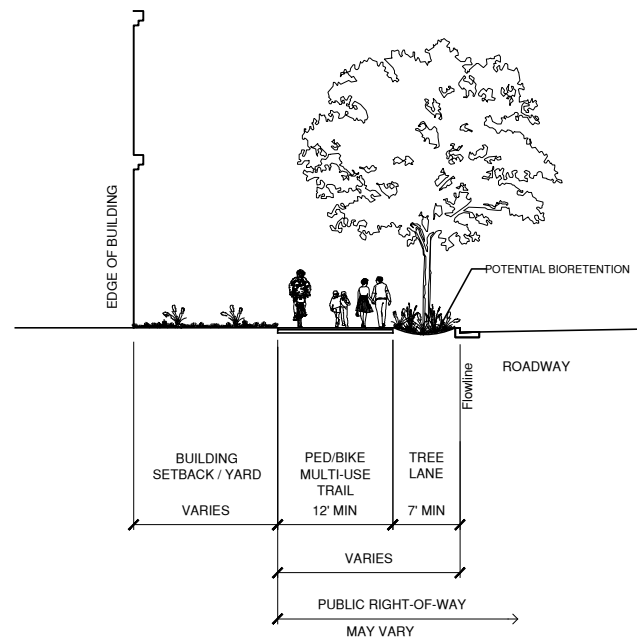




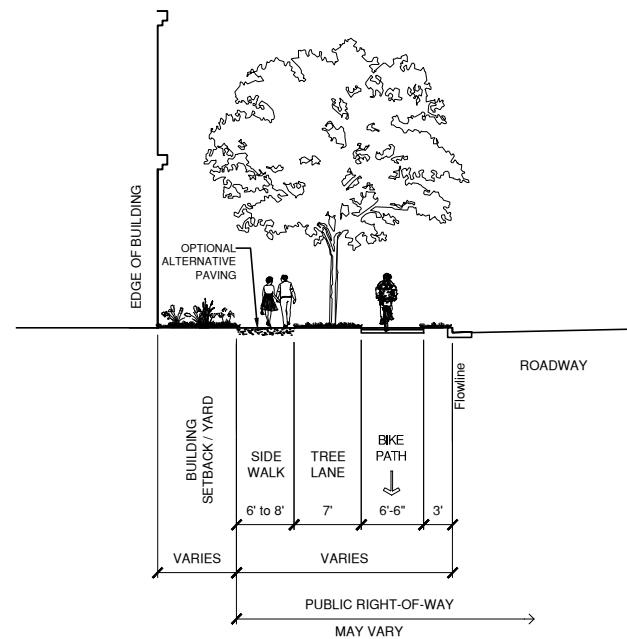
**(S)**  
STREETSCAPE - STANDARD CONDITION



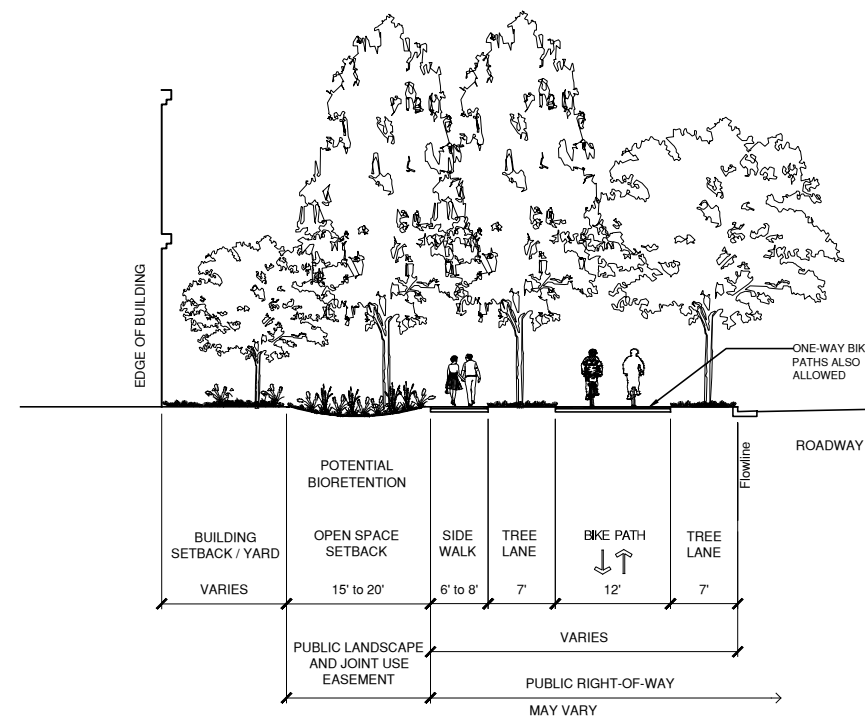
**(SA)**  
VILLAGE STREETSCAPE



**(P)**  
PEDESTRIAN/BIKE MULTI-USE TRAIL - STANDARD CONDITION



**(PA)**  
BIKE PATH



**(PB)**  
BIKE PATH  
WINDROW



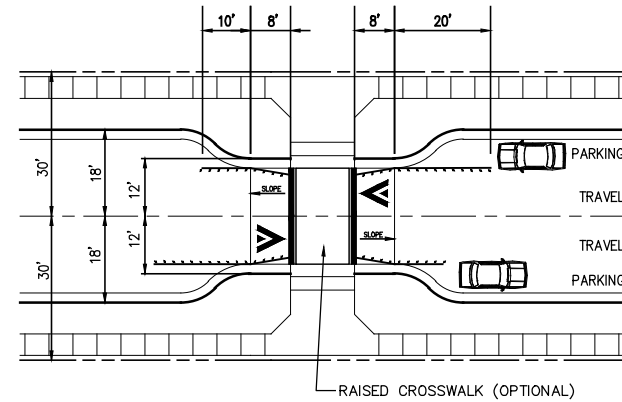
0 10 20 40 Feet  
Scale: 1" = 20'

NOTE: TREE LANES, LANDSCAPED AREAS, AND MEDIANS MAY BE USED FOR BIORETENTION, OR OTHER APPLICABLE LOW IMPACT DEVELOPMENT PRACTICES.

FIGURE 3-10

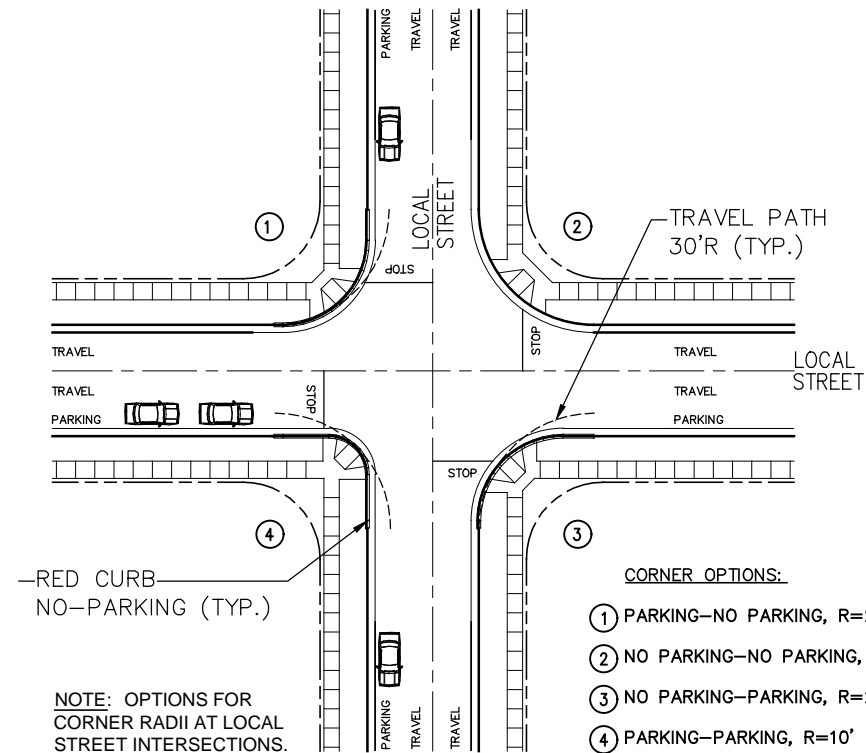
Types **(S)** **(P)** | Off-Roadway Sections

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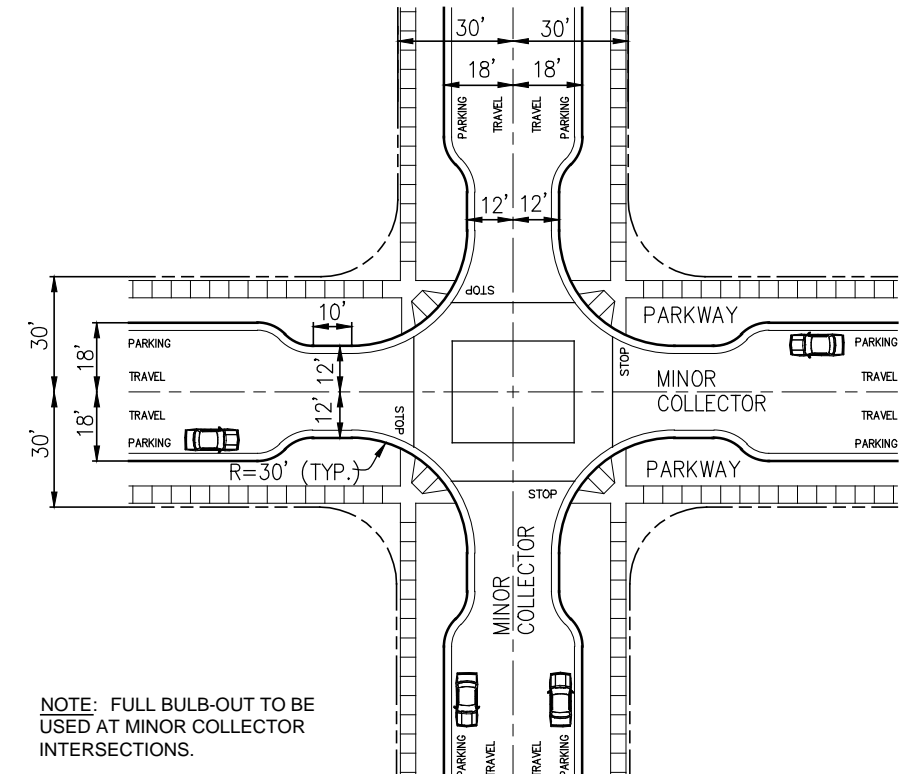


NOTE: RAISED CROSSWALKS TO BE USED AT MID-BLOCK CROSSING ON COLLECTOR STREETS AS NEEDED FOR PEDESTRIAN CIRCULATION.

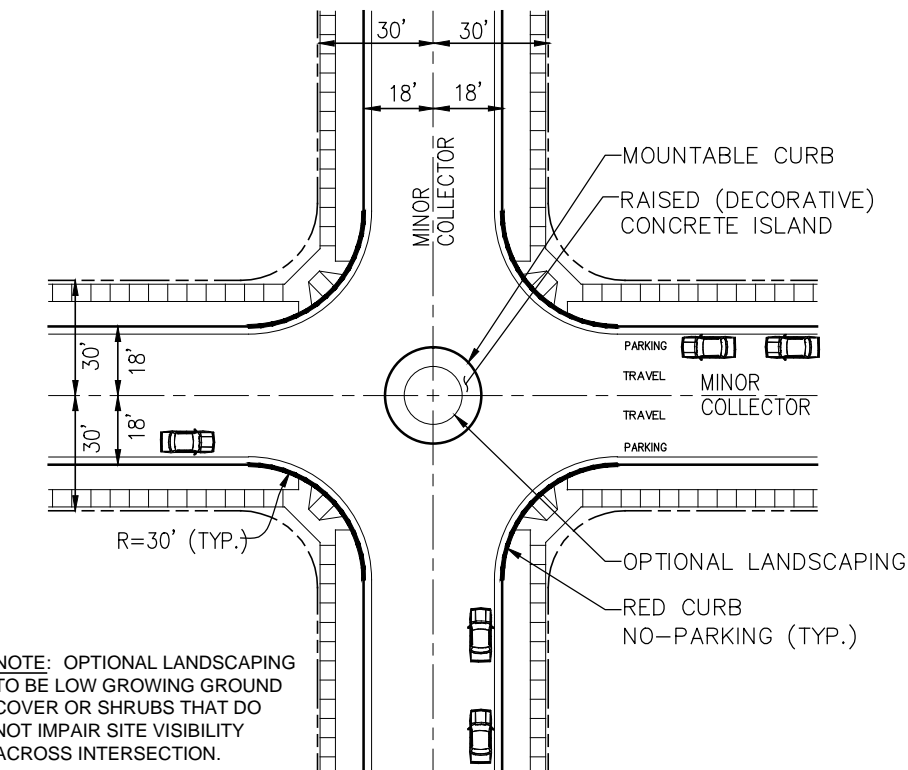
MID-BLOCK CROSSING-MINOR COLLECTOR/ LOCAL



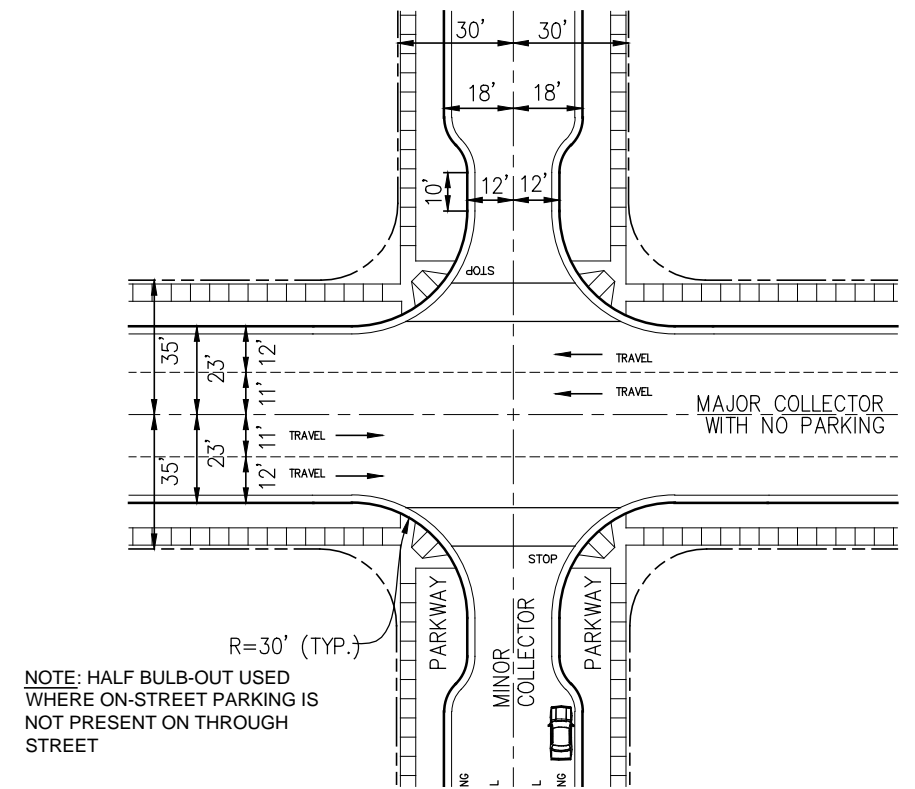
MODIFIED CURB RETURN RADII DETAIL



DETAIL FOR FULL BULB-OUT INTERSECTION



DETAIL FOR TRAFFIC CIRCLE AT INTERSECTION



DETAIL FOR HALF BULB-OUT INTERSECTION

NOTE:  
DIMENSIONS SHOWN ARE TAKEN FLOWLINE TO FLOWLINE.

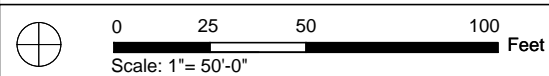
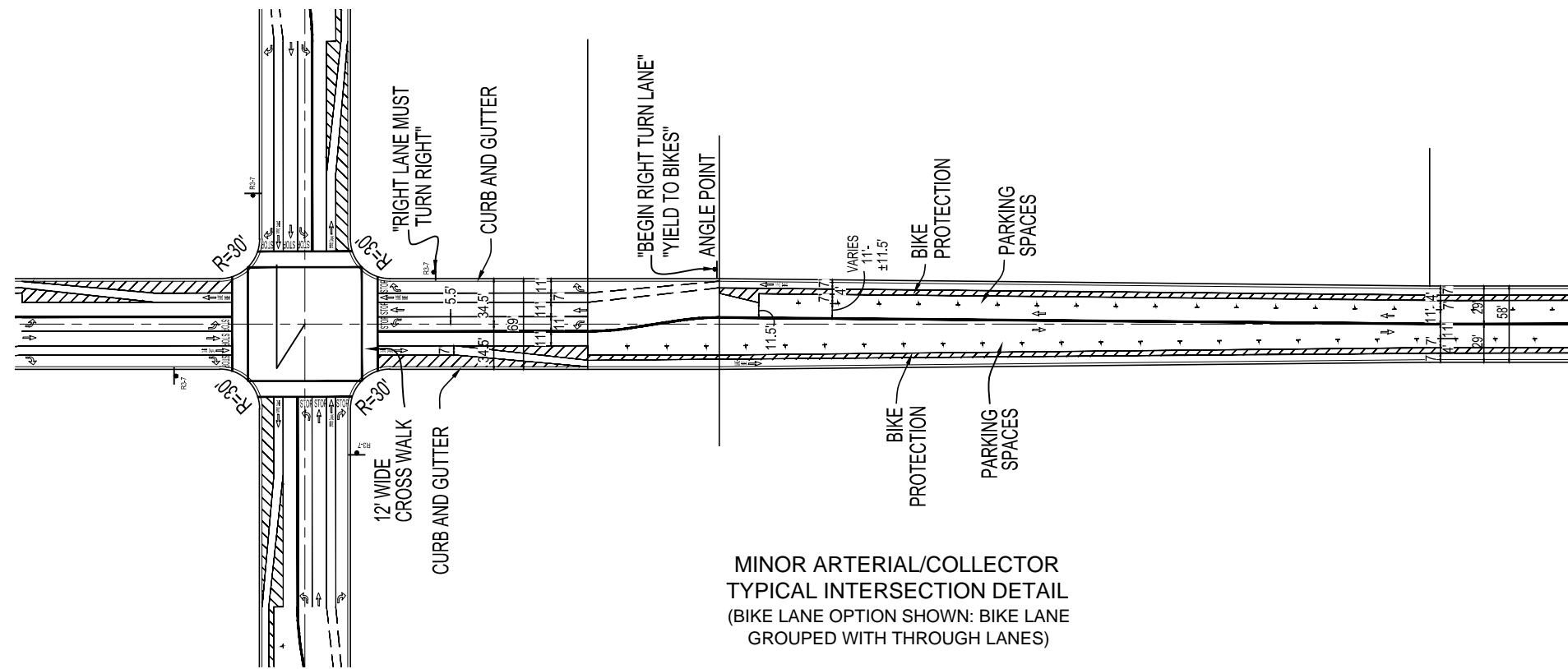
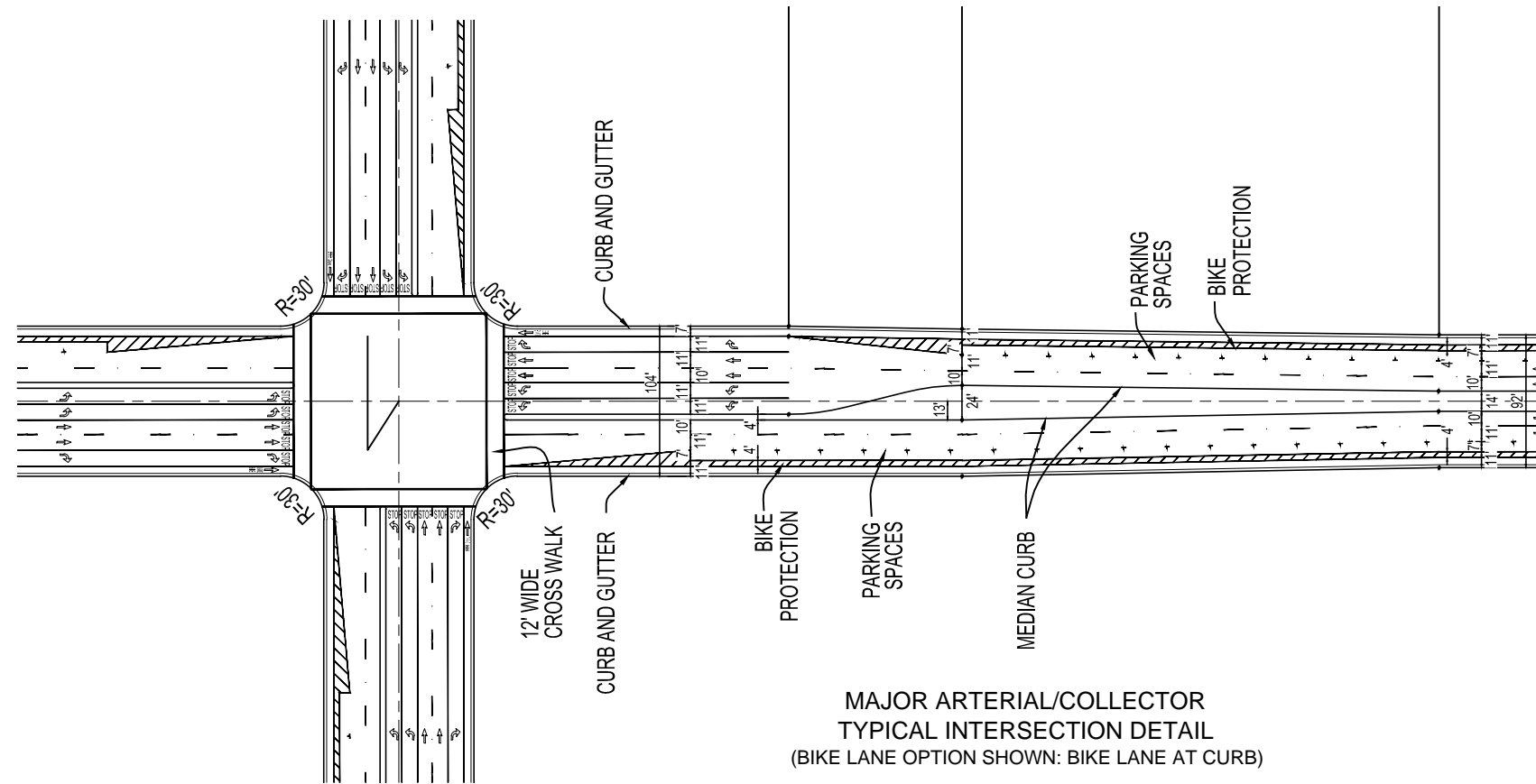


FIGURE 3-11

Transportation Options - Minor Collector / Local Intersections

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NOTE:

TWO OPTIONS FOR BIKE LANE ALIGNMENTS AT INTERSECTIONS ARE SHOWN. OPTION TO BE CHOSEN AS PER TRAFFIC ANALYSIS AND FINAL DESIGN.

DIMENSIONS SHOWN ARE TAKEN FLOWLINE TO FLOWLINE.

BIKE PROTECTION MAY INCLUDE, BUT IS NOT LIMITED TO: TUBULAR MARKERS, RAISED MEDIANS/CURBS, MOVABLE PLANTERS, AND STRIPING.

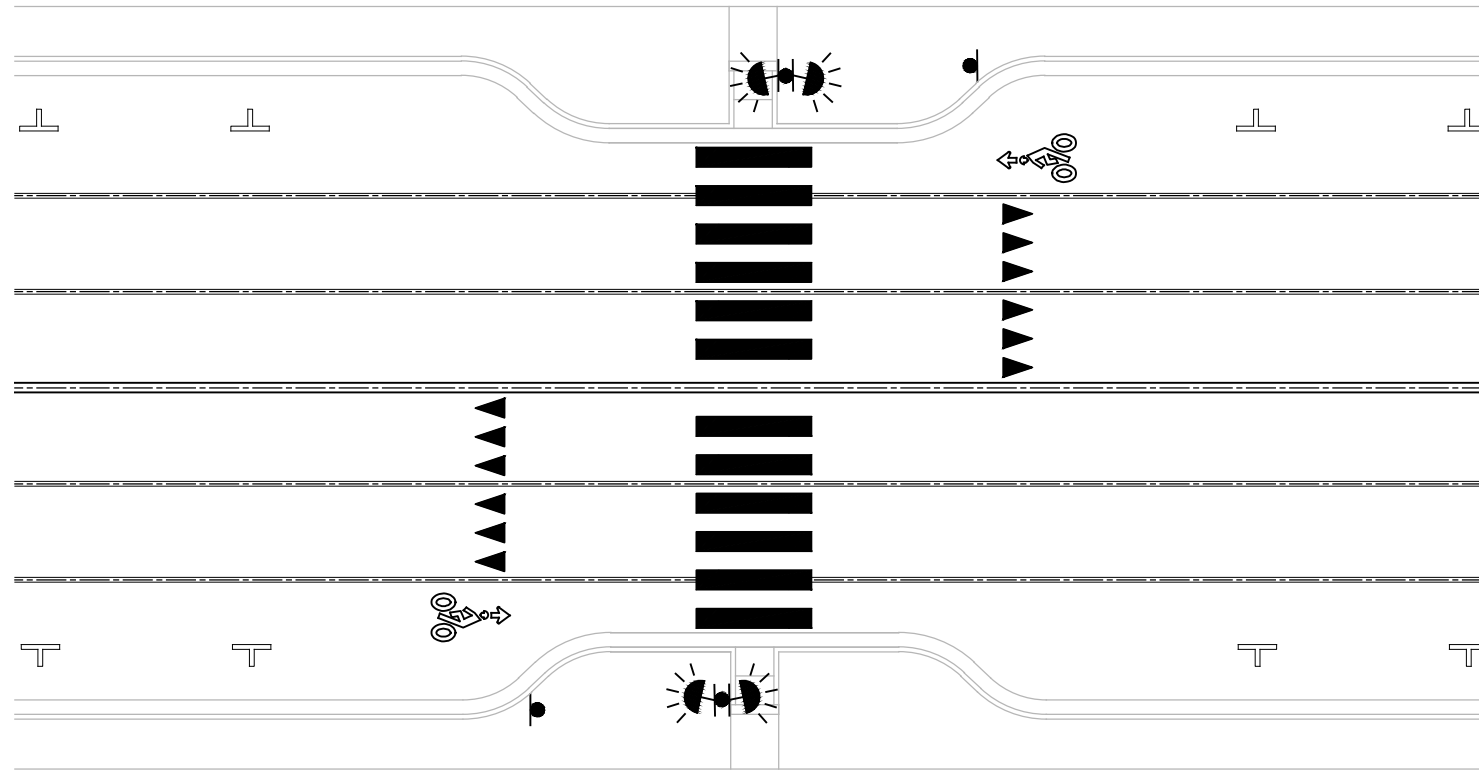
TRAFFIC IMPACT ASSESSMENT SHALL DETERMINE FINAL ROADWAY OPTION SELECTION AND LANE REQUIREMENTS



0 60 120 240 Feet  
Scale: 1" = 120'-0"

FIGURE 3-12

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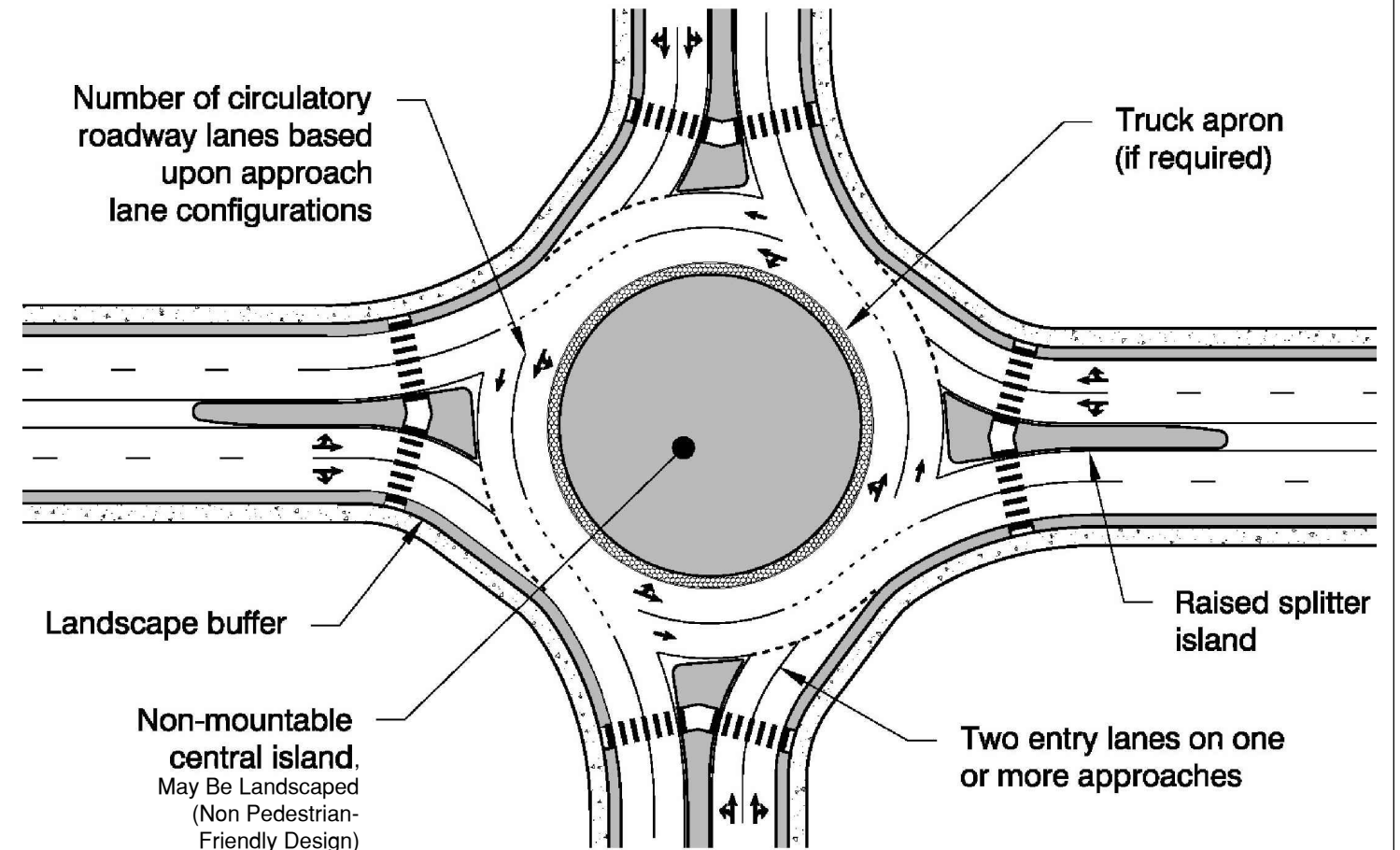


ARTERIAL / COLLECTOR  
TYPICAL MID-BLOCK CROSSING

0 10 20 40 Feet

NOTE:  
TYPICAL PLAN SHOWS CLASS II BIKE LANES.  
FOR PROTECTED BIKE LANES, 4' OF BUFFERED  
PROTECTION WILL BE ADDED TO THE SECTION, SEE  
FIGURE 3-7.

BIKE PROTECTION MAY INCLUDE, BUT IS NOT LIMITED TO:  
TUBULAR MARKERS, RAISED MEDIANS/CURBS, MOVABLE  
PLANTERS, AND STRIPING.



TYPICAL TWO-LANE  
ROUNDBABOUT  
NOT TO SCALE

NOTE:  
LANE DETAILS TO BE APPROVED  
AT THE TENTATIVE TRACT MAP  
STAGE.

0  
Scale: As Shown Feet

FIGURE 3-13

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# Section 4

## DEVIATIONS FROM STANDARDS

All development within the Grapevine Special Plan Area shall conform to the Kern County Development Standards (KCDS) with the following exceptions described in Table 4-1.

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
<b>Kern County Building and Construction Code</b>				
17.32.038.503.2.1	Dimensions of fire apparatus access roads	Section 3.5	If all-weather paved access roads are required in Exclusive Agriculture (EA) areas, the project will comply as applicable except as indicated in the Special Plan development standards. Development standards provide that the minimum unobstructed widths may consist of a reduced paving section in certain cases plus an additional width of drivable, permeable crushed rock or road base to minimize impervious surfaces, maximize infiltration, and thereby reduce stormwater runoff while still providing all-weather access for emergency vehicles.	Reducing the width of fire access roads facilitates efficient land use by reducing excessive paving in EA areas consistent with the Special Plan purpose of promoting innovative land use that maximizes infiltration and reducing storm water runoff by minimizing unnecessary paving. Fire road width and paving material will be coordinated with the Kern County Fire Department to assume public safety.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
17.32.042.507	Fire protection water supplies	Section 3.13	<p>Project will comply as applicable with the following exceptions:</p> <ul style="list-style-type: none"> <li>• Stretches of roadway serving no structures may eliminate hydrants or include spacing of 0.50 mile between hydrants as approved by the Kern County Fire Department.</li> <li>• The required fire flow is based on all structures having approved fire sprinkler systems, with a resulting 50% reduction in the Fire Code fire flow requirements, consistent with Appendix B of the adopted 2013 California Building Code.</li> </ul> <p>These exceptions provide the same practical effect as the requirements of the code and are defined in Section 3.13.</p>	The exceptions to the provision of providing fire protection water supplies are designed to provide for the efficient provision of fire protection infrastructure while also assuming the availability of adequate fire protection water supplies for public safety. The provision of reduced hydrant spacing as approved by the Kern County Fire Department will facilitate unnecessary and premature extension of fire protection water infrastructure which is consistent with the Special Plan purpose of promoting compact and efficient land use that will adequately address public health and safety.
17.32.109	Dead-end streets	Section 3.5	<p>Project will comply as applicable except that the Special Plan allows cul-de-sacs to be up to 20% longer with the provision of attic sprinklers and additional fuel modification requirements. In addition, the minimum road width will be 20 feet, regardless of parcel size, and shall conform to Section 3.5.</p>	The provision of a reduced minimum road width is designed to minimize excessive paving areas while also providing adequate access for fire protection consistent with the Special Plan purpose of promoting innovative land use while protecting public health and safety.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
<b>Kern County Land Division Ordinance</b>				
18.55.030	Improvements required: Minimum right-of-way and street widths; access via private streets; sewer connections; private drainage improvements	Sections 3.5 and 3.15	<p>Project will comply as applicable, except that the Special Plan specifies that subdivisions and improvements within the project area are classified as:</p> <p>Street improvements shall be Type A; however, right-of-way widths and design for streets, alleys, public travel-ways, and easements shall conform to standards in the Special Plan.</p> <p>Connection to sewers is anticipated for every property; however, the Special Plan allows the use of alternative solutions (i.e., on-site wastewater treatment systems) for lots over 0.25 acre and more than 1,000 feet away from an active or proposed sewer system.</p>	The provision for reduced right-of-way widths, street improvement widths, alleys and other public travel ways is consistent with the Special Plan purpose of promoting land use efficiency and innovation in the provision of the transportation network serving the Specific Plan. The provision of sewer and alternative on-site wastewater treatment systems for specified lot size and locational situations not proximate to the proposed sewer system also promote diversity and innovation in sewage requirements for a wide-range of Specific Plan land use intensities.
18.55.030.A.2.a	Dead-end streets longer than 150 feet shall include a turnaround.	Section 3.5	Special Plan development is designed to provide traffic calming and enhance public safety in certain areas with lane-fronted “Clustered Small Lot” residences, which have a dead-end street, which are referred to in the Special Plan as an Internal Lane that does not allow through traffic. In addition, Private access easements over existing ranch roads to provide legal access shall be permitted with dead ends in excess of 150 feet without turnarounds. See Special Plan Figure 3-1, Residential Design Options.	Consistent with the Special Plan purpose of providing innovative and efficient land use, the Special Plan provides for Clustered Small Lot Internal Lanes that necessitate deviations from street length and turnaround requirements, Such roadway configurations will be designed to enhance public safety and will be coordinated with the Kern County Fire Department.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
18.55.050.B.1.a c	Minimum street right-of-way width	Section 3.5	<p>Project will comply as applicable with the following exceptions:</p> <p>Street improvement standards for all streets shall be as stated and shown on Special Plan Figures 3-5 through 3-9, Roadway Street Sections.</p> <p>Private access easements over existing ranch roads to provide legal access shall be permitted with reduced street widths.</p>	Consistent with the Special Plan purpose of providing innovative and efficient land use, street right-of-way widths will promote efficient widths that provide for an efficient traffic network while also promoting the “neighborhood scale” of land uses. Adequate access will be provided to serve the range of uses accommodated by the Specific Plan.
18.55.050.B.1.h	Industrial street design and industrial cul-de-sacs	Section 3.5	Street improvement standards for all streets shall be as stated in Section 3.5, Circulation Standards.	In order to provide innovative and efficient land use consistent with the purpose of the Special Plan, industrial street and cul-de-sac design provides for an efficient traffic network appropriate to serve industrial uses.
18.55.050.B.1.j	Dead-end roads	Section 3.5	Project will comply as applicable, except that Section 3.5, Circulation Standards, allow cul-de-sacs to be up to 20% longer with the provision of attic sprinklers and additional fuel modification requirements. In addition, private access easements over existing ranch roads to provide legal access shall be permitted with dead ends in excess of 150 feet without turnarounds.	In order to promote efficient land use with adequate means of access for fire protection purposes consistent with the purpose of the Special Plan, provision for deviation to cul-de-sac standards is provided. Alternative access will be coordinated with the Kern County Fire Department and provided for fire protection access.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
18.55.050.C.1.b	Primary means of vehicular access shall be from the street that fronts the lot	Section 3.5	In keeping with the master plan design, rowhouses, townhouses, and clustered small lot residences are accessed by alleys or lanes as an integral part of the overall design. In addition, private access easements over existing ranch roads to provide legal access shall be permitted with dead ends in excess of 150 feet without turnarounds.	Consistent with the purpose of the Special Plan to provide a variety of housing types that facilitate creative and innovative land use types, the transportation network utilizes various approaches to traffic roadway design that promote transportation efficiencies, walkability and the use of alternative means of transportation.
18.55.050.C.2.a	Minimum 30-foot-wide alley	Section 3.5	In keeping with the master plan design, rowhouses, townhouses, courtyard multi-family, and clustered small lot residences are accessed by alleys or lanes that are less than 30 feet wide, as an integral part of the overall design.	In keeping with the Special Plan purpose of promoting innovative land use with efficient roadway networks, alley design reductions are proposed that will ensure adequate local circulation.
18.55.050.C.2.b	Intersecting alleys require 20-foot by 20-foot cut-off	Section 3.5	In keeping with the master plan design, rowhouses, townhouses, courtyard multi-family, and small lot residences are accessed by alleys or lanes that intersect. The narrow lot width is an integral part of the overall design, which constrains the cut-off dimension.	In keeping with the Special Plan purpose of promoting innovative design involving narrow and small lot design, deviating from the cut-off dimension promotes an efficient and walkable land use patterns.
18.55.050.C.2.c	Alleys not to be included in single-family residential land division	Section 3.5	In keeping with the Special Plan design, rowhouses, townhouses, and small lot residences are accessed by alleys or lanes. The alley-loaded residences are an integral part of the overall design, and alleys shall conform to the standards in Section 3.5.	In keeping with the Special Plan purpose of promoting an innovative design of alley-oriented residential land use patterns the accommodation of such a network will enhance land use efficiency and provide for adequate local circulation.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
18.55.050.D	Block length and width	Section 3.1	Block design criteria are not applicable to development with mixed development combining district. Site design will be driven by Special Plan areas, natural resources, and topography, with road connections made where prudent and safe.	In keeping with the innovative and walkable scale of development, the provision for block design criteria are inflexible. The Special Plan provides flexibility for a range block design criteria while also promoting a safe and adequate transportation network.
18.55.050.E	Residential block intersections shall be a minimum 20-foot radius	Section 3.1	In keeping with the master plan design, the narrow lot widths of rowhouses, townhouses, and small lot residences constrains the radius requirement.	Consistent with the Special Plan purpose of promoting innovative and efficient land use patterns, the subdivision radius design warrants deviation,
18.55.050.F.1	Minimum width and depth of lots	Section 3.1	Lot dimensions and shapes will be governed by the development standards in Section 3.1 and Special Plan Figures 3-1 through 3-3.	Consistent with the Special Plan purpose of encouraging innovation in land use and a diversity of land use types and patterns, the deviation from minimum lot widths and lot depth requirements is warranted.
18.55.050.F.3	Lot depth no more than three times lot width.	Section 3.1	Lot dimensions and shapes will be governed by the development standards in Section 3.1 and Special Plan Figures 3-1 through 3-3.	Consistent with the Special Plan purpose of encouraging innovation in the use of the land, the depth provision warrants deviation to promote a diversity of land use patterns.
18.55.050.F.4	Prohibits double-frontage lots	Section 3.1	Lot dimensions and shapes will be governed by the development standards in Section 3.1 and Special Plan Figures 3-1 through 3-3.	Consistent with the Special Plan purpose of encouraging innovation in land use, lot design options require flexibility to promote land use efficiency and a range of housing types.
19.82	Off-Street Parking	Section 3.4	The parking standards shall be governed by the development standards in Section 3.4.	Reduced the size and number of parking spaces to reduce the site impervious areas devoted to vehicle parking and promote alternative modes of transportation.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
19.84	Signs	Section 3.6	The signage standards shall be governed by the development standards in Section 3.6.	Clearly defines the use an types of signs for the project land uses requirements throughout the community and specifically along the frontage of the I-5 Freeway..
19.86	Landscaping	Section 3.8	The landscaping shall be governed by the development standards in Section 3.8	Provides the water efficiency standards contained in the newly revised State MWELD dated July 2015.
<b>Kern County Development Standards</b>				
102-8d	Bike lane requirements on arterials and collectors	Section 3.5	The bike lanes and multi-purpose trails shall be as shown on Figures 3-5 through 3-10 and discussed in Section 3.5, Circulation Standards, to promote biking, walking, and accessibility.	Consistent with the Special Plan purpose of providing innovative and efficient transportation networks that are designed for public safety, bike lane requirements are provided for in the Special Plan.
103-1, 103-2.02, and 103-2.03 (Plates R-1 through R-14, inclusive)	Street improvement requirements	Section 3.5	Street improvements shall be Type A; however, rights-of-way, widths, and design for streets, alleys, public ways and easements shall conform to Section 3.5, Roadway and Off-Roadway Standards.	In keeping with the Special Plan purpose of providing innovative transportation networks, street improvement requirement deviations are necessary to enhance land use efficiency and accommodate a variety of housing types while providing for adequate local circulation.
104-1.01	Minimum street centerline radius	Section 3.5	Project will comply as applicable with the minimums allowed by exception as granted by the Engineering, Surveying and Permit Services Director per County Development Standards Section 104-1.01. In addition, private access easements over existing ranch roads to provide legal access may contain centerline radii less than 500 feet.	In order to promote efficient land use patterns and a variety of housing types served by alleys, public ways and streets, deviation from minimum street standards is required. This is consistent with the Special Plan purpose of providing creative use of the land while also providing adequate circulation.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
104-1.02.a	Streets shall intersect at right angles where practicable	Section 3.5	Project will comply as applicable with the following exceptions:  Street intersections may be governed by the Specific Plan community character, natural resources, and topography, and improvement standards for streets shall be as approved during Site Development Plan Review. In addition, private access easements over existing ranch roads to provide legal access shall be permitted with intersections at angles greater than 15% skew.	In keeping with the Special Plan purpose of providing creative land use patterns and enhance community character, deviation from this standards is warranted while also providing for adequate local circulation and ensuring public safety of street intersection design.
104-1.02.b	Curb return radius	Section 3.5	Project will comply as applicable, except that industrial areas will have a curb return radius of 30 feet.	In order to provide innovative and efficient land use consistent with the purpose of the Special Plan, curb return radius deviations are warranted while also providing for public safety and adequate local circulation.
104-1.02.c (Plate R-41)	20-foot by 20-foot block intersection cut-off	Section 3.5	In keeping with the master plan design, rowhouses, townhouses, courtyard multi-family, and small lot residences are accessed by alleys or lanes that intersect. The narrow lot width is an integral part of the overall design that constrains the cut-off dimension.	In order to provide for innovative and efficient land use designed to accommodate a variety of housing types access by alleys and public ways, deviation to the cut-off dimension is warranted.
104-1.02.f	Tangent distance between horizontal curves	Section 3.5	In keeping with the master plan design of narrower, traffic calming roadways, the tangent distance between horizontal curves shall be a minimum of 50 feet.	In order to provide innovative and efficient land use consistent with the purpose of the Special Plan, deviation of the tangent distance between horizontal curves is warranted to enhance community character.



## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
104-1.02	Roundabouts	Section 3.5	In keeping with the Special Plan design, roundabouts will be utilized on traffic calming roadways as defined in Section 3.5.	Consistent with the Special Plan purpose of promoting innovative land use and traffic movement, roundabouts will be used that provide for traffic circulation consistent with the community character.
104-1.03 (Plate R-46)	Dead-end roads	Section 3.5	Project will comply as applicable, except that the Special Plan allows cul-de-sacs to be up to 20% longer with the provision of attic sprinklers and additional fuel modification requirements.	In order to provide a transportation network that provides for innovative land use consistent with the Special Plan, Dead-end Road deviations are warranted.
104-2.02	Maximum street gradient	Section 3.5	The maximum street gradient for all roads will comply with in Section 3.5. In addition, private access easements over existing ranch roads to provide legal access shall be permitted with maximum grades greater than 8%.	In order to provide a transportation network that promotes innovative land use and efficient circulation patterns, maximum street gradient deviations are warranted for streets as well as private access.
104-2.04	Vertical curve	Section 3.5	Private access easements over existing ranch roads to provide legal access shall be permitted without vertical curves where changes in grade exceed 0.5%. In addition, vertical curves will be designed for a vehicle speed of 45 miles per hour on arterials and collectors, as defined in Section 3.5.	In order to promote a transportation network that facilitates creative land use consistent with the Special Plan, deviations to vertical curve standards are warranted to reflect the use of existing ranch roads as integral to the community's transportation network.
104-2.06	Maximum intersection gradient	Section 3.5	Private access easements over existing ranch roads to provide legal access shall be permitted with maximum grades through intersections greater than 8%, as defined in Section 3.5.	In order to promote an efficient transportation network that incorporates existing ranch roads and innovative land use consistent with the purpose of the Special Plan, deviations to maximum intersection gradient standards are warranted.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
104-4.02	Road surfacing	Section 3.5	Project will comply as applicable; however, pervious pavement shall also be allowed outside travel lanes and areas promoting water quality, as defined in Section 3.5.	In order to enhance infiltration, reduce storm water runoff and water quality in creative ways that is acknowledged by the Special Plan, deviations to road surfacing is warranted.
104-6	Street lighting standards	Section 3.7	Project will comply as applicable, with the following exception:  In keeping with the Kern County Dark Skies Ordinance and to limit development impacts on the dark sky condition, street lighting will be provided only as necessary for safety, as defined in Section 3.7, Lighting.	In order to acknowledge the unique character of the Grapevine project site and promote innovative land use consistent with the Special Plan, deviations to the street lighting standards is warranted.
105-3.01	1/3-mile intersection spacing on arterials	Section 3.5	Project will comply as applicable, with the following exception:  Street intersections may be governed by the Specific Plan community character, natural resources, and topography; improvement standards for streets shall be as approved by Site Development Plan Review as defined in Section 3.5, Circulation Standards.	Deviations to street intersection spacing on arterials is warranted to acknowledge the creative land use patterns and unique character of the Grapevine Community. Intersection spacing will be designed to provide adequate traffic circulation that assures public safety.
Standards Section 105-3.02 Plates R-49 and R-50	Local street access to arterials and collectors	Section 3.5	Project will comply as applicable, with the following exception:  Street intersections may be governed by the Specific Plan community character, natural resources, and topography; improvement standards for streets shall be as approved by Site Development Plan Review as defined in Section 3.5, Circulation Standards.	In order to acknowledge the Special Plan purpose of accommodating innovative land use that recognizes topography and the project site's natural resources, deviations to local street accesses standards to arterials and collectors is warranted.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
105-5.01 and 105-5.02	Turn lanes at access points	Section 3.5	Where access points are allowed, turn lanes are not proposed. Site design will be governed by Special Plan community areas, natural resources, and topography, with road connections made where prudent and safe, as defined in Section 3.5, Circulation Standards.	Given the site's topography and natural resource character and the Special Plan's intent of acknowledging innovative land use and related traffic patterns, deviations for turn lanes at access points will be provided in a manner that assures public safety.
108-1.04 and 108-1.05	Corner landscape 30-inch height limitation	Section 3.8	In keeping with the Special Plan design, the narrow lot widths of rowhouses, townhouses, and small lot residences constrains the landscape requirement and is as defined in Section 3.8, Landscaping.	Given the unique land use patterns and accommodation of a variety of housing types consistent with the purpose of the Special Plan, deviations to the corner landscape height provision is warranted.
Kern County Development Standards	Subdivision street improvement notes	Section 3.5	All notes shall comply with the Specific and Special Plans.	Consistent with the Special Plan purpose of acknowledging unique land use patterns, deviations to subdivision street improvement notes are necessary to acknowledge provisions in the Grapevine Specific Plan and Special Plan.
409-2.01	Require concrete low-flow channel in detention basins	Section 3.16	In keeping with the goals and policies of the Grapevine Specific Plan, no hard lining will be required in detention basins. In addition, all development shall be consistent with Section 3.16.	Given the unique character and natural resources surrounding the project site, deviations to the concrete low-flow channel in detention basins is necessary. This deviation is consistent with the use of innovative features that is acknowledged in the Special Plan.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
Division Two Standards for Water Systems	Water system standards	Section 3.14	All engineering and design for water systems shall conform to the Tejon-Castac Water District (TCWD) Technical Specifications and the Kern County Fire Code because the system will be owned and maintained by the district.	Consistent with the use of innovative approaches advocated by the Special Plan, necessary deviations to water system standards are provided to conform with the TCWD standards.
Division Three Standards for Sanitary Sewers	Sanitary sewer standards	Section 3.15	All engineering and design for sanitary sewer systems shall conform to the TCWD Technical Specifications because the system will be owned and maintained by the district.	Consistent with the use of innovative approaches advocated by the Special Plan, necessary deviations to sanitary sewer standards are provided to conform with the TCWD standards.
408-1	Retention basin design volume	Section 3.16	The retention basin design volume should be calculated according to the Kern County Development Standards; however, the average percentage of impervious area will be adjusted down based on the use of Low-Impact Design (LID) features.	Deviations to retention basin design volume are acknowledged consistent with the LID features and the Special Plan concept of accommodating innovative features in the community.
408-4	Basin fencing	Section 3.16	Project will comply as applicable; however, basins that are incorporated into other facilities to create a multi-purpose facility (e.g., basin/park site) will not be required to be fenced. In addition, fencing and access gate material shall be approved by the maintenance entity. Rodent barriers may be omitted with approval of the maintenance entity.	Basin fencing deviations are warranted consistent with the Special Plan provisions of accommodating innovative approaches in land use planning which includes multi-purpose basin/park site use which enhances land use efficiencies.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
408-4	Levee fencing	Section 3.16	In keeping with the theme of the project, no fencing will be required along levees.	Levee fencing deviations are warranted in keeping with the unique character of the community and the Special Plan purpose of acknowledging unique and innovative features in the use of the land.
Division Four Standards for Drainage	Low-impact design features	Section 3.16	The retention basin design volume should be calculated according to the KCDS; however, the average percentage of impervious area (ai) will be adjusted down based on the use of LID features as defined at the tentative map stage and approved Kern County or the maintenance entity.	Consistent with the Special Plan purpose of accommodating innovative approaches to land use, retention basin design deviations are warranted to account for LID features.
Division Four Standards for Drainage	Low-impact design features	Section 3.16	Fencing shall conform with the KCDS Section 408-4, with the following exceptions:  Basins that are incorporated into other facilities to create a multi-purpose facility (e.g., basin/park site, basin/amphitheater) will not be required to be fenced unless the side slopes of the basin exceed a 4 to 1 slope.  Fencing and access gate material shall be approved by the maintenance entity.	Basin fencing deviations are warranted consistent with the Special Plan provisions of accommodating innovative approaches in land use planning which includes multi-purpose basin/park site use that enhances land use efficiencies.
Division Four Standards for Drainage	Low-impact design features	Section 3.16	General Construction Requirements  The maintenance way shall be sloped toward the top of bank at a minimum of 2%.  Rodent barriers may be omitted with approval by the maintenance entity.	Drainage Standard deviations are warranted for construction requirements as the will incorporate LID features consistent with the Special Plan provisions of incorporating innovative approaches of land use development including supportive drainage facilities.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
Division Five Standards for Landscaping	Master landscaping plan	Section 3.8	Project will comply as applicable; however, landscape widths along arterial and collector roads will be governed by the Specific/Special Plan and a master landscaping plan. In addition, landscape areas will be utilized to promote low-impact development according to Section 3.16, LID Features.	Landscaping standard deviations along arterial and collector roads are necessary to allow for landscaping that is unique to the project site and promotes innovation consistent with the Special Plan purpose.
Plate R-31	Parkway areas	Section 3.5.	Project will comply as applicable; however, street sections and details will be as shown in Section 3.5.	In keeping with the innovative land use and circulation network planning approaches promoted by the Special Plan, Parkway deviations to street sections and details are warranted,
Plate R-43 and R-44	Cul-de-sac locations	Section 3.5	Project will comply as applicable; however, street sections and details shall conform to Section 3.5. All cul-de-sacs shall provide pedestrian/bicycle pass-throughs.	Cul-de-sac deviations to standards are warranted to accommodate pedestrian/bicycle pass-throughs consistent with the innovative approach advocated by the Special Plan.
Plate R-47	Standard knuckles on local streets	Section 3.5	Project will comply as applicable; however, local street design shall conform to details contained in Section 3.5.	Deviations are consistent with the Special Plan use of innovative land use and circulation network approaches.
Plate R-52	Standard curbs	Section 3.5	Project will comply as applicable; however, Caltrans Type A1-6 curbs shall also be allowed.	Deviations are consistent with Special Plan use of innovative land use and circulation network approaches.
Plate R-53	Setbacks	Section 3.1	Setbacks shall conform to Section 3.1, Development Standards.	Deviations to setbacks are consistent with Special Plan use of innovative land use concepts and the development character of the community.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
Plate R-56	Standard minimum access design	Section 3.5	In keeping with the Special Plan design, the narrow lot widths of rowhouses, townhouses, and small lot residences constrains the minimum access requirement and will conform to Section 3.5.	In order to accommodate a variety of housing types and lot designs consistent with the Special Plan concept of utilizing innovative planning concepts, deviations to minimum access provisions are warranted.
Plate R-75	Street lights	Section 3.7	Project will comply as applicable; however, decorative street lights may be used, as defined in Section 3.7, Lighting.	In order to accommodate decorative street lights consistent with the community's design character and the Special Plan concept of encouraging innovative land use and circulation network concepts, deviation to standards is warranted.
Plates R-1 through R-82	Other development standards	Sections 3.1 through 3.17	Project will comply as applicable; however, deviations as specified in the Special Plan may be warranted.	Other deviations to Kern County Development Standards may be needed to effectively implement the Special Plan. Accordingly, other deviations not specifically mentioned above are acknowledged consistent with accommodating the innovative land use and circulation features of the Grapevine Special Plan.

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# Section 5

## REVIEW AND APPROVAL PROCEDURES

### 5.1. Purpose

The purpose of this Section is to establish the review and approval procedures under the Grapevine Special Plan in compliance with Chapter 19.52, Special Planning (SP) District, of the Kern County Zoning Ordinance (KCZO). The Grapevine Special Plan has established internal design requirements as well as development review procedures and implementation processes as required under Chapter 19.112 [Title 19 KCZO] in order to address the development of the Grapevine's Special Planning (SP) District.

### 5.2. Special Plan Initiation and Approval

#### 5.2.1. Establishment Procedures

Consistent with Chapter 19.52.130 of the KCZO, the Grapevine Special Plan is established in accordance with the procedures set out in Chapter 19.112 of Title 19 of the KCZO and in conjunction with review and approval of a Site Development Plan, as set forth below in Section 5.3.3, Site Development Plan Review Process. Further, the Special Plan has been established in accordance with the procedures set forth in Sections 19.102.190 through 19.102.230 of Title 19 of the KCZO (2015).

#### 5.2.2. Adoption by Ordinance

Pursuant to Chapter 19.52.160 of the KCZO, the Grapevine Special Plan shall be adopted by ordinance and shall include all standards and conditions approved in connection with the review of the site application. As such, the Grapevine Special Plan shall be referenced by ordinance number on the official zoning maps of the County.

### 5.3. Subsequent Special Plan Implementation Approvals

Refer to Figures 5-1 through 5-3 for flowcharts that demonstrate the approval processes described in detail below.

#### 5.3.1. Parcel Maps, Tentative Tract Maps, and Financing Tentative Tract Maps

- a. **Parcel Maps.** Parcel maps within the Special Plan shall be processed subject to County Ordinance Code, Title 18, Kern County Land Division Ordinance. Discretionary approvals for each parcel map shall be made through a Director's Hearing and the recorded Parcel Map may be utilized for financing

## **Review and Approval Procedures**

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and conveyance of land and infrastructure within the Special Plan. Upon final discretionary approval of each residential, commercial, or industrial parcel map by the Planning Director or applicable hearing body (on appeal) and recordation of the final map, the approved map will implement the Special Plan.

- b. Tentative Tract Maps.** Tentative tract maps within the Special Plan shall be processed subject to County Ordinance Code, Title 18, Kern County Land Division Ordinance. Upon final discretionary approval of each Tentative Tract Map by the Planning Commission or Board of Supervisors on appeal and the recordation of the final map the approved map will implement the Special Plan.
  - 1. Proposed tentative tract map adjustments greater than the established development caps may be approved in accordance with the Grapevine Land Use Exchange (Special Plan Table 3-4) by the County with a tentative tract map application provided no substantial new adverse traffic impacts would result from exceeding the established development caps. A proposal to exceed the development caps shall require a determination by staff of the appropriate California Environmental Quality Act (CEQA) action.
  - 2. Tentative tract map proposals including commercial, recreational, or industrial parcels shall require a discretionary Site Development Plan Review approval process through the Planning Commission and shall be processed in conjunction with the tentative tract map.
    - i. Lots for commercial, industrial, and/or recreational uses shall demonstrate size and shape that facilitates these future potential uses in accordance with the requirements of the Special Plan. Requirements include submittal of a conceptual design that shows the following: parking with most intense potential use of the property, driveways, landscape plans, building footprints, and utilities shall be sufficient to serve future potential development on such proposed lot(s).
- c. Financing Tentative Tract Maps.** Applications for a financing tentative tract map(s) may be submitted in order to create individual legal parcels solely for the purpose of obtaining financing without encumbering the remainder of the project site. A financing tentative tract map shall be submitted, reviewed, and approved in conformance with the requirements and procedures established in Chapter 18.15 of the Kern County Land Division Ordinance.

### **5.3.2. Final Map Approval Process**

Final maps are subject to the review and approval of the County Surveyor. Upon County Surveyor approval, all final maps are forwarded to the Clerk of the Board of Supervisors who shall certify that all necessary certificates, securities, deposits and dedications have been made pursuant Sections 18.45.040 (final tract map) and 18.45.080 (final parcel map) of the Kern County Land Division Ordinance.

### **5.3.3. Site Development Plan Review Application (prior to issuance of Grading or Building Permits)**

Subdivision lot and parcel development within the Special Plan shall comply with the following Site Development Plan review and approval process:

- a. Grapevine Master Developer (MD) Review and Approval.** The MD shall conduct an internal design review and approval process for all parcel-specific development proposals to ensure planning,

## Review and Approval Procedures

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design, and character of individual property development is consistent with the overall design objectives of the Special Plan and Specific Plan prior to submittal to the Kern County Planning Department. This process shall apply the development standards in Section 3 of the Special Plan and ensure compliance with the Specific Plan, including the accompanying appendices, conditions, and mitigation measures. This internal review through the MD will include design review per the Grapevine Design Principles document (Appendix B of the Specific Plan), which will be used to approve the design of proposed development, and sustainability review per the Grapevine Sustainability Principles document (Appendix C of the Specific Plan), which will be used to approve the sustainability measures of proposed development.

- b. **Planning Department Site Development Plan Review and Approval.** The proposed development shall comply with all applicable development regulations, implementation requirements, and mitigation measures of the Specific Plan and its appendices.
  
- c. **County Review Submittal Requirements.** Applications for a Site Development Plan review must include the following in lieu of the required Site Development Plan contents identified in Section 19.52.140 of the KCZO (2015):
  1. Name and address of applicant.
  2. Name(s) and address(es) of property owner(s).
  3. Assessor's Parcel Number(s).
  4. Legal description of the property.
  5. A site plan drawn at XX-scale [specified by Planning Director], which includes the following information:
    - i. Existing topography of each Sub Area;
    - ii. Circulation Plan;
    - iii. Location of buildings;
    - iv. Location of other proposed uses;
    - v. Proposed setbacks;
    - vi. Overlay location of parks or public or quasi-public buildings;
    - vii. Landscape documentation package;
    - viii. Water Supply and Distribution;
    - ix. Sewage Disposal System;
    - x. Drainage System; and
    - xi. North arrow depicting directional information.
  6. Acres of each Special Plan District area.
  7. Number of maximum dwelling units allowable within each Sub Area.
  8. A narrative description, if applicable, of the proposed development, including:
    - i. An explanation of the proposed deviations from the standards that would otherwise apply to the proposed uses and why the deviations are necessary or desirable; and
    - ii. Phasing approach description(s).
  
- d. **Plan Set Requirements.** An approved set of plans from the MD review and approval process shall constitute the required submittal material for the County design review process.
  1. The MD-approved plans shall be accompanied by an application in the format and number of copies specified by the Planning Director. Absence of an approved MD Site Development Plan package will cause the County to reject the application.

## **Review and Approval Procedures**

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2. Review criteria to be checked for issuance of a Site Development Plan include setbacks, building height, parking, grading, permitted use, infrastructure development standards as set out in this Special Plan under 5.3.3.c.
  3. The MD-approved plans shall include applicable mitigation measures as set out in Grapevine's adopted Mitigation Monitoring and Reporting Program.
- e. **County Grapevine Residential Site Development Plan Review Process.** Site Development Plan review for residential development shall require a ministerial review by County Planning Staff pursuant to Sections 19.102.050 through 19.102.060, Ministerial Permits Issued by the Planning Director, to confirm if all development conditions and environmental impacts identified in the Mitigation Monitoring and Reporting Program, special plan conditions, and conditions of the subdivision map have been met. For uses that are identified in Table 2-1, Permitted Uses, as requiring a "Sensitivity Review," the Site Development Plan review process shall also include a Sensitivity Review as described in Section 5.3.4.b.
- f. **County Grapevine Commercial/Industrial and Institutional/Recreational Site Development Plan Review Process.** Site Development Plan Review for commercial/industrial and institutional/recreational development shall require a discretionary permit approval by the Planning Director through a Director's hearing process. If a Site Development Plan application is bundled with a tentative tract map, the Director may schedule a public hearing directly before the Planning Commission, in which case a decision shall be rendered in accordance with Section 19.102.160. Applications for Director's approval shall be processed according to the provisions set forth in Sections 19.102.070 through 19.102.120 (including the appeals process to the Board of Supervisors) of the KCZO and shall address Section 3 of the Grapevine Special Plan (Development Standards) with the following exceptions:
1. The approved set of plans and specifications from the MD review and approval process shall constitute necessary plan submittal requirements for this process.
  2. The proposed development plans shall be in conformance with required development standards and the prototypical development design options contained within the Special Plan (see Figures 3-1 through 3-3).
  3. The Site Development Plan review process shall evaluate the potential for adverse public safety and hazard impacts in relation to the nearest residential or school use, or approved tract or parcel map authorizing such a sensitive use. The buffer distance between the proposed new use and the sensitive use must be adequate, as defined in Table 2-1, Permitted Uses, to protect the sensitive-use locations from the potential public health and safety risks relative to the hazards, odors, noise, and air emissions from the proposed new use.

### **5.3.4. Additional Review Processes**

- a. **Special Use Permit Review.** The Special Use Permit Review process establishes procedures to ensure compatibility of specified uses with neighboring land uses, as identified in Table 2-1, Permitted Uses. This discretionary process would be subject to the application review and approval procedures of KCZO Sections 19.102.130 through 19.102.180, Discretionary Permit Decisions, issued by the Planning Commission.
- b. **Sensitivity Review.** For uses that are identified in Table 2-1, Permitted Uses, as requiring a "Sensitivity Review," the Site Development Plan review process shall reflect a five-hundred-foot

## Review and Approval Procedures

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setback from sensitive uses (residence, school and tract or parcel maps authorizing residential use). Such uses subject to a Sensitivity Review must also be in compliance with the Specific Plan's Noise Element Standards. Uses requiring a Sensitivity Review shall be reviewed by the Planning Director for approval subject to the aforementioned standards as part of the Site Development Plan review process.

- c. **Variance.** Variance applications shall be in accordance with the procedures set forth in Chapter 19.106 [Title 19 KCZO] where special physical circumstances exist limiting the development of a particular property in accordance with development standards. This application process is may be approved in accordance with the procedures set forth in Sections 19.102.070.I through 19.102.120, Discretionary Permit Decision by the Planning Director.
- d. **Oil and Gas Activities.** Oil and gas activities and ancillary uses will be subject to the ministerial land use permit procedures specified in Chapter 19.98 of the KCZO. Special Plan Section 3.16, Oil and Gas Production, provides direction for the implementation of Tier Area standards and permit procedures as used in Chapter 19.98 of the KCZO.

### 5.3.5. Modifications

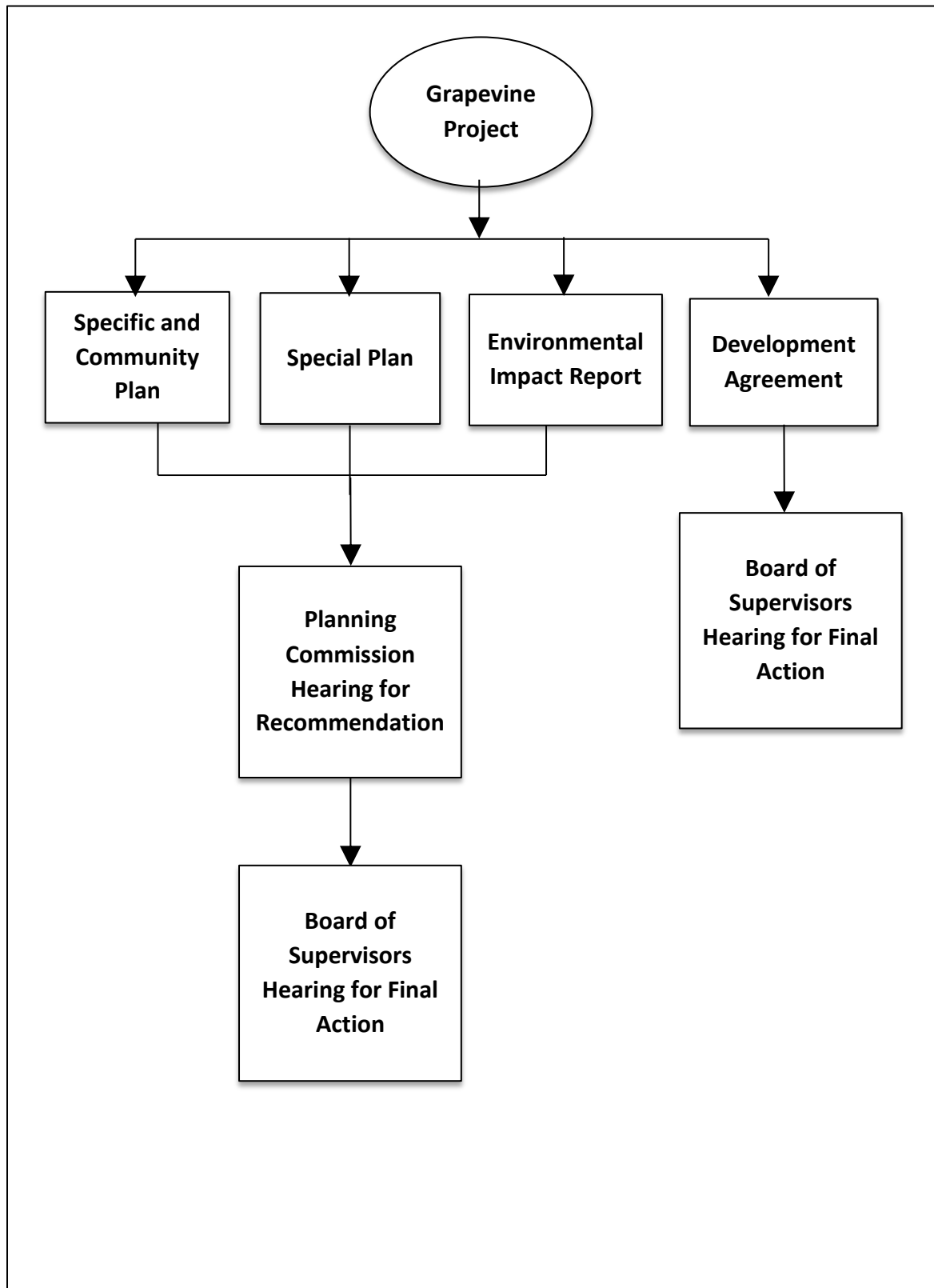
The purpose of a modification application is to provide a mechanism by which certain regulations in the Special Plan may be adjusted if the proposed development continues to meet the intended purpose of the Grapevine Specific Plan or Special Plan.

- a. **Major Modification (or Amendment).** A major modification or amendment may be approved in accordance with the procedures set forth in KCZO Chapter 19.112, Amendments to Zoning, which allows a modification to be taken to a Planning Director's hearing with an appeal to the Board of Supervisors.
- b. **Zone Modification.** Zone modification applications shall be in accordance with the procedures set forth in Chapter 19.110 [Title 19 KCZO]. The following standards may be approved as listed under Section 19.110.040:
  1. Minimum lot size, not to exceed 15% reduction
  2. Off-street parking, not to exceed 15% reduction where 10 or more parking spaces are required
  3. Setback requirements, not to exceed 25% reduction
  4. Height limits excluding signs, not to exceed 25%
  5. Height, location, or construction requirements for fences, walls or hedges.

## **Review and Approval Procedures**

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### **5.3.6. Initial and Subsequent Review Processes**



**Figure 5-1 Initial Approvals**

## Review and Approval Procedures

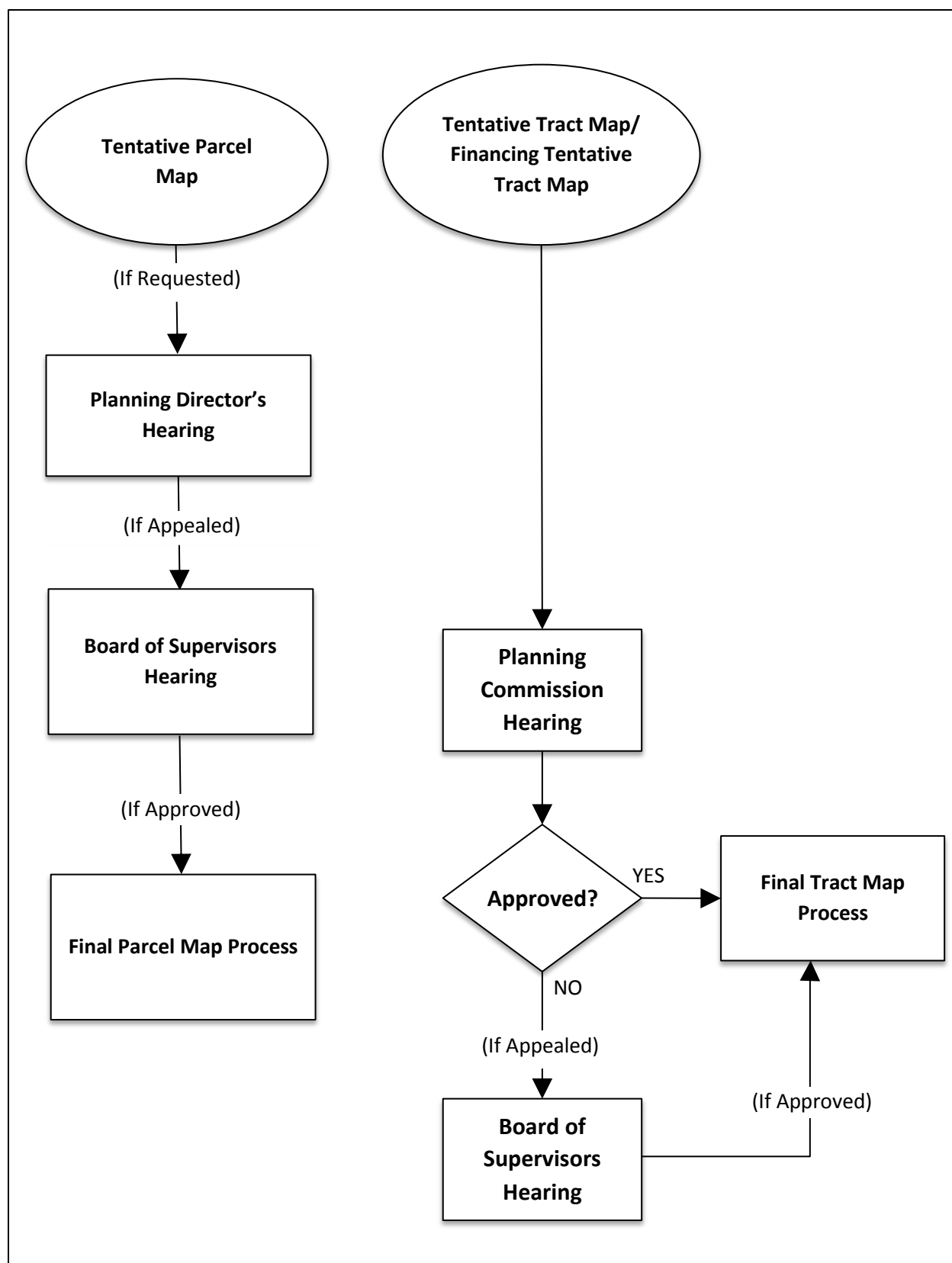
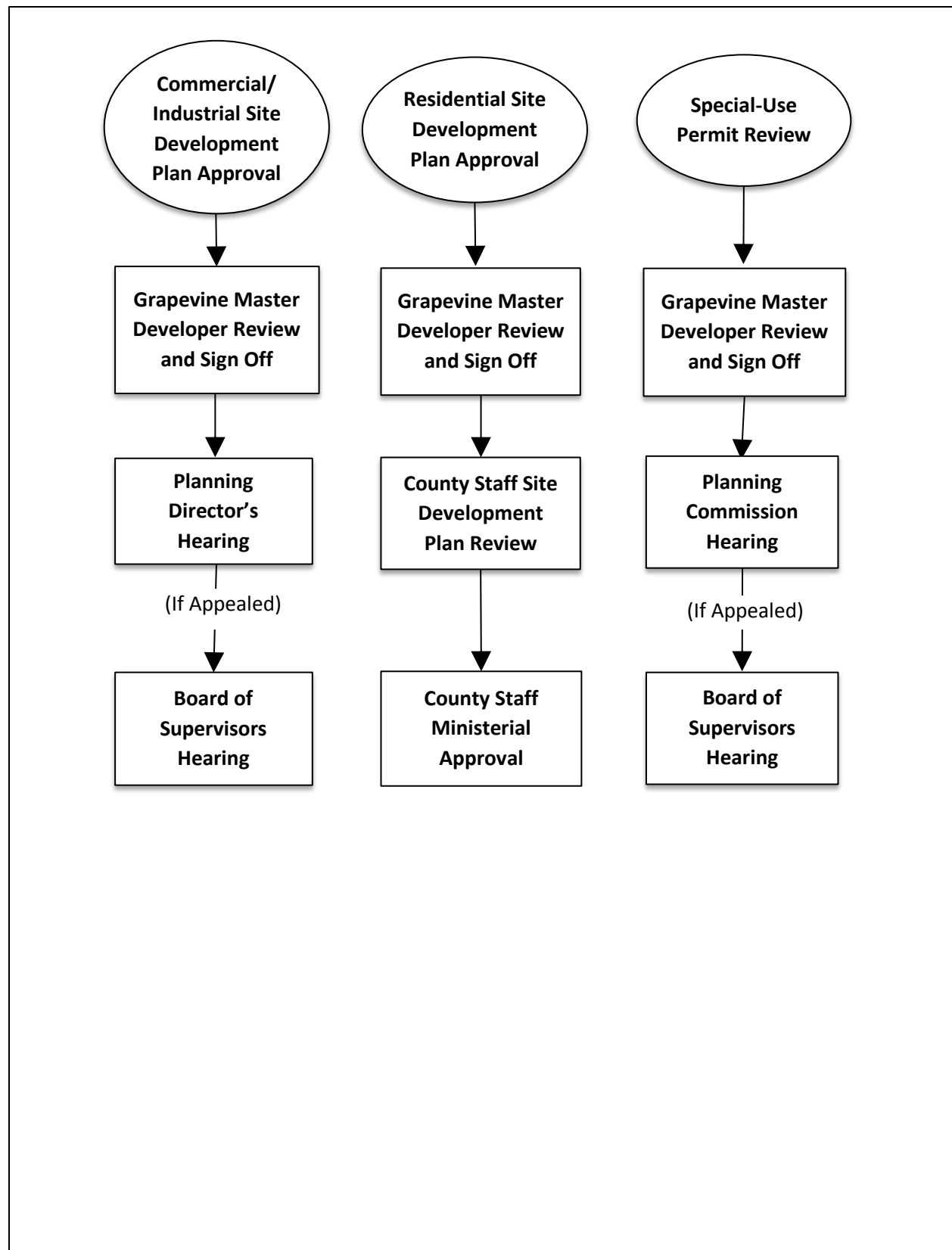


Figure 5-2 Subsequent Land Division Approvals

## Review and Approval Procedures



**Figure 5-3** Subsequent Land Use Approvals



## 5.4. Development Cap Review Process

To ensure the development of the Special Plan Area over time is consistent with approved development caps identified in the Grapevine Specific Plan, as outlined in Section 3.2 of this Special Plan, the MD or assignee will maintain a cumulative statistical summary. This summary will identify the “draw down” against the Grapevine development caps for each land use type (Residential, Retail, Office/R&D, Industrial/Warehouse) and for each Sub Area individually, with accounting of incremental parcel development. The summary will be maintained in a format showing the development caps, the use or reduction of each cap, and a cumulative “remaining balance” for each applicable development cap after parcel development. The overall development cap of 12,000 residential units and 5,100,000 square feet of non-residential uses for the project will also be indicated.

A Development Cap Summary Table and a Tentative Tract Map and Site Plan Submittal Tracking Summary Table will be attached to every site plan (see tables below for a conceptual format of these ongoing cumulative summaries). The MD will submit an annual report summarizing the data. In order to maintain a true picture of the “remaining balance,” the annual report will include calculations detailing adjustments made consistent with Table 3-4, Land Use Exchange. The reports shall be due 1 year from first submittal date and may be submitted early.

## Review and Approval Procedures

### Grapevine Special Plan Development Cap Status

Sub Area	Residential 12,000 DUs				Retail 1,200,000 Gross Leasable SF		Office/R&D 2,450,000 Gross Floor Area SF		Industrial/ Warehouse 1,450,000 Gross Floor Area SF	
	<i>SFR-Detached</i>		<i>SFR/MFR-Attached</i>		<i>Total to Date</i>	<i>Maximum (SF)</i>	<i>Total to Date</i>	<i>Maximum (SF)</i>	<i>Total to Date</i>	<i>Maximum (SF)</i>
	<i>Total to Date</i>	<i>Maximum (DUs)</i>	<i>Total to Date</i>	<i>Maximum (DUs)</i>						
1		1,750		325		70,000		560,000		500,000
2		2,490		1,375		670,000		1,090,000		450,000
3		1,650		1,025		990,000		910,000		380,000
4		2,590		80-		165,000		250,000		150,000
5a		2,425		465		100,000		250,000		250,000
5b		50		n/a		n/a		n/a		n/a
6a		820		1,050		350,000		405,000		1,400,000
6b		n/a		n/a		n/a		n/a		400,000
6c-6e		n/a		n/a		n/a		n/a		450,000
<b>TOTAL (To Date)</b>										
<b>Land Use Exchange Adjustments (To Date)</b>	+		+		-		-		-	
<b>Adjusted TOTAL</b>										
<b>Remaining (To Date)</b>										

**Grapevine Special Plan  
Tentative Tract Map and Site Plan Submittal Tracking Summary**

Sub Area	TTM No.	Residential (DUs)	Residential Maximums (DUs)	Commercial/Industrial					
				Retail (SF)	Retail Maximums (SF)	Office/R&D (SF)	Office/R&D Maximums (SF)	Industrial/Warehouse (SF)	Industrial/Warehouse Maximums (SF)
1			2,075		70,000		560,000		500,000
2			3,865		670,000		1,090,000		450,000
3			2,675		990,000		910,000		380,000
4			3,390		165,000		250,000		150,000
5a			2,890		100,000		250,000		250,000

## Review and Approval Procedures

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### Grapevine Special Plan Tentative Tract Map and Site Plan Submittal Tracking Summary

Sub Area	TTM No.	Residential (DUs)	Residential Maximums (DUs)	Commercial/Industrial					
				Retail (SF)	Retail Maximums (SF)	Office/R&D (SF)	Office/R&D Maximums (SF)	Industrial/Warehouse (SF)	Industrial/Warehouse Maximums (SF)
5b			50		n/a		n/a		n/a
6a			1,870		350,000		405,000		1,400,000
6b			n/a		n/a		n/a		400,000
6c			n/a		n/a		n/a		450,000
6d			n/a		n/a		n/a		

## Review and Approval Procedures

### Grapevine Special Plan Tentative Tract Map and Site Plan Submittal Tracking Summary

Sub Area	TTM No.	Residential (DUs)	Residential Maximums (DUs)	Commercial/Industrial					
				<i>Retail (SF)</i>	<i>Retail Maximums (SF)</i>	<i>Office/R&amp;D (SF)</i>	<i>Office/R&amp;D Maximums (SF)</i>	<i>Industrial/Warehouse (SF)</i>	<i>Industrial/Warehouse Maximums (SF)</i>
6e			n/a		n/a		n/a		
<b>TOTAL</b>		<b>12,000 DUs</b>	<b>12,000 DUs</b>	<b>1,200,000 Gross Leasable SF</b>	<b>1,200,000 Gross Leasable SF</b>	<b>2,450,000 Gross Floor Area SF</b>	<b>2,450,000 Gross Floor Area SF</b>	<b>1,450,000 Gross Floor Area SF</b>	<b>1,450,000 Gross Floor Area SF</b>
<b>Land Use Exchange Adjustments (To Date)</b>									
<b>Adjusted TOTAL</b>									
<b>Remaining (To Date)</b>									

## **Review and Approval Procedures**

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# Section 6

## GLOSSARY

All terms used in this Special Planning (SP) District Plan (Special Plan) have the same definitions as provided in the Kern County Zoning Ordinance (KCZO), Chapter 19.04, Definitions, except the following terms, which are governed by the definitions listed below.

**amphitheaters** – Unroofed or partially enclosed building or structure, used for residents and guests, seating less than 400 people.

**architectural projections** – Any projection which is not intended for occupancy and which extends beyond the height of the building roof but shall not include signs.

**breweries, micro** – Production of beer, primarily for consumption on the premises in any bar, cocktail lounge, or restaurant.

**Caltrans** – California Department of Transportation.

**community use overlays** – Symbols on the Special Planning (SP) District Plan exhibits that designate approximate locations of public facilities and recreational uses.

**development caps** – Plan-wide development maximums or yield maximums to be implemented through the broad land use designations for dwelling units and commercial/industrial square footage.

**festival** – A program of cultural events consisting of performances, processions, and dances, and similar activities as determined by the Planning Director of Kern County. Circus or carnival events are not included within this definition.

**final map** – A map showing a subdivision for which a tentative and final map are required by the California Subdivision Map Act or Land Division Ordinance of Kern County, prepared in accordance with the provisions of Land Division Ordinance of Kern County and the California Subdivision Map Act, and designed to be recorded in the office of the county recorder.

**finance map** – A parcel map or subdivision map solely for the purpose of finance or conveyance of parcels. Recordation of a finance map does not require bonding for improvements or construction of any kind and does not permit construction.

## **Glossary**

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**fuel modification zone** – A strip of land where combustible native or ornamental vegetation is partially or totally removed and/or replaced with drought-tolerant, low-fuel-volume plant materials. These zones may have prescribed widths and may consist of multiple zones with varying fuel modification treatments.

**live/work** – a structure or spaces within structures that are used jointly for commercial and residential purposes.

**information centers** – A center that provides information to the public regarding the community, including new home developments.

**master developer** – Tejon Ranchcorp and its successors or assigns.

**maximum non-residential building square footage** – The maximum non-residential building square footage allowed for a given Planning Area as set forth in the Special Plan. (Applies only to commercial/industrial square footage.)

**model home complex** – A group of homes temporarily used as examples to sell future homes and including a sales office, which is removed and/or converted or sold within nine months of the sale of the last home in the housing tract.

**real estate tract sales office** – A temporary facility whose purpose is to coordinate real estate sales operations which is removed and/or sold within nine months of the sale of the last real estate component in the tract.

**research and development facilities** – Facilities for scientific research, and the design, development and testing of electrical, electronic, magnetic, optical and computer and telecommunications components in advance of product manufacturing, and the assembly of related products from parts produced off-site, where the manufacturing activity is secondary to the research and development activities, and where no more than 30 percent of the total floor area is office. Includes pharmaceutical, chemical, and biotechnology research and development.

**residential “lock-out” units** – Interior secondary dwelling unit.

**special management areas** – Those areas identified in the Exclusive Agriculture (EA) zoning district that contain unique biological and cultural resource values that require preservation in place.

**Specific Plan** – The Grapevine Specific and Community Plan.

**Specific Plan Area** – The area of Grapevine specifically designated in the Specific Plan Legal Description, as adopted by the Kern County Board of Supervisors.

**transit facility** – Enables residents, guests, and employees to make connection with existing travel opportunities (i.e., bus stop).



# Section 7

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KCZO (Kern County Zoning Ordinance). 2015. “Title 19–Zoning.” Bakersfield, California: Kern County Planning and Community Development. December 2015.

McIntosh & Associates. 2013. “Grapevine Project Site Boundary GIS Data” [Shapefiles]. Received from McIntosh & Associates on July 25, 2013.

TRC (Tejon Ranch Company). 2013. “Tejon Ranch Boundary GIS Data” [Shapefiles]. Received from TRC on October 15, 2013.

ITE (Institute of Transportation Engineers). 2012. *Trip Generation Manual*. 9th ed. Washington D.C.: Institute of Transportation Engineers.

## **References**

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**APPENDIX B**  
*Grapevine Design Principles*



# **THE GRAPEVINE COMMUNITY at TEJON RANCH**



## **Grapevine Design Principles**

March 9, 2016



Prepared for Tejon RanchCorp.  
4436 Lebec Road  
Lebec, CA 93243

**Representatives:**

Derek Abbott  
VP Community Development and Resource Planning

Diana Hulbert  
Director of Environmental Permitting

**Contributors to this document:**



Ken Kay Associates  
Master Planners  
1045 Sansome Street, Studio 321  
San Francisco, CA 94611  
415.956.4472  
kenkaysf.com

Dudek  
Environmental Services  
44 Montgomery Street, Suite 1560  
San Francisco, CA 94104  
415.665.8338  
dudek.com

Urban Green  
511 Johnson Street  
Healdsburg, CA 95448  
707-395-0792  
urbangreen.net

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# INTRODUCTION

VISION, PLANNING and OBJECTIVES





*"Grapevine is a community of close-knit neighborhoods, connected to a quarter million acres of protected open space that is Tejon Ranch. Our community's diverse residents share a common desire to be part of a storied California legacy and the San Joaquin Valley's agricultural heritage.*

*Living life to the fullest, Grapevine's residents enjoy access to unparalleled recreation; fresh, healthy food at their doorstep; high quality education and employment at all life stages. They are an engaged, entrepreneurial community committed to growing families and the individual spirit."*

## OVERVIEW

These words reflect the Tejon Ranch Company's (TRC) guiding vision and aspiration for the intergenerational growth and evolution of the Grapevine Community. Grapevine is uniquely positioned to create a community with dual roles – a magnet for those who want to live adjacent to the magnificent natural areas of Tejon Ranch, and a complete, connected community whose lifestyle is aligned to the interests and values of the region's rich agricultural heritage.

The Grapevine project is committed to creating opportunities for community members to develop a quality life-work balance through the ethos of live-work-grow. With the Tejon Ranch's long history of stewardship and commitment to the land; the drive to grow a complete, healthy and sustainable community is intrinsic to its values and serves as the basis for Grapevine's vision cornerstones.

The implementation and guidance of this document are subject to conformance with the Specific and Special Plan, and Project EIR and Mitigation Monitoring Program, and where conflicts occur between this document and those, the other document shall control.





## GRAPEVINE VISION CORNERSTONES

### A Place to Live, Work, and Grow

It's not good enough to just live, work, and play. One needs a community that provides the opportunity to continually grow at all levels. Through lifelong education. Through enriching personal connections. With room for you and your family to be together.

### A Fresh Approach

A lot has been learned about building community both physically and socially. Grapevine, due to its scale and our long term view, has the ability to apply those lessons in an intentional way and ensure we are 'hand crafted,' not 'cookie cutter'.

### Artisans, Farms and Families

Communities are shaped, formed and informed by their residents. Grapevine is home to a diversity of families and individuals who choose to live here for a reason — the search for a community where passions for the land and family are enriched by fresh, healthy food and a broad expression of the arts.

### Learning for Life

Education does not stop at high school or college. In an economy that is increasingly selling knowledge in a marketplace that is ever more global, learning should be as much a part of daily life as eating and sleeping. We see education coming from both traditional places such as great schools but also from unlikely places – learning from the land, learning from nature and learning from each other through robust community programs that both inspire and educate.

### Connected at all Levels

Communities need connection of place and spirit. Grapevine is premised on creating connection at all levels. For your spirit – to your friends, to the land, to the history of this place. And for your body, connected to your work, your store and to your neighbors' home - without ever having to get in a car.

### Calling All Entrepreneurs

Grapevine will be a place where small ideas may turn into big businesses. Grapevine welcomes the innovative, the tenacious and the entrepreneur to be part of its story by providing a platform for prosperity and economic growth, as well as training and learning opportunities to prepare residents for jobs in our community and the region.

### The Foothills of Tejon Ranch

One of the largest and longest contiguous land holdings in CA, Tejon Ranch is not just big, it's storied. Homes are more than shelter — they are a piece of the history. Residents are participants in the legacy and stewardship of the Ranch, at the doorway to immense opportunities that connect with a landscape of unprecedented scale and diversity.

### A Well-Rooted Community

Like century old oaks that define the ranch, our great neighborhoods develop strength over time. As their roots deepen and their residents define the branches of their family, we develop our character. Grapevine's walkable streets, varying sized parks, wide range of homes, jobs and gathering places are designed to evolve over time with grace and timelessness.





## INTENT, AUDIENCE, AND RELATIONSHIP WITH OTHER DOCUMENTS

This document, *Principles for the Community and Character of Grapevine*, has been prepared in consideration of the planning principles and project objectives identified in the Grapevine Specific and Special Plans. It is intended to supplement these governing documents and to serve as the basis for more detailed design guidelines and CC&Rs that will be developed by TRC in the future.

The guidance provided here for builders, developers, and others proposing development within the community is intended to be descriptive in nature, giving additional clarity about Grapevine's character-defining features and methods for achieving the project objectives set forth in the Specific Plan.

As the Master Developer, TRC identifies in this document principles supporting the mindful development of all projects at Grapevine in pursuit of its vision for a complete, healthy and sustainable community. It is also TRC's goal to ensure that the immediate and long-term planning and development of this unique community is equally balanced with wise use of the existing natural resources.

Development proposals in Grapevine will be evaluated against the principles, guidance, and requirements outlined in this and future documents as part of the Master Developer Design Review process to ensure that individual efforts are collectively achieving the community's overall goals.

## DOCUMENT ORGANIZATION

To be successful and thrive over time, a development must start with a strong foundation. For this reason this document is organized from the ground up, outlining: the Structural Elements of the community, concepts for Varied Design, Village Centers and Neighborhoods, Place Types and Open Space, Integrated Agriculture, principles for the creation of a Complete Streets and Trail Network and Water Consciousness.





## COMMUNITY BUILDING FRAMEWORK

The vision for this new community can be seen and felt in its physical structure; in its integration of open space and natural systems, its concentration and diversity of land uses, and the design of its circulation systems. The interrelation of these built elements establishes a framework for quality, sustainability and character that will define the community's ultimate desirability.

The following Community Building components will be presented in more detail in Section B:

### Community Structure

Grapevine's master plan is based on interrelated placemaking elements that work together to create a holistic community. These elements locate development appropriately to preserve and highlight Grapevine's natural systems and historical features. They create a scale that gives form to the center, fabric and edges of each village. And, they provide a circulation and landscape framework that links the community together.

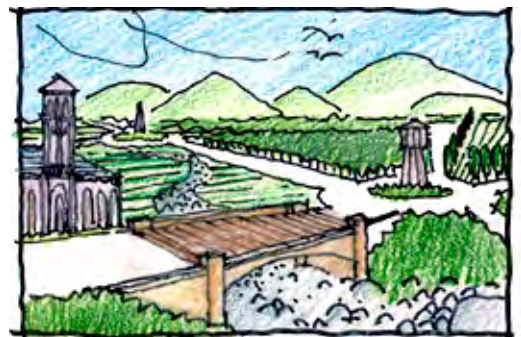
### Place Types

The Grapevine community will be made up of several Villages each with a core and supportive surrounding uses. The place types describe the characteristics of these places, and ensure an identifiable character, with each place having its own mixture of forms, uses, and level of intensities.

### Complete Streets & Trails

Accomplishing the community-building goals of Grapevine within a pedestrian-friendly community where important daily activities are within comfortable walking distance or a pleasant and safe bike ride to meet your neighbor, learn from each other and share in culture of the place is what will set Grapevine apart.

To this end, Grapevine's network of Complete Streets and trails will appropriately provide for cars and trucks. It will also promote walking, cycling and using transit, featuring walking and cycling routes to major destinations at the centers and throughout the community.



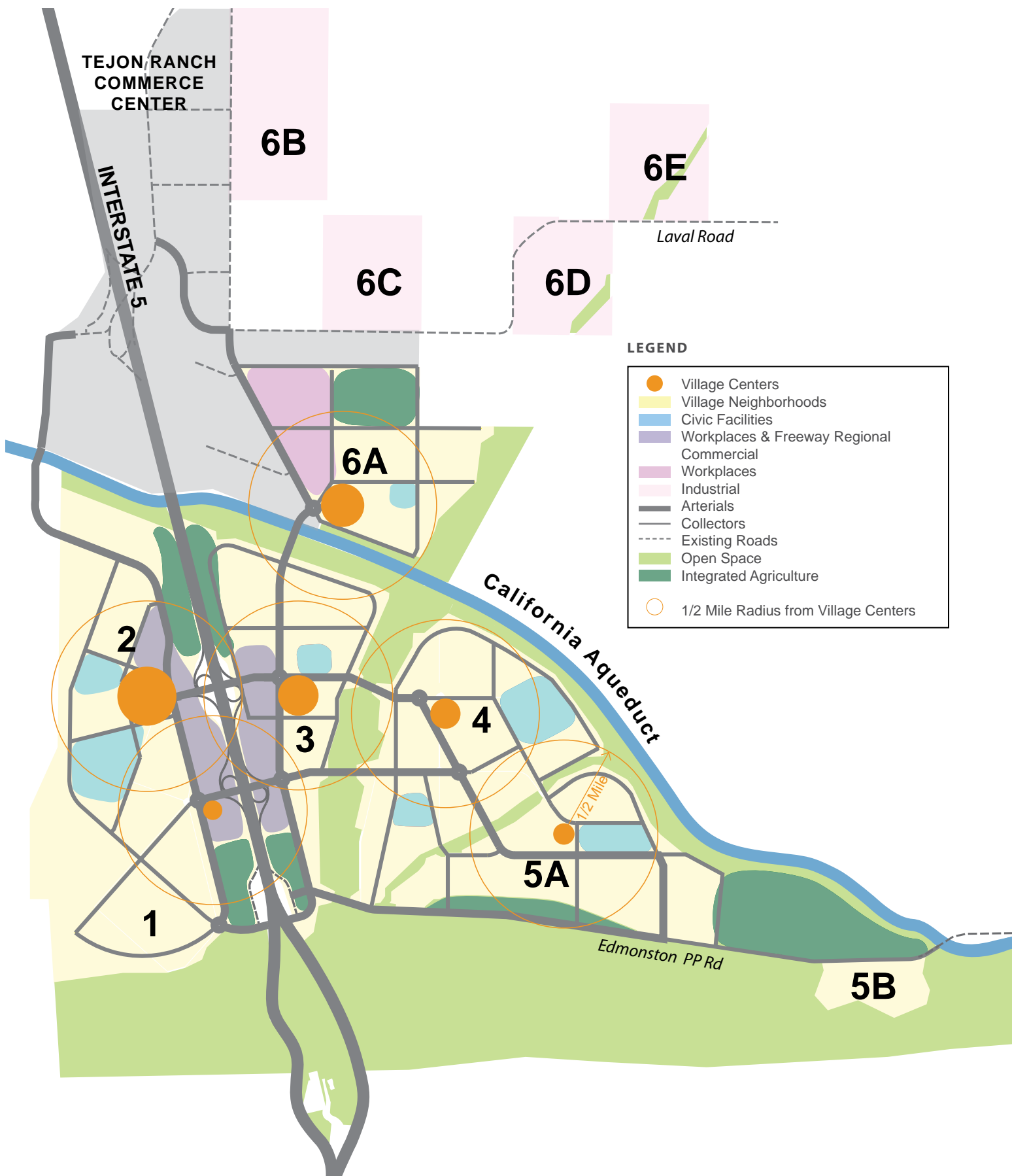


# COMMUNITY BUILDING

CREATING A HEALTHY, SUSTAINABLE COMMUNITY









## COMMUNITY STRUCTURAL ELEMENTS

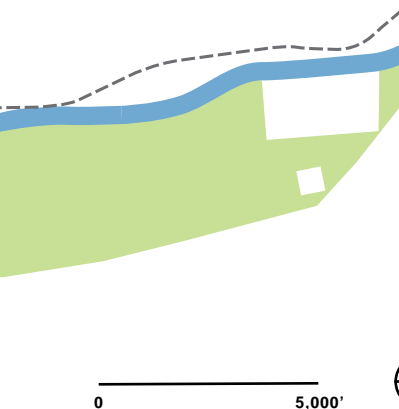
Grapevine will be a unique place, based on its ranching and agricultural heritage, its strategic location for both Southern California and the Central Valley, and its pivotal placement as the gateway where the Grapevine, Tehachapi Mountains and the San Joaquin Valley meet.

The Grapevine Community will be built upon a structure of Placemaking Elements that together form an integrated whole. Distinct place types, such as village centers, work force and commercial areas, and agricultural or open space areas, will be designed to ensure an identifiable and unique character, each with their own mixture of uses, neighborhood form, and level of intensities.

## PLACE TYPES

The core concept of Grapevine's community organization is its use of place types, which organize the development's 6 distinct plan areas into coherent centers, neighborhoods, shopping areas, and workplaces. These place types give form and intention to Grapevine's use district categories, which are described in the Specific and Special Plans. These districts include: Village Mixed Use (VMU), Mixed Use (MU), Industrial (I), and Exclusive Agriculture (EA). The village structure of centers ringed by cozy neighborhoods and dotted with public uses will provide residents with daily needs and desired activities. The place types that will be found in Grapevine are described below:

- **Village Centers** are the core for the everyday life of the community. They offer a mix of uses which could include: shopping and local services, denser housing opportunities, and an emphasis on walking, cycling, and transit access. Mixed-use buildings may be incorporated as feasible, but employing the "horizontal mixed-use" of a variety of business, residences, and civic buildings placed on adjacent parcels and blocks can create a fully vital Village Center. Civic facilities in many cases, will form the core elements and major destinations within the community. A key feature in tying the Village Centers to their placement in Grapevine and Tejon Ranch will be in laying them out to optimize the views to the surrounding mountains.
- **Village Neighborhoods** are the primary building block of Grapevine. They are predominantly residential neighborhoods that surround the Village Centers. They also contain parks, open spaces, and civic facilities. Villages are foremost great places to live and raise families. They are safe and quiet, with streets that are pleasant for walking, and cycling routes that connect the neighborhoods to open space, civic buildings and the Village Centers.
- **Workplaces** provide a place for commercial uses such as offices and research & development campuses with the goal of synergistically bringing together major employers with the goods, services and satellite businesses with which they do business, for the mutual benefit of all.
- **Freeway and Regional Commercial** blend together the conventional stand-alone regional shopping areas with the Grapevine community. It respects the rules of regional retail (excellent freeway access, volumes of traffic, parking field, scales of retail tenants) while integrating with Grapevine's street network, providing for pedestrian and cycling facilities, and presenting an appropriately designed edge with the community.
- **Open Space and Agriculture** areas of Grapevine provide for a variety of uses and experiences throughout the community. The open space provides many types of active and passive opportunities for the residents of Grapevine, while still reflecting the heritage of farming and other uses along with the natural beauty of the arroyos and surrounding mountains.





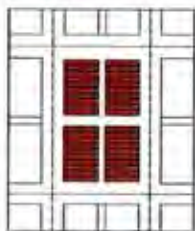
## VARIED DESIGN

Great communities reflect a combination of continuity and periodic change in built elements that maintain interest, attractiveness, and variety over time. This type of healthy change and growth within Grapevine is encouraged through a flexible framework of blocks, streets, and building form. This type of built form encourages walkability and activation while creating a platform for a wide variety of uses.

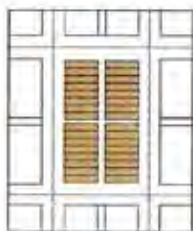
While economic efficiency may call for a community design that is repeated with minimal variation, within this framework developers, builders and owners are able to exhibit individual character and identity while avoiding monotony and promoting visual interest.



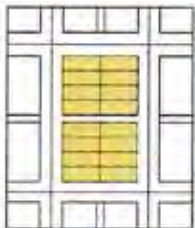




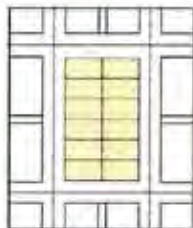
**ROW HOUSE**  
Alley Accessed  
Detached Garage  
24-48 DIA RANGE



**TOWNHOUSE**  
Alley Accessed  
Detached Garage  
18-36 DIA RANGE



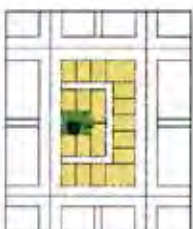
**SINGLE FAMILY - SMALL**  
Side Accessed  
Detached Garage  
12-15 DIA RANGE



**SINGLE FAMILY - STANDARD**  
Side Accessed  
Attached Garage  
8-12 DIA RANGE



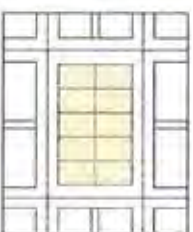
**GREEN COURT**  
Alley Accessed  
Detached Garage  
12-18 DIA RANGE



**GREEN COURT**  
Alley Accessed  
Detached Garage  
12-18 DIA RANGE



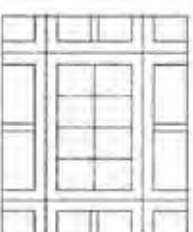
**FLAG LOT**  
Common Accessed  
Attached Garage  
5-8 DIA RANGE



**SINGLE FAMILY - LARGE**  
Side Accessed  
Attached Garage  
6-8 DIA RANGE



**SINGLE FAMILY - SMALL**  
Alley Accessed  
Attached Garage  
12-15 DIA RANGE



**SINGLE FAMILY - ESTATE**  
Alley Accessed  
Detached Garage  
3-5 DIA RANGE

## Versatile Block Size

Grapevine will use a versatile basic block size that will allow for a wide variety of land uses and product types. Widths and lengths of blocks will be streamlined to dimensions that work for the neighborhood as a whole and further the continuity of street alignments and urban fabric of Grapevine. At the time of detailed design for each area, the standard Block Size may be tailored to the dimensions of the product that will be placed upon it.

## Building Orientation to the Public Realm

Buildings will put their “best face forward” and address the public realm to which they face: the street, the plaza, the paseo. In general, the primary address of a building should have a direct connection with a public sidewalk.

Parking should generally be placed mid-block, behind the buildings, not between the building and the public sidewalk. (See exceptions in Freeway and Regional Commercial Place Types).

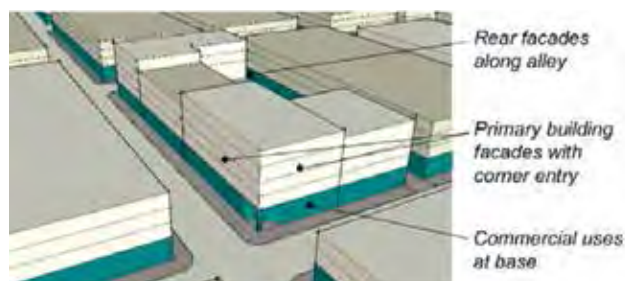
Commercial buildings should address and help activate public space with windows looking on and, where appropriate, provide entries, patios, and balconies. Some uses, such as storefront retail, benefit from being placed directly at the public sidewalk, while others benefit from landscaped setbacks.

Residential buildings should address and help activate public space with windows looking on, and where appropriate, patios and balconies. Ground floor residential is encouraged to have landscaped setbacks with individual porches, patios and unit entries from the sidewalk where appropriate. Where a residential building has non-residential ground floor use, zero-setback from the sidewalk may be appropriate.

## Connective Street Grid

Grapevine will be connected internally and externally by a “complete street” and trails network that prioritizes walking and cycling while providing access to all addresses and destinations.

The major street network of Grapevine provides the basic framework within which all uses are placed. While the dimensional needs of each new development may slightly modify the exact alignments, the major street network should remain intact as to the destinations it serves and the connections it makes with the areas it traverses.





### Massing

Massing should reinforce the architectural style of a building and create visual interest.

Key goals of massing may include:

- Expressing a building as a series of its components (base, middle, top)
- Scaling elements that relate the building to human-scale
- Stressing volumes in longer facades, such as bays of an apartment building

In commercial areas, more consistency is allowable, and differentiation in form, massing, floor heights, and materials will be used to create variety and interest. In single family residential areas, a mix of housing types, varied floor plan, and diverse architectural treatments are desirable to ensure streetscape interest.

Depending on the style, massing may be additive, reductive, etc. Future Design Guidelines for each Village or Place Type will detail specific design intentions.





### Articulation

Articulation gives detail to massing using the language of the chosen architectural style. Varied articulation within a neighborhood or a product type helps retain a sense of individual character for buildings that are in many ways similar.

### Architectural Styles

Great communities reflect a combination of continuity over time and periodic change in some elements. Grapevine will be represented with a periodically changing palette of architectural styles meant to harmonize yet offer a variety of visual experiences.

During the planning of each Village and Place Type the styles used previously should be assessed for how they may be utilized, modified, or replaced. Potential replacement styles should be considered for how they would add to Grapevine in several ways: respond to particular locations within the community, represent a different demographic, use, or aesthetic, reflect recent changes in product types, lifestyles, or tastes, or even just to freshen up the product.



## VILLAGE CENTERS

Village Centers are the core for the everyday life of the community. They will be vibrant places with an emphasis on walking, cycling, and transit access.

Village Centers will have a town square, plaza, or park at their heart, with buildings and parking that frame the soft center. These centers will have constant activity provided by shops, restaurants, employment, and a critical mass of residents in nearby apartments, townhouses, and other homes. The Village Centers will also be connected to each other and their surrounding neighborhoods by multi-modal roadways and trails.

### Defining Elements

#### Activity and Mixed-Uses at the Core

A mixture of uses that can easily be reached by car, bicycle, or on foot is key to the vitality of the Village Center:

- **Walkability** allows for multiple ways to get around in the Village Center and sets the stage for all land uses and activities.
- **Active** commercial and civic uses line the sidewalks of the Main Street. Upper floor uses are encouraged where feasible, especially surrounding a Town Square or along a Main Street.
- **Parking** is provided on-street, with the majority provided in lots placed mid-block, away from Main Street.
- **Public Spaces** provide for recreation, gatherings, non-commercial activities and reinforce the Village Center as the focus of the community
- **Residential** uses surround the core to provide a critical mass of users.

A mix of uses may be accomplished in multiple ways. Two are vertical mixed-use and horizontal mixed-use.

- **Vertical Mixed-Use** incorporates multiple uses into one building. Especially on a Village Center Main Street, the ground floor may have storefront shops, cafes, offices, live/work, or local services that benefit from having a public address. Offices, services, or residential are often placed on upper floors.
- **Horizontal Mixed-Use** places different uses in close proximity, so that a block or neighborhood gets a variety of uses and activities within an easy walking environment. Horizontal mixed-use allows for buildings to be designed with simple, efficient structures optimized for a particular use. They are often more easily financed, developed, and managed. At Grapevine, some vertical mixed-use is anticipated, but it is expected that the mainstay of creating vibrant Village Centers will be based on the close groupings of horizontal mixed-use.

#### Land Uses - Commercial, Civic and Residential

- **Commercial Uses** in Village Centers are largely local serving, including uses such as storefront retail, restaurants, cafes, bars, barbers and other personal services, and medical services, accountants and other professional offices.
- **Civic Uses** are also incorporated into Village Centers. These elements are the community services and public gathering spaces within Grapevine. Wherever civic facilities are placed within the community, they are major destinations for walking or cycling. The street and trail network will emphasize these facilities as key places for pedestrian and bicycling routes.
- **Residential Uses** are varied, with an emphasis on denser types to bring more residents to the center. They provide the diversity of housing choices for lifestyles and income levels less common with single family homes and provide the additional benefit of greater walkability to activities and services, as well as the closest proximity to community and regional transit service.

The residential portions of the Village Center will transition in intensity from the Center into the Village Neighborhood, without a strict line of product types that fit only into one place or the other. Typical residential types to be found in the Village Centers would include: townhomes and rowhomes, clustered and small lot single-family homes, courtyard multi-family, multi-plexes, flats and apartments.



## Access and Parking

### Streets and Trails

Village Centers will be located at key points along the major circulation system of Grapevine. A network of arterials and collectors for the majority of car traffic will work in concert with quiet local streets, greenway trails, and paseos for area residents to arrive at and comfortably traverse the Center on foot or bicycle.

Care will be taken such that flow-through traffic will be accommodated without compromising the walking and cycling environment throughout the Center and along the routes that connect the Center with its surrounding Village Neighborhood.

### Parking and Building Access

Village Centers will offer many types of commercial and residential options that will have associated parking and loading requirements. In all cases, parking and entry drives should receive careful design to minimize impacts on the streetscape, or walking/cycling environments. Loading Facilities should be provided mid-block and well screened from public view.

- **Main Street Parking** will be provided on-street and mid-block behind buildings. The primary entries will be street-facing. While Main Street building frontages should be almost continuous and primary entries face to the street, visible routes to mid-block parking may be incorporated. Secondary entries from mid-block parking may be provided, but not take the place of the street entry.
- **Large Format Parking** lots may be provided for larger shopping and employment parcels. These may have visibility and a presence on some major streets, but care must be taken to not dilute pedestrian-oriented streetscapes or especially a Main Street.
- **Residential Parking** for homes will be provided in garages accessed from secondary streets, common drives, or alleys.
- **Bicycle Parking** will be provided for all commercial uses as well as residential complexes. Short term parking for visitors/customers will be provided in highly visible locations near main entrances. Long term parking for employees/residents will be provided in secure, enclosed rooms or enclosures.



### Screening and Buffers

The appropriate use of screening and buffers using planting, berming, and walls, can make all the difference in minimizing any negative agency issues, while allowing all the positive benefits of a mixed-use community - such as walkability between uses, viability of bicycle commuting, and around the clock occupancy and activities - to flourish.

- **Parking lots** should be screened through the use of berms, landscaping, "headlight" walls, or a combination of these.
- **Off-street parking** should be placed mid-block and away from primary street frontages, in ways that minimize disruptions to sidewalks, crosswalks, trails, or direct access to buildings from the street.



## VILLAGE NEIGHBORHOODS

Village Neighborhoods are the primary building blocks of Grapevine. They are predominantly residential, centered around parks, open spaces, and civic facilities. They provide a wide variety of homes to suit many lifestyles, income levels, and neighborhood preferences. While major commercial uses are emphasized in Village Centers and other place types, neighborhood retail, workplace, and regional retail uses may be incorporated within Village Neighborhoods as well.

Village Neighborhoods are foremost great places to live. They are safe and quiet, with streets and trails that offer pleasant walking and cycling access to open space, civic buildings and the Village Centers.

### Defining Elements

#### Home Orientation

All homes should face towards the street, except where a paseo or lane is provided as a primary orientation. Most housing will be oriented on the solar orientation grid and have views to the surrounding hills. Corner lot homes that face onto both a paseo or Lane and a street may elect to primarily face to either, as appropriate.

#### Home Configuration and Model Variety

Varying house configurations or Models creates variety and interest. Corner lots are key addresses of neighborhoods in promoting variety in the street scene and in the interest of safety, to provide adequate sight distance at intersections.

## Typical Commercial and Residential Uses

### Neighborhood Commercial

Part of creating Grapevine's pedestrian-friendly neighborhoods is in providing for a variety of compatible land uses including neighborhood serving retail, service-oriented commercial, office, and higher density residential uses.

While the Village Centers will contain the most intensity, the Village Neighborhoods will also accommodate these complimentary land uses in a compact, pedestrian-scale environment that provides access to everyday needs and is designed to promote pedestrian and bicycle activity.

### Residential Uses

Single Family Homes will be the primary building block that make up the Village Neighborhoods. They will include a wide range of product types that may include:

- **Multi-Family and Small-Lot Single Family** are the most land-efficient single family homes.
- **Medium-Lot Single Family** represent the transition in how parcels are laid out, and ability to provide sizable side or rear yards.
- **Large-Lot Single Family** provide for spacious homes and yards.
- **Estate and Equestrian-Lot Single Family** are village edge homesites that allow for a semi-rural lifestyle.

### Access and Parking

#### Streets and Trails

Village Neighborhoods surround the Village Centers. The majority of circulation will be quiet, local streets that are supplemented with a fine-grained network of greenway trails and paseos to comfortably traverse the neighborhood on foot or bicycle. Emphasized routes to key destinations such as schools, parks, and Village Centers will further promote walking and cycling.

Arterials and collectors that carry the majority of through-traffic will primarily be located at the edges of neighborhoods, and care will be taken that they do not compromise the walking and cycling environment.





### Parking and Building Access

Parking cars in Village neighborhoods will be dealt with in several ways at Grapevine, including the following:

- **Street-Access** - For much of the residential neighborhoods, parking access will largely be from the street, and may include such types as recessed garages, side drives, and parking courts.

Combining some side-drives where recessed garages are predominantly used, along with varied driveway locations, are encouraged to break up repetitive curb cuts and yard patterns and to minimize the visual impact of the garage from the street.

- **Lane-Access** - Some residential types, like motor-courts, utilize private lanes that serve as home address and entry as well as garage access. Front-loaded townhomes and detached homes are examples of product types that might employ Lane Access.
- **Alley-Access** - Alleys are an excellent device in the denser portions of Village Neighborhoods to minimize the visual dominance of garage doors and driveways. They couple well with small lot homes, attached homes, and multi-family product types.

Alleys allow a variety of options for the front of homes beyond facing onto a street, including the desirable and value-adding adjacencies of facing onto a paseo, a trail, or a shared green.





## WORKPLACES

Grapevine will have many types of commercial development. Some will be located in single-use commercial areas, but most will be adjacent to or integrated in with mixed-use areas.

Workplace-focused areas place commercial uses such as offices and research & development in a way that can synergistically bring together major employers with the providers of goods, services and satellite businesses with which they do business.

### Defining Elements

There are three general types of Workplaces anticipated at Grapevine. They vary in size as well as tenant make-up.

- **Campuses** are the largest workplace type. They are major facilities on large tracts of land. Campuses can be major statements for their corporation or institution, and become integral to the character of Grapevine as well. Campus-sized workplaces, such as an R&D facility or a hospital, can enhance placemaking by organizing themselves around squares or plazas, with the major destinations and most intense uses being given a presence.
- **Mixed-use Workplaces** provide for multiple tenants. They often include businesses that locate adjacent to each other for mutual synergy, one providing services needed by the other. Mixed-use workplaces may provide services for one, or a variety, of fields and may also provide local services needed by the workforce, such as restaurants, delis, dry cleaners, etc.
- **Single-use Workplaces** provide for one tenant. They tend to be a single building or a few buildings in scale.

### Access and Parking

#### Streets and Trails

Workplaces are often of a size that require internal circulation. In addition to truck and car movements and parking, careful attention should be given to the walking/cycling facilities.

Bicycling and walking will be viable travel modes for employees and visitors to arrive at the site, as most workplaces in Grapevine will be located in or near transit corridors, nearby to other commercial uses and to housing opportunities. Workplaces should be designed to benefit from and encourage this asset by providing clear and comfortable internal walking and cycling routes and facilities.

- **Internal Vehicular Network** should be efficient, traffic-calmed, and placed so as not to be obtrusive to gathering places or walking/cycling routes.
- **Internal Pedestrian / Bicycle Network** should be provided to bring people safely and comfortably to the workplace.
- **Bicycle Parking** will be provided. Short term parking for visitors/customers will be provided in highly visible locations near main building entrances. Long term parking for employees/residents will be provided in secure, enclosed rooms or enclosures.

### Parking and Building Access

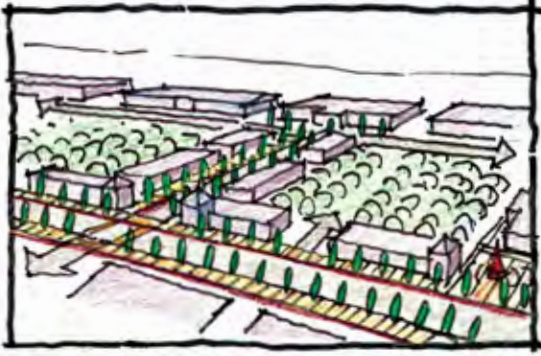
- **Parking** may be provided in surface lots. Where feasible, structured parking is encouraged. Parking should be placed to the interior of sites and should avoid impacting views from public space or internal walking and cycling routes as much as possible.

Where parking lots are large, landscaped walking routes should be provided to entries and to the street.

- **Building Entries** should emphasize facing onto the street or to the internal pedestrian network. Supplemental access entries may address parking or other utilitarian spaces.
- **Loading Facilities** - Many uses require loading areas. Loading facilities should be provided mid-block and well screened from public view.







## FREEWAY & REGIONAL COMMERCIAL

Freeway and Regional Commercial blends together the conventional stand-alone regional shopping mall with the Grapevine community. It respects the rules of regional retail (excellent freeway access, volumes of traffic, parking field, scales of retail tenants) while integrating with Grapevine's street network, providing for pedestrian and cycling facilities. These uses also serve to buffer more sensitive community uses from the adjacent interchange by presenting an appropriately designed edge with the community.

### Defining Elements

There are three general types of Freeway and Regional Commercial anticipated within Grapevine:

- **Regional Retail** would likely be outdoor shopping centers with major tenant anchors, and usually some pad retail. Liner retail would likely be included, placed in a pedestrian/bicycle friendly "main street" configuration that could align with neighboring streets and trails.
- **Power Centers** are a form of Regional Retail that are typically anchored by multiple "big box" retailers. They may also include the other components discussed with Regional Retail
- **Service Commercial** usually provides for a mixture of commercial uses such as: retail, business and personal services, wholesale suppliers, small office, and light manufacturing. At Grapevine, it is expected they may be configured as business parks with internal circulation that aligns with neighboring streets and trails.

### Access and Parking

#### Streets and Trails

At Grapevine, Freeway and Regional Commercial is expected to primarily be developed in sizes that will require internal circulation. In addition to truck and car movements and parking, careful attention should be given to the walking/

cycling facilities. It should connect to and incorporate the adjacent street and trail network as much as is feasible, so as to bring in the surrounding neighborhoods in multiple ways: by car, bicycle, transit, and on foot.

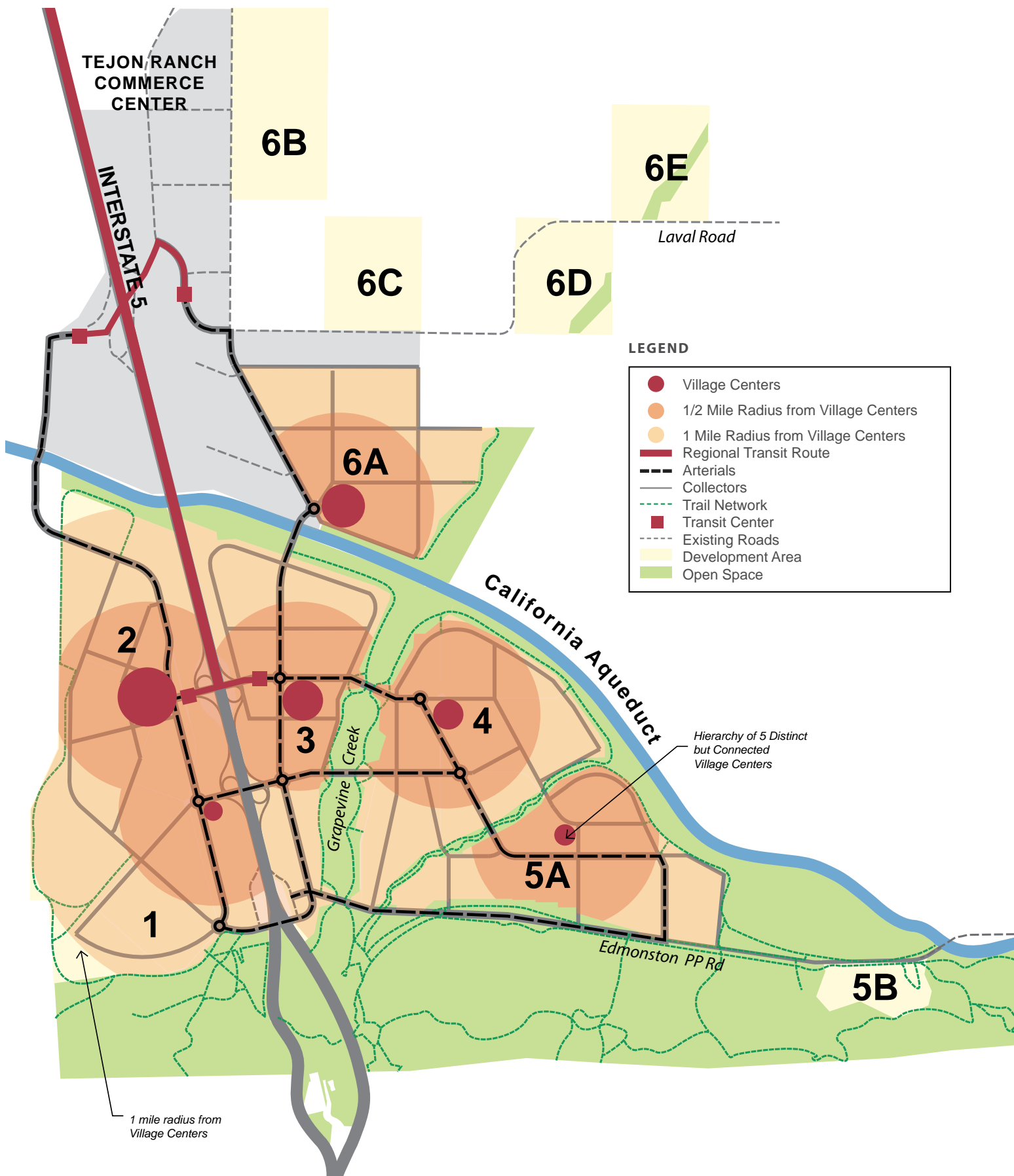
- **Internal Circulation** should form a complete network. It should attach to adjacent streets and trails. Where feasible, it should connect directly with adjacent developments without requiring access to public roads.
- **Internal Vehicular Network** should be efficient, traffic-calmed, and placed so as not to be obtrusive to gathering places or walking/cycling routes. Driveways and parking should be unobtrusive to better activate the centers and enhance their overall aesthetics.
- **Internal Pedestrian / Bicycle Network** should be provided to bring people safely and comfortably to the workplace. At this scale of development, there is often a need for the walking/cycling network to be fine-grained than is necessary for automobiles.

There will often be an opportunity to group some of the retail uses to form linear focal elements and plazas. Pad and liner retail is often suited to grouping along a sidewalk with easy access to the parking field. Customer amenities may be formed into plazas, seating areas, etc.

### Parking and Building Access

**Parking access** - convenient, efficient, and correctly sized is a primary requirement for the success of this commercial type.

- **Parking should be placed to the Interior of a Site**, with rational drive layouts, and should avoid impacting views from public space or internal walking and cycling routes as much as possible.
- **Surface Parking** is typical for this commercial type, but compatibility for an eventual transition to structured parking is encouraged.
- **View Corridors** from parking to adjacent streets are allowed but there should be an emphasis on placing some building mass at intersections, major entries and along pedestrian routes into the site
- **Bicycle Parking** will be provided. Short term parking for customers will be provided in highly visible locations near main building entrances. Long term parking for employees/residents will be provided in secure, enclosed rooms or enclosures.
- **Loading Facilities** - Many uses require loading areas. Loading facilities should be provided mid-block and well screened from public view.



## COMPLETE STREETS & TRAILS NETWORK

The circulation system is the overarching organizing framework of Grapevine. It will be made up of a hierarchy of public transit, streets, and trail connections that, as a system, will provide appropriate access to all addresses and destinations.

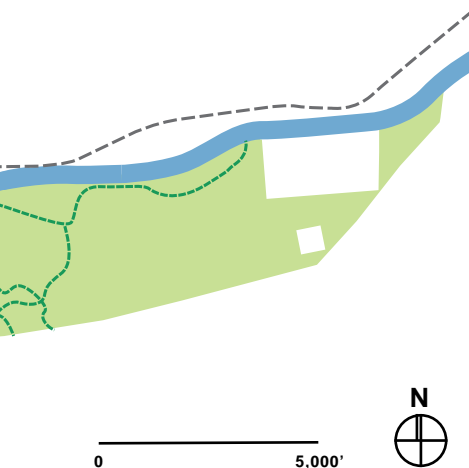
The circulation system will also have direct routes, prioritized for walking and cycling that will connect and link major destinations at the center and throughout the neighborhood.

The elements that make up the circulation system include:

- Arterials
- Collectors
- Main Streets
- Local Streets
- Lanes & Alleys
- Transit-Supportive Facilities
- Trail Network
- Bicycle Facilities

### Key Principles

- Streets are the central organizing element for the community. Guests arrive via on-street parking and sidewalks. Homes put their 'best face forward' to the streets.
- Complete Streets concepts are used to calm traffic, creating an inviting atmosphere for strolling or cycling, and to provide distinctive, high-value addresses for homes.
- Streetscapes are shaded and/or tree-covered to add comfort and beauty, as well as to bring activity to homefronts with porches, patios, and stoops.
- Trails, walking and cycling routes to transit and other major destinations, are prioritized. They are easily understood, pleasant and safe for families and individuals.
- Paseos supplement the streets and trails. They offer a variety of direct, pleasant connections from street sidewalks to homefronts. Some paseos are also major pedestrian routes through the community, some are more intimate entry courts for a group of homes.





## Major Street System

### Arterials - 4 Lane

The workhorse street type for flowing the highest volumes within Grapevine

- Incorporate medians to provide pedestrian refuge, minimize the scale of larger streets, provide opportunities for landscaping, iconic features, stormwater infiltration, and where limiting vehicle turning movements is desirable.
- Off roadway section provides secure and inviting pedestrian environment
- Pedestrian experience is often "one-sided" as the width of street and complexity of intersections make crossing more lengthy and deliberate
- Cycling facilities provided (may be cycle tracks, buffered bike lanes, etc.)
- Any access to mid-block parking needs careful design consideration

### Arterials - 2 Lane

Designed to flow moderately high volumes through the community

- In some instances similar to Main Streets, except for pedestrian-optimized crossings and a lower expected volume of foot traffic
- Off roadway section provides secure and inviting pedestrian environment
- Pedestrian experience is often "one-sided" as the street is optimized to flow auto through-traffic while providing appropriate facilities for cycling and walking
- Cycling facilities provided (may be cycle tracks, buffered bike lanes, etc.)
- May incorporate access to mid-block parking

### Collectors

The lowest volume streets that are meant for crossing through neighborhoods.

- Dimensions similar to 2-lane Arterials, but detailed for a balance of pedestrian, cycling, and auto travel
- Off roadway section provides secure and inviting pedestrian environment
- Pedestrian experience is closer to a "2-sided" experience
- Cycling facilities provided (may be cycle tracks, buffered bike lanes, standard bike lanes, sharrows, etc.)
- May incorporate access to mid-block parking, but not residential driveways

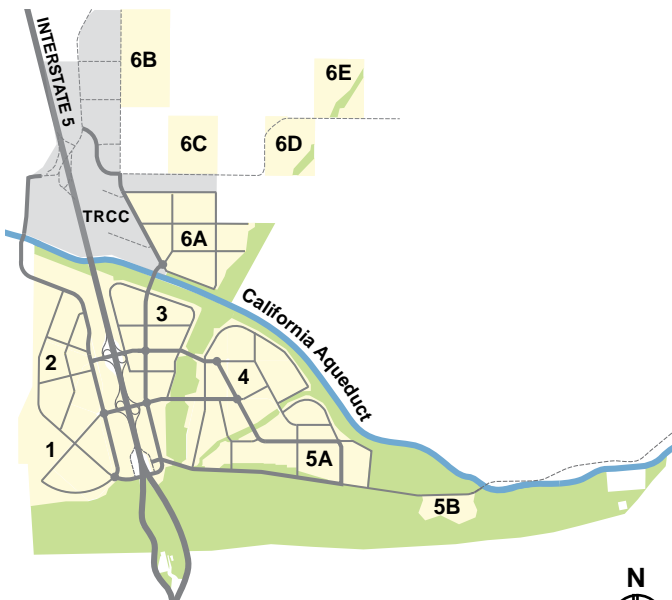
## STREET TYPES

Grapevine's street network will have seven elements, each prioritized for their specific palette of uses. Arterials and Collectors make up the Major Street System, carrying the higher traffic volumes through Grapevine. The Local Street System components - Main Streets, Local Streets, Lanes and Alleys - are low volume. These provide access within neighborhoods. Appropriate provisions for walking and cycling will be provided throughout the community.

### LEGEND

	Arterials
	Collectors
	Development Area
	Open Space

*Note: the Local Street System (not shown) occurs within Development Areas*



### KEY MAP





## Local Street System

### Main Streets

The primary street used in active, walkable Village Centers

- Optimized for slow traffic (drivers looking for parking or destinations, watching for pedestrians), cycling, and pedestrian crossings. Experience is “two-sided” - easy crossings invite walking and shopping on both sides of street.
- Two Lane (w/turn lane only as needed) - moderate volumes, calmed traffic.
- Usually adjacent to higher volume streets (perpendicular to or parallel to arterials)
- Emphasis on street life for pedestrians (shaded streetscape, cafe seating, street furniture, crossing bump-outs)
- May incorporate access to mid-block parking

### Local Streets

A calm street that favors slow, quiet, safe auto travel in the last block on the journey to people’s homes. This opens up use of the roadway for family cyclists and fosters a more interactive streetscape from street to sidewalk to homefront porch.

- The most common street throughout Grapevine.
- Emphasis on inviting streetscapes, calmed traffic. Front porches and patios allow interaction with sidewalk passersby.

- Low Volume, Low Speed roadway conducive to family cycling
- Easy parking and crossing of street. Usually provide on-street parking
- Often incorporates residential driveways

### Lanes

Have dual role as the address of homes as well as parking access

- Incorporate planting strips and sidewalks to connect the pedestrian arrival between street and home front
- Driveways must be shallow enough to discourage illicit parking or deep enough to provide a legitimate parking space

### Alleys

Located mid-block. The address of homes faces the street, not the alley

- Access to mid-block parking and garages
- Ideally incorporates planting areas and locations large enough for trees
- Paved width of alleys may be minimized so long as backup distances and turn radii are accommodated
- Driveways must be shallow enough to discourage illicit parking or deep enough to provide a legitimate parking space





## The “Last Mile”

The Last Mile is an oft-recited concept that the success of any transit system lies in the ability of transit riders to travel the last mile from a transit station to their destinations. Grapevine’s Last Mile provisions include pedestrian and bicycle facilities at transit stops coupled with Grapevine’s safe, pleasant, and efficient streets and trails for walking and cycling. Village Centers will be the primary connection points for transit to meet the trail system, as almost all homes within Grapevine are within a mile of a Village Center.

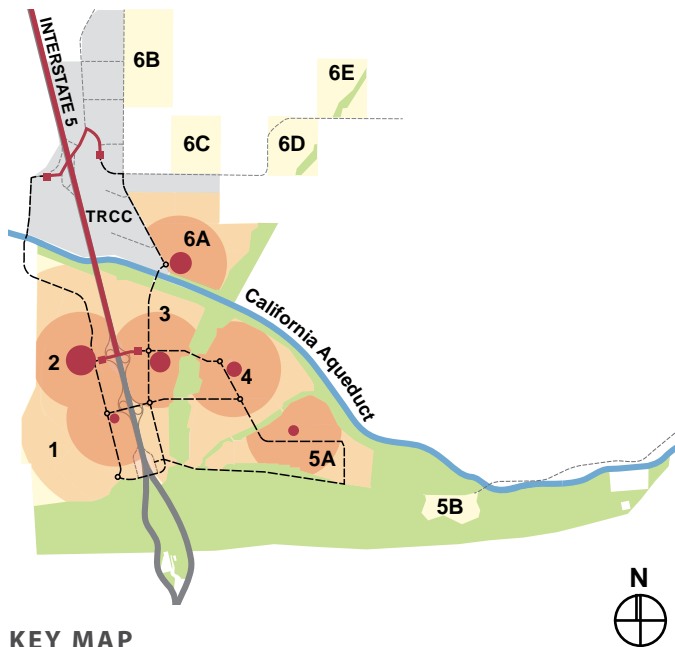
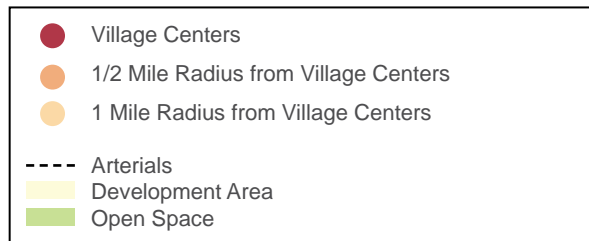
## Scales of Operation

The transportation network will function at many scales. Inter-city buses will provide regional connections with Bakersfield. Transit-supportive development will optimize ridership potential by placing the highest intensities near transit. The extension of transit opportunities from Village Centers into the residential neighborhoods will be supported by “Last Mile” facilities.

## TRANSIT-SUPPORTIVE FACILITIES

Grapevine will coordinate with transit service providers to offer efficient travel options through the community and the region. Transit will team with cycling and walking to form a comprehensive public transportation network that will be viable for Grapevine residents, workers, and visitors, diminishing reliance on single-occupancy vehicle travel, lowering emissions and improving overall air quality.

### LEGEND







### Phasing

The location of transit stops and routes will evolve and expand over time as Grapevine develops. Initial phases may connect to the existing regional transit service provided between TRCC, Bakersfield, and Arvin. Vans or shuttles may connect the developing community to these regional stops, until demand warrants use of buses. However, at buildout, it is expected that Grapevine may be able to support transit services similar to those currently offered within the Bakersfield metropolitan area.

### Transit Centers

Transit Centers will be provided near the I-5 interchange, one placed on each side of the freeway, and at Village Centers. These will provide several functions, sized appropriately with the scale of each center:

- A transfer point at I-5 between the regional bus system and the Grapevine Transit System
- Park & Ride or Kiss & Ride facilities
- Comfortable waiting areas and secure bike storage

### Transit - Oriented Development

Where transit investment is made, Transit-Oriented Development can best capture the value created and help foster active, mixed-use centers. It is a concept that places

the most intense mix of uses within walking distance of transit stations. In Grapevine, the two most TOD-supportive areas occur on each side of the freeway, from the proposed I-5 interchange southward to the existing freeway underpass.

The fine-grained pedestrian environment that Grapevine will create will help businesses, employers, and residents to best take advantage of TOD.





## BICYCLE FACILITIES

Several types of bicycle facilities will be provided at Grapevine to promote cycling. A variety of purposes will be supported by these facilities, including: commuting to work or school, running errands, traveling to destinations, fitness, and recreation.

Cycling street and trail facilities include:

### Cycle Tracks / Protected Lanes - Class I

Cycle Tracks are useful for major off-street bicycle routes. They are inviting to all skill and confidence levels, comforting in their protection from moving traffic, and allow for easy stopping and pulling to the side anywhere along the route.

Cycle Tracks are especially valuable with arterials and where the primary route for auto traffic and bicycles are the same.

One way cycle tracks on each side of a street are standard, but two-way tracks may be employed in locations where it is best to keep all bicycle traffic on one side.

### Multi-Purpose Trails - Class I

These trails provide routes alongside streets or open spaces. They are optimized for the needs of walking, all skill levels of cycling, and jogging. Some routes may serve an important role for commuting or connecting to destinations, while others will be primarily for recreation or fitness.

### Bike Lanes - Class II

Bike lanes are a good device for promoting cycling on higher volume streets. Beyond the standard bike lane, there are several options that afford added protection and embolden cyclists who would otherwise be hesitant to ride on some streets.

Standard bike lanes are space-efficient and provide a level of physical and perceived safety.

Buffered bike lanes provide extra width that offers cyclists more separation from parked car doors and/or moving traffic. Parking and/or travel lanes may be striped narrower in conjunction with buffering as part of an overall safety and access strategy.

Protected bike lanes add barriers to traffic that give further protection to cyclists. The physical barrier provides physical safety and confidence to less skilled or less experienced cyclists.

Protected bike lanes are often placed directly next to the curb with on-street parking located adjacent to moving traffic. This detailing functions quite similarly to cycle tracks.

### Sharrows - Class III

Sharrows ("shared-lane-arrows") are painted icons on streets. They may or may not coincide with non-standard lane widths or other cycling facilities.

They are used to help auto drivers recognize the possible presence of cyclists as well as indicating the position in the street that cyclists should take. At intersections, sharrows may be used to show cyclists where they should position themselves for turning or through-travel.

Sharrows also can be a simple and effective wayfinding device in marking routes to major destinations, especially when used in conjunction with wayfinding signage.

### Mid-Block Paths and Paseos

Mid-block paths are low-key, local paths that supplement the street and trail systems for convenience when walking within a neighborhood. In some cases, where they provide key connections, these may be detailed as multi-use paths that also support cycling and jogging.

Paseos are primarily attractive entry sequences to homes through an open space, this function is discussed more below.







## TRAIL NETWORK

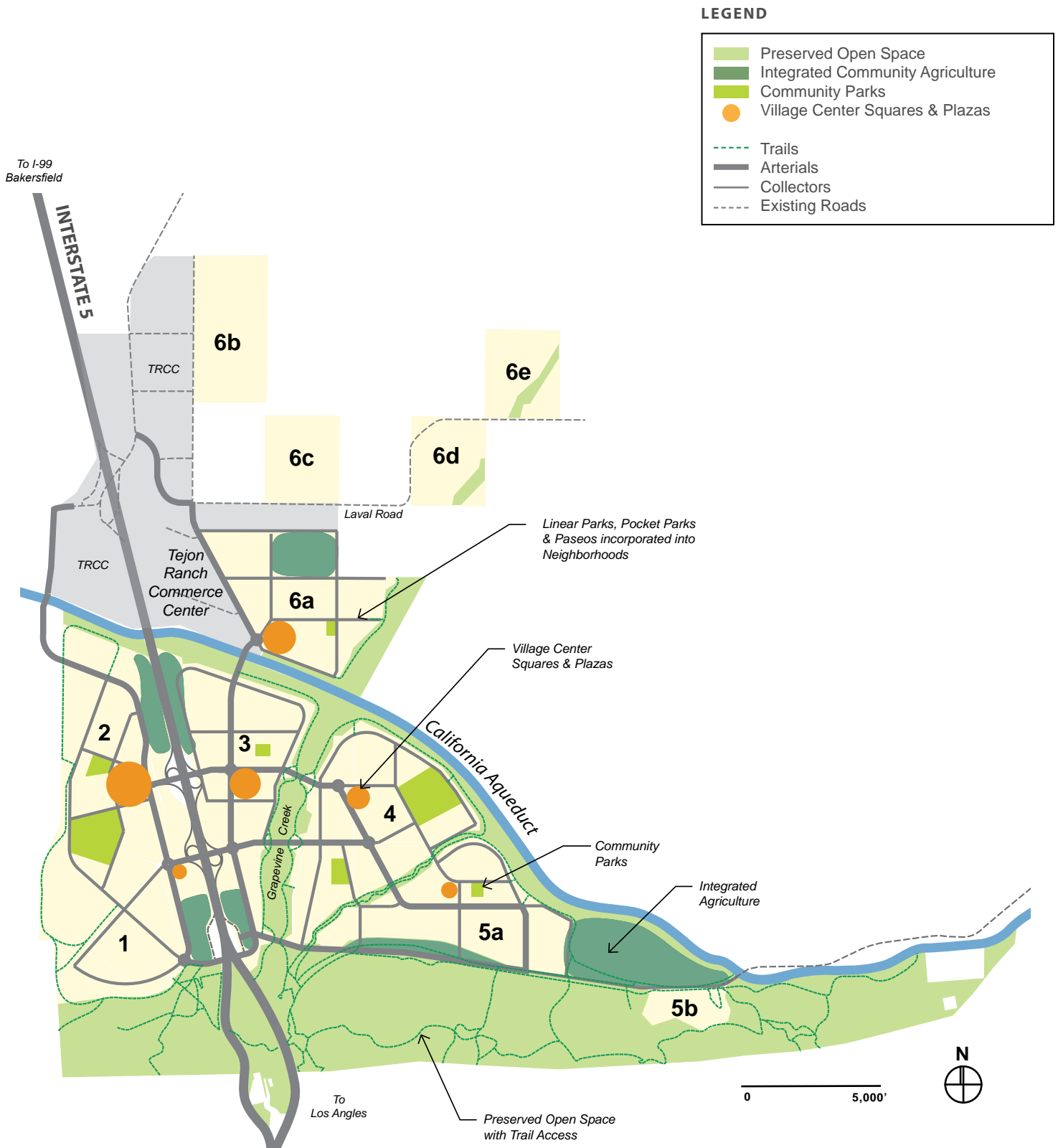
Grapevine's trail network will provide another set of options for travel beyond the street system. Trails are a pleasant way to travel, as well as offering the chance for exercise and recreation. They allow residents to be at a distance from the noise, smell and potential danger of cars. The perceived safety of trails may even give parents the confidence to allow children greater unsupervised freedom of movement within their community.

There will be two applications of trail systems.

**Urban Trails** will wind through the community, offering a way to travel that is removed from the noise, smell and potential danger of cars. These urban trails will take advantage of green corridors and parks where possible. In other places they may be incorporated into widened streetscapes or mid-block crossings.

**Open Space Trails** will offer recreational opportunities to residents as well as make connections between villages. Trails will be provided along arroyos, the aqueduct, and into the mountains south of Grapevine. Several trailheads at the southern edge of Grapevine will travel for miles through the mountainous, wild terrain of Tejon Ranch.









## COMMUNITY OPEN SPACE

Grapevine's villages are set into a larger open space network of green spaces, arroyos & creekbeds, foothills, farming and ranching. These open spaces include:

- Preserved Open Space / Tejon Ranch
- Integrated Community Agriculture
- Community Parks
- Village Center Squares and Plazas
- Linear & Pocket Parks
- Trails & Paseos

These landscape elements and spaces contribute to the overall wayfinding and identity, passive and active recreational opportunities, visual screening, and integrated stormwater management.

The open space provides many types of active and passive opportunities for the residents of Grapevine, and celebrates the agrarian heritage and natural beauty of the Ranch and the valley.

### Key Landscape Principles

- Use green corridor connections to highlight the interconnectivity of a comprehensive system of walking, cycling and transit;
- Provide a variety of types and sizes of open spaces within the neighborhoods. Link the open spaces together with walking /cycling routes;
- Unify the neighborhoods with large shade trees and varied plantings that are low water usage and require minimal maintenance;
- Create distinction for each neighborhood with a four-season landscape approach;
- Integrate stormwater management into the landscape and open spaces' functionality; and
- The sparing, strategic use of water is key to the look and character of the Grapevine landscape. Rely primarily on low water use plantings; provide greener, usable spaces for key areas, such as at schools and parks.



## PRESERVED OPEN SPACE

Tejon Ranch has 90% of its 270,000 acres dedicated to remain open land, portions of which form a greenbelt around Grapevine. This network of preserved open space includes hillsides and arroyos in their natural state and allows for continued ranching operations such as grazing land or agriculture. Being a resident of Grapevine will mean one is a part of Tejon Ranch, with access from trailheads in Grapevine to the ranch trails.







## INTEGRATED AGRICULTURE

Grapevine will feature an integrated, farm-to table approach that builds on the existing farming and ranching of Tejon. There will be programs at many scales. While all will be community-based, some will employ workers as profit-making businesses and some will be resident-based.

### Commercial Community Agriculture

Supplementing Tejon's existing large-scale production, several types of small and medium-scale farming may be employed, ranging from small plots integrated into greenbelts and trail systems, nestled into open spaces, to community scale farms. These farms will provide jobs and a sense of connection with Tejon and the San Joaquin Valley's heritage. Components may include:

- **Orchards & Vineyards** - Commercially viable, offer shade and habitat to wildlife and preserve agricultural legacy
- **Edible Landscaping** - Greenspaces to grow food, incorporated into parks, streets and sidewalks
- **Incubator Farms** - small plots of land used by entrepreneurs for commercial food production
- **Community Farms** - Year-round produce and programming opportunities for building community and a sense of place with a diversified selection of fruits, veggies and flowers
- **Farmer's Markets** - Temporary retail spaces for producers to sell fresh product directly to the consumer. Should be located near anchor institutions and bike/pedestrian pathways



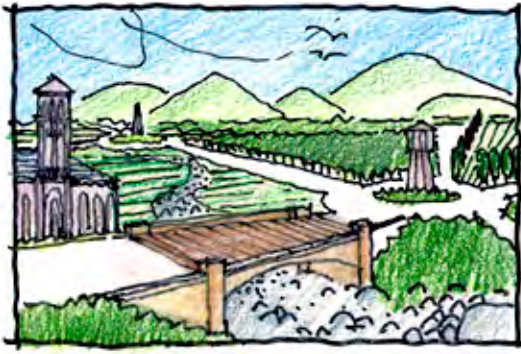
or purchasing Grapevine-grown food at farmer's markets and groceries, through Community Supported Agriculture, or at participating restaurants. Potential Components of Community Agriculture include:

- **School Gardens** - Education opportunity and hands-on learning tool
- **Neighborhood Gardens** - Spaces for homeowners to garden, grow food, and socialize
- **Residential Gardens** - Turnkey household gardens that are sold as an add-on to a home amenity package

### Resident and Education-Based Community Agriculture

In addition to the community being surrounded with views of farms and ranching, there will be several ways that residents and students can be involved through growing their own produce in backyard and neighborhood gardens,





## PARK OPEN SPACES

### Squares, Parks and Plazas

Grapevine's community life will revolve around its Village Centers, which will have squares, parks and plazas conveniently located for walking and cycling from the surrounding neighborhoods. These will be inviting places, surrounded with the shopping, local services, community gathering places, and nearby to the schools both day and night.

### Paseos

The paseo is a small, people-friendly garden alley, open space or green corridor that provides an attractive alternative entry to business and homes or as pass-through connections between blocks, as mentioned above. They also provide places for gathering in the center of neighborhoods and village centers.

- **Major Paseos** integrate with the street network to invite pedestrian through-travel. Its dimensions are slightly wider, and it offers passive amenities such as small seating areas and lawns.
- **Minor Paseos** will be intimate, semi-private shared spaces predominantly for the use of adjacent business or homes. While residents would know that walking through is allowed, visual cues such as low fences, trellis, and ornamental gates tell the passerby of its insular nature.

### Linear Parks and Pocket Parks

The linear parks and green belts are the longest parks. They link the fabric of the many neighborhoods and villages together in a green, shady, and safe travel corridor for all ages.

Pocket parks are the smallest type of public and semi-public parks. They are nestled into and weave through the neighborhoods, creating safe, pleasant routes for walking or cycling, as well as special places within a short walk of homes.



*Squares & Plazas*



*Paseos*



*Pocket Parks*

## Community Parks

Built into both Grapevine's open space framework and the neighborhood fabric will be a series of community parks. These parks will be major focal points for Grapevine, integrated into the trail networks, and each with a different size and focus. Primary goals and features for Community Parks include:

- Gathering / civic events
- Recreation hubs / major facilities (pool/gym, league fields)
- Shade
- Destinations by foot, bike, car and bus
- Foot/bike exercise loops
- Access to Tejon Ranch regional trails



*Community Parks*

## Trails

As discussed in the Circulation section above, Grapevine will feature an extensive trail system, both through the neighborhoods, and through the open space system that connects to Tejon's mountains. A unique part of being a Grapevine resident is being a part of Tejon Ranch with access to thousands of acres of its rugged beauty via the trail system.

## Shared Parks & Facilities

In order to provide recreation, meeting and activity spaces for the community, Grapevine may use a shared approach, where use and maintenance of facilities are shared between school and community usage. Typically, school hours would be primarily or solely for the school, with community activities utilizing facilities at other times.



*Trails*



*Shared Parks & Facilities*





# WATER CONSCIOUSNESS



WATER CONSERVATION, MANAGEMENT  
TECHNIQUES, & PLANT MATERIALS





## WATER CONSCIOUS LANDSCAPE

Grapevine will exhibit a sustainable approach to landscape and planting that focuses on water consciousness and efficient design. This approach minimizes the use of exterior water through effectively managing the natural hydrological systems, planting design, and materials selection and maintenance.

The following guiding principles set the framework for Grapevine's water-conscious approach and are to be implemented in conjunction with the requirements of the Grapevine Special Plan:

### Conservation and Reuse

- Use recycled or reclaimed water for irrigation for commercial, industrial, civic, and common area landscaping.
- Use recycled or reclaimed water for residential front yard landscaping to the extent it is available.

### Hydrology

- Maintain regional watersheds comprised of natural hillsides and arroyos
- Practice efficient storm water management by capturing, treating, and storing runoff at all scales - community, neighborhood, and block - with bio-retention and detention basins
- Minimize impervious surfaces and maintain natural drainages to increase infiltration and minimize run-off and erosion.

### Planting Design

Each landscape type within the Grapevine community should have a different treatment based upon activity, location, and available maintenance.





Landscapes fall into the following types:

- **Parks & Plazas** - As the most highly visible and active spaces, parks and plazas may strategically use higher water use “green” elements such as decorative planting, lawn/turf, or sports field . Water features may also be used, but should utilize recirculating water where possible. Reclaimed water should be used for irrigation when available.
- **Streets** - Grapevine’s streets play a critical role in providing shade throughout the community, which in turn reduces the heat island effect and encourages walkability and outdoor activities. Street trees should be spaced at a reasonable distance apart and may be irrigated with recycled water.
- **Commercial Landscapes** - Planting in commercial areas should feature few turf areas and be comprised of hearty, drought-tolerant planting. Ornamental accent planting - with higher water usage - may be located at entries and plazas. Parking lots should feature bio-retention within planting strips, and recycled water to be used where possible.
- **Private Landscapes** - Homes within the community should feature a drought-tolerant and native/adapted plant palette.
- **Agriculture** - Agriculture within Grapevine will be integral to the community. Farming activities will use resource conscious methods and management techniques, as well as employ drip or low-volume irrigation.
- **Natural** - These areas should remain sparsely planted with little maintenance. Any new plantings should be very drought-tolerant and only require water for establishment.

#### Materials Selection & Maintenance

- Select low water use plants that are native or adapted, drought tolerant, and fire resistant
- Apply mulch to all planting areas to reduce evaporation aid in soil management and weed control
- Provide and maintain balanced soils to as to improve water efficiency and plant health
- Minimize water use and runoff through analysis of prevailing wind direction, efficient irrigation layout, and the use of smart sensors
- Drip irrigation will be used throughout the community where practicable.







## PLANT MATERIALS

Grapevine's landscapes will be carefully planned and designed in a water conscious manner. Final plant material selections will further those goals on both the overall community and individual site scales.

Plant materials should be primarily native and/or drought tolerant species that are regionally and locally appropriate and do not pose a threat to native species (e.g. non-invasive). This will help to ensure that water needs for landscaping as well as impacts to native species and habitats are minimized. Species that require minimal use of pesticides and fertilizers should be given preference, along with those that are resistant to disease.

In designing planting areas, the solar orientation of plant placement should be considered to maximize summer shade and solar gain in winter.

The following pages outline appropriate plant species for use within the Grapevine community and may be used as a baseline to begin establishing the community's water conscious, native, and diverse design.

The list is not exhaustive and is intended to provide a guide rather than specifically limit the types of plants used in Grapevine. Planting and irrigation plans will be subject to review and approval through the project's Design Review Process.







*Arbutus unedo* 'Marina' | Marina Strawberry Tree



*Chitalpa tashkentensis* | Chitalpa



*Jacaranda mimosifolia* | Jacaranda

TREES		Water Use			Native	Soil Volume			Notes
Botanical Name	Common Name	L	M	H		S	M	L	
<i>Acer negundo</i>	Box Elder		X		●		X		
<i>Aesculus californica</i>	California Buckeye	X			●		X		toxic fruit, limit to non-development areas only
<i>Arbutus andrachne</i>	Turkish Madrone		X				X		
<i>Arbutus unedo</i>	Strawberry Tree	X				X			
<i>Arbutus unedo</i> 'Marina'	Marina Strawberry Tree		X				X		
<i>Arctostaphylos manzanita</i>	Common Manzanita		X		●	X			
<i>Alnus cordata</i>	Italian Alder		X				X		
<i>Alnus rhombifolia</i>	White Alder			X	●		X		limit to areas of water edge/riparian conditions
<i>Brahea edulis</i>	Guatalupe Palm	X				X			
<i>Calocedrus decurrens</i>	Incense Cedar		X		●			X	
<i>Carpinus betulus</i>	European Hornbeam		X				X		c.v. 'Fastigiata'
<i>Carya illinoensis</i>	Pecan		X					X	
<i>Casuarina equisetifolia</i>	Horsetail Tree	X						X	
<i>Catalpa bignonioides</i>	Common Catalpa		X					X	
<i>Catalpa speciosa</i>	Northern Catalpa		X					X	
<i>Cedrus libani</i> ssp. <i>Atlantica</i> Glauca	Blue Atlas Cedar		X					X	
<i>Cedrus libani</i>	Cedar-Of-Lebanon		X					X	
<i>Celtis australis</i>	European Hackberry		X					X	
<i>Celtis reticulata</i>	Netleaf Hackberry	X			●	X			
<i>Celtis sinensis</i>	Chinese Hackberry		X				X		
<i>Ceratonia siliqua</i>	Carob Tree		X				X		provide litter maintenance or limit to areas away from paved/active use areas
<i>Cercis canadensis</i>	Eastern Redbud		X			X			var. <i>reniformis</i>
<i>Chilopsis linearis</i>	Desert Willow	X				X			
<i>Chitalpa x tashkentensis</i>	Chitalpa		X			X			
<i>Citrus species</i>	Citrus		X				X		
<i>Cladrastis kentukea</i>	Yellow Wood		X				X		
<i>Cupressus arizonica</i>	Arizona cypress	X					X		limit to areas away from heat reflective walls
<i>Cupressus forbesii</i>	Tecate cypress	X				X			
<i>Davidia involucrata</i>	Dove Tree		X				X		
<i>Fraxinus americana</i>	White Ash		X					X	
<i>Fraxinus angustifolia</i> 'Fan West'	Fan West Ash		X				X		
<i>Fraxinus uhdei</i>	Shamel Ash		X					X	
<i>Fraxinus velutina</i>	Arizona Ash		X					X	
<i>Fraxinus velutina</i> 'Coriacea'	Leather Leaf Ash		X					X	
<i>Ginkgo biloba</i>	Maidenhair Tree		X				X		males specimens only
<i>Gleditsia triacanthos</i>	Honey Locust	X					X		limit to conditions shielded from wind
<i>Jacaranda mimosifolia</i>	Jacaranda		X				X		provide litter maintenance or limit to areas away from paved/active use areas
<i>Juglans californica</i> var. <i>hindsii</i>	California Black Walnut		X		●			X	
<i>Juglans regia</i>	English Walnut		X					X	
<i>Koelreuteria bipinnata</i>	Chinese Flame		X					X	provide litter maintenance or limit to areas away from paved/active use areas
<i>Koelreuteria paniculata</i>	Goldenrain Tree		X				X		provide litter maintenance or limit to areas away from paved/active use areas
<i>Lagerstroemia indica</i>	Crape Myrtle		X			X			
<i>Laurus nobilis</i>	Sweet bay	X					X		
<i>Maytenus boaria</i> 'Green Showers'	Mayten Tree		X				X		
<i>Melia azedarach</i>	China Berry	X							
<i>Morus alba</i>	White Mulberry		X				X		



*Olea europaea* 'Swan Hill' | Swan Hill Fruitless Olive



*Quercus lobata* | Valley Oak



*Ulmus parvifolia* | Chinese Elm

TREES		Water Use			Native	Soil Volume			Notes
Botanical Name	Common Name	L	M	H		S	M	L	
<i>Olea europaea</i> 'Swan Hill'	Swan Hill Fruitless Olive	X							
<i>Parkinsonia aculeata</i>	Mexican Palo Verde	X				X			x 'Desert Museum', thin crown frequently for wind hardness
<i>Parkinsonia floridum</i>	Blue Palo Verde	X			●	X			
<i>Pinus elderica</i>	Afghan Pine	X						X	
<i>Pinus nigra</i>	European Black Pine		X					X	
<i>Pinus pinea</i>	Italian Stone Pine	X						X	
<i>Pinus sabiniana</i>	Grey Pine							X	
<i>Pistacia chinensis</i>	Chinese Pistache	X				X			
<i>Platanus acerifolia</i> 'Bloodgood'	London Plane Tree	X						X	Yarwood'
<i>Platanus mexicana</i>	Mexican Sycamore		X					X	
<i>Platanus racemosa</i>	California Sycamore		X					X	
<i>Populus fremontii</i>	Fremont Cottonwood			X	●			X	
<i>Prosopis glandulosa</i>	Honey Mesquite	X			●				c.v. 'Phoenix' / 'Maverick' thornless
<i>Prunus ilicifolia</i>	Holly-Leafed Cherry	X			●	X			use only when time of planting allows non-summer installation
<i>Prunus lyonii</i>	Catalina Cherry	X			●	X			use only when time of planting allows non-summer installation, water sensitive
<i>Quercus alba</i>	White Oak		X					X	limit use to non-turf areas
<i>Quercus douglasii</i>	Blue Oak	X			●		X		limit use to non-turf areas
<i>Quercus engelmannii</i>	Mesa Oak	X					X		limit use to non-turf areas
<i>Quercus illex</i>	Holly Oak	X					X		limit use to non-turf areas
<i>Quercus lobata</i>	Valley Oak	X			●			X	limit use to non-turf areas
<i>Quercus macrocarpa</i>	Bur Oak		X					X	limit use to non-turf areas
<i>Quercus robur</i>	English Oak		X					X	c.v. 'Fastigiata', limit use to non-turf areas
<i>Quercus rubra</i>	Red Oak		X					X	limit use to non-turf areas
<i>Quercus suber</i>	Cork Oak	X						X	limit use to non-turf areas
<i>Quercus virginiana</i>	Southern Live Oak		X					X	limit use to non-turf areas
<i>Quercus wislizeni</i>	Interior Live Oak	X			●			X	limit use to non-turf areas
<i>Rhus lancea</i>	African Sumac	X				X			frequent pruning required
<i>Robinia pseudoacacia</i> 'Frisia'	Lime Common Locust		X						limit to conditions shielded from wind
<i>Robinia X ambigua</i> 'Purple Robe'	Purple Robe Locust	X					X		limit to conditions shielded from wind
<i>Salix exigua</i>	Coyote Willow		X		●	X			riparian, provide litter maintenance or limit to areas away from paved/active use areas
<i>Salix gooddingii</i>	Black Willow	X					X		riparian/woodland areas, provide litter maintenance or limit to areas away from paved/active use areas
<i>Sambucus caerulea</i>	Blue Elderberry	X			●	X			sensitive to prolonged soil saturation
<i>Sophora japonica</i>	Japanese Pagoda	X					X		c.v. 'Regent', limit to natural/open space areas
<i>Sophora secundiflora</i>	Texas Mountain Laurel	X					X		+ c.v. 'Silver Paso'
<i>Tilia tomentosa</i>	Silver Linden		X					X	
<i>Tipuana tipu</i>	Tipu Tree		X				X		limit to conditions shielded from wind
<i>Ulmus americana</i>	American Elm		X					X	
<i>Ulmus parvifolia</i>	Chinese Elm		X				X		
<i>Washingtonia filifera</i>	California Fan Palm		X		●		X		annual pruning required







Calliandra californica | Baja Fairy Duster



Dasylirion wheeleri | Desert Spoon



Dodonea viscosa | Hopseed Bush

SHRUBS		Water Use			Native	Soil Volume			Notes
Botanical Name	Common Name	L	M	H		S	M	L	
Agave americana 'Variegata'	Variegated Century Plant	X				-			v. Mediopicta
Agave parryi v. parryi	Parry's agave	X			●	-			c.v. 'Estrella'
Agave schidigera	Durango Delight	X				-			c.v.
Agapanthus africanus species	Lily of the Nile	X				-			
Arbutus unedo	Strawberry Tree		X			-			use only when time of planting allows non-summer installation
Arbutus unedo 'Compacta'	Dwarf Strawberry Tree		X			-			use only when time of planting allows non-summer installation
Artemisia tridentata v. tridentata	Big Sage Brush	X			●	-			
Atriplex canescens	Four-Wing Saltbush	X				-			
Atriplex lentiformis	Quail Bush	X			●	-			
Atriplex l. breweri	Brewer Saltbush	X			●	-			
Calliandra californica	Baja Fairy Duster	X			●	-			
Calliandra eriophylla	Fairy Duster	X			●	-			
Carpenteria californica	Bush Anemone		X		●	-			
Cassia artemisioides	Feathery Cassia	X				-			See Senna
Cassia nemophila	Green Cassia	X				-			See Senna
Ceanothus spp.	Wild Lilac	X			●	-			plant in fall/winter for best long-term performance
Chrysactinia mexicana	Damianita	X				-			
Convolvulus cneorum	Bush Morning Glory		X			-			frost sensitivity
Cordia parvifolia	Little Leaf Cordia		X			-			
Dasylirion wheeleri	Desert Spoon	X				-			
Dendromicon rigida	Bush Poppy	X			●	-			
Dodonea viscosa	Hopseed Bush	X				-			
Elaeagnus pungens	Silver Berry	X				-			
Encelia farinose	Brittlebush	X			●	-			
Ephedra viridis	Mormon Tea	X			●	-			
Eriogonum fasciculatum	California Buckwheat	X			●	-			
Fallugia paradoxa	Apache Plume	X			●	-			
Feijoa sellowiana	Pineapple Guava		X			-			
Ferocactus spp.	Barrel Cactus	X			●	-			
Forestiera neomexicana	New Mexican Privet	X			●	-			
Galvezia juncea	Baja Bush-Snapdragon	X			●	-			
Geranium incanum	Crane's Bill		X		●	-			limit to areas with partial shade
Hemerocallis species	Day Lily		X			-			select low maintenance species
Hesperaloe funifera	Giant Hesperaloe	X				-			
Hesperaloe parviflora	Red Yucca	X				-			
Heteromeles arbutifolia	Toyon	X			●	-			
Ilex spp.	Holly	X				-			
Jasminum mesnyi	Primrose Jasmine		X			-			
Justicia spicigera	Mexican Honeysuckle		X			-			
Kniphofia uvaria	Red Hot Poker	X				-			limit to areas where short life span is acceptable
Lantana spp.	Lantana	X				-			susceptible to frost, treat as annual
Leucophyllum frutescens	Texas Ranger	X				-			c.v. 'Thunder Cloud' and 'Green Cloud'
Ligustrum japonicum 'Texanum'	Wax Leaf Privet	X				-			
Lotus rigidus	Rock Pea			X		-			
Lotus scoparius	Deerweed			X		-			
Lupinus albifrons	Silver Bush Lupine	X			●	-			
Lycium andersonii	Desert Wolfberry	X			●	-			
Myrtus communis species	True Myrtle		X			-			limit to areas with partial shade



*Perovskia atriplicifolia* 'Blue Spire' | Russian Sage



*Psilostrophe cooperi* | Paperflower



*Ribes aureum* | Golden Currant

SHRUBS		Water Use			Native	Soil Volume			Notes
Botanical Name	Common Name	L	M	H		S	M	L	
<i>Nandina domestica</i>	Heavenly Bamboo	X				-			
<i>Nandina domestica</i> 'Nana compacta'	Dwarf Heavenly Bamboo	X				-			
<i>Nolina microcarpa</i>	Bear Grass	X				-			
<i>Opuntia microdasys</i>	Rabbit Ears	X				-			
<i>Opuntia phaeacantha</i>	Englemann Prickly Pear	X			●	-			
<i>Penstemon clelandii</i>	Penstemon	X			●	-			
<i>Perovskia atriplicifolia</i> 'Blue Spire'	Russian Sage		X			-			
<i>Phlomis fruticosa</i>	Jerusalem Sage	X				-			
<i>Phlomis lanata</i>	N/A	X				-			
<i>Prunus ilicifolia</i>	Holly Leaf Cherry	X			●	-			
<i>Psilostrophe cooperi</i>	Paperflower	X			●	-			
<i>Psilostrophe tagetina</i>	Paper Flower	X				-			
<i>Rhaphiolepis</i> spp.	Indian Hawthorn	X				-			
<i>Ribes aureum</i>	Golden Currant		X		●	-			
<i>Rosa banksiae</i> 'Alba Plena'	White Lady Banks' Rose		X		●	-			limit to areas receiving frequent maintenance
<i>Rosa californica</i>	California Wild Rose		X		●	-			
<i>Ruellia brittoniana</i> 'Blanca'	White Dwarf Ruellia		X			-			
<i>Russelia equisetiformis</i>	Coral Fountain	X				-			
<i>Salvia greggii</i>	Autumn Sage	X				-			c.v. 'Sierra Linda'
<i>Sambucus mexicana</i>	Blue Elderberry	X			●	-			
<i>Santolina chamaecyparissus</i>	Lavender Cotton	X				-			
<i>Senna artemisioides</i>	Feathery Senna	X				-			
<i>Senna nemophylla</i>	Desert Senna	X				-			
<i>Simmondsia chinensis</i>	Jojoba	X			●	-			
<i>Simmondsia chinensis</i> 'Vista'	Vista Jojoba	X			●	-			
<i>Sphaeralcea ambigua</i>	Desert Mallow	X			●	-			c.v. 'Louis Hamilton'
<i>Tecoma stans</i> v. <i>stans</i>	Yellow Bells	X			●	-			c.v. 'Gold Star'
<i>Tagetes lemmonii</i>	Mexican Marigold	X				-			c.v. 'Compacta'
<i>Teucrium fruticans</i>	Bush Germander	X				-			
<i>Trichostema lanatum</i>	Woolly Blue Curls	X			●	-			
<i>Unquadia speciosa</i>	Mexican Buckeye	X				-			
<i>Vauquelinia californica</i>	Arizona Rosewood	X				-			
<i>Viguiera deltoidea</i>	Golden Eye	X			●	-			
<i>Viguiera laciniata</i>	San Diego County Viguiera	X			●	-			
<i>Xylosma congestum</i>	Shiny Xylosma	X				-			
<i>Yucca baccata</i>	Banana Yucca	X			●	-			
<i>Yucca pallida</i>	Pale Leaf Yucca	X				-			





*Achillea millefolium* | Common Yarrow



*Erigeron karvinskianus* | Fleabane



*Helianthemum nummularium* 'Annabel' | Sunrose

GROUNDCOVERS		Water Use			Native	Soil Volume			Notes
Botanical Name	Common Name	L	M	H		S	M	L	
<i>Achillea millefolium</i>	Common Yarrow	X			●	-			dormant in summer
<i>Achillea tomentosa</i>	Woolly Yarrow	X				-			dormant in summer
<i>Agapanthus</i> spp.	Lily of the Nile	X				-			
<i>Aloe nobilis</i>	Gold Tooth Aloe	X			●	-			
<i>Arabis caucasica</i>	Rockcress		X			-			
<i>Asteriscus maritimus</i> 'Gold Coin'	Asteriscus	X				-			
<i>Campanula carpatica</i>	Bellflower		X			-			
<i>Campanula elatines garqanica</i>	Adriatic Bellflower		X			-			
<i>Chamaemelum nobile</i>	Roman Chamomile		X			-			
<i>Chrysactinia mexicana</i>	Damianita	X				-			
<i>Cistus crispus</i>	Crispus Rockrose	X				-			7 yr lifespan
<i>Cistus salviifolius</i>	Rockrose Sageleaf	X				-			7 yr lifespan
<i>Convolvulus cneorum</i>	Bush Morning Glory		X			-			
<i>Coprosma repens</i>	Mirror Plant		X			-			limit to areas with full shade
<i>Coreopsis</i> spp.	Coreopsis	X				-			
<i>Delosperma</i> spp.	Ice Plant		X			-			
<i>Dymondia maragaretae</i> 'Silver Carpet'	Silver Carpet	X				-			
<i>Epilobium californica</i>	California Fuchsia	X				-			
<i>Erigeron divergens</i>	Native Fleabane	X				-			limit to areas with partial shade
<i>Erigeron karvinskianus</i>	Fleabane		X			-			limit to areas with partial shade
<i>Festuca glauca</i>	Blue Glow Fescue		X		●	-			
<i>Festuca ovina glauca</i>	Blue Fescue		X		●	-			best in partial shade for midday/afternoon
<i>Gazania</i> spp.	Gazania	X				-			susceptible to gophers, protection needed
<i>Geranium incanum</i>	Crane's Bill		X		●	-			susceptible to gophers, protection needed
<i>Grevillea 'Noellii'</i>	Noell's Grevillea		X			-			
<i>Gypsophila repens</i> 'Rosea'	Pink Creeping Baby's Breath		X			-			
<i>Helianthemum num.</i> 'Annabel'	Sunrose	X				-			
<i>Helianthemum nummularium</i>	Sunrose	X				-			
<i>Hypericum calycinum</i>	Creeping St. John's Wort	X				-			
<i>Hypericum frondosum</i>	Golden St. Johnswort	X				-			
<i>Hymenoxys acaulis</i>	Angelita Daisy		X			-			
<i>Iberis sempervirens</i>	Evergreen Candytuft		X			-			
<i>Ilex cornuta</i> 'Burfordii Nana'	Dwarf Burford Holly	X				-			
<i>Jasminum polyanthum</i>	Pink Jasmine			X		-			
<i>Lantana</i> spp.	Lantana	X				-			
<i>Liriope muscari</i> 'Variegata'	Variegated Blue Lilyturf		X			-			limit to areas with full shade
<i>Liriope spicata</i>	Creeping Lilyturf		X			-			limit to areas with full shade
<i>Lobelia erinus</i>	Lobelia		X			-			
<i>Lonicera japonica</i> 'Halliana'	Halls Japanese Honeysuckle	X				-			invasive, limit to contained areas only
<i>Lysimachia nummularia</i>	Moneywort			X		-			limit to areas with partial shade
<i>Myoporum 'Pacificum'</i>	Myoporum					-			potentially invasive, limit to contained areas only
<i>Myoporum parvifolium</i> 'Putah Creek'	Wide-leaf Myoporum					-			potentially invasive, limit to contained areas only
<i>Nandina domestica</i> 'Harbour Dwarf'	Dwarf Heavenly Bamboo		X			-			
<i>Nepeta faassenii</i>	CatMint		X			-			



*Oenothera berlandieri* 'Siskiyou' | Mexican Evening Primrose



*Santolina chamaecyparissus* | Lavender Cotton



*Teucrium chamaedrys* | Trailing Germander

GROUNDCOVERS		Water Use			Native	Soil Volume			Notes
Botanical Name	Common Name	L	M	H		S	M	L	
<i>Oenothera berlandieri</i>	Mexican Evening Primrose	X			●	-			
<i>Oenothera caespitosa</i>	Tufted Evening Primrose	X			●	-			
<i>Opuntia treleasei</i>	Bakersfield Cactus	X			●	-			
<i>Osteospermum fruticosum</i>	Freeway Daisy		X			-			
<i>Osteospermum fruticosum</i> 'Hybrid	Freeway Daisy		X			-			
<i>Parthenocissus</i> 'Hacienda Creeper'	Hacienda Creeper	X				-			
<i>Pennisetum setaceum</i> 'Eaton Canyon'	Eaton Canyon Fountain Grass		X			-			
<i>Potentilla tabernaemontani</i>	Spring Cinquefoil		X		●	-			
<i>Psilostrophe cooperi</i>	Paperflower	X			●	-			
<i>Psilostrophe tagetina</i>	Paper Flower	X			●	-			
<i>Pyracantha</i> 'Santa Cruz'	Santa Cruz Firethorn		X			-			
<i>Ruellia</i> spp.	Ruellia			X		-			
<i>Santolina chamaecyparissus</i>	Lavender Cotton	X				-			
<i>Sedum spathulifolium</i>	Stonecrop	X				-			limit to areas with partial shade
<i>Sedum spathulifolium</i> 'Purpureum'	Purple Stonecrop	X				-			limit to areas with partial shade
<i>Teucrium chamaedrys</i>	Trailing Germander	X				-			
<i>Teucrium chamaedrys</i> 'Prostratum'	Prostrate Germander	X				-			
<i>Thymus praecox</i> 'Purple Carpet'	Purple Carpet Creeping Thyme		X			-			
<i>Verbena peruviana</i>	Verbena		X			-			
<i>Verbena rigida</i>	Prairie Verbena		X			-			
<i>Verbena tenuisecta</i>	Purple Verbena		X			-			
<i>Vinca major</i>	Big Periwinkle	X				-			invasive, limit to contained areas only
<i>Vinca minor</i>	Periwinkle	X				-			invasive, limit to contained areas only
<i>Zinnia acerosa</i>	Desert Zinnia	X				-			
<i>Zinnia angustifolia</i> 'Classic'	Zinnia	X				-			





*Carex* spp. | Carex



*Leymus* spp. | Giant Wild Rye



*Pennisetum setaceum* | Tender Fountain Grass

GRASSES		Water Use			Native	Soil Volume			Notes
Botanical Name	Common Name	L	M	H		S	M	L	
<i>Bouteloua curtipendula</i>	Sideoats Grama	X			●	-	-	-	
<i>Bouteloua gracilis</i>	Blue Grama Grass	X			●	-	-	-	
<i>Bulbine frutescens</i> 'Hallmark'	Dwarf Orange Bulbine		X			-	-	-	
<i>Bulbine frutescens</i> 'Yellow'	Yellow Bulbine		X			-	-	-	
<i>Carex</i> spp.	Carex		X		●	-	-	-	potentially invasive
<i>Cyperus</i> alt. 'Gracilis'	Umbrella Plant			X		-	-	-	applicable for areas with periodic inundation
<i>Festuca mairei</i>	Atlas Fescue		X		●	-	-	-	
<i>Helictotrichon sempervirens</i>	Blue Oat Grass		X			-	-	-	
<i>Hesperaloe funifera</i>	Giant Hesperaloe	X				-	-	-	
<i>Hesperaloe parviflora</i>	Red Yucca	X				-	-	-	
<i>Hesperaloe parviflora</i> 'Yellow'	Yellow Hesperaloe	X				-	-	-	
<i>Juncus acutus</i>	Spiny Rush			X	●	-	-	-	riparian areas
<i>Juncus balticus</i>	Rush			X		-	-	-	
<i>Koeleria macrantha</i>	June Grass		X		●	-	-	-	
<i>Leymus condensatus</i>	Giant Wild Rye	X			●	-	-	-	
<i>Leymus condensatus</i> 'Canyon Prince'	Canyon Prince Giant Wild Rye	X			●	-	-	-	
<i>Lygeum sparteum</i>	Esparto Grass	X				-	-	-	
<i>Muhlenbergia rigens</i>	Deer Grass	X			●	-	-	-	
<i>Nassella tenuissima</i>	Mexican Feather Grass		X			-	-	-	
<i>Ophiopogon japonicus</i>	Mondo Grass		X			-	-	-	
<i>Pennisetum setaceum</i>	Tender Fountain Grass		X			-	-	-	
<i>Scirpus tabernaemontani</i>	Soft-Stem Bulrush			X	●	-	-	-	riparian plant
<i>Sorghastrum nutans</i>	Indian Grass			X		-	-	-	
<i>Sporobolus airoides</i>	Alkali Dropseed	X			●	-	-	-	
<i>Stipa pulchra</i> ( <i>Nassella pulchra</i> )	Needle Grass	X			●	-	-	-	supports native oaks
<i>Stipa tenuissima</i>	Mexican Feather Grass		X			-	-	-	



*Lysimachia nummularia* | Moneywort



*Eschscholzia californica* | California Poppy



*Lupinus* spp. | Lupine

VINES		Water Use			Native	Soil Volume			Notes
Botanical Name	Common Name	L	M	H		S	M	L	
<i>Actinidia arguta</i>	Bower Actinidia			X		-			
<i>Antigonon leptopus</i>	San Miguel Coral Vine		X			-			
<i>Antigonon leptopus</i> 'Baja Red'	Red Queen Wreath		X			-			
<i>Antigonon leptopus</i> alba	Queen's Wreath		X			-			
<i>Ficus pumila</i>	Creeping Fig	X				-			
<i>Gelsemium sempervirens</i>	Carolina Jessamine		X			-			
<i>Jasminum polyanthum</i>	Pink Jasmine		X			-			
<i>Lysimachia nummularia</i>	Moneywort			X		-			invasive, limit to contained areas only
<i>Macfadyena unguis-cati</i>	Yellow Trumpet Vine		X			-			
<i>Mascagnia lilacaena</i>	Lilac Orchid Vine					-			
<i>Merremia aurea</i>	Yellow Morning Glory Vine		X			-			
<i>Parthenocissus tricuspidata</i>	Boston Ivy	X				-			
<i>Rosa banksiae</i> 'Alba Plena'	White lady bank's Rose	X				-			limit to areas receiving frequent maintenance
<i>Rosa banksiae</i> lutea	Banksia Rose	X				-			limit to areas receiving frequent maintenance
<i>Wisteria sinensis</i>	Chinese Wisteria	X				-			
<i>Vitis californica</i>	California Wild Grape	X			●	-			

TURF		Water Use			Native	Soil Volume			Notes
Botanical Name	Common Name	L	M	H		S	M	L	
Marathon II 'Festuca Arundinacea'	Dwarf Tall Fescue		X			-			
Marathon II 'Water Saver'	Dwarf Tall Fescue		X			-			
Turf	A-G Sod Farms Inc. – Elite Plus			X		-			

WILDFLOWERS		Water Use			Native	Soil Volume			Notes
Botanical Name	Common Name	L	M	H		S	M	L	
<i>Calandrinia ciliata</i>	Red Maid		X		●	-			
<i>Clarkia unguiculata</i>	Clarkia, Mountain Gardland		X		●	-			
<i>Dodecatheon</i> spp.	Shooting Stars		X		●	-			
<i>Eschscholzia caespitosa</i>	Foothill poppy		X		●	-			
<i>Eschscholzia californica</i>	California poppy		X		●	-			
<i>Eschscholzia lemmonii</i> spp. Kernensis	Tejon Poppy		X		●	-			
<i>Gilia tricolor</i>	Bird's Eye		X		●	-			
<i>Layia platyglossa</i>	Tidy tips	X			●	-			
<i>Lupinus microcarpus densiflorus</i>	Lupine	X			●	-			
<i>Lupinus succulentus</i>	Lupine		X		●	-			
<i>Nemophila maculata</i>	Five-Spot Nemophila		X		●	-			



**APPENDIX C**  
*Grapevine Sustainability Principles*

# **GRAPEVINE SUSTAINABILITY PRINCIPLES**

**March 2016**

**Grapevine Specific Plan - Appendix C**

**Prepared for:**

**Tejon Ranchcorp**

**Contact - Derek Abbott**

**Prepared By:**

**Dudek**

**Ken Kay Associates**



# GRAPEVINE SUSTAINABILITY PRINCIPLES

## CREATING A HEALTHY, SUSTAINABLE COMMUNITY

The commitments that TRC has made to sustainability at Grapevine are more than commitments to the physical setting, natural environment, and future development on the project site. TRC values are expressed in the community vision, which centers on creating sustainability at Grapevine, through thoughtful planning, design, and development of project sites at all scales.

Grapevine is uniquely positioned to create a community with dual roles – a magnet for those who want to live adjacent to the magnificent natural areas of Tejon Ranch, and a complete, connected community whose lifestyle is aligned to the interests and values of today's conscientious society.

A key component of Grapevine's sustainability vision is, therefore, the commitment by the Ranch and future builders and property owners to advance and develop the quality of life in the Grapevine community through the promotion of community-wide sustainable land use practices and environmentally responsible living.

### **Intent, Audience and Relationship with Other Documents**

This document, Grapevine Sustainability Principles, has been prepared in consideration of the planning principles and project objectives identified in the Grapevine Specific and Special Plans. It is intended to supplement these governing documents and to serve as the basis for more detailed design guidelines and CC&Rs that will be developed by TRC in the future.

The implementation and guidance of this document are subject to conformance with the Specific and Special Plan, and Project EIR and Mitigation Monitoring Program, and where conflicts occur between this document and those, the other document shall control.

The guidance provided here for builders, developers, and others proposing development within the community is intended to be descriptive in nature, giving additional clarity about methods for achieving the project objectives set forth in the Specific Plan.

As the Master Developer, TRC identifies in this document principles supporting the mindful development of all projects at Grapevine in pursuit of its vision for a complete, healthy and sustainable community. It is also TRC's goal to ensure that the immediate and long-term planning and development of this unique community is equally balanced with wise use of the existing natural resources.

Each developer, builder, and property owner will be encouraged to use this document's guidance as a menu of potential options to consider in their planning and design to ensure that individual efforts are collectively achieving the community's overall goals.

## **Sustainability Commitments of the Master Developer**

For a community to be sustainable, environmental considerations must be taken into account and incorporated into every aspect of community building. Climate, resource conservation, biodiversity, and the built environment are mutually supportive and closely linked. The goals and approaches inherent within this document helps further the overall Grapevine mission of promoting sustainability through:

- **Reducing energy demand and GHG emissions**, through energy efficiency, promotion of renewable energy technologies, traffic management, and adaptability of design elements to local climate conditions.
- **Conserving resources** including waste reduction, pollution prevention, and protecting the quality and availability of the water supply by setting standards for water and wastewater, landscaping, and water fixtures.



- **Preserving the existing natural environment** and avoiding sensitive resource areas to minimize the impact of development on biological resources and enhance the ecology of the area.

As the Master Developer, TRC has committed to laying the foundation for sustainable development in Grapevine. As part of implementing the Grapevine Specific Plan, the commitments below outline the environmental and energy technology and best management practices that TRC will take in its role as Master Developer to develop Grapevine as a sustainable community.

Measures that will be implemented by TRC for Grapevine's sustainable development include the following, organized by category:

### **Climate Protection**

- A Voluntary Emission Reduction Agreement (VERA) has been entered into between TRC and the San Joaquin Valley APCD, designed to reduce emissions of nitrogen oxide (NO<sub>x</sub>), reactive organic gases (ROGs), and respirable particulate matter (PM<sub>10</sub>) in the project area.
  - The VERA outlines the process by which Grapevine's developer(s) will purchase emission offsets to mitigate the emission impacts of Grapevine development.
  - TRC will implement programs that are designed to reduce transportation-generated GHG emissions. These programs include providing for transit-supportive development patterns, and providing for on-site shuttle service and transit service through the provision of transit stops as the community develops.
- For (stationary) equipment identified as producing substances subject to National Emission Standards for Hazardous Air Pollutants, those substances (i.e. carcinogenic or toxic air contaminants) must be controlled as required by the air district before an ATC (Authority To Construct) permit can be issued and operation begins.

- A Dust Control Plan will be developed and implemented by TRC as master developer and provided to all builders to ensure any disturbed area is properly stabilized to reduce airborne particulate matter.
- TRC as Master Developer will create an Energy efficiency and Conservation Plan designed to exceed 2014 Title 24 energy requirements by at least 25% as outlined in Title 24, Part 6 of the California Code of Regulations (CCR) (effective July 1, 2014), on a time-dependent valuation basis. Time-dependent valuation (TDV) energy considers not only the type of energy that is used (electricity, natural gas, or propane), but also when it is used. Energy saved during periods when California is likely to have a statewide system peak is worth more than energy saved at times when supply exceeds demand. Therefore, the calculation of TDV weights energy used at different times at different values. Title 24 compliance is based on TDV and not an annual energy use.
- A Transportation Management Association (TMA) will be created for Grapevine that will be responsible for designing and implementing programs to reduce transportation-generated GHG emissions, including on-site shuttle-bus transit system, off-site transit connection service, and integrated non-vehicular trail system connecting residences to high activity areas such as schools, parks, civic and commercial centers.
- Service fleet vehicles, including but not limited to those used in transit, trash, HOA, CFD, fleet and other community service vehicles will be required to be powered with alternative fuel technology where feasible.
- Require delivery and transport truck idling to be minimized, which may be accomplished by driver instruction, or by the use of Idle Air or other similar technology, or electrical outlets that provide heating and cooling in common idling areas (such as truck fueling centers).
- Refrigerated delivery trucks may remain idling as necessary while transporting and delivering products. Limitations on idling time for

commercial, refrigerated and non-refrigerated vehicles, including delivery and construction vehicles will be required and enforced through Grapevine's Commercial & Industrial Business Associations CC&Rs.

- The Grapevine Special Plan includes development standards that require buildings to incorporate natural gas or propane hookups and electrical outlets on patios and that prohibit wood-burning fireplaces throughout Grapevine.
- The Grapevine Special Plan development standards require commercial, industrial and multi-family residential developments to include stations for electric car chargers.
- A minimum of 70% of public and community pools and spas should be equipped with active solar heating systems where heating is necessary or desired.
- All home buyers will be provided with the option to include a photovoltaic array system as a home design feature.
- TRC, as the Master Developer, will provide information to Kern County and will request the county's support for a public financing method to assist Grapevine homeowners in the financing and payment of photovoltaic systems or other energy conservation improvements over time rather than as a one-time payment. If Kern County agrees, TRC will work with county staff to implement such a program.

### **Community Design**

- A project design that incorporates an efficient, compact land use pattern with residential densities clustered around 5 mixed-use Village Centers to promote walkability.
- Site design that maximizes circulation flow and reduces vehicle stacking thereby reducing vehicle emissions.

- Reserve at least two locations with adequate pedestrian, bicycle, and parking facilities for off-site transit connection service.
- Ensure that all residents can readily access transit by creating paths, accessways, or other land plan techniques to reduce walking distances between homes, employment, commercial and transit stops, and provide transit access within 1/4 miles of most homes.
- Ensure that higher density residential, commercial and offices and other high-demand uses are located near and provide connection to transit hubs.
- TRC will use the Master Developer Design Review process to assure that the requirements of the Energy efficiency and Conservation Plan are implemented throughout the community as it relates to the following:
  - Energy efficiency in residential and commercial buildings is at least 25% better than 2014 Title 24 through requirements such as but not limited to: .
    - High performance glazing
    - Energy Star compliant systems and appliances
    - Radiant heat roof barriers
    - Insulation on all pipes
    - Programmable thermostats
    - Fluorescent bulbs
    - Solar access
    - Sealed ducts
    - Zero use of CFC refrigerants in commercial buildings
  - In addition to the above, TRC will also provide an extensive list of builder options/Best Management Practices to achieve energy reduction.

- All developments will be designed in such a way to incorporate, promote, and maximize active and passive solar, wind driven heating and cooling, and energy production.
- TRC will implement design guidelines and ensure, through the Master Developer Design Review process, that developments will be designed to strategically locate shade trees, trellises, awnings, exterior blinds, or shutters, to provide shading and minimize the heat load from glazing.
- Vegetation, water ponds, or fountains will be placed outside inlet openings will pre-cool air flow into buildings. Asphalt driveways and other "heat sinks" (area or object that absorbs and dissipates heat) placed immediately outside inlet openings will trap heat and prevent cool air from flowing into buildings and homes.
- Builders will be required to balance the use of light-colored, non-reflective finishes with glare control features for outdoor sidewalks, driveways, patios, and parking areas to keep surfaces cool and reduce the potential for "heat sinks." .
- Builders will be required to install broadband infrastructure or other communication technologies that encourages telecommuting and working from home.

### **Circulation and Transportation**

- Grapevine's community design will provide multiple travel options for residents, workers, and visitors through a comprehensive multi-modal network including, but not limited to, transit, paths, trails and connections integrated into the overall circulation network.
- Sidewalks and crosswalks will be provided at all streets excluding service alleys or similar lanes (along with general pedestrian connectivity throughout project) to encourage pedestrian traffic and offer alternative to vehicle trips.

- Traffic calming measures will be integrated into the community-wide circulation network to promote reduced speeds and encourage pedestrian and bicycle trips.
- The Grapevine master plan will include the construction of a multi-purpose internal trail system that includes off-road bikeways, within the street right-of-way (paseos) and within a greenway system.
- Class II bike lanes will be included within pavement sections and will be large enough to accommodate an NEV system.
- TRC as Master Developer will establish a Transit Management Association (TMA) to promote, manage, and monitor transit and mobility services and infrastructure.
  - The TMA will also provide a framework for and implement a community-wide parking plan that is based on parking demand and need.
  - Implement an on-site shuttle-bus transit system to connect residents to jobs, schools and shopping within the community.
- Grapevine will locate two transit hubs in the village centers on both sides of Interstate 5, which would be accessible by local and regional transit routes and community multi-modal paths and trails.
- Road right-of way (ROW) will be reserved to accommodate bus stops to provided for bus service, which will encourage a reduction in individual vehicle trips and resulting emissions.
- The Grapevine development standards will require that preferential parking be provided for carpool, shared, electric, and hydrogen vehicles.

### Resource Conservation

- The Grapevine community design will incorporate planned open space areas permitting ranching and farming activities as allowed uses.

- The community design will conserve environmentally sensitive natural areas including existing primary drainages by the following: .
  - Limit road crossings over Grapevine and Cattle Creeks.
  - Limit public trails in undisturbed open space areas.
  - Require re-vegetation of graded slopes.
  - Minimize loss of topsoil, erosion and dust generation, by ensuring that created open space is landscaped, revegetated or covered with permeable material, such as mulch,.
- All development will comply with all applicable legal requirements including Best Management Practices for construction area erosion and sediment control, including but not limited to the following: .
  - Structural control measures such as silt fences, sediment traps and basins, and earth dikes will be included on the project site to divert surface runoff and reduce erosion.
  - Stabilization measures such as temporary and permanent seeding, mulching, and prompt revegetation of graded areas and surrounding slope areas are required to prevent erosion and to stabilize the slope surfaces against erosion.
- On-site drainage for commercial development will be required to pass through an oil-water separator prior to entering storm drainage system.
- For land formerly used for oil or agricultural production, will be the subject of Phase II Site Assessment prior to development to ascertain petroleum hydrocarbons and pesticide residue levels and remediated to acceptable levels prior to any grading activity/start of construction.
- Exterior lighting will be minimized and meet Dark Sky Standards; Dark Sky Ordinance compliance is required by the County.
- TRC will create and provide to builders an environmental education program to promote advantages of community agriculture, water



conservation, energy efficiency, limited site disturbance, open space preservation, and renewable energy technologies. Additionally TRC will do the following: .

- TRC will work with builder partners to develop a conservation education and citizen awareness program for the open space areas, informing residents and guests of their agricultural and natural resource values and vulnerabilities.
- TRC will coordinate with the Tejon Ranch Conservancy and similar organizations, such as The Nature Conservancy, Endangered Habitats League, the Sierra Club, the Audubon Society, and the Natural Resources Defense Council, to prepare, periodically review, and produce materials for its environmental education programming.

### **Water Conservation**

- A Water Wise Program will be implemented within Grapevine that includes all feasible measures that will reduce water and energy use (e.g., for interior fixtures, require tank-less water heaters and low flow plumbing) and will establish a Maximum Applied Water Allowance (MAWA) budget for each type of use (residential or commercial).
- Residential development water use will be required to be at least 25% less water use than the average water use of existing residential structures in the region.
- Low flow water fixtures will be used throughout all new construction.
- Landscape Design Guidelines will be implemented to minimize the use of exterior water by requiring each homeowner to select from landscape materials that are within the Maximum Applied Water Allowance (MAWA) budget that will be assigned to each lot or home.

- Recycled water from on-site wastewater treatment plant(s) will be used as a permanent source of water for landscaped common areas and other authorized uses.
  - 100% of reclaimed water will be made available for use on landscaping.
  - A minimum of 50% of commercial landscape areas will use recycled water.
- The Landscape Standards required by the Grapevine Special Plan and Community Character Guide will be enforced through the Master Developer Review process to ensure that proposed irrigation designs maximize efficiency and decrease water use and waste. Proposed irrigation plans will conform with the following requirements: .
  - For optimum water efficiency, the irrigation system will be designed to match plant type, utilize drip or subsurface irrigation wherever possible, apply water at agronomic rates, and conform to the requirements of the Grapevine Special Plan.
  - Irrigation system design will conform to the hydrozones of the landscape design plan.
  - "Smart" controllers, such as weather-based irrigation controllers or other self-adjusting irrigation controllers, are required for all irrigation systems and must be able to accommodate all aspects of the landscape and irrigation design plans.
- Native species and drought tolerant species should be used to minimize water demand and will comprise a minimum of 75% of the ornamental plant palette in non-turf areas for all commercial, industrial, common and public areas, and residential front yard landscaping.
- Turf areas will be minimized and alternative ground covers will be strongly encouraged.

- 20% will be the maximum allowable turf area in landscaped commercial developments.
- 45% will be the maximum allowable turf area in residential front yards.
- Stormwater management standards required by the Grapevine Special Plan and Community Character Guide will be enforced through the Master Developer Review process to ensure that development within Grapevine will implement Low Impact Development (LID) standards to minimize impervious surfaces and allow for permeable pavements and other LID supportive stormwater management systems to be coordinated and linked throughout the community.
  - TRC will require that infrastructure improvement standards incorporate environmentally sensitive drainage control methods and maximize recharge opportunities through a comprehensive LID approach.
  - Greenways will be constructed to implement non-traditional "green infrastructure." .
  - Pockets of green space will be constructed throughout the community to allow for natural percolation of runoff.

The following water conservation and water quality measures are specific to on-site golf courses and are the responsibility of the Master Developer.

- Golf course irrigation systems will be designed to apply water at a rate that does not exceed infiltration rates, to include "smart" controllers that predict irrigation frequency based on vegetation evapo-transpiration and are equipped with automatic timers to avoid over-irrigation.
- Turf areas on golf courses, including tees and greens, should be selected based on optimal characteristics for climate and soils and designed to reduce irrigation requirements.

- Preference will be given to turf that requires minimal use of pesticides and fertilizers and is resistant to disease.
- Impervious areas on golf courses are to be disconnected to the extent possible by designing runoff from cart paths, walkways, trails, roads, and parking lots to disperse to swales, bio-retention basins, or other landscaped areas. Alternatively, the areas will be paved with open-jointed permeable materials.
- Runoff from fairways and roughs on the golf courses will either be captured within the turf and infiltrated or diverted to swales, bio-retention basins, or other landscaped areas. Surface and under-drain runoff from tees shall drain to bio-retention basins or swales.
- Golf course greens will be designed to reduce surface runoff and increase infiltration to the groundwater aquifer. The greens will be constructed with a layered soil profile that allows for water to infiltrate quickly to the root zone where it is conserved. Under-drains will be installed to capture irrigation water that infiltrates past the root zone, or to reduce saturation in the root zone if it occurs. Under-drains will route collected water to vegetated areas for treatment or to the reservoirs for re-use. Under-drains will have adequate separation from the groundwater table.
- Reclaimed wastewater from the Grapevine project site shall be used for golf course irrigation, thereby significantly lowering the demand for additional recycled water.

### Construction Waste

- TRC as master developer will establish and provide to builders guidelines for construction material selection and responsible waste management guidelines such as, but not limited to the following:
  - Use recycled building materials, such as timber beams, barn siding, used brick, used concrete, etc., whenever practicable.

- Use low VOC finishes, including, but not limited to, those found in paints and coatings, adhesives and sealants, carpet, and composite woods.
- Use building materials and products that are locally and regionally extracted and manufactured and or recycled, when available.
- Roofing and paving materials and systems should maximize efficient energy use and natural rainwater infiltration.
- Builders, developers, and property owners are to recycle a minimum of 50% construction waste , including waste and unused materials generated during the construction and building process and existing waste and unused materials on site prior to construction. Recycling options may include the use of on-site spoils and bulk site clearing materials for existing project needs, such as backfill, mulch, erosion and sedimentation control; donation of materials to charitable organizations; or exported for use in other local construction projects in the project area.
- Construction debris and waste recycling is to be ensured through administration by an on-site recycling coordinator and presence of recycling/separation areas.
- Establish and operate a community waste recycling program including education and outreach, recycled waste pickup and drop-off services.

## Biodiversity

- Tejon Ranch Conservation and Land Use Agreement, which provides for the conservation of 240,000 acres (90%) of Tejon Ranch, establishes and funds a conservancy to implement a Ranch-Wide Management Plan.
- Grapevine includes dedicated open space areas, preserving land for continued agricultural and agriculture compatible uses and preservation of important habitat and wildlife movement areas.

- Grading and development areas are designed to avoid most significant biological areas and is sensitive to natural topography including geologic hazards, steep slopes and fault zones.
- TRC will implement a program to protect, restore, and/or enhance primary drainages.
- Grapevine will set aside approximately 3,232 acres of the project site as Open Space, which includes preservation of the primary riparian and stream areas.
- Field surveys are required to be conducted by a qualified biologist prior to any site disturbance activities to determine presence of and appropriate mitigation or accommodation for any special-status animals.
- The planting of invasive plant species will be restricted through the enforcement of CC&Rs.
- Native, drought-tolerant and/or California friendly plant species will comprise a minimum of 75% of the ornamental plant palette, excluding areas dedicated to turf, in all common areas.
- In conformance with "Dark Sky" ordinance, the project will limit glare and spillage into any natural area through nighttime lighting requirements and design features that will reduce impacts.

## **APPENDIX D**

### ***Grapevine Project Mitigation Monitoring and Reporting Program***

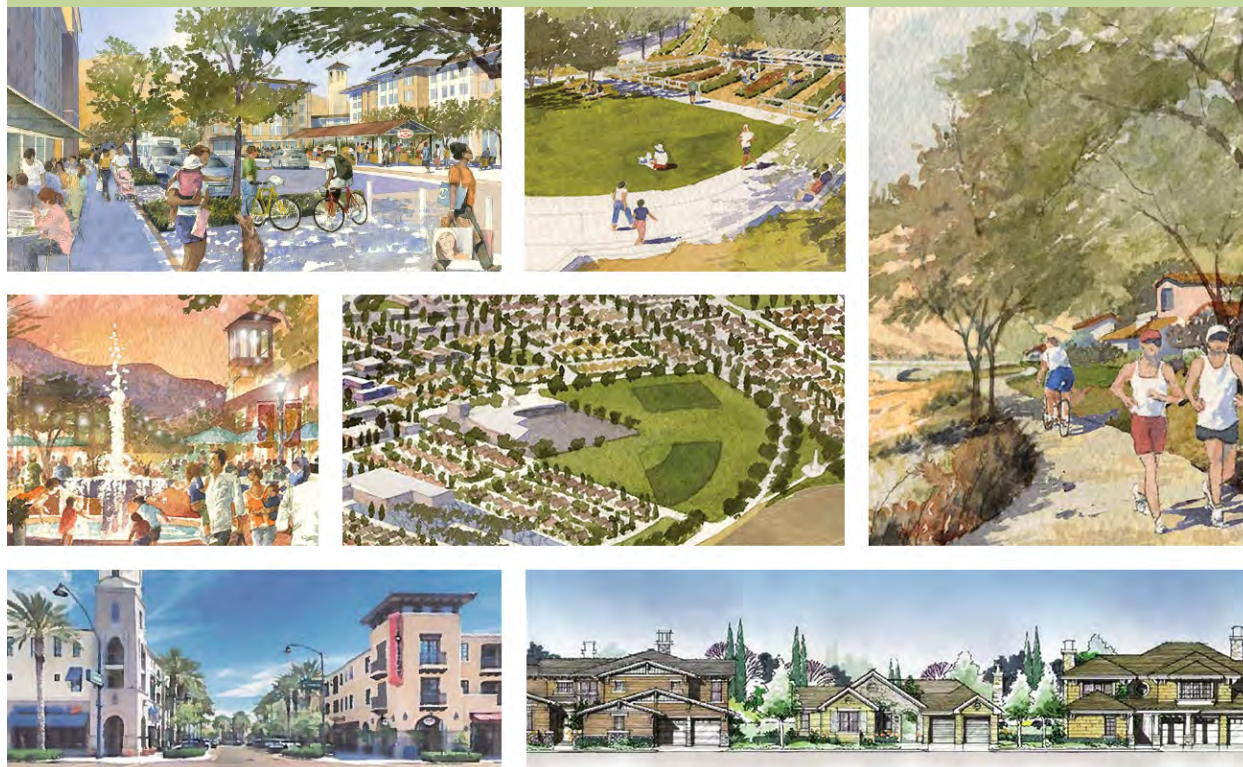


Appendix C

## **Grapevine Special Plan**

# Grapevine

## SPECIAL PLANNING (SP) DISTRICT PLAN



**Kern County Planning and Community  
Development Department**



March 2016



# **Grapevine**

## **SPECIAL PLANNING (SP) DISTRICT PLAN**

**Kern County Planning and  
Community Development  
Department**  
2700 M Street, Suite 100  
Bakersfield, CA 93301  
(661) 862-8600

**Applicant:**  
Tejon Ranchcorp  
P.O. Box 1000, 4436 Lebec Road  
Lebec, CA 93243  
661-663-4253  
Contact: Derek Abbott

**Special Plan No. 1, Map 202**  
**Special Plan No. 2, Map 218R**  
**Special Plan No. 2, Map 219**

**Technical Assistance by:**  
Dudek  
465 Magnolia Avenue  
Larkspur, CA 94939  
415-758-9812  
Contact: Heather Ivey, AICP

March 2016



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## ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
BMP	best management practice
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CFD	Community Facilities District
CHP	California Highway Patrol
CLOMR	Conditional Letter of Map Revision
County	Kern County (government agency)
CVEF	Commercial Vehicle Enforcement Facility
DU	dwelling unit
EA	Exclusive Agriculture (district)
EIR	environmental impact report
EVA	Emergency Vehicle Access
ETAF	evapotranspiration adjustment factor
ETo	Evapotranspiration
ETWU	Estimated Total Water Use
FC	Floodplain Combining
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FPP	Floodplain Primary
FPS	Floodplain Secondary
GH	Geologic Hazard
GHAD	Geologic Hazard Abatement District
HDPE	high-density polyethylene
I	Industrial (district)
I-5	Interstate 5
KCDS	Kern County Development Standards
KCHM	Kern County Hydrology Manual

**Acronyms and Abbreviations**

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<b>Acronym/Abbreviation</b>	<b>Definition</b>
KCZO	Kern County Zoning Ordinance
LAFCO	Local Agency Formation Commission
LID	Low Impact Design
LOS	level of service
MAWA	Maximum Applied Water Allowance
MD	Master Developer
MMRP	Mitigation Monitoring and Reporting Program
mph	miles per hour
MU	Mixed-Use (district)
O&G	Oil and Gas
PI	Point of Intersection
PVC	Polyvinyl chloride
ROW	right-of-way
SP	Special Planning
Special Plan	Special Planning (SP) District Plan
Specific Plan	Grapevine Specific and Community Plan
sq. ft.	square feet
SR-99	State Route 99
TCWD	Tejon-Castac Water District
TRCC	Tejon Ranch Commerce Center
UBC	Uniform Building Code
VMU	Village Mixed-Use (district)
WUCOLS	Water Use Classification of Landscape Species
WWTP	wastewater treatment plant

# Section 1

## PROJECT OVERVIEW

### 1.1. Purpose

The Special Planning (SP) District Plan (Special Plan) provides the implementation mechanisms and development standards for the Grapevine Specific Plan Area. The Special Plan works in tandem with the Grapevine Specific Plan as the tailored development standards within the Special Plan constitute the principal measures to implement the principles, goals, and policies established in the Grapevine Specific Plan. The Grapevine Special Plan is adopted by ordinance and includes all standards and conditions approved in connection with the review of the site development plan application.

The adoption of the Grapevine Special Planning (SP) District Map (Special Plan District Map) and the Special Plan together satisfy the requirements of Chapter 19.52 of the Kern County Zoning Ordinance (KCZO 2012). The Special Plan provisions contained herein in the form of permitted and accessory uses, definitions, and development standards facilitate the creative and innovative use of the property through the use of tailored development standards that respond to the special and unique character of the Grapevine Specific Plan Area.

Consistent with the Specific Plan goals, objectives, and policies, the provisions of the Special Plan are designed to allow diversity in the relationship between buildings and open spaces or public rights-of-way to create unique and interesting physical environments and civic spaces while at the same time preserving public health, welfare, and safety. The Special Plan provisions allow design flexibility beyond that provided by standard Kern County zoning regulations to allow for more complete and creative urban and community design necessary to implement the vision for the Grapevine project. The regulations, standards, and guidelines contained in the Special Plan provide the framework upon which all subsequent implementation and planning decisions are based, as well as criteria for determining consistency of site-specific design with the Special Plan objectives.

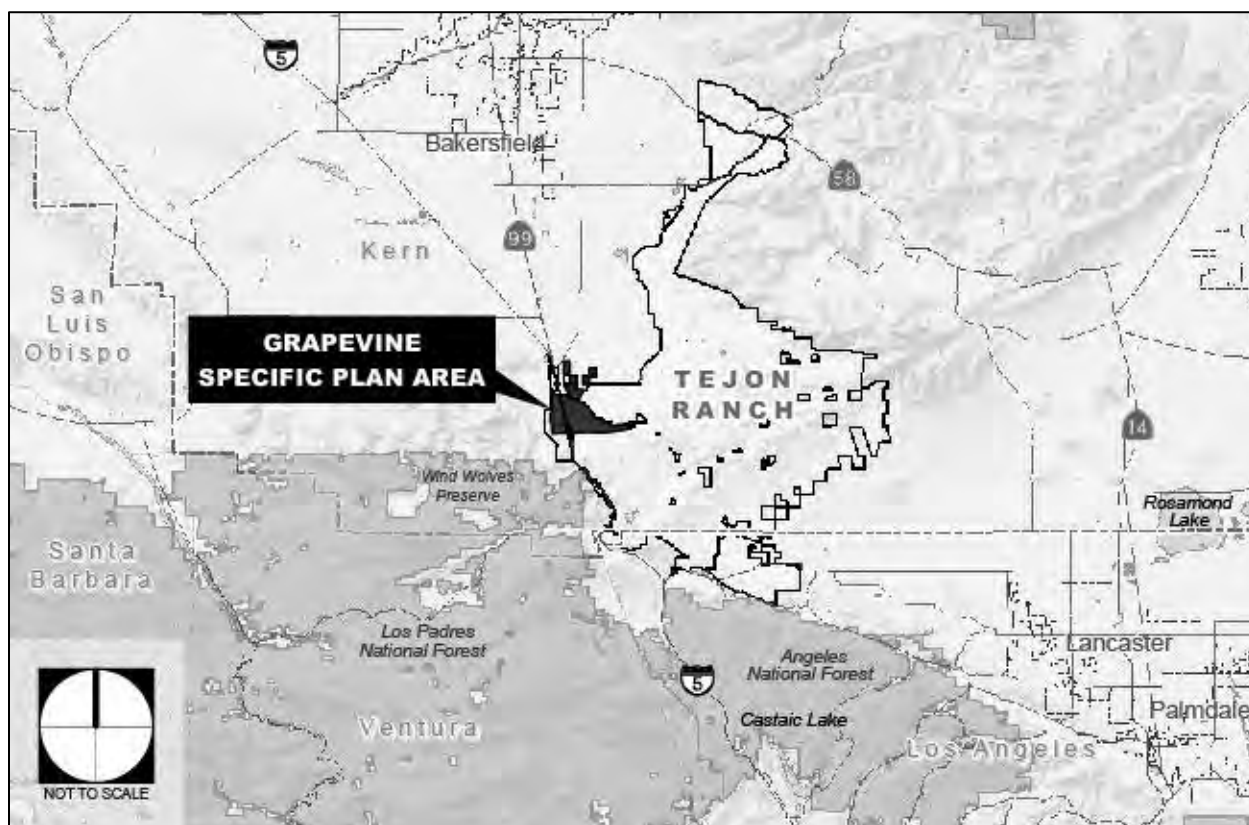
### 1.2. Project Description

The Grapevine Special Plan is situated just south of the junction of Interstate 5 (I-5) and State Route 99 (SR-99) in an area that acts as the gateway to California's Central Valley and the Los Angeles basin (see Figure 1-1, Regional Location Map). Grapevine consists of an 8,010-acre portion of the 270,000-acre Tejon Ranch. Primary access to the Grapevine community will be from I-5. The existing I-5/Laval Road interchange, and if operational enhancements approved by Caltrans are implemented, the existing I-5/Grapevine Road interchange will be used for initial development phase access. A new interchange will

## Project Overview

be constructed on I-5 to serve Grapevine before applicable level of service (LOS) standards are exceeded at any existing interchange providing interim access to the Specific Plan.

Grapevine is a new community built on the principles of balance between job creation and new home sites, ecological sensitivity, and a continued dedication to agriculture. It is a community that serves as the gateway to and from the San Joaquin Valley and provides for a wide variety of lifestyles and income levels, all the while carrying forward the ranching heritage of Tejon Ranch and the agricultural traditions at the southern edge of the valley. Grapevine is a residential community and employment center that will build on the economic development occurring nearby at the Tejon Ranch Commerce Center (TRCC) while maintaining the zoning for 40% of the Plan Area as Exclusive Agriculture, with ongoing uses including grazing and open space.

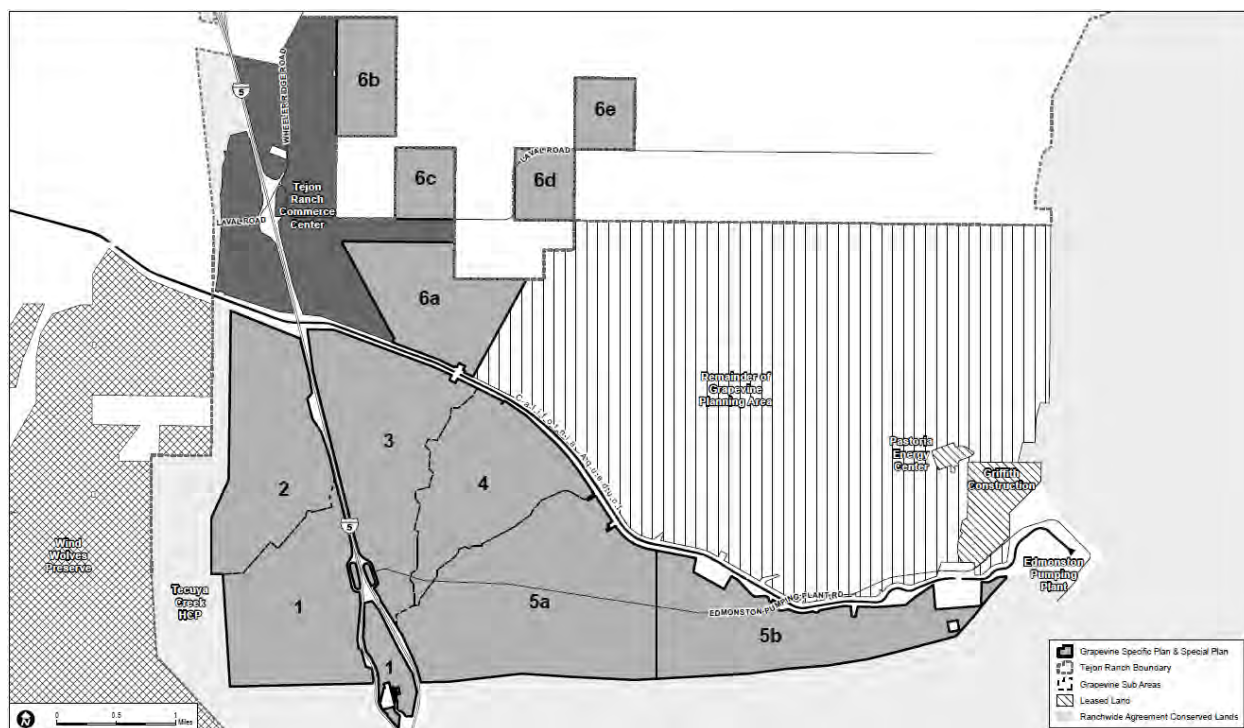


**Figure 1-1 Regional Location Map**

*Sources: TRC 2013; McIntosh & Associates 2013*

### 1.2.1. Special Plan Boundary and Sub Areas

The boundaries of the Special Plan are the same as those for the Grapevine Specific and Community Plan (referred to jointly as the Grapevine Specific Plan). The plan boundary includes six sub areas, as shown in Figure 1-2: two large areas that straddle I-5 near the Grapevine Road interchange, and four smaller areas directly to the north that are adjacent to Laval Road. Figures 1-5 through 1-12 identify the districts and combining districts within each sub area, which are described in Section 1.2.2. The sub areas are not indicative of phasing sequence or in any way limiting to tentative tract maps, which may cross sub area boundaries.



**Figure 1-2 Grapevine Specific Plan and Special Plan Boundary and Sub Areas**

### 1.2.2. Special Plan Districts and Combining Districts

All of the land within the Special Plan is assigned one of four specialized districts, as shown in Figure 1-3, Special Plan District Map, including the Village Mixed-Use (VMU), Mixed-Use (MU), Industrial (I), or Exclusive Agriculture (EA).<sup>1</sup> These four specialized districts are consistent with those identified in the Grapevine Specific Plan. The precise boundaries of each district will be established at the parcel or tract map stage during the entitlement phase for future projects. In addition, the Grapevine Special Plan includes two combining districts. The Geologic Hazard (GH) Combining and Floodplain Combining (FC) Districts are applied to areas identified in the Grapevine Specific Plan (Chapter 6, Safety and Constraints) as having potential geologic or flooding hazards. The two combining districts are identified in Figure 1-3, Special Plan District Map, and described in detail in Section 2.

Notices of non-renewal have been filed for all Williamson Act contracts within the Special Plan and expiration for these contracts will occur on December 31, 2023 and December 31, 2025. Until the Williamson Act contracts expire or are terminated, the existing terms of use remain in effect and the Exclusive Agriculture (A) zoning remains in place. Upon expiration or termination of the contracts, the Specific Plan's EA district will replace the existing A zoning designation. The Special Plan District Map (Figure 1-3) identifies the proposed districts for those areas held in suspense until Williamson Act contracts have expired or have been terminated.

<sup>1</sup> The boundaries and districts shown in Figure 1-3 are the same as the districts shown in the Grapevine Specific Plan Districts, Exhibit 2-1 of the Grapevine Specific Plan.

## **Project Overview**

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### **1.2.3. Development Cap**

The overall development cap for the entire Grapevine Special Plan is a maximum of 5,100,000 square feet of commercial/industrial floor area and a maximum of 12,000 residential dwelling units. However, based on the built and permitted commercial/industrial uses at the adjacent TRCC, Grapevine may ultimately support up to 2,000 additional dwelling units. The additional 2,000 units would be authorized only with a commensurate reduction of commercial/industrial square footage, based on vehicle trip equivalency ratios identified in the Grapevine Specific Plan (and included in Section 3.3 of this Plan). This would be permitted only to the extent that the additional units would not cause any significant new adverse impacts, or increase the severity of previously identified adverse impacts as analyzed in the environmental impact report (EIR). Other mechanisms identified in Section 3 of this Plan will allow flexibility for development to respond to market demands and ensure a jobs-housing balance over time.

The Grapevine Development Maximums outlined in Table 1-1 provide the maximum residential units and commercial/industrial floor area that may be developed in each sub area, consistent with the Grapevine Specific Plan goals for flexibility in future allocation of land use. The number of residential units and the amount of commercial/industrial area that would be developed in any one sub area would be specified at the tentative map stage, falling within the development maximums for the relevant land use and subject to the overall development cap.

### **1.2.4. Public Facilities and Infrastructure**

The Grapevine Special Plan reserves approximately 157 acres for schools and 96-112 acres for parks. Parks may be constructed and operated in a joint-use manner with schools, serving as school recreation yards during school hours and public parks when not in use by schools. Other public facilities will also be provided, including a fire station, a sheriff substation, transit facilities/park-and-rides, and water and wastewater treatment facilities. The Tejon-Castac Water District (TCWD) will provide potable water and wastewater services. Recycled water supplied by the wastewater treatment plants will be used primarily for landscape irrigation.

A foundational circulation plan is set forth in Figure 1-4, Circulation Plan. The circulation network is composed of two-, four-, and six-lane arterials, collector streets, and local streets (including lanes and alleys) and organized to provide greater mobility for all travel modes, including pedestrians and bicyclists. Design standards for each street typology are defined in Section 3 of this Special Plan and are consistent with the Specific Plan.

As described previously, primary access to the Grapevine community will be from I-5. The existing I-5/Laval Road interchange, and if operational enhancements approved by Caltrans are implemented, the existing I-5/Grapevine Road interchange will be used for initial development phase access. A new interchange will be constructed on I-5 to serve Grapevine before applicable LOS standards are exceeded at any existing interchange providing interim access to the Specific Plan. There are two options for relocating the interchange, Option A and Option B, as shown on Figure 1-4, Circulation Plan.

Under Option A, the new interchange would be constructed approximately 1-mile north of the existing I-5/Grapevine interchange and would connect with planned Street A. Sufficient right of way would be



## Project Overview

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reserved to facilitate a 6-lane overpass at the interchange, if required. A 2-lane overpass connecting sub areas east and west of I-5 would be constructed at planned Street B about ½-mile south of the interchange. The existing I-5/Grapevine Road underpass would be maintained, and freeway access at the existing interchange would be closed. Four-lane arterials would be constructed east (planned Street D) and west (planned Street C) of I-5 and would extend north/south approximately parallel with the freeway. Two new overcrossings of the California Aqueduct would be constructed east and west of I-5 to extend the arterials north to the existing Laval Road/I-5 interchange system and the Tejon Ranch Commerce Center (TRCC). A network of 2-lane connectors would be constructed generally to the east and west of the Grapevine Specific Plan Area north/south arterials.

An existing California Commercial Vehicle Enforcement Facility (CVEF) is operated by the California Highway Patrol at the approximate location of the new I-5 interchange in Option A. To facilitate interchange construction, and to improve the capacity and operation of the facility, the CVEF would be moved north to the west side of the junction of I-5 and SR 99 on land owned by Tejon RanchCorp. Access and bypass ramps would be constructed to connect the new CVEF with I-5 and SR 99, and an additional ramp would be constructed on the east side of I-5 from the new CVEF to the Laval Road/I-5 interchange to accommodate truck movement. The northbound Laval Road/I-5 onramp would be metered. Sufficient right of way would also be reserved from the northbound Laval Road/I-5 onramp north to the I-5/SR 99 junction to construct an auxiliary lane if required to meet applicable LOS and safety standards. An existing agricultural road (the “Haul Road”) east of the Specific Plan would be improved from the existing Edmonston Pumping Plant Road north to Laval Road. The Haul Road would route utility and quarry truck traffic from activities outside of the Grapevine Specific Plan around the planned development.

Under Option B, the new I-5 interchange would be constructed approximately ½-mile south of the preferred location and would connect with planned Street B. Sufficient rights of way would be reserved at the interchange in Option B to facilitate a 6-lane overpass, if required. As shown in Exhibit 3-1, the 2-lane I-5 overpass in Option A would be moved approximately ½-mile north to connect with planned Street A in Option B. The CVEF would remain in its existing location, and a braided onramp would be constructed east of I-5 to accommodate truck movement south from the existing CVEF to the new I-5 interchange.



## Project Overview

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**Table 1-1**  
**Grapevine Development Maximums by Sub Area<sup>1,2</sup>**

<b>Land Use <sup>3</sup></b>	<b>Area 1</b>	<b>Area 2</b>	<b>Area 3</b>	<b>Area 4</b>	<b>Area 5a</b>	<b>Area 5b</b>	<b>Area 6a</b>	<b>Area 6b</b>	<b>Areas 6c-e</b>
<b>Residential Total (DU)</b>	<b>2,075</b>	<b>3,865</b>	<b>2,675</b>	<b>3,390</b>	<b>2,890</b>	<b>50</b>	<b>1,870</b>	<b>n/a</b>	<b>n/a</b>
SFR-Detached (DU)	1,750	2,490	1,650	2,590	2,425	50	820	n/a	n/a
SFR/MFR-Attached (DU)	325	1,375	1,025	800	465	n/a	1,050	n/a	n/a
<b>Commercial/Industrial Total (SF)</b>	<b>1,130,000</b>	<b>2,210,000</b>	<b>2,280,000</b>	<b>565,000</b>	<b>600,000</b>	<b>n/a</b>	<b>2,155,000</b>	<b>400,000</b>	<b>30,000-450,000</b>
Retail (Gross Leasable Area/SF)	70,000	670,000	990,000	165,000	100,000	n/a	350,000	n/a	n/a
Office/R&D (Gross Floor Area/SF)	560,000	1,090,000	910,000	250,000	250,000	n/a	405,000	n/a	n/a
Industrial/Warehouse (Gross Floor Area/SF)	500,000	450,000	380,000	150,000	250,000	n/a	1,400,000	400,000	450,000

**Notes:** DU = dwelling unit, SF = square feet

<sup>1</sup> The area to be dedicated and developed for elementary, middle, and high schools, parks, and institutional uses is not included in the numerical values presented.

<sup>2</sup> The development maximums for each Sub Area are subject to the overall development caps of 5,100,000 square feet of commercial/ industrial uses and 12,000 residential dwelling units plus the 2,000 additional units available if commercial/industrial square footage is reduced.

<sup>3</sup> These land uses are tied to the uses listed in Table 2-1, Permitted Uses in Section 2, Districts and Permitted Uses.

### 1.3. General Project Data

- a. Total Special Plan Area: 8,010 acres
  - 1) Sub Area 1: 1,041 acres
  - 2) Sub Area 2: 939 acres
  - 3) Sub Area 3: 1,081 acres
  - 4) Sub Area 4: 820 acres
  - 5) Sub Area 5a: 1,631 acres
  - 6) Sub Area 5b: 975 acres
  - 7) Sub Area 6a: 620 acres
  - 8) Sub Areas 6b–6e: 903 acres
- b. Proposed General Plan Land Use Designation: Accepted County Plan (Map Code 4.1)
- c. Proposed Zoning: Special Planning (SP) District (Chapter 19.52 of the Kern County Zoning Ordinance)
- d. Estimated Net Population Increase at Buildout: 38,400 people
- e. Existing and Potential Infrastructure Providers:
  - Domestic and Fire Protection Water Supply: Tejon-Castac Water District
  - Proposed Sewer Disposal: Tejon-Castac Water District
  - Gas & Electric: Pacific Gas & Electric, Southern California Gas Company
  - Telephone: AT&T
  - Solid Waste: Price Disposal, Kern County Waste Management Department, or other contracted provider.
  - Drainage: Geologic Hazard Abatement District (GHAD), Tejon-Castac Water District (TCWD) or other government entity
  - Proposed Streets: Kern County
- f. Landscaping maintenance managed by: Home Owners Association, Community Facilities District, Assessment District, or similar entity.

### 1.4. General Provisions

#### 1.4.1. Special Plan Enactment

The Grapevine Special Plan is adopted by ordinance and includes all standards and conditions approved in connection with the review of the site development plan application. This Special Plan shall be referenced by ordinance number on the official zoning maps.

#### 1.4.2. Relationship to Specific Plan and Community Plan

The Grapevine Special Plan shall be consistent with the Grapevine Specific Plan and Community Plan. Development approved per this Special Plan (Appendix A of the Specific Plan) must be consistent with the Specific Plan, including its appendices (i.e., Grapevine Design Principles (Appendix B of the Specific Plan), Grapevine Sustainability Principles (Appendix C of the Specific Plan), and Mitigation Monitoring and Reporting Program (Appendix D of the Specific Plan).

## **Project Overview**

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### **1.4.3. Relationship to Kern County Zoning Ordinance**

The Grapevine Special Plan is adopted by ordinance, providing regulatory development guidance for property under the policy direction of the Grapevine Specific Plan. The regulations and standards contained in the Special Plan supersede other corresponding zoning sections in the KCZO. Where the Special Plan provisions are silent on a development regulation, enforcement procedure, or where reference is made to a specific ordinance section, the applicable section(s) of the KCZO, Kern County Land Division Ordinance, Kern County Development Standards, and/or other applicable County ordinances prevail. Reference in the Special Plan for using specified provisions of the KCZO for permitting oil and gas activities is one such example. Where the regulations and guidelines of the Specific Plan and Grapevine Special Plan do not agree with other County ordinances, the Specific Plan and/or Grapevine Special Plan provisions prevail. Subsequent project-related development plans and any other actions requiring discretionary or ministerial approval must be consistent with this Plan.

### **1.4.4. Deviation from Standards**

As described above, all development within the Special Plan shall conform to the Kern County Development Standards with the exception of the standards identified in Table 4-1, Deviations from Standards, in Section 4 of this Plan. Table 4-1 lists the current Kern County Standards and the Special Plan Deviations from such standards, as well as a discussion of the benefits of the proposed deviations.

### **1.4.5. Relationship to Other Agency Regulations**

Neither the Grapevine Specific Plan and/or Special Plan provisions nor any of their component parts shall supersede the regulations or requirements of the Regional Water Quality Control Board, the San Joaquin Valley Air Quality Management District, the TCWD, or any other local, state, or federal agency that has jurisdiction by law over uses and development within the Specific Plan Area, whether adopted prior to or subsequent to the adoption of the Grapevine Specific Plan and/or Special Plan.

### **1.4.6. Conformance with Special Planning (SP) District Plan**

It is unlawful for any building or structure to be moved, erected, used, altered, enlarged, or rebuilt or for any use to be established or changed that does not conform to the provisions of this Special Plan. Non-conforming uses can be renovated or reestablished, consistent with KCZO Chapter 19.108, Nonconforming Uses, Structures, and Lots.

### **1.4.7. Minor Changes to Boundaries and Acreages**

Minor boundary and acreage changes to the Special Plan zoning districts may be permitted at the tentative map stage as final road alignments, grading plans, final maps, and/or other technical refinements or typographical corrections are made, including, but not limited to, changes related to the I-5 interchange relocation, without requiring an amendment to the Specific Plan or Special Plan. The Special Plan minor modifications process is set forth in Section 5 of this Plan.

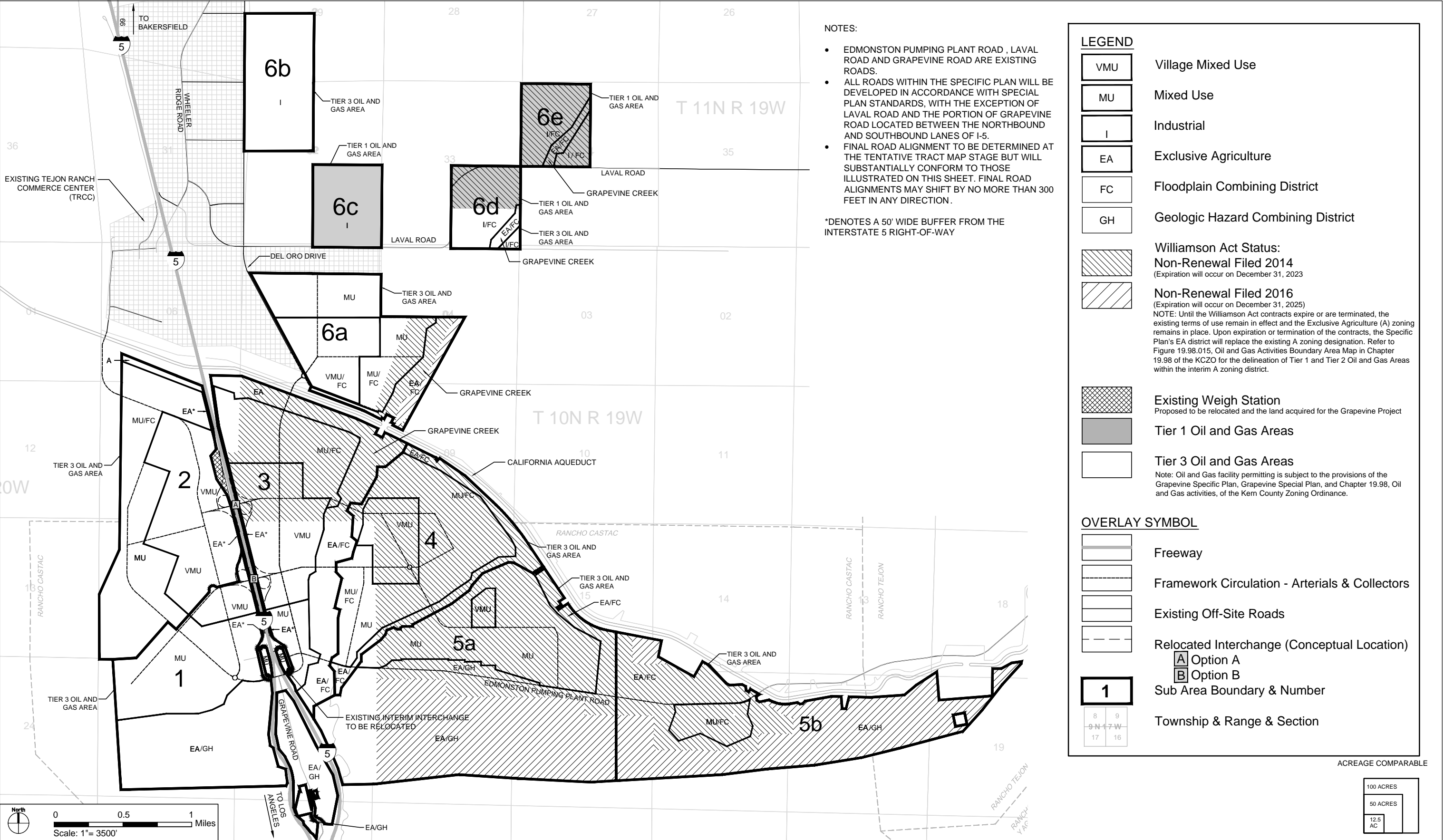
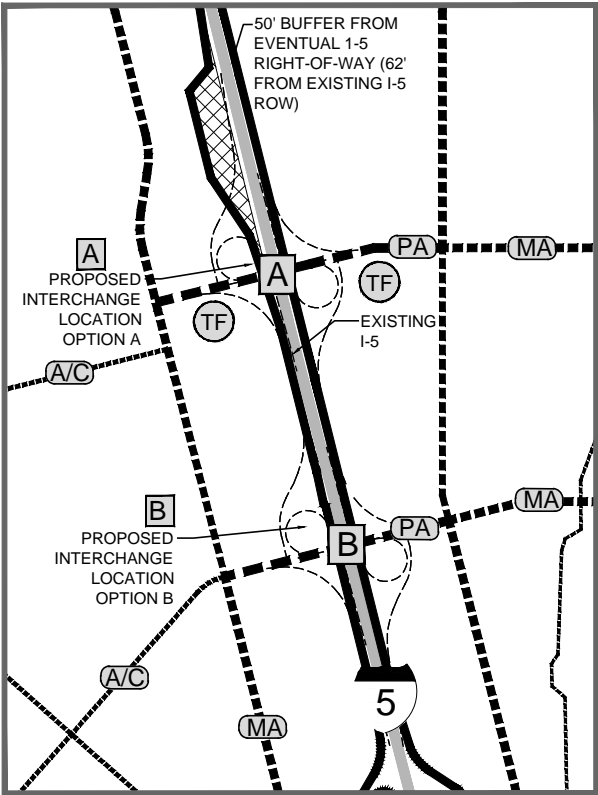
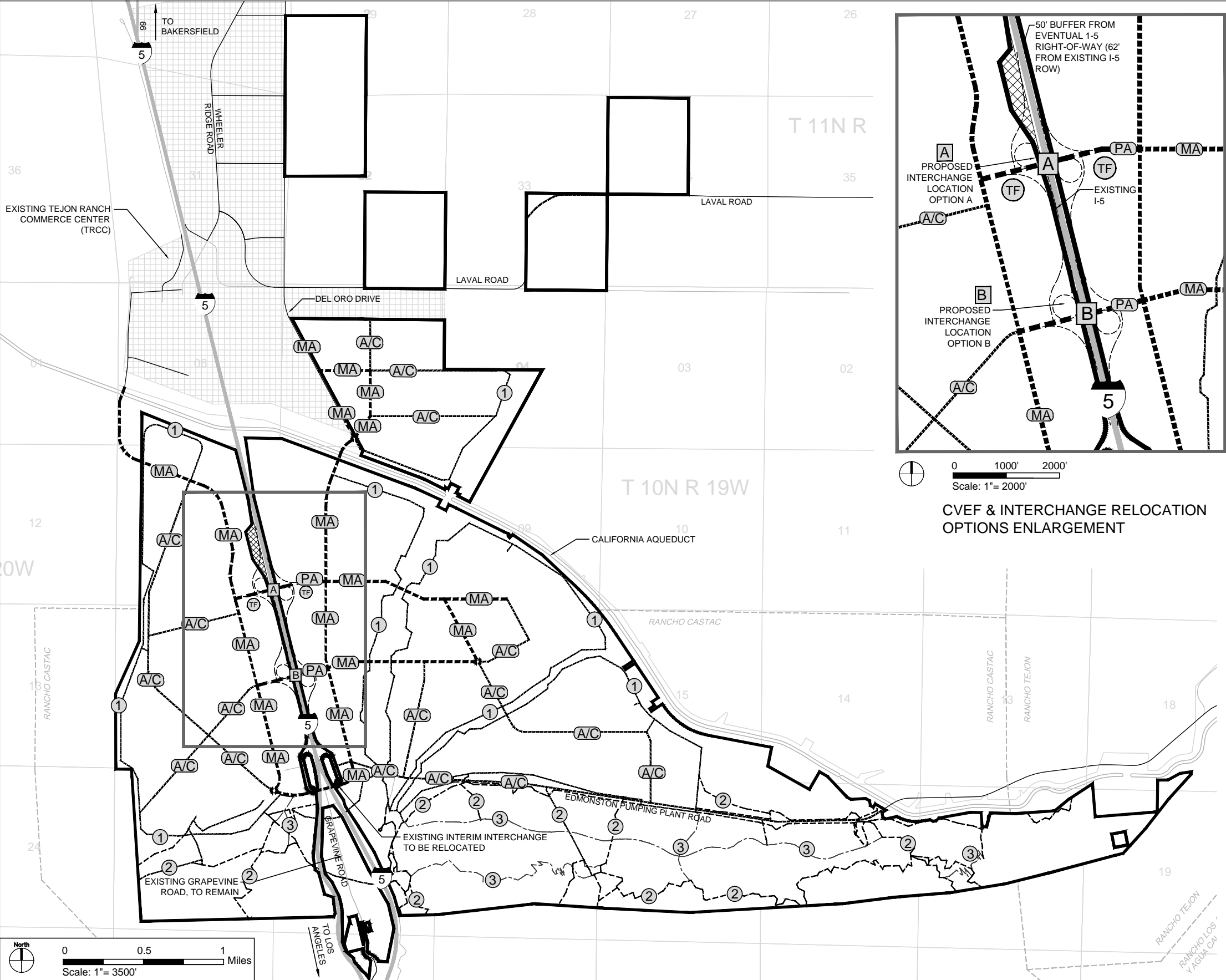


FIGURE 1-3  
Special Plan District Map

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**LEGEND**

	Freeway
	Primary Arterial with Class I Bike Path
	Major Arterial/Collector with Class I Bike Path
	Minor Arterial/Collector with Class II Bike Lane
	Multipurpose Trails
	Unpaved Existing Trails
	Unpaved Trails
	Existing Off-Site Roads
	Relocated Interchange (Conceptual Location)
	Option A
	Option B
	Specific Plan Boundary
	Existing Weigh Station Proposed to be relocated and the land acquired for the Grapevine Project
	Township & Range & Section
	Transit Facility

- NOTES:**
- EDMONSTON PUMPING PLANT ROAD, LAVAL ROAD AND GRAPEVINE ROAD ARE EXISTING ROADS.
  - ALL ROADS WITHIN THE SPECIFIC PLAN WILL BE DEVELOPED IN ACCORDANCE WITH SPECIAL PLAN STANDARDS, WITH THE EXCEPTION OF LAVAL ROAD AND THE PORTION OF GRAPEVINE ROAD LOCATED BETWEEN THE NORTHBOUND AND SOUTHBOUND LANES OF I-5.
  - SEE SPECIAL PLAN ROADWAY AND OFF-ROADWAY STREET SECTIONS FOR DESIGN OPTIONS (SPECIAL PLAN FIGURES 3-4 THRU 3-10).
  - FINAL ROAD ALIGNMENT TO BE DETERMINED AT THE TENTATIVE TRACT MAP STAGE BUT WILL SUBSTANTIALLY CONFORM TO THOSE ILLUSTRATED ON THIS SHEET. FINAL ROAD ALIGNMENTS MAY SHIFT BY NO MORE THAN 300 FEET IN ANY DIRECTION.
  - TRAFFIC IMPACT ASSESSMENT SHALL DETERMINE FINAL ROADWAY OPTION SELECTION AND LANE REQUIREMENTS.
  - THE PRIMARY ARTERIAL WILL OCCUR AT THE SELECTED INTERCHANGE LOCATION. THE NON-INTERCHANGE LOCATION WILL REVERT TO A MAJOR ARTERIAL.

FIGURE 1-4  
Circulation Plan

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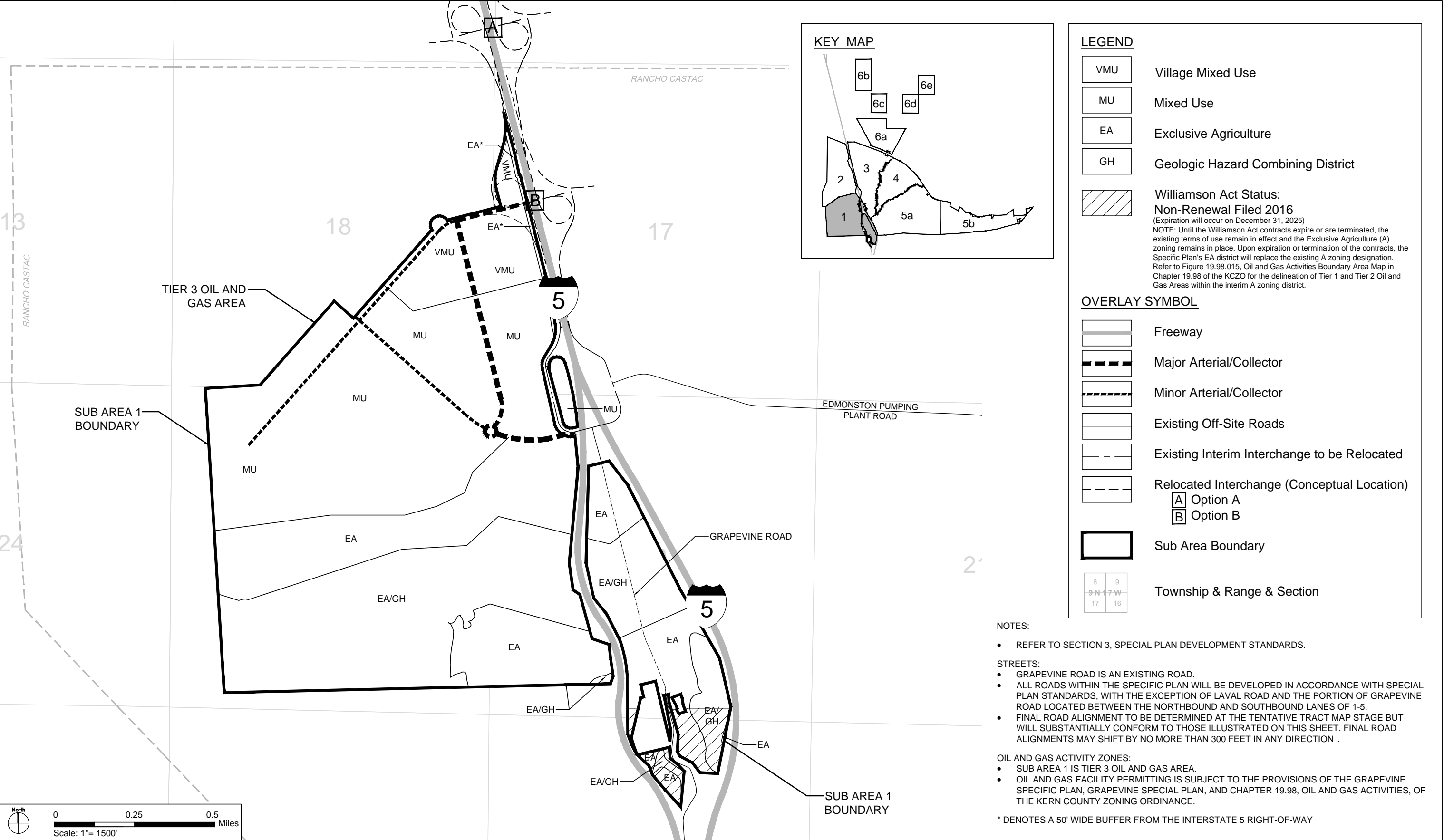


FIGURE 1-5  
Sub Area 1 Districts

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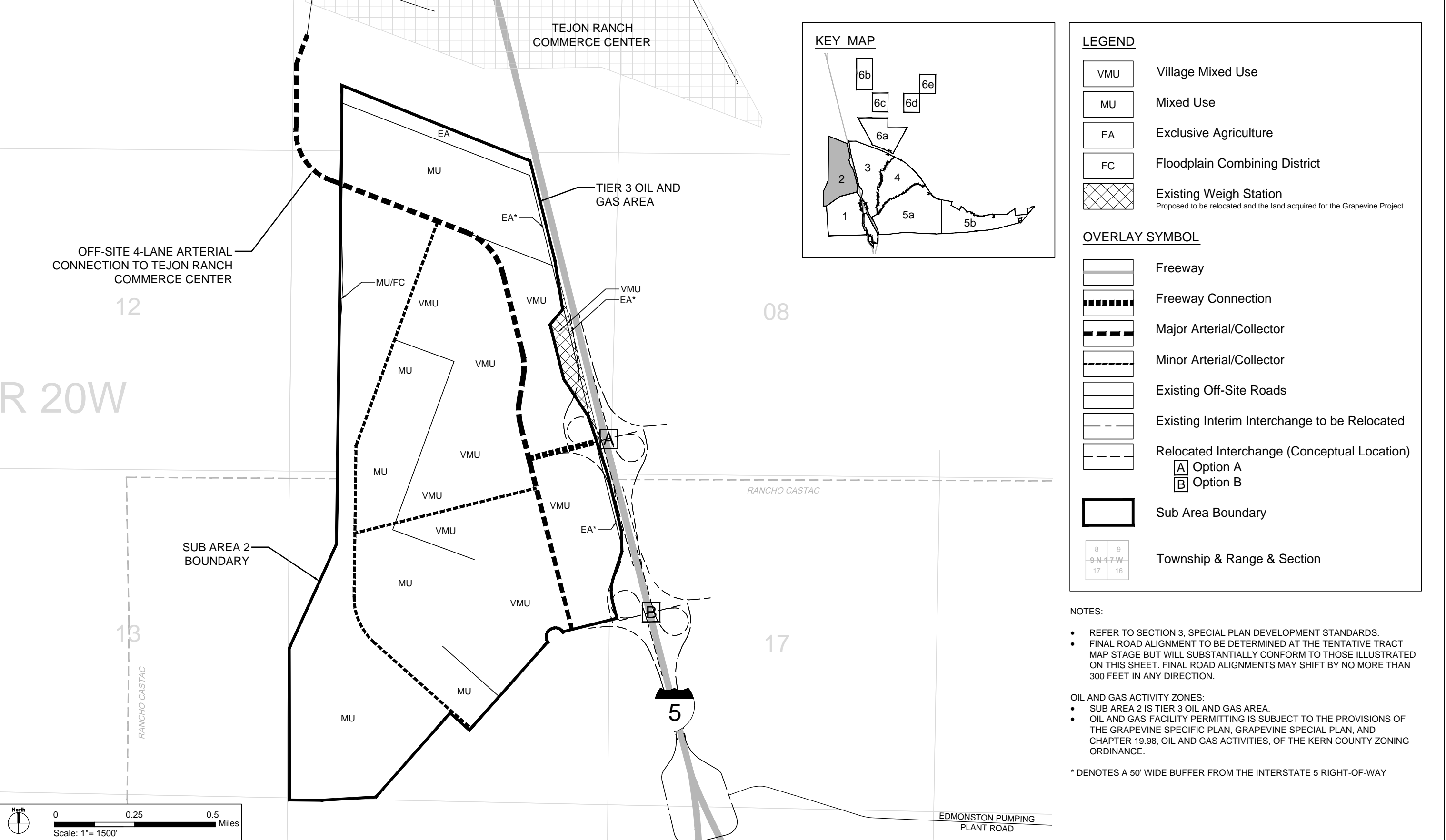
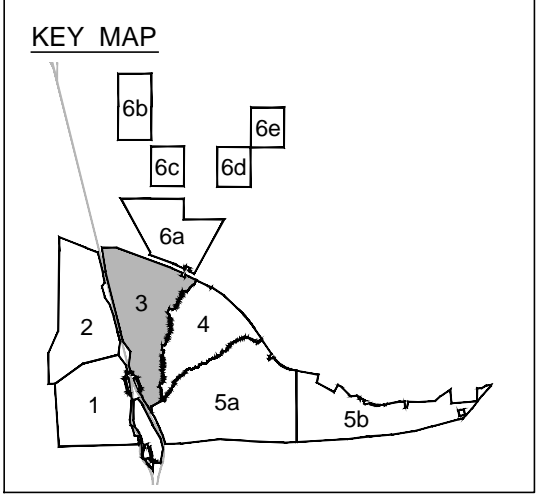
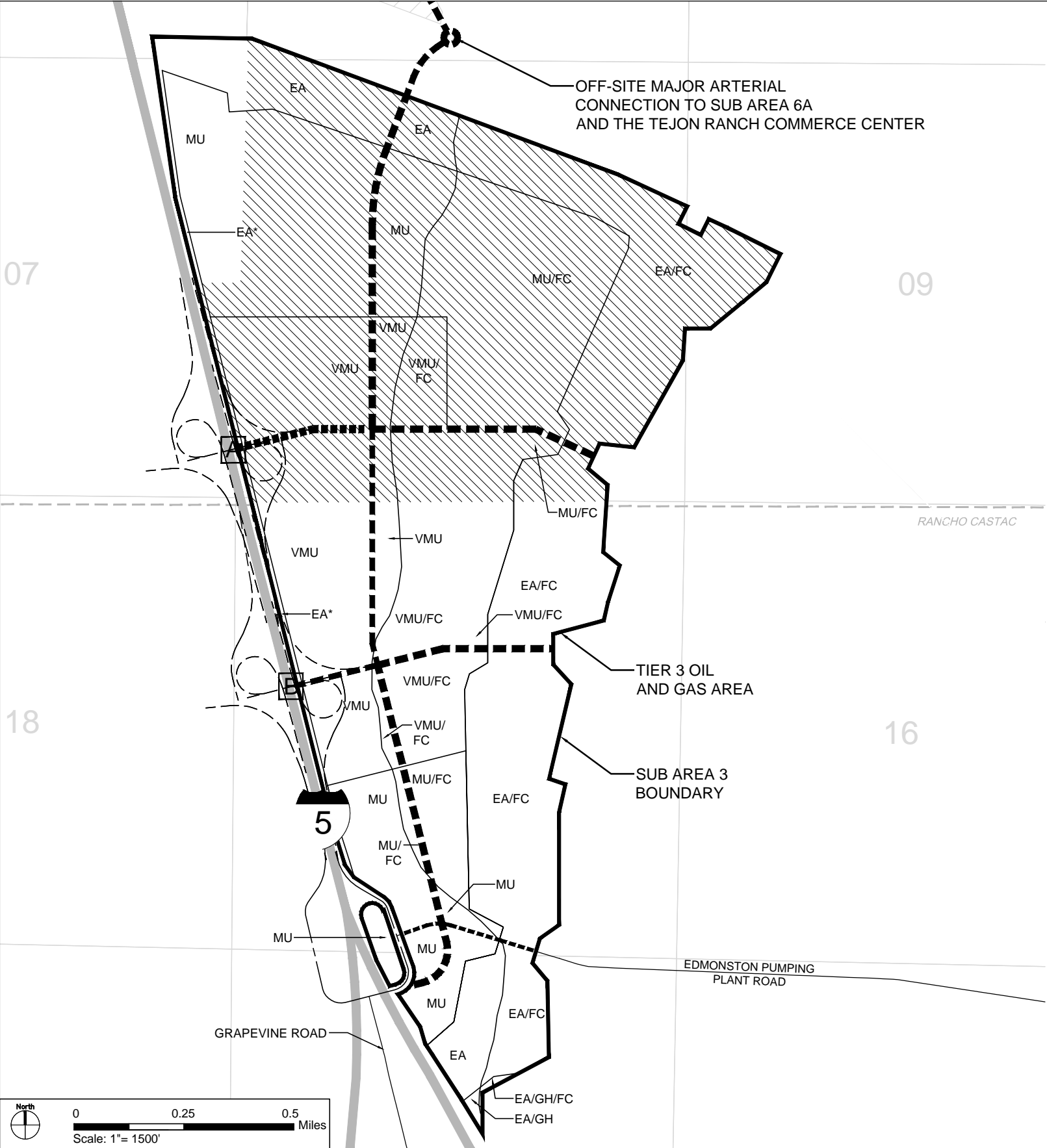


FIGURE 1-6  
Sub Area 2 Districts

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- NOTES:**
- REFER TO SECTION 3, SPECIAL PLAN DEVELOPMENT STANDARDS.
- STREETS:**
- EDMONSTON PUMPING PLANT ROAD IS AN EXISTING ROAD.
  - ALL ROADS WITHIN THE SPECIFIC PLAN WILL BE DEVELOPED IN ACCORDANCE WITH SPECIAL PLAN STANDARDS, WITH THE EXCEPTION OF LAVAL ROAD AND THE PORTION OF GRAPEVINE ROAD LOCATED BETWEEN THE NORTHBOUND AND SOUTHBOUND LANES OF I-5.
  - FINAL ROAD ALIGNMENT TO BE DETERMINED AT THE TENTATIVE TRACT MAP STAGE BUT WILL SUBSTANTIALLY CONFORM TO THOSE ILLUSTRATED ON THIS SHEET. FINAL ROAD ALIGNMENTS MAY SHIFT BY NO MORE THAN 300 FEET IN ANY DIRECTION.
- OIL AND GAS ACTIVITY ZONES:**
- SUB AREA 3 IS TIER 3 OIL AND GAS AREA.
  - OIL AND GAS FACILITY PERMITTING IS SUBJECT TO THE PROVISIONS OF THE GRAPEVINE SPECIFIC PLAN, GRAPEVINE SPECIAL PLAN, AND CHAPTER 19.98, OIL AND GAS ACTIVITIES, OF THE KERN COUNTY ZONING ORDINANCE.
- \* DENOTES A 50' WIDE BUFFER FROM THE INTERSTATE 5 RIGHT-OF-WAY

**LEGEND**

VMU	Village Mixed Use
MU	Mixed Use
EA	Exclusive Agriculture
FC	Floodplain Combining District
GH	Geologic Hazard Combining District
	Williamson Act Status: Non-Renewal Filed 2014 (Expiration will occur on December 31, 2023) NOTE: Until the Williamson Act contracts expire or are terminated, the existing terms of use remain in effect and the Exclusive Agriculture (A) zoning remains in place. Upon expiration or termination of the contracts, the Specific Plan's EA district will replace the existing A zoning designation. Refer to Figure 19.98.015, Oil and Gas Activities Boundary Area Map in Chapter 19.98 of the KCZO for the delineation of Tier 1 and Tier 2 Oil and Gas Areas within the interim A zoning district.

**OVERLAY SYMBOL**

	Freeway
	Freeway Connection
	Major Arterial/Collector
	Minor Arterial/Collector
	Existing Off-Site Roads
	Existing Interim Interchange to be Relocated
	Relocated Interchange (Conceptual Location)
	Option A
	Option B
	Sub Area Boundary
	Township & Range & Section

FIGURE 1-7  
Sub Area 3 Districts

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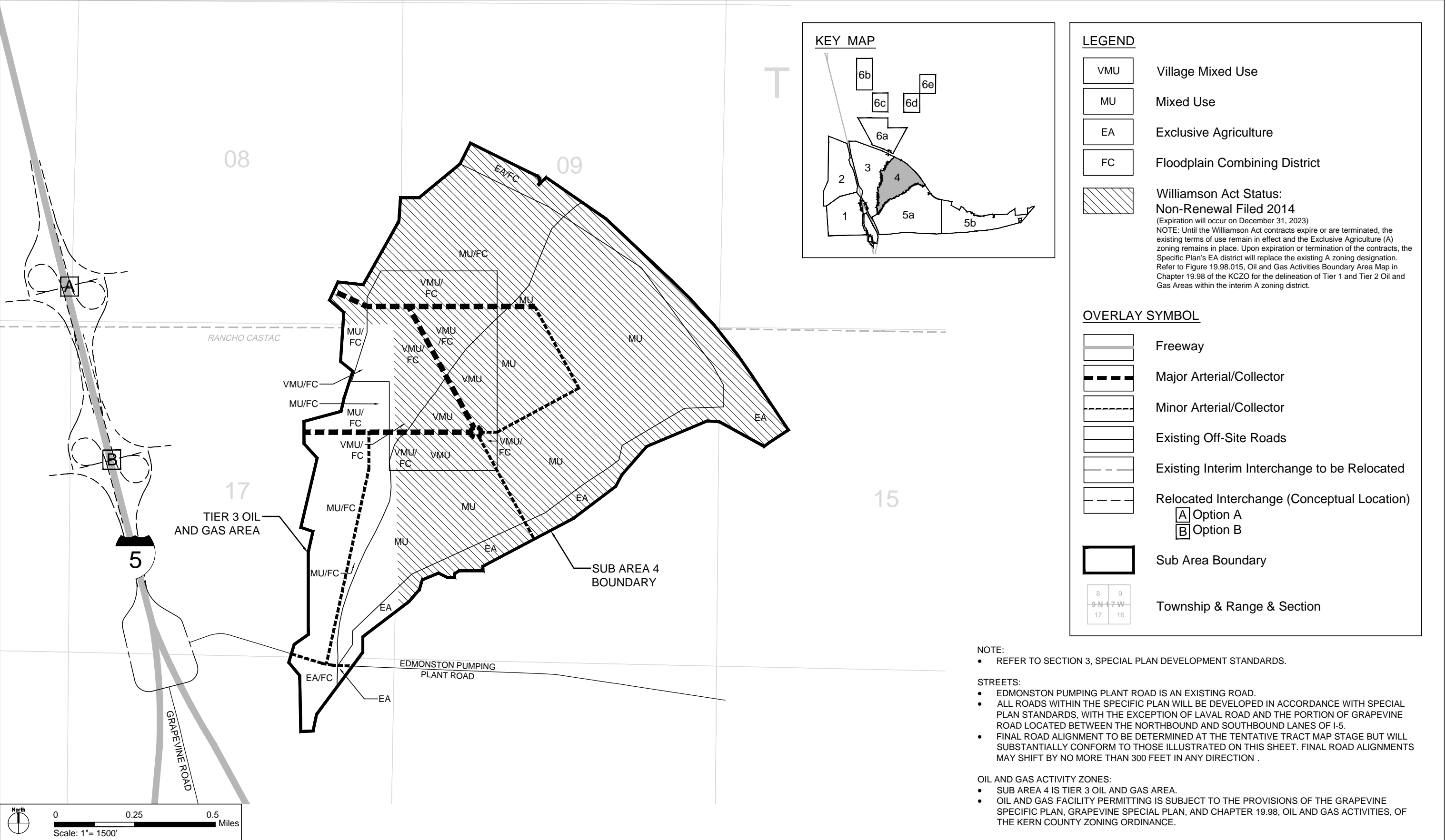
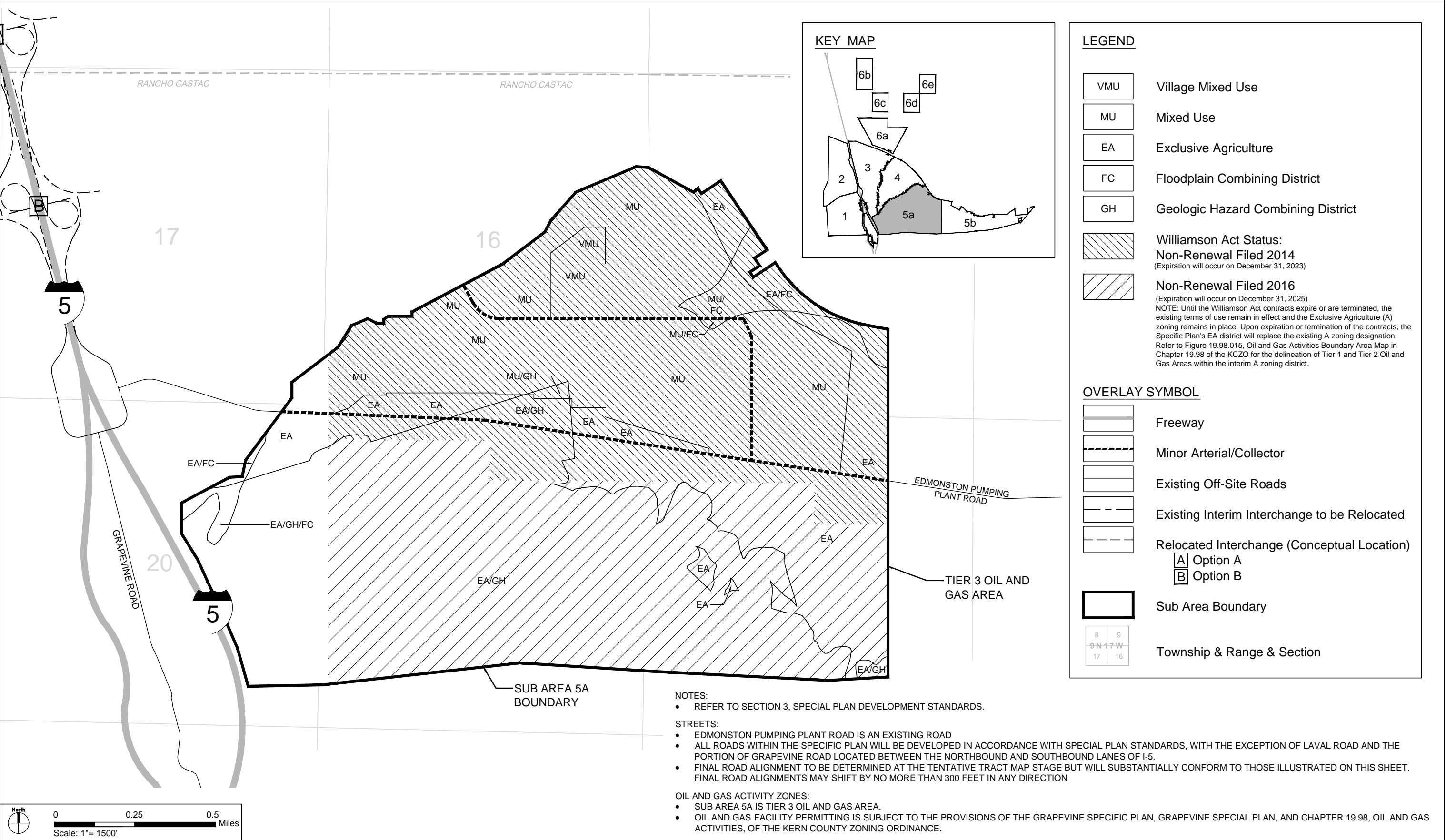


FIGURE 1-8  
Sub Area 4 Districts



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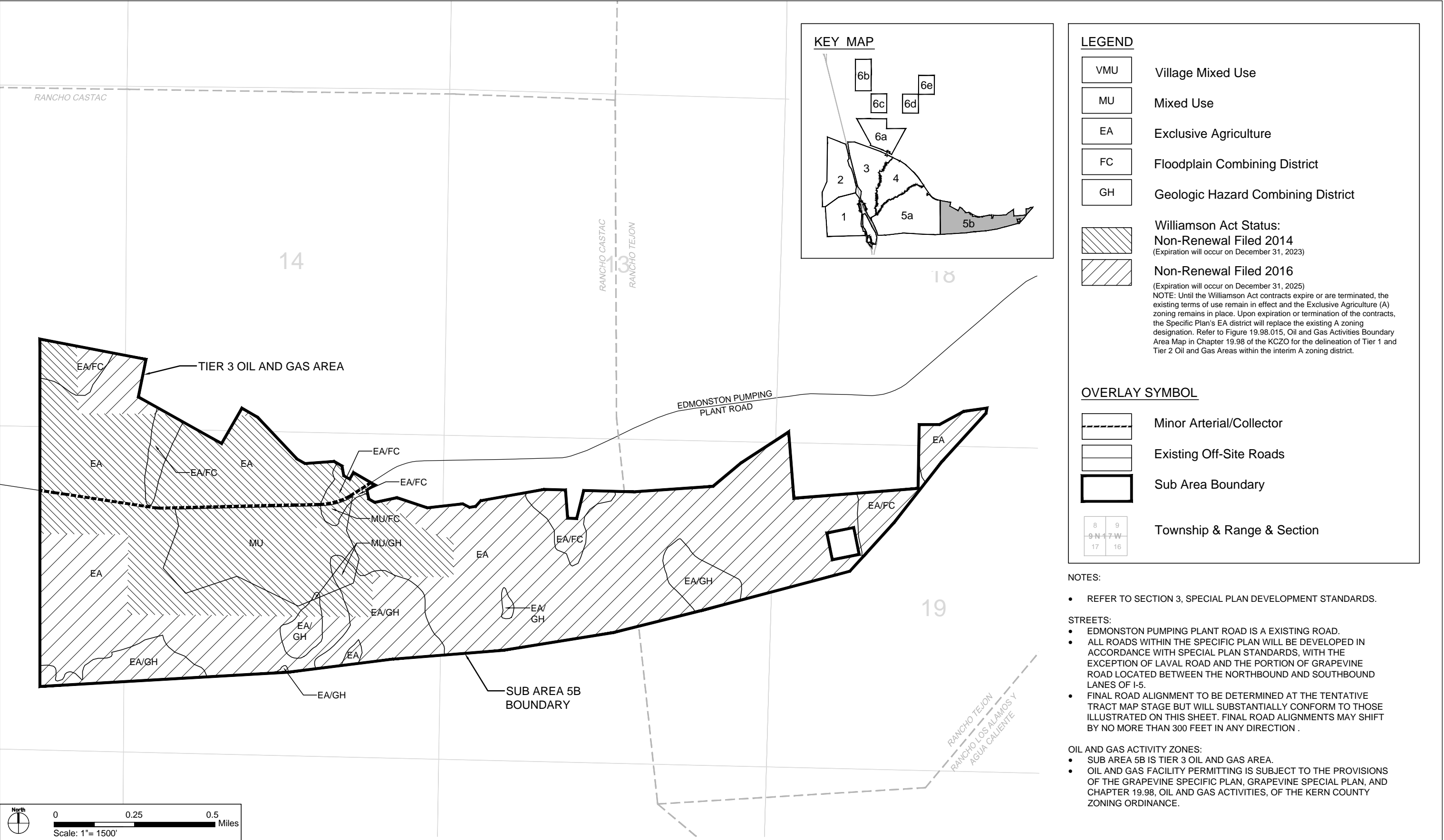


FIGURE 1-10  
Sub Area 5B Districts

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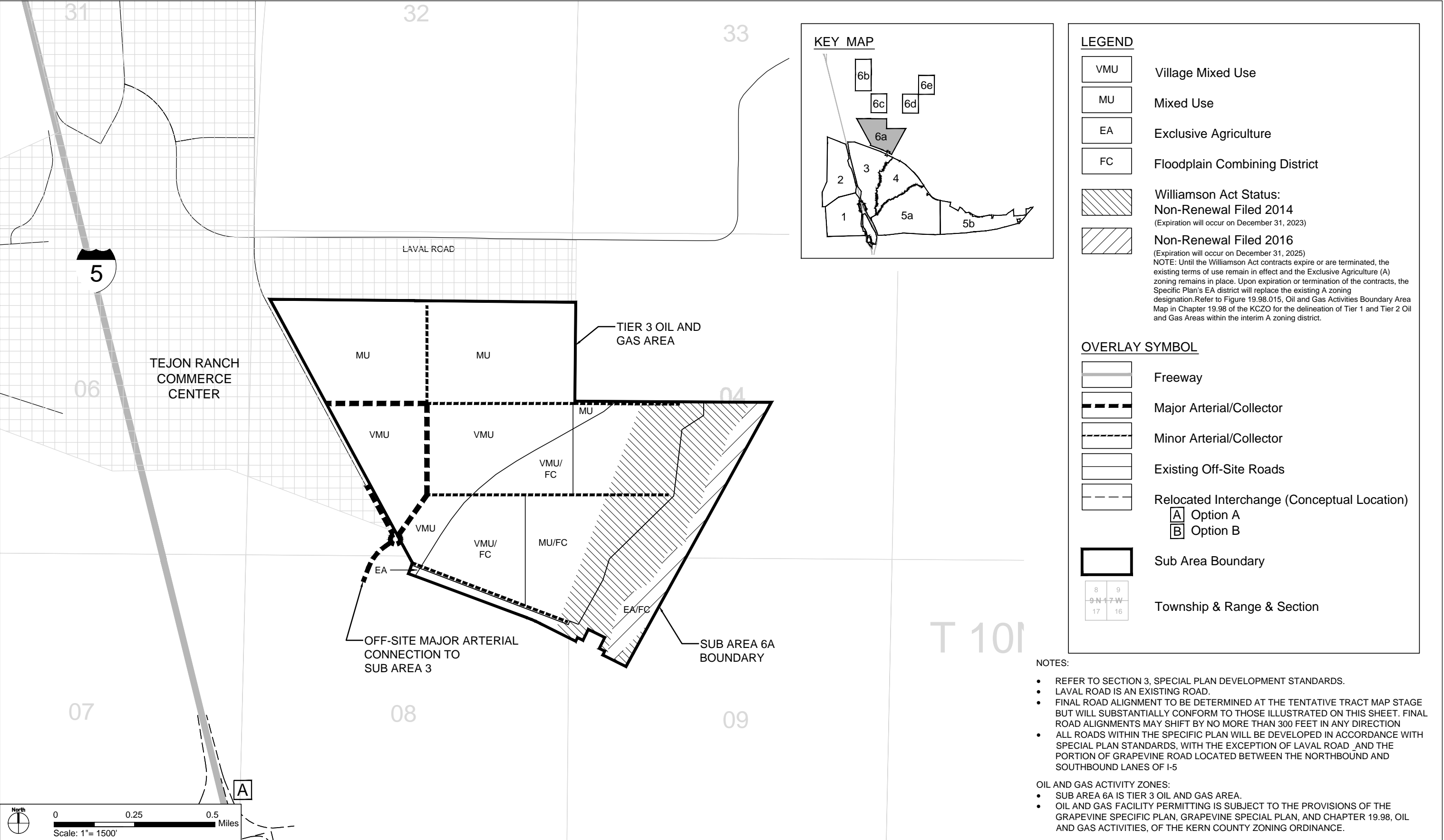


FIGURE 1-11  
Sub Area 6A Districts

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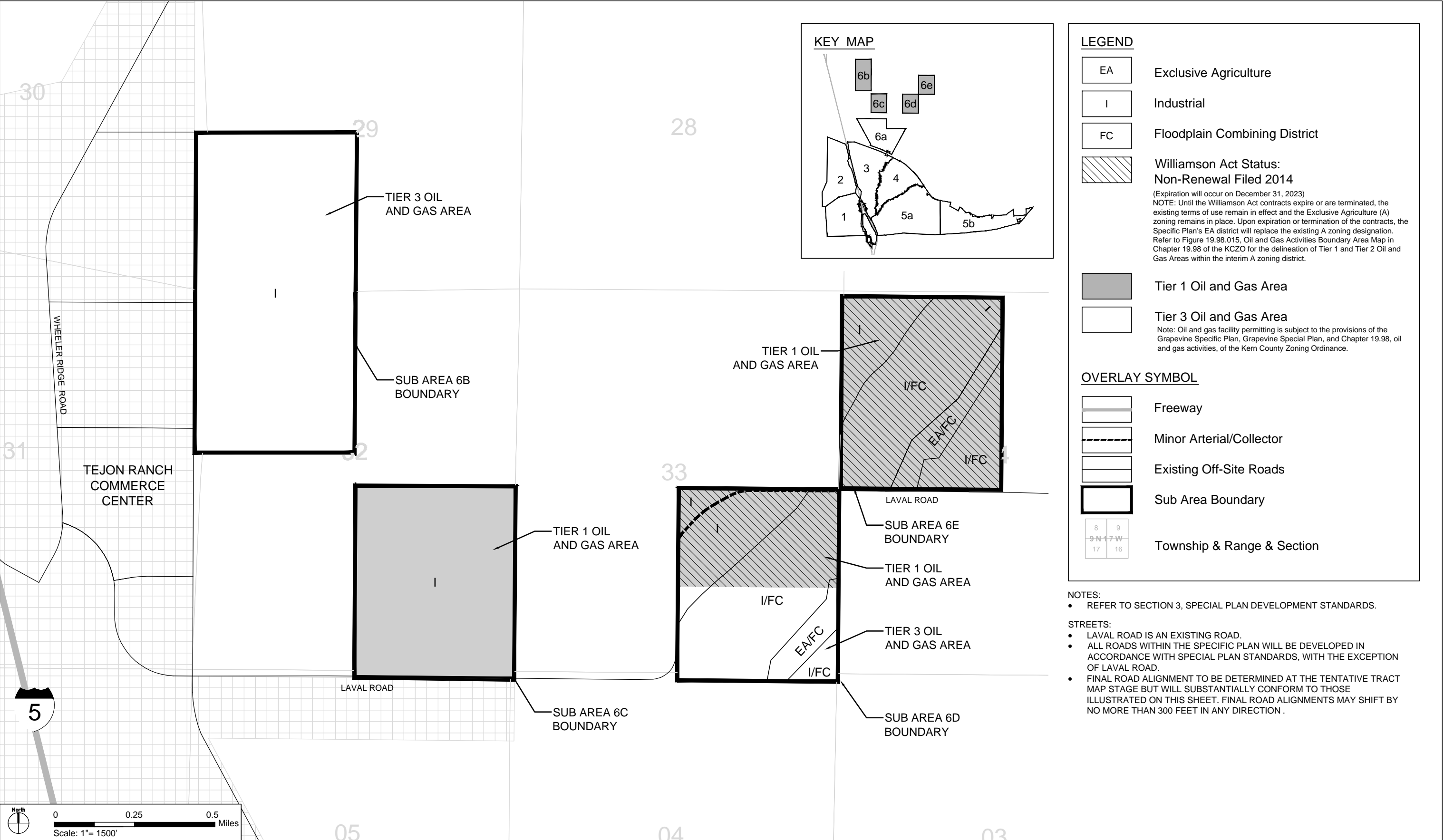


FIGURE 1-12  
Sub Areas 6B, C, D, & E Districts

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# Section 2

## DISTRICTS AND PERMITTED USES

### 2.1. Districts and Combining Districts

The Grapevine Special Planning (SP) District constitutes the formal zoning designation for the Grapevine Specific Plan. Within the SP District are four specialized districts and two combining districts, as defined below and shown in Figures 1-5 through 1-12:

- **Village Mixed Use (VMU).** This district is intended to create pedestrian-friendly village centers by providing for a variety of compatible land uses including service-oriented commercial, office, and higher-density residential dwellings (6 to 72 dwelling units/net acre). Complimentary land uses are compact and designed to provide a pedestrian-scale environment with convenient access to everyday needs within the village centers. This district integrates multi-modal elements and development densities that will support pedestrian, bicycle, and transit modes as alternatives to automobile travel. The village centers within the VMU districts will be located approximately 1/2-mile apart to create a community identity for each village.
- **Mixed Use (MU).** This district provides gradually decreased density from the VMU districts, creating neighborhoods and employment centers. Uses in this district are distinct from the VMU including a wide variety residential dwellings (1 dwelling unit per 5 net acres to 40 dwelling units/net acre), office, retail commercial, light industrial, warehouse, and other uses compatible with adjacent land uses. The MU district allows the flexibility to create suburban residential neighborhoods in close proximity to jobs, shopping, and civic uses at lower densities than found within the VMU district.
- **Industrial (I).** This district is limited to the northern project parcels located closest to the TRCC, and provides for a variety of industrial park, research and development, commercial, manufacturing, warehouse, energy generation, and other uses that are compatible with adjacent land uses.
- **Exclusive Agriculture (EA).** This district is generally consistent with the intent and purpose of the existing Exclusive Agriculture Zone Classification within Chapter 19.12 of the Kern County Zoning Ordinance. This district will provide for a wide variety of agricultural and incidental nonagricultural uses, and activities that are compatible with agricultural uses, such as permanent produce stands, farmers markets, and telecommunications facilities. Grazing, open space, and recreation such as hiking and biking trails are the predominant land uses in this district. Existing residences at the time of Specific Plan approval will be retained; however, no new residences are authorized, except those

## **Districts and Permitted Uses**

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accessory to a primary permitted use. Notices of non-renewal have been filed in 2014 and 2016 for the Williamson Act Contract lands within the Specific Plan. Until the Williamson Act contracts expire on December 31, 2023 and December 31, 2025, or are terminated, the existing Kern County Exclusive Agriculture (A) zoning remains in effect. Accordingly, the existing A zoning is determined to be a consistent implementing zone classification for the Special Plan districts.

- **Geologic Hazard (GH) Combining District.** The purpose of the Geologic Hazard (GH) Combining District is to protect the public's health and safety and minimize property damage by designating areas that are subject to or potentially subject to surface faulting, ground shaking, ground failure, landslides, mudslides, or other potential geologic hazards, including liquefaction, lateral spreading, and seismically induced densification and settlement by establishing restrictions on land use in such areas. These areas will be subject to the regulations identified in the Kern County Zoning Ordinance (KCZO) Chapter 19.68 (KCZO 2012).
- **Floodplain (FC) Combining District.** The purpose of the Floodplain (FC) Combining District is to protect the public health and safety and minimize property damage by designating areas that are potentially subject to flooding and by establishing reasonable restrictions on land use in such areas. The FC Combining District shall be applied to those areas lying within Zone A on the Flood Insurance Rate Maps (FIRM) or those areas potentially subject to flooding as designated by the Kern County Public Works Department pending reclassification of such areas into Floodplain Primary (FPP) or the Floodplain Secondary (FPS) delineated areas. The regulations established by the FC Combining District shall be in addition to the regulations of the base zoning classifications with which the FC Combining District is combined.

The special flood hazard area designated as Zone A is based on historical flood flows where no quantitative determination of the frequency of flooding has been made. Detailed engineering studies will be performed and/or approved by the Kern County Public Works Department prior to the reclassification of the FC Combining District into the FPP District and/or the FPS Combining District.

Flood-prone areas identified in the FC Combining District shall be subject to the requirements specified until further studies demonstrate either removal from the FC Combining District or the placement in other more specific mapped overlay designations (FPP or FPS) subject to the review and approval of a Conditional Letter of Map Revision (CLOMR) by the Federal Emergency Management Agency (FEMA) and the Floodplain Management Section, Kern County Public Works Department.

## **2.2. Permitted Uses**

Use types set forth in Table 2-1 are defined in the KCZO, Section 19.04, except for those that are defined in the glossary of the Special Plan (Section 6). The definitions in the glossary take precedence over definitions in the KCZO. For uses not included in Table 2-1, the Kern County Planning Director may make a Determination of Similar Use per KCZO Section 19.08.030.

## Districts and Permitted Uses

**Table 2-1  
Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i>				
	<i>P = Permitted Use</i>				
	<i>SR = Requires Sensitivity Review</i>				
	<i>SUP = Requires Special-Use Permit</i>				
<i>* = Sensitive Use</i>					
Use Types		District			
		VMU	MU	I	EA
Residential Uses (SFR-Detached, SFR/MFR-Attached)					
Apartment <sup>3*</sup>		P	P		
Agricultural home stays			P		P
Condominium <sup>3*</sup>		P	P		
Bed-and-breakfast inn <sup>3*</sup>		SR	SR		
Boarding or rooming house <sup>3*</sup>		SR	SR		
Community care facility <sup>3*</sup>		SR	SR		
Duplex <sup>3*</sup>		P	P		
Dwelling units located entirely above the ground floor of a commercial building <sup>3*</sup>		P	P		
Emergency shelter <sup>3*</sup>			P	P	
Fraternity or sorority house when located within 500 feet of associated educational facility <sup>3*</sup>		SUP	SUP		
Home occupations, including, but not limited to, cottage food operations, in accordance with California Homemade Food Act (Assembly Bill 1616)		P	P		P
Live/work		P	P		
Manager, caretaker, or proprietor quarters		P	P	P	P
Mobile home (as an accessory to permitted use), occupied by the owner or full-time on-site employee			P	P	P
Mobile home park			SUP <sup>4</sup>	SUP <sup>4</sup>	
Model home complex <sup>3*</sup>		P	P		
<b>Notes:</b>					
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.					
2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO.					
3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination.					
4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.					

## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i>			
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	<i>SR = Requires Sensitivity Review</i>			
	<i>SUP = Requires Special-Use Permit</i>			
	<i>* = Sensitive Use</i>			
Use Types	District			
	<i>VMU</i>	<i>MU</i>	<i>I</i>	<i>EA</i>
Quadruplex <sup>3*</sup>	P	P		
Residential accessory structures	P	P		P
Residential facility, serving six or fewer persons when located within 500 feet of supportive services <sup>3*</sup>	SUP	SUP		
Residential hotel <sup>3*</sup>	SR	SR		
Residential “lock-out” units	P	P		
Retirement or rest home <sup>3*</sup>	P	P		
Secondary residential unit <sup>3*</sup>	P	P		
Senior housing <sup>3*</sup>	P	P		
Single-family dwelling <sup>3*</sup>	P	P		
Supportive or transitional housing when located within 500 feet of supportive services <sup>3*</sup>	SR	SR		
Tiny house village	P	P		
Townhouse <sup>3*</sup>	P	P		
Triplex <sup>3*</sup>	P	P		
Retail Uses				
Eating and Drinking Establishments				
Bar, tavern, or cocktail lounge	P	P		
Ice cream parlor	P	P		
Mobile food vendor/food truck	P	P		
Outdoor dining	P	P		
Notes:				
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.				
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## Districts and Permitted Uses

**Table 2-1  
Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i>				
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	<i>SR = Requires Sensitivity Review</i>				
	<i>SUP = Requires Special-Use Permit</i>				
	<i>* = Sensitive Use</i>				
Use Types		District			
		<i>VMU</i>	<i>MU</i>	<i>I</i>	<i>EA</i>
Restaurant, cafe, or coffee shop		P	P	P	
Restaurant, fast-food (including drive-through)		P	P		
Wine tasting – may include food service		P	P	P	SR
Food and Beverage Retail Sales					
Bakery or pastry, including accessory dining		P	P	P	
Brewery, micro – may include tasting room and food service		P	P	P	
Catering		P	P	P	
Convenience market		P	P		
Distillery, micro – may include tasting room and food service		P	P	P	
Drive-in food market or dairy		P	P		
Farmers’ market – outdoors		P	P		P
Farmers’ or multi-vendor market – indoors		P	P	P	
Food Hub – artisan products		P	P	P	
Food store/grocery store		P	P		
Liquor store		P	P		
Specialized, including meat, fruit, vegetables, health foods, or candy		P	P	P	
General Retail Sales					
Adult novelty and bookstore <sup>1</sup>		SR	SR		
Animal husbandry instruction and classes – without live animal exhibits		P	P	P	P
<b>Notes:</b>					
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.					
2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO.					
3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination.					
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## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Animal husbandry instruction and classes – with live animal exhibits	SUP <sup>4</sup>	SUP <sup>4</sup>	P	P
Antiques	P	P		
Appliances, including service and repair, provided there is no outside storage	P	P	P	
Ambulance	P	P	P	
Arts and craft supplies	P	P		
Art gallery	P	P		
Artist studio	P	P	P	
ATM	P	P	P	
Auto body repair and painting, wholly conducted within an enclosed building		SR	P	
Auto or equipment auction, temporary, not to exceed 4 days		P	P	
Auto leasing		P	P	
Auto, new		P	P	
Auto parts and accessories		P	P	
Auto/vehicle recharge station – electric or hydrogen	P	P	P	
Auto rental		P	P	
Auto towing		P	P	
Auto service or repair		SR	P	
Auto/gas service station including smog inspection	P	P	P	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1  
Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Auto tire, including service, pursuant to Subsection 19.32.130.D of the KCZO		P	P	
Auto, used		P	P	
Auto wash (includes recreational vehicles)	P	P	P	
Bank, savings and loan, credit union or other similar financial service	P	P		
Barber or beauty shop	P	P		
Bath house, including sauna, spa, Turkish, steam, or tanning	P	P		
Bicycle, including rental and service	P	P		
Bait and tackle	P	P		
Boat sales , including service and parts		SR	P	
Boat service and parts		SR	P	
Bookstore, general	P	P		
Carpet cleaning		P	P	
Carpet or mattress sales	P	P	P	
Check cashing	P	P		
Christmas tree or pumpkin/holiday, temporary	P	P	P	
Clothing and apparel	P	P		
Computer, including service and repair	P	P		
Department store	P	P		
Drugs and pharmaceuticals	P	P		
Electric appliances, including service and repair	P	P	P	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Electric equipment, including service and repair		P	P	
Equipment, small, rental	P	P	P	
Equipment, heavy, and truck or trailer rental		SR	P	
Feed, provided outside storage areas are screened from public view		SR	P	
Fireworks stand, temporary	P	P	P	
Flea market or swap meet, wholly conducted within an enclosed building		P	P	
Flea market or swap meet, with outdoor activity		SUP	P	
Floor covering, drapery, or upholstery	P	P		
Florist	P	P		
Fruit and vegetable stand, temporary	P	P		P
Fruit and vegetable stand, permanent	P	P		P
Furniture cleaning, refinishing, or upholstery	SUP	P	P	
Furniture Sales	P	P		
Gardening and landscaping supply, provided outside storage areas are screened from public view	P	P	P	
Gift and card	P	P		
Gun sales, including repair	P	P		
Gun sales, including repair and practice range when range is completely enclosed indoors		P	P	
Hardware, general, including lumber sales, provided areas devoted to outside storage of materials are screened from public view	P	P		
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Health and nutrition	P	P		
Hobby supplies	P	P		
Home or office furnishings	P	P	P	
Home improvement	P	P	P	
Horse boarding and training		SUP <sup>4</sup>		P
Hotel or motel <sup>3</sup> *	P	P	SUP	
Interior decorator	P	P		
Janitorial service		P	P	
Jewelry and watches	P	P		
Laboratory, medical, dental, optical, or biological	P	P	P	
Laboratory, testing, classifying, or experimental, not involving the use of explosives or hazardous materials stored in containers larger than five gallons		P	P	
Lapidary	SUP	P	P	
Laundromat, self-service	P	P		
Laundry and dry cleaning, drop off and pick up only	P	P		
Lawnmower, including repair, when located entirely within a building		P	P	
Leather goods and luggage	P	P		
Locksmith or key and lock shop	P	P		
Medical marijuana dispensary	Subject to County Regulations			
Military surplus, provided there is no outside storage	P	P	P	
<b>Notes:</b>				
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.				
2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO.				
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## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Mini-warehouse, for storage of personal household goods, provided there is no outside storage; excludes cargo containers and other temporary storage structures		SUP <sup>4</sup>	P	
Mini-warehouse, for storage of personal household goods and vehicles, including outside storage		SUP <sup>4</sup>	P	
Mobile home, including rental and service		P	P	
Mortuary or funeral parlor		P	P	
Motorcycles	P	P	P	
Motorcycle, service and repair	SUP	SR	P	
Moving and shipping services		SR	P	
Musical instruments (including repair)	P	P	P	
Nail Salon	P	P		
Newspaper or magazine stand	P	P	P	
Nursery, plant, provided outside storage areas are screened from public view	P	P	P	
Office machines and equipment	P	P	P	
Packaging and mailing services	P	P		
Paint and wallpaper	P	P	P	
Pawn shop	SUP	SUP	P	
Pest control, administrative offices only	P	P	P	
Pest control, sales and service		SUP	P	
Pet day-care	SUP <sup>4</sup>	SUP <sup>4</sup>	P	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1  
Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Pet grooming	P	P	P	
Pet store	P	P		
Pet supply	P	P	P	
Photography studio	P	P		
Photographic supply or camera	P	P		
Picture framing	P	P	P	
Plumbing supply, provided there is no outside storage	P	P	P	
Pottery	P	P	P	
Printing, lithography, or blueprinting	P	P	P	
Prop Storage (TV/film)		P	P	
Recreational vehicles, including service		SUP	P	
Shoe repair	P	P		
Shoe Sales	P	P		
Shoe-shine stand	P	P	P	
Shooting range – indoors, when completely enclosed	SUP <sup>4</sup>	SUP <sup>4</sup>	P	
Shooting range – outdoors, provided it is not less than 1,000 feet from the nearest habitable building		SUP <sup>4</sup>	SUP <sup>4</sup>	P
Smog inspection station		P	P	
Sporting goods and athletic equipment	P	P		
Stationery and office supply	P	P		
Studio, radio, television, recording, or movie	P	P	P	
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## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

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Use Types	District			
	VMU	MU	I	EA
Tailor or dressmaker	P	P		
Tanning salons	P	P		
Tattoo parlor and body piercing	P	P		
Taxidermist		P	P	
Telegraph	P	P	P	
Ticket agency	P	P		
Tire sales and service	P	P	P	
Toy Store	P	P		
Travel agency	P	P		
Truck fueling station (includes truck wash), with repair facilities <sup>1</sup>		SUP	P	
Truck, including rental, new or used, sales and leasing		P	P	
Truck tire and battery facilities		P	P	
Urgent care facility	P	P		
Used clothing and household goods, provided there is no outside storage	P	P	P	
Variety	P	P		
Vending Machines	P	P	P	
Veterinary, household pets only, provided there are no outside kennels	P	P	P	
Veterinary – large animal including outdoor facilities		SUP	P	P
Video and audio tape sales and rentals	P	P		
Wedding chapel	P	P		
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Use Types		District			
		<i>VMU</i>	<i>MU</i>	<i>I</i>	<i>EA</i>
Office and R&D Uses					
Business and professional		P	P	P	
Call center			SUP	P	
Chiropractic or massage therapy		P	P	P	
Clinic, medical or physical therapy, out-patient only		P	P	P	
Fabrication – custom or specialized, under 6,000 SF		SUP	P	P	
Fabrication – custom or specialized, over 6,000 SF			SUP	P	
Information Centers		P	P		
Manufacturing or machining – custom or specialized, under 6,000 SF		SUP	P	P	
Manufacturing or machining – custom or specialized over, 6,000 SF			SUP	P	
Medical office		P	P		
Office park		SUP	P	SUP	
Real estate, temporary on-site for tract sales, including commercial coaches		P	P	P	
Real estate, permanent		P	P	P	
Research and development facilities – with or without direct sales, under 6,000 SF		P	P	P	
Research and development facilities – with or without direct sales, over 6,000 SF		SUP	SUP	P	
Studio, radio, television, recording, or movie		P	P	P	
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Use Types	District			
	VMU	MU	I	EA
Industrial/Warehouse Uses				
Industrial Manufacturing or Assembly				
Acetylene or other gas			P	
Aircraft, assembly, when conducted wholly within a building		SUP	P	
Alcohol distillery			SUP	
Arts and craft products or supplies		P	P	
Auto/truck, assembly, when conducted wholly within a building		SUP	P	
Batteries, excluding battery recycling or disposal, when conducted wholly within a building		SUP	SUP	
Brewery <sup>1</sup>			P	
Building material		SUP	P	
Cabinet shop		SUP	P	
Cannery <sup>1</sup>			SUP	
Cargo containers, when accessory to a permitted use		SUP	P	
Carpet and mattress		SUP	P	
Ceramics		SUP	P	
Chemical blending or manufacture, when conducted wholly within a building, 10,000 SF or less		SUP	SUP	
Chemical blending or manufacture, when conducted wholly within a building, greater than 10,000 SF			SUP	
Clothing, garments, or shoes		SUP	P	
Concrete blocks			P	
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Use Types	District			
	VMU	MU	I	EA
Cosmetics, perfumes, or toiletries		SUP	P	
Cotton compress <sup>1</sup>			P	
Creamery <sup>1</sup>			P	
Drugs and pharmaceuticals		SUP	P	
Electronic equipment		SUP	P	
Ethanol <sup>1</sup> 10,000 SF or less		SUP	SUP	
Ethanol <sup>1</sup> greater than 10,000 SF			SUP	
Fiberglass or silicone products <sup>1</sup> when conducted wholly within a building, 10,000 SF or less		SUP	SUP	
Fiberglass or silicone products when conducted wholly within a building, greater than 10,000 SF <sup>1</sup>		SUP	SUP	
Flour mill <sup>1</sup>			P	
Food or beverage products		SUP	P	
Foundry or metal casting		SUP	P	
Furniture		SUP	P	
Ice		SUP	P	
Manufacture, compounding, assembling, or treatment of articles or merchandise from the following previously prepared materials: bone, cellophane, canvas, cloth, feathers, felt, fiber, fur, glass, hair, horn, leather, paper, plastics, plastic compounds, precious or semiprecious metals or stones, shell, cured or finished wood, yarns, and paint provided that none of the above employ a boiling process.		SUP	P	
Musical instruments		P	P	
Neon signs		SUP	P	
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Use Types	District			
	VMU	MU	I	EA
Oil extraction and processing, non-mineral (from sources such as but not limited to nuts and seeds)	P	P	P	P
Oil refining <sup>2</sup>			SUP	
Paint mixing, not employing a boiling process <sup>1</sup>		SUP	P	
Paper or pulp <sup>1</sup>		SUP	SUP	
Pharmaceuticals		SUP	P	
Pipe, pipe product, and pipe filter, assembly only		SUP	P	
Plastic products, involving pre-manufactured plastic pellets or compounds and which do not employ a boiling process		SUP	P	
Plastics, assembly and extrusion <sup>1</sup>		SUP	P	
Prefabricated buildings and structures		SUP	P	
Shoes		SUP	P	
Soap, cold mix only		SUP	P	
Soil amendments, not involving liquid chemical blending or organic materials		SUP	P	
Steel fabrication, excluding smelting		SUP	P	
Textiles		SUP	P	
Toy manufacturing and assembly		SUP	P	
Trusses		SUP	P	
Wind-driven electrical generators, manufacture or assembly		SUP	P	
Winery		P	P	P
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Use Types		District			
		VMU	MU	I	EA
Industrial Storage					
Automobile			SUP	P	
Bottled gas				P	
Cargo containers				P	
Chemical storage when accessory to a permitted use			P	P	
Chemical storage as main use			SUP	SUP	
Cold storage			SUP	P	
Contractor's storage yard			SUP <sup>4</sup>	P	
Draying or freight			SUP	P	
Equipment and building materials			SUP <sup>4</sup>	P	
Feed and wood yards			SUP	P	
Liquefied petroleum gas, bulk storage or distribution in excess of 2,000 gallons capacity, when located at least ½ mile from property designated for residential use and at least ½ mile from existing residential development with a density greater than one dwelling unit per acre and at least ½ mile from any motel or hotel				SUP <sup>4</sup>	
Liquid fuel storage tanks, above ground, for dispensing purposes <sup>1</sup>			SUP <sup>4</sup>	P	
Lumber or log storage				P	
Mineral and ore storage and loading, with product storage and loading facilities wholly enclosed			SUP	P	
Mineral and ore storage, unenclosed				P	
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Use Types		District			
		VMU	MU	I	EA
Moving and storage, yards or warehouse			SUP	P	
Petroleum				P	
Recreational vehicle			SUP	P	
Recyclable materials, collection and storage, provided there is no more than 3,000 square feet of outside storage and all compression and bailing operations are conducted wholly within an enclosed structure			SUP <sup>4</sup>	P	
Recyclable materials, collection and storage				P	
Salvage or junk yard				P	
Tank farm			SUP <sup>4</sup>	P	
Tire storage as a main use				P	
Truck and heavy equipment				P	
Vehicle wrecking yard				P	
Warehouse			SUP <sup>4</sup>	P	
Other Industrial Uses					
Asphaltic concrete batch plant <sup>1</sup>				SUP <sup>4</sup>	
Assaying			SUP	P	
Bakery, small, 10,000 SF or less			SUP	P	
Bakery, large, greater than 10,000 SF				SUP	
Beverage Bottling			SUP	P	
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Use Types	District			
	VMU	MU	I	EA
Billboard sign fabrication and storage		SUP	P	
Boat building and major repair		SUP	P	
Concrete batch plant			P	
Construction or demolition waste material collection, recovery, or recycling, excluding recovery or recycling operations involving incineration		SUP <sup>4</sup>	SUP <sup>4</sup>	
Cotton gin <sup>1</sup>			SUP	
Electroplating, when conducted wholly within an enclosed building			P	
Fertilizer, bulk storage and distribution <sup>1</sup>			P	
Fruit, vegetable, and plant products processing, including packing, canning, preserving, and shipping			SUP	
Glucose processing <sup>1</sup>			P	
Grain elevator or storage			P	
Light machining		SUP	P	
Lumber drying kiln <sup>1</sup>			P	
Machine shop		SUP	P	
Metal electroplating		SUP	SUP	
Metal casting, extrusion or fabrication			P	
Newspaper, magazine, or book printing		P	P	
Oil field service yard		SUP	P	
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Use Types		District			
		VMU	MU	I	EA
Pallets, including repair			SUP	P	
Photographic processing plant and/or wholesale supply			SUP	P	
Powder coating, spray painting, and sandblasting, all enclosed			SUP	P	
Sandblasting, unenclosed				SUP	
Saw or planing mill <sup>1</sup>				P	
Sheet metal shop and supply			SUP	P	
Sign fabrication and storage			SUP	P	
Tanning, curing, or storing animal hides <sup>1</sup>				SUP	
Timber processing				SUP	
Tire recycling, excluding recycling operations involving incineration				SUP	
Tire retreading				P	
Welding or blacksmith			SUP	P	
Well drilling service			SUP	P	
Wholesale distribution			SUP	P	
Agriculture/Natural Resources					
Growing and Harvesting Crops					
Agricultural produce stand		P	P	P	P
Berry crops		P	P	P	P
Bush crops		P	P	P	P
Christmas trees		P	P	P	P
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Use Types		District			
		VMU	MU	I	EA
Community farm		P	P	P	P
Field crops, dryland		P	P	P	P
Field crops, irrigated		P	P	P	P
Flowers and horticultural specialties		P	P	P	
Flowers and horticultural specialties, wholesale only		SUP <sup>4</sup>	P	P	P
Greenhouse, retail only		SUP <sup>4</sup>	P	P	
Greenhouse, wholesale only		SUP <sup>4</sup>	P	P	P
Herbs		P	P	P	P
Honey extraction		SUP <sup>4</sup>	P	P	P
Hydroponically grown plants		SUP <sup>4</sup>	P	P	P
Incubator farm		P	P	P	P
Nursery, plant, wholesale only		SUP <sup>4</sup>	P	P	P
Orchard, nut and fruit trees		P	P	P	P
Vegetables		P	P	P	P
Vine crops		P	P	P	P
Winery		P	P	P	P
Breeding and Raising Animals					
Alpacas (1 animal per ½ acre)			P		P
Beekeeping – not more than 1 hive		P	P	P	P
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Use Types		District			
		VMU	MU	I	EA
Beekeeping – 3 hives or less			P	P	P
Beekeeping – more than 3 hives			SUP	P	P
Beef cattle or livestock grazing (1 animal per ½ acre)			P	P	P
Birds, including show or racing				P	P
Pigeons and other small fowl			P	P	P
Dairy stock grazing (maximum 1 animal per ½ acre in MU District)			P	P	P
Fish and frogs				P	P
Hogs, excluding a hog farm or ranch (1 animal per ½ acre)			P	P	P
Horses, donkeys, llamas, or mules (1 animal per ½ acre)			P	P	P
Poultry (3 hens or less), including chickens or other similar fowl, excluding roosters and ostrich		P	P	P	P
Poultry, including chickens, ostriches, turkeys, or other fowl (more than 3 hens), excluding commercial poultry farms or ranches in which poultry are kept in confined facilities			SUP	P	P
Rabbits or furbearing animals (3 adults or less)			P	P	P
Rabbits or furbearing animals (More than 3 adults)			SUP	P	P
Sheep or goats (3 animals per ½ acre)			P	P	P
Vermiculture (Commercial)			SUP	P	P
Resource Extraction and Energy Development Uses					
Cogeneration facility or steam generators, excluding coal fired <sup>1</sup>			SUP <sup>4</sup>	P	
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**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i>				
	<i>P = Permitted Use</i>				
	<i>SR = Requires Sensitivity Review</i>				
	<i>SUP = Requires Special-Use Permit</i>				
	<i>* = Sensitive Use</i>				
Use Types		District			
		VMU	MU	I	EA
Electrical power generating plant, excluding nuclear or coal <sup>1</sup>			SUP <sup>4</sup>	P	
Electrical power distribution facilities, including substation		P	P	P	P
Oil or gas exploration and production pursuant to Chapter 19.98 of Kern County Zoning Ordinance <sup>2</sup>		P	P	P	P
Ore reduction <sup>1</sup>				SUP	
Potash manufacture <sup>1</sup>				SUP	
Rock, gravel, sand, concrete, aggregate, or soils crushing, processing, or distribution <sup>1</sup>				SUP <sup>4</sup>	
Solar energy electrical generators which are accessory to a permitted or conditionally permitted use and where the power generated does not exceed the total on-site power demand		P	P	P	P
Solar energy electrical generators when not accessory to a permitted or conditionally permitted use			SUP <sup>4</sup>	P	
Solar energy electrical generators as a primary use where the power generated does not significantly exceed the net amount of electricity consumed on site		SUP	P	P	P
Utilities and Public Facilities					
Utilities and Communications					
Community sewage or septic disposal system <sup>1</sup>		P	P	P	P
Drainage sump		P	P	P	P
Flood control facilities		P	P	P	P
Greenwaste home collection, recovery, and composting – 2 acre or less			SUP <sup>4</sup>	P	P
Notes:					
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.					
2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO.					
3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination.					
4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.					

## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Greenwaste collection, recovery, and composting – over 2 acre			P	
Managed wetlands	P	P	P	P
Nonhazardous oil production water disposal facility <sup>1</sup>		SUP	SUP	
Nonhazardous oilfield waste treatment or recycling <sup>1</sup>		SUP	SUP	
Nonhazardous oily or liquid waste treatment or recycling <sup>1</sup>		SUP	SUP	
Radio, television, microwave, or commercial communications transmitter, receiver, or translator – building mounted only	SUP	SUP	P	P
Radio, television, microwave, or commercial communications transmitter, receiver, or translator – free standing	SUP	SUP	SUP	
Sewage treatment plant – fully screened	P	P	P	P
Septage disposal site – fully screened <sup>1</sup>		SUP	P	
Septage storage and transfer site <sup>1</sup>			P	
Soil reclamation or remediation for soils contaminated with nonhazardous materials			SUP	
Telecommunication facilities	SUP	SUP	P	
Transfer station <sup>1</sup>			SUP <sup>4</sup>	
Transmission lines and supporting towers, poles, and underground facilities for gas, water, electricity, telephone, or telegraph service owned and operated by a public utility company or other company under the jurisdiction of the California Public Utilities Commission	P	P	P	P
Utility substation	P	P	P	P
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1  
Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
	District			
	Use Types	VMU	MU	I
		EA		
	Water system, small or large	P	P	P
	Water storage or groundwater recharge facilities	P	P	P
	Water and waste water treatment facilities – fully screened	P	P	P
	Waste-to-energy facility, using conversion technology excluding incineration including anaerobic digestors and similar technologies <sup>1</sup>			SUP <sup>4</sup>
	Microwave relay station	P	P	P
<b>Transportation Facilities</b>				
	Airport, private <sup>1</sup>		SUP	P
	Airport, public use <sup>1</sup>		P	P
	Auto parking garage or lot, when accessory to a primary use and located within five hundred (500) feet of the business or businesses it is intended to serve	P	P	P
	Auto parking garage or lot, as primary use	SUP <sup>4</sup>	SUP <sup>4</sup>	P
	Bus depot, including service and storage	SUP <sup>4</sup>	SUP <sup>4</sup>	P
	Heliport, public	P	P	P
	Heliport <sup>1</sup> , private	SUP <sup>4</sup>	SUP <sup>4</sup>	P
	Railroad freight classification or switching yard <sup>1</sup>			P
	Railroad station	P	P	P
	Taxi, fleet, commercial coach depot, including service and storage		SUP <sup>4</sup>	P
	Transit facilities, excluding storage or maintenance	P	P	P
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

LEGEND	Empty Cell = Not Permitted				
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	SUP = Requires Special-Use Permit				
* = Sensitive Use					
Use Types		District			
		VMU	MU	I	EA
Institutional/Recreational Uses					
Schools					
Preschool <sup>3*</sup>		P	P		
Elementary school <sup>3*</sup>		P	P		
Junior high/middle school school <sup>3*</sup>		P	P		
Senior high school <sup>3*</sup>		P	P		
College or university		P	P	P	
Research Institute		P	P	P	
Agricultural extension or field office		P	P	P	P
Animal training		P	P	P	P
Art, craft, music or other fine art school		P	P	P	
Business or trade school, provided that all instruction is conducted within a building and that there is no outside storage of materials or supplies associated with the school		P	P	P	
Dance school		P	P	P	
Driving school		P	P	P	
Fitness or exercise training		P	P	P	
Martial arts school		P	P	P	
Police/security training facility			SUP <sup>4</sup>	P	
Sport or athletic training facility			SUP	P	
Notes:					
1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use.					
2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO.					
3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination.					
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## Districts and Permitted Uses

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Permitted Uses**

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Use Types	District			
	VMU	MU	I	EA
Swim school	P	P	P	
<b>Institutional - General</b>				
Auditorium, public	P	P		
Cemetery, mausoleum, columbarium, or mortuary		P	P	
Crematory, when in conjunction with a cemetery, mausoleum, columbarium, or mortuary <sup>1</sup>		SUP	SUP	
Charitable or public service organization	P	P	P	P
Church	P	P	P	
Club or lodge	P	P		
Community/neighborhood garden	P	P	P	
Community or regional correctional and similar involuntary detention facilities <sup>1</sup>			SUP	
Community or senior citizens center <sup>3*</sup>	P	P		
Convalescent hospital <sup>3*</sup>	P	P		
Day-care, adult <sup>3*</sup>	P	P		
Day-care center, with or without extended overnight services <sup>3*</sup>	P	P		
Day-care home, large family <sup>3*</sup>	SR	P		
Day-care home, small family <sup>3*</sup>	P	P		
Fire or police station	P	P	P	
Government office or building	P	P	P	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

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Use Types	District			
	VMU	MU	I	EA
Hospital <sup>3*</sup>	P	P	SUP	
Kennel, fully enclosed	SUP	SUP	P	
Kennel, including outdoor kennels, provided they are screened from public view		SUP	P	
Labor union hall		P		
Library <sup>3*</sup>	P	P		
Museum, with or without outdoor exhibits <sup>3*</sup>	P	P		SUP <sup>4</sup>
Post office	P	P	P	
Public agency	P	P	P	
Public utility buildings and facilities	P	P	P	P
Rehabilitation facilities		P	P	
Skilled nursing facility	SUP	SUP		
Wildlife or nature preserve	P	P		P
Zoological (Zoo) or Botanical Gardens <sup>3*</sup>	SUP <sup>4</sup>	SUP <sup>4</sup>		P
Recreational				
Amphitheater	SUP <sup>4</sup>	SUP <sup>4</sup>		
Batting cage	P	P	SUP	
Bingo parlor	P	P		
Bowling alley	P	P	SUP	
Card room	SUP	SUP	SUP	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

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**Permitted Uses**

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Use Types	District			
	VMU	MU	I	EA
Circus or carnival, temporary, not to exceed four (4) days	SR	SR	SUP	
Community recreational facilities	P	P	SUP	
Country club	P	P		
Dance hall, ballroom, or discotheque	P	P	SUP	
Equestrian establishment		SUP <sup>4</sup>	SUP	P
Fitness studio	P	P	SUP	
Golf course	P	P	SUP	
Golf driving range	P	P	SUP	
Health club	P	P	SUP	
Health spa	P	P		
Hunting or fishing club, not involving structures				P
Miniature golf course	P	P	SUP	
Movie theater, walk-in	P	P		
Movie theater, drive-in		SUP <sup>4</sup>	P	
Night club/live dancing/entertainment	P	SUP		
Park or playground*	P	P		P
Plaza, paseo, pass-thru	P	P	P	
Pool or billiard parlor	P	P		
Racetrack or test track, automobile, motorcycle, or horse <sup>1</sup>			P	
Skateboard arenas, enclosed	SUP <sup>4</sup>	P	P	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## Districts and Permitted Uses

**Table 2-1**  
**Permitted Uses**

<b>LEGEND</b>	<i>Empty Cell = Not Permitted</i> <i>P = Permitted Use</i> <i>SR = Requires Sensitivity Review</i> <i>SUP = Requires Special-Use Permit</i> <i>* = Sensitive Use</i>			
Use Types	District			
	VMU	MU	I	EA
Skateboard arenas, unenclosed <sup>3*</sup>	SUP <sup>4</sup>	P		
Sport arena, indoor <sup>3*</sup>	SUP <sup>4</sup>	SUP <sup>4</sup>		
Sport arena, outdoor <sup>3*</sup>	SUP <sup>4</sup>	SUP <sup>4</sup>		
Swimming pool, public <sup>3*</sup>	P	P		
Swim club <sup>3*</sup>	P	P		
Tennis club <sup>3*</sup>	P	P		
Theater or playhouse	P	P		
Trade fairs and exhibitions (including festivals), temporary (14-day maximum), excluding flea markets and swap meets	SR	SR		
Video game arcade	P	P	P	
<b>Notes:</b> 1 Uses are permitted when located at least 500 feet from property designated on tract mapping for residential use and at least 500 feet from any sensitive use denoted by an *, unless otherwise noted. Where these uses are existing, new sensitive uses shall only be permitted when located at least 500 feet from the pre-existing use. 2 Oil and gas exploration and production (including ancillary facilities) is allowed in the VMU, MU, I, and EA districts, the GH and FC Combining districts, and the existing Exclusive Agriculture (A) District, subject to the provisions of Section 3.16 of the Special Plan and Chapter 19.98, Oil and Gas Activities of the KCZO. 3 Uses permitted at locations within 500 feet of the outer lane of Interstate 5 (I-5), provided that interior and exterior noise level specified in the Specific Plan are met and confirmed prior to issuance of an occupancy permit and that all interior spaces meet relevant air quality standards for sensitive uses through the provision of vegetated screening, buffers, and ventilation filters or a combination. 4 A Special Use Permit is not required if use is proposed by the Master Developer or Master Developer Partnership.				

## 2.3. Prohibited Uses

### 2.3.1. Village Mixed-Use (VMU), Mixed-Use (MU), Industrial (I), and Exclusive Agriculture (EA) Districts

All other uses not listed in Table 2-1 are prohibited, except that the Kern County Planning Director may make a Determination of Similar Use per KCZO Section 19.08.030.

**2.3.2. Geologic Hazards (GH) Combining District**

Prohibited uses in a GH Combining District are those uses prohibited by the base district with which the GH Combining District is combined.

**2.3.3. Floodplain (FC) Combining District**

All other uses not permitted in the underlying district or accessory thereto are prohibited in an FC Combining District, except that the Kern County Planning Director may make a Determination of Similar Use per KCZO Section 19.08.030, including:

- a. All uses prohibited by the base district with which the FC Combining District is combined.
- b. All uses that will likely increase the flood hazard or affect the water-carrying capacity of the floodplain beyond the limits resulting from encroachment as specified in Section 3, Development Standards.
- c. Dumping, stockpiling, or storage of floatable substances or other materials which, in the opinion of the Kern County Public Works Department, will add to the debris loads of the stream or watercourse, unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with Section 3, Development Standards.
- d. Storage of junk or salvage operations.
- e. Oil storage tanks or processing equipment, unless flood proofed or sufficiently elevated above the Base Flood Elevation, as determined by the Kern County Public Works Department.
- f. Individual sewage disposal systems (e.g., septic tank systems), unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with the requirements of the Kern County Health Department so as to minimize infiltration of floodwaters into the systems and discharges from the systems into the floodwaters.
- g. Sources of water supply (e.g., wells, springs) unless protected by flood control devices approved by the Kern County Public Works Department and constructed in accordance with the requirements of the Kern County Health Department to minimize infiltration of floodwaters.
- h. Any use that endangers the temporary safeguards erected for flood protection.

## **Districts and Permitted Uses**

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# Section 3

## DEVELOPMENT STANDARDS

### 3.1. Development Standards

- a. **Purpose.** Where the Special Plan provisions are silent on a development regulation, enforcement procedure, or where reference is made to a specific ordinance section, the applicable section(s) of the KCZO, Kern County Land Division Ordinance, Kern County Development Standards, and/or other applicable County ordinances prevail. Where the regulations and guidelines of the Specific Plan and Special Plan do not agree with other County ordinances, the Specific Plan and/or Special Plan provisions prevail.

The development standards presented in Table 3-1 are specific to the districts in the Grapevine Special Plan (Village Mixed-Use [VMU], Mixed-Use [MU], Industrial [I], and Exclusive Agriculture [EA]).

**Table 3-1**  
**Lot and Building Standards**

Land Use	Min. Lot Size (sq. ft.)	Min. Setbacks (ft.) <sup>1</sup>			Max. Building Height (ft.)	Min. Distance Between Structures (ft.)
		Front	Side <sup>2</sup>	Rear <sup>2,3</sup>		
VMU						
SFR—Detached <sup>4,5</sup>	1,200 <sup>6</sup>	0	0	0	48	0
SFR/MFR—Attached <sup>4,5</sup>	1,200	0	0	0	108	0
Commercial/Retail	7,500	5	0	0	135	10
Office/R&D	N/A	5	0	0	135	10
Industrial/Warehouse	N/A	15	0	0	108	10
Agriculture/Natural Resources	N/A	0	0	0	108	10
Utilities and Public Facilities	N/A	0	0	0	81	10
Institutional/Recreational	N/A	5	0	0	108	10



## Development Standards

**Table 3-1**  
**Lot and Building Standards**

Land Use	Min. Lot Size (sq. ft.)	Min. Setbacks (ft.) <sup>1</sup>			Max. Building Height (ft.)	Min. Distance Between Structures (ft.)
		Front	Side <sup>2</sup>	Rear <sup>2,3</sup>		
MU						
SFR—Detached <sup>4,5</sup>	1,500 <sup>6</sup>	0	0	0	36	0
SFR/MFR—Attached <sup>4,5</sup>	1,500	0	0	0	81	0
Commercial/Retail	7,500	5	0	0	81	10
Office/R&D	N/A	5	0	0	81	10
Industrial/Warehouse	N/A	15	0	0	81	10
Agriculture/Natural Resources	N/A	0	0	0	81	10
Utilities and Public Facilities	N/A	0	0	0	81	10
Institutional/Recreational	N/A	5	0	0	81	10
I						
SFR—Detached <sup>4,5</sup>	N/A	N/A	N/A	N/A	N/A	N/A
SFR/MFR—Attached <sup>4,5</sup>	N/A	N/A	N/A	N/A	N/A	N/A
Commercial/Retail	7,500	5	0	0	81	10
Office/R&D	N/A	5	0	0	81	10
Industrial/Warehouse	N/A	15	0	0	81	10
Agriculture/Natural Resources	N/A	0	0	0	81	10
Utilities and Public Facilities	N/A	0	0	0	81	10
Institutional/Recreational	N/A	5	0	0	81	10
EA						
SFR—Detached <sup>4,5</sup>	N/A	N/A	N/A	N/A	N/A	N/A
SFR/MFR—Attached <sup>4,5</sup>	N/A	N/A	N/A	N/A	N/A	N/A
Commercial/Retail	N/A	5	0	0	81	10
Office/R&D	N/A	N/A	N/A	N/A	N/A	N/A

## Development Standards

**Table 3-1**  
**Lot and Building Standards**

Land Use	Min. Lot Size (sq. ft.)	Min. Setbacks (ft.) <sup>1</sup>			Max. Building Height (ft.)	Min. Distance Between Structures (ft.)
		Front	Side <sup>2</sup>	Rear <sup>2,3</sup>		
Industrial/Warehouse	N/A	N/A	N/A	N/A	N/A	N/A
Agriculture/Natural Resources	N/A	0	0	0	81	10
Utilities and Public Facilities	N/A	0	0	0	81	10
Institutional/Recreational	N/A	5	0	0	81	10

**Notes:**

SFR = Single-family residential

MFR = Multiple-family residential

N/A = Not applicable/available

R&amp;D = Research and design

<sup>1</sup> All setbacks are measured from the property line and/or the edge of the nearest public right of way.<sup>2</sup> If a non-residential use is proposed adjacent to an existing residential use, or if a residential use is proposed adjacent to an existing non-residential, a minimum 10-foot setback is required from the property line. The setback area shall be landscaped consistent with the requirements of Section 3.8, Landscaping. No setback from property line, landscape, or otherwise, is required if the uses are buffered by an alley.<sup>3</sup> Where downspouts are disconnected from the building (per Section 3.15 of this Plan), the minimum rear yard setback is 5 feet to allow for low-impact development drainage improvements and/or landscaping.<sup>4</sup> Residential uses in conjunction with commercial buildings are allowed as specified in Section 2. The square footage devoted to residential uses shall not be included in any commercial square footage calculation, but the number of residential units will count towards residential development caps.<sup>5</sup> Secondary residential units are permitted uses within all districts that allow residential uses. Such units will not be included in the residential dwelling unit calculations.<sup>6</sup> The minimum lot size for SFR-Detached may be reduced to 600 square feet for mobile home parks or tiny house clusters/villages.

**b. Lot Design Options.** In order to encourage the creation of walkable neighborhoods, several options for residential and non-residential lot design are provided in Figures 3-1 through 3-3, as described below.

1. Residential Lot Design and Building Placement: Figure 3-1 presents options for residential lot design that allow for a variety of lot sizes and configurations for both single- and multi-family attached and detached housing. The lot design options include the potential use of alleys, paseos, and internal lanes to break up blocks and create walkable neighborhoods. Figure 3-2 provides options for residential building placement within a lot, including possible setbacks and lot sizes.
2. Non-Residential Lot Design: Figure 3-3 provides several options for non-residential lot design and building placement for a variety of non-residential uses.

**c. Residential Densities.**

- The residential density in the VMU district shall range from 6–72 dwelling units/net acre.
- The residential density in the MU district shall range from 1 unit per 5 net acres–40 dwelling units/net acre.

## Development Standards

- d. **Flood Plain.** All development within the FC Combining District shall comply with the requirements of the Floodplain Management Ordinance (Chapter 17.48 of the Kern County Code) and the following standards:
1. Generally, development within the floodplain may not cumulatively increase the Base Flood Elevation at any point more than 1 foot.
    - i. Computations of increased flood heights caused by development in the floodplain shall be based upon the reasonable assumption that there shall be an equal loss of conveyance on opposite sides of the stream.
    - ii. Cases for supercritical flow, or where velocity conditions are such that normal encroachment analyses are not possible or inappropriate, the allowable increase of 1 foot shall be applied to the energy grade line instead of the Base Flood Elevation.
    - iii. Cases for overbank velocities exceeding 7 feet per second, the floodway boundary shall coincide with the 100-year floodplain boundaries.
    - iv. All such computations shall be made or approved by the Kern County Public Works Department.

### 3.2. Development Caps

- a. **Development Caps.** The overall development caps for the Grapevine Specific Plan are provided in Table 3-2.

**Table 3-2**  
**Overall Grapevine Development Caps**

<b>Residential Dwelling Units Total<sup>1</sup></b>	<b>12,000</b>
Retail (Gross Leasable Area/SF)	1,200,000
Office/R&D (Gross Floor Area/SF)	2,450,000
Industrial/Warehouse (Gross Floor Area/SF)	1,450,000
<b>Commercial/Industrial Total (SF)</b>	<b>5,100,000</b>

**Note:** The area to be dedicated and developed for elementary, middle, and high schools (approximately 157 acres), and parks uses (approximately 96-112 acres) is not included in the numerical values presented above.

<sup>1</sup> Up to 2,000 additional residential units may be allowed through a land use exchange that would ensure a commensurate reduction of commercial/industrial square footage based on vehicle trip equivalency ratios. Trip equivalency will be demonstrated by employing the trip conversions outlined in Table 3-4.

- b. **Maximums.** The Grapevine Development Maximums outlined in Table 3-3 provide maximum residential units and commercial/industrial area to be developed in each sub area, consistent with the Grapevine Specific Plan goals for flexibility in future allocation of land use. The number of residential units and the amount of commercial/industrial area that would actually be developed in any one sub area would be specified at the tentative map stage, falling within the development maximums for the relevant land use and subject to the overall development cap. Land uses not listed in Table 3-3 would be converted to equivalent units and would be subject to, and would count towards, the development caps for the equivalent use.
- c. **Tracking.** The County and Grapevine will track the overall development caps through the use of the forms presented in Section 5.3, Development Cap Review Process, of this Plan.

### 3.3. Land Use Exchange Mechanism

To ensure a balance in land use development over time and respond to the demand for housing, the proportion of land use types may change, provided no additional transportation trips are generated. Table 3-4, Land Use Exchange, provides trip equivalencies for conversion of each land use to a different desired land use. Based on the built and permitted commercial/industrial uses at the adjacent Tejon Ranch Commerce Center (TRCC), Grapevine may ultimately support up to 2,000 additional dwelling units. The additional 2,000 units would be authorized only with a commensurate reduction of commercial/industrial square footage based on vehicle trip equivalency ratios (as shown in Table 3-3). This would be permitted only to the extent that the additional units would not cause any significant new adverse impacts, or increase the severity of previously identified adverse impacts. Land uses not listed in Table 3-4 are not eligible for the land use exchange. Authorization of the land use exchange mechanisms would be supported based on available documentation (e.g., Mitigation Monitoring and Reporting Program Annual Reports and Development Agreement Annual Reports) confirming that such changes would not cause any new or more severe significant adverse impacts.

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**Table 3-3**  
**Grapevine Development Maximums by Sub Area<sup>1,2</sup>**

<b>Land Use<sup>3</sup></b>	<b>Area 1</b>	<b>Area 2</b>	<b>Area 3</b>	<b>Area 4</b>	<b>Area 5a</b>	<b>Area 5b</b>	<b>Area 6a</b>	<b>Area 6b</b>	<b>Areas 6c-e</b>
<b>Residential Total (DU)</b>	<b>2,075</b>	<b>3,865</b>	<b>2,675</b>	<b>3,390</b>	<b>2,890</b>	<b>50</b>	<b>1,870</b>	<b>n/a</b>	<b>n/a</b>
SFR-Detached (DU)	1,750	2,490	1,650	2,590	2,425	50	820	n/a	n/a
SFR/MFR-Attached (DU)	325	1,375	1,025	800	465	n/a	1,050	n/a	n/a
<b>Commercial/Industrial Total (SF)</b>	<b>1,130,000</b>	<b>2,210,000</b>	<b>2,280,000</b>	<b>565,000</b>	<b>600,000</b>	<b>n/a</b>	<b>2,155,000</b>	<b>400,000</b>	<b>30,000-450,000</b>
Retail (Gross Leasable Area/SF)	70,000	670,000	990,000	165,000	100,000	n/a	350,000	n/a	n/a
Office/R&D (Gross Floor Area/SF)	560,000	1,090,000	910,000	250,000	250,000	n/a	405,000	n/a	n/a
Industrial/Warehouse (Gross Floor Area/SF)	500,000	450,000	380,000	150,000	250,000	n/a	1,400,000	400,000	450,000

**Notes:** DU = dwelling unit, SF = square feet

<sup>1</sup> The area to be dedicated and developed for elementary, middle, and high schools, parks, and institutional uses is not included in the numerical values presented.

<sup>2</sup> The development maximums for each Sub Area are subject to the overall development caps of 5,100,000 square feet of commercial/ industrial uses and 12,000 residential dwelling units plus the 2,000 additional units available if commercial/industrial square footage is reduced.

<sup>3</sup> These land uses are tied to the uses listed in Table 2-1, Permitted Uses in Section 2, Districts and Permitted Uses

## Development Standards

**Table 3-4**  
**Land Use Exchange**

Land Use	Conversion Information <sup>1,2</sup>			Conversion Rate	
	ITE Code	Units	Daily Trip Rate <sup>2</sup>	SFR-Detached	SFR/MFR-Attached
SFR-Detached	210	1 DU	9.52	1	1.43
SFR/MFR-Attached	220	1 DU	6.665	0.7	1
Commercial/Retail	820	1,000 SF gross leasable area	42.7	225 SF = 1 DU	155 SF = 1 DU
Office/R&D	710	1,000 SF GFA	11.03	865 SF = 1 DU	600 SF = 1 DU
Industrial/Warehouse	150	1,000 SF GFA	3.56	2,675 SF = 1 DU	1,865 SF = 1 DU

**Source:** Trip Generation Manual, 9th Edition (ITE 2012).

**Notes:**

DU = dwelling unit, GFA = gross floor area, SF = square feet, SFR = single-family residential, MFR = multi-family residential

<sup>1</sup> At time of transfer request, the most current ITE information shall be used and reflected in all calculations

<sup>2</sup> Average trip rate for weekday (ITE 2012)

### 3.4. Parking Requirements

The parking requirements for the land uses permitted in the Special Plan are presented in Table 3-5.

**Table 3-5**  
**Parking Requirements**

Land Use	Required Parking <sup>1,2,3</sup>
SFR-Detached	2 spaces per dwelling unit
SFR/MFR-Attached	<ul style="list-style-type: none"> <li>• <i>Studio/One Bedroom:</i> 1 space per dwelling unit</li> <li>• <i>Two or More Bedrooms:</i><sup>4</sup> 1.5 spaces per dwelling unit</li> <li>• <i>Second Dwelling Unit:</i> 1 space in addition to that required for a single dwelling unit</li> <li>• <i>Guest Parking:</i><sup>5</sup> 1 space per 10 dwelling units (or portion thereof)</li> </ul>
Commercial/Retail <sup>6</sup>	1 space per 250 square feet GFA. If parking is made available for the general public, 1 space per 500 square feet GFA shall be provided.
Office/R&D <sup>6</sup>	1 space per 250 square feet GFA. If parking is made available for the general public, 1 space per 500 square feet GFA shall be provided.
Industrial/Warehouse <sup>6</sup>	1 space per 5,000 square feet GFA
Agriculture/Natural Resources	<ul style="list-style-type: none"> <li>• <i>Animal Grazing, Beekeeping, Crop Cultivation:</i> 1 space per 1,000 square feet GFA for all habitable buildings associated with the use</li> </ul>
Utilities and Public Facilities	3 spaces per 1,000 square feet of office area, plus 1 per vehicle required to service each facility

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**Table 3-5**  
**Parking Requirements**

Land Use	Required Parking <sup>1,2,3</sup>
Institutional/Recreational	<ul style="list-style-type: none"> <li>• <i>Parks</i>: 3 spaces for the first acre of park area, plus 2 spaces for each additional acre</li> <li>• <i>Places of public assembly having fixed seating (e.g., auditoriums, theaters, assembly halls)</i>: 1 space for every four seats</li> <li>• <i>Public Safety Facilities</i>: 1 space per 1,000 square feet plus 2 additional spaces for station vehicles</li> <li>• <i>Governmental Office</i>: 1 space per 500 square feet GFA</li> <li>• <i>Schools/Education Institutions</i>: 1 space per classroom, plus 1 space per five fixed seats in auditorium, gymnasium, or similar public assembly facility, or 1 space per 35 square feet GFA of assembly area where there are no fixed seats. For high schools, 1 space per classroom plus 1 space per five students based on maximum student capacity.</li> </ul>

**Notes:**

GFA = gross floor area, SFR = single-family residential, MFR = multi-family residential, R&D = research and development

<sup>1</sup> On-street parking along street frontages of parcels may be counted toward the parking requirement. When a space falls on the line of two properties, it may be counted toward the requirement for each.

<sup>2</sup> Partial spaces shall be rounded to the next whole number.

<sup>3</sup> Off-street parking may be reduced following approval of a Transportation Demand Management plan for the project (or the project component that is included in the site plan review). Off-street parking may be reduced by 25% or more of off-street parking requirements to promote walkability and other goals.

<sup>4</sup> Tandem parking is allowed in attached residential and mixed-use developments when 2 spaces are required per unit.

<sup>5</sup> Residential units within a mixed-use building are exempt from this standard.

<sup>6</sup> For uses that agree to restrict the allowable number of employees, 1 space shall be provided per employee with a minimum of 5 visitor spaces and handicap/accessibility requirements based on total number of spaces.

**a. Mixed-Use Parking Requirements**

1. For mixed-use developments, when two or more uses are located on the same lot or parcel or within the same building, the number of off-street parking spaces required shall be the sum of the total of the requirements of the various individual uses computed separately.
2. In cases where operators of uses wish to cooperatively establish and operate shared parking facilities, and certain uses generate parking demands primarily during hours when the remaining uses are not in operation or have a low demand, a reduction of up to 25% in the total number of spaces may be granted by the Kern County Planning Director upon provision of an approved Transportation Demand Management Plan for the project (or the project component that is included in the site plan review).

**b. Parking Lots and Structures**

1. New parking lots in the VMU district shall not front the roadway on parcels located along arterials and parcels located at intersections. In such areas, parking lots and structured parking shall be located at the rear or side of buildings. Unless they are designed in such a way that the nature of the use is screened from public views.
2. Compact parking spaces (as defined in Section 3.4.d.1.i below), may not exceed 20% of the total required parking.
3. Shared-vehicle (e.g., vanpools) and electric or plug-in hybrid vehicle (electric/hybrid vehicle) use is encouraged. To promote shared-vehicle use, preferential parking for shared-vehicle spaces and



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electric/hybrid vehicles shall be provided at a ratio of 1 space for every 50 spaces. This ratio may be further adjusted based on an approved Transportation Demand Management Plan for the project (or project component included in the site plan review). Parking spaces for shared-vehicles and electric/hybrid vehicles shall count towards required parking.

4. Non-residential uses shall provide one electric vehicle charging station for every 50,000 square-feet of gross leasable area. Partial spaces shall be rounded up to the next whole number.
5. Multi-family residential uses shall provide one electric vehicle charging station for every 15 dwelling units (or portion thereof).

### c. Parking Space Dimensions

1. All parking spaces shall be at least 9 feet by 18 feet, except that:
  - i. Compact automobile parking spaces, not to exceed 20% of the total number of parking spaces, shall be at least 8 feet by 16 feet.
  - ii. Handicapped automobile parking spaces shall comply with the requirements of Chapter 2-71 of Title 24 of the California Administrative Code.
  - iii. Where a raised curb or wheel blocks are provided, parking spaces may be permitted a 2-foot overhang, except where such an overhang would interfere with the use of a pedestrian walkway or landscape planter.
  - iv. Parallel spaces shall be at least 9 feet by 20 feet.
  - v. When provided, motorcycle parking spaces shall be at least 4 feet by 8 feet.
2. The minimum length for the first loading space required shall be 25 feet and the minimum vertical clearance shall be 12 feet. Subsequent spaces shall have a minimum length of 35 feet, a minimum width of 10 feet, and a minimum vertical clearance of 14 feet. Further adjustments to loading space dimensions may be made based on the loading uses specified in the site plan review process.
3. Width of parking aisles shall be 24 feet or less.
4. Aisle width between parking rows should be minimized as should total pavement not used for actual parking.
5. All parking lots shall drain to a water quality best management practice (BMP) feature before entering the public storm drain conveyance facilities (pipes) in the nearest public street.

### d. Bicycle Parking

Bicycle use is encouraged, and common area bicycle parking that promotes bicycle utilization is a required amenity, as specified in Table 3-6.

1. Short-Term Bicycle Parking. Short-term bicycle parking shall be provided in order to serve shoppers, customers, messengers, guests, and other visitors to a site who generally stay for a short time. A short-term bicycle space shall consist of either a lockable enclosure or a rack or other fixed feature with an ability to lock a bicycle. Short-term bicycle parking shall be provided within highly visible locations that are close to the main entrance of a destination and should be covered where feasible.
2. Long-Term Bicycle Parking (Class 1 Bicycle Parking). Long-term or Class 1 bicycle parking shall be provided in order to serve employees, students, residents, commuters, and others who generally stay at a site for 4 hours or longer. A Class 1 space shall consist of a locker, room, or similar facility where entry is controlled by locking mechanism and bicycles are protected from inclement weather.

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**Table 3-6  
Bicycle Parking Requirements**

Land Use	Required Bicycle Parking
SFR-Detached	No requirements
SFR/MFR-Attached	<ul style="list-style-type: none"> <li>• <i>Four or more dwelling units with common access:</i> 1 short-term space per unit</li> <li>• <i>Four to 50 dwelling units:</i> In addition to 1 short-term space per unit, 1 Class 1 space for every 10 units (or portion thereof)</li> <li>• <i>Over 50 dwelling units:</i> In addition to 1 short-term space per unit, 5 Class 1 spaces, and 1 Class 1 space for every 10 additional units over 50 (or portion thereof)</li> </ul>
Commercial/Retail <sup>1</sup>	<p>Short-term bicycle parking spaces shall be at least 10% of the number of required automobile parking spaces</p> <p>Class 1 Spaces:</p> <ul style="list-style-type: none"> <li>• <i>0–25,000 square feet GFA:</i> 1 space</li> <li>• <i>25,000–50,000 square feet GFA:</i> 2 spaces</li> <li>• <i>50,000–100,000 square feet GFA:</i> 4 spaces</li> <li>• <i>Over 100,000 square feet GFA:</i> 8 spaces</li> </ul>
Office/R&D <sup>1</sup>	<p>Short-term bicycle parking spaces shall be at least 10% of the number of required automobile parking spaces</p> <p>Class 1 Spaces:</p> <ul style="list-style-type: none"> <li>• <i>0–25,000 square feet GFA:</i> 1 space</li> <li>• <i>25,000–50,000 square feet GFA:</i> 2 spaces</li> <li>• <i>50,000–100,000 square feet GFA:</i> 4 spaces</li> <li>• <i>Over 100,000 square feet GFA:</i> 8 spaces</li> </ul>
Industrial/Warehouse	<p>Short-term bicycle parking spaces shall be at least 10% of the number of required automobile parking spaces</p> <p>Class 1 Spaces:</p> <ul style="list-style-type: none"> <li>• <i>0–25,000 square feet GFA:</i> 1 space</li> <li>• <i>25,000–50,000 square feet GFA:</i> 2 spaces</li> <li>• <i>50,000–100,000 square feet GFA:</i> 4 spaces</li> <li>• <i>Over 100,000 square feet GFA:</i> 8 spaces</li> </ul>
Agriculture/Natural Resources	Any establishment with 25 or more full-time equivalent employees shall provide Class 1 bicycle parking at a minimum ratio of one space per 20 vehicle spaces
Utilities and Public Facilities	Any establishment with 25 or more full-time equivalent employees shall provide Class 1 bicycle parking at a minimum ratio of one space per 20 vehicle space
Institutional/ Recreational	Any establishment with 25 or more full-time equivalent employees shall provide Class 1 bicycle parking at a minimum ratio of one space per 20 vehicle spaces

**Notes:**

GFA = gross floor area, SFR = single-family residential, MFR = multi-family residential, R&D = research and development

<sup>1</sup> Where commercial/office buildings include an enclosed off-street parking facility on the same block as the building served, a minimum of 25% of the required Class 1 bicycle spaces shall be provided within the parking facility.

### 3.5. Circulation Standards

- a. **Circulation Plan.** The backbone circulation system envisioned for Grapevine is shown in Figure 1-4, Circulation Plan. More detailed local street network within the overall circulation framework will be designed in subsequent subdivision and tract maps, but will substantially conform to those illustrated in Figure 1-4. Final road alignments may shift by no more than 300 feet in any direction.
- b. **Interstate 5 Interchange.** The final location of the proposed Interstate 5 interchange within the Special Plan Boundary, as identified as Option A and Option B on Figure 1-4, is subject to Caltrans and County approval and may therefore be adjusted on Figure 1-4 without requiring a major modification to the Special Plan. Adjustments to road alignments generally identified on Figure 1-4, Circulation Plan, may be made to address the final location of interstate improvements and the refined design details in tentative maps.
- c. **General Standards.** All engineering and design for roads, vehicle, and life safety access shall conform to the Kern County Development Standards (KCDS) with the following exceptions:
  1. Owners of adjoining properties shall develop shared facilities to the greatest extent feasible such as driveways, parking areas, pedestrian plazas, and walkways to increase connectivity and ease of movement between uses, especially for pedestrians and non-vehicular traffic.
  2. Two thirds of the cul-de-sacs proposed in a tract map or site plan review shall provide pedestrian/bicycle pass-throughs with a permanent public easement dedicated to the County or maintenance entity, as shown on Figure 3-1, Residential Lot Design Options. Utility connections may also be made through the public easement. An exception may be granted at the tract map or site plan development review stage if pedestrian/bicycle connectivity can be demonstrated without pass-throughs.
  3. Where residential areas are adjacent to neighborhood-serving commercial uses, the adjacent properties shall be developed with pedestrian/bicycle pass-throughs to enable residents to access services without use of automobiles. Pass-throughs shall be developed in such a way as to provide for visibility and safety, and deter undesirable activities and uses.
    - i. Alley loaded product shall front streets with parking on one side only or with no parking if accommodations are made for visitor parking at a rate of 1 per 10 single-family units
    - ii. For single-family development with driveways accessed from the public street, the public street shall have parking on one side only if the driveway length is at least 16 feet from back of sidewalk.
  4. A hierarchy of roadway and off-roadway options is provided for in Figures 3-4 through 3-8. The project has a goal to reduce the total amount of pavement to the greatest extent possible while still providing for multi-modal travel. The following notes provided on those exhibits are referenced for ease here:
    - i. Public right-of-way (ROW) is located at back of walk (the walkway edge furthest from the road).
    - ii. Dimensions shown are typical and are possibilities within the final design. This represents only a selection of the potential roadway and off-roadway combinations.

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Final roadway option selection and lane requirements shall be determined at the tentative tract map stage in coordination with appropriate service agencies, including the Kern County Public Works Department.

- iii. Street cross-sections without parking may be approved by the Kern County Planning Director during the subdivision map review process if all parking requirements are met with off-street parking or as defined above.
- iv. Median widths may vary with the approval of the Kern County Public Works Department. Medians may be used as stormwater BMPs and to convey drainage. Any off-roadway section may be paired with any roadway section based on surrounding land uses and character.

- d. **Roadway and Off-Roadway Standards.** Figures 3-5 through 3-10 provide several roadway and off-roadway options. Street sections may be narrowed to increase pedestrian safety, reduce vehicle speeds, enhance the project character, minimize travel lane width, reduce pavement, impervious surface, and stormwater runoff.

e. **Roadway Types**

- 1. Local Streets (Figure 3-5, Details 1A–1E):
  - i. Two lanes with parking on one side (29 feet curbface to curbface), Detail 1A
  - ii. Two lanes with parking on both sides (34 feet curbface to curbface), Detail 1B
  - iii. Two lanes with no parking (22 feet curbface to curbface), Detail 1C
  - iv. One-way travel with protected bike lanes and parking on one side (27 feet curbface to curbface), Detail 1D
  - v. One-way travel with parking on one side (17 feet curbface to curbface), Detail 1E
- 2. Alleys and Lanes (Figure 3-5, Details AA–LA):
  - i. Standard alley (16 feet paved, 20 feet clear), Detail AA
  - ii. Emergency vehicle access (EVA) alley (20-foot width), Detail AB
  - iii. One-way travel alley (12 feet paved, 20 feet clear), Detail AC
  - iv. Internal Lane Loaded (20 feet flowline to flowline), Detail LA
- 3. Minor Arterials and Collectors (Figure 3-6, Details 2A–2G):
  - i. Two lanes with parking (36 feet flowline to flowline), Detail 2A
  - ii. Two lanes with median/turn pocket and protected bike lanes (70 feet flowline to flowline), Detail 2B
  - iii. Two lanes with median/turn pocket (48 feet flowline to flowline), Detail 2C
  - iv. Two lanes with protected bike lanes (58 feet flowline to flowline), Detail 2D
  - v. Two lanes with class II bike lanes (50 feet flowline to flowline), Detail 2E
  - vi. Two lanes with median/turn pocket with no parking (38 feet flowline to flowline), Detail 2F
  - vii. Two lanes with no parking (24 feet flowline to flowline), Detail 2G
- 4. Major Arterials and Collectors (Figure 3-7, Details 3A–3H):
  - i. Four lanes with parking (58 feet flowline to flowline), Detail 3A
  - ii. Six lanes with median/turn pocket (90 feet flowline to flowline), Detail 3B
  - iii. Four lanes with median/turn pocket and protected bike lanes (92 feet flowline to flowline), Detail 3C
  - iv. Four lanes with median/turn pocket (72 feet flowline to flowline), Detail 3D
  - v. Four lanes with protected bike lanes (78 feet flowline to flowline), Detail 3E

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- vi. Four lanes with Class II bike lanes (56 feet flowline to flowline), Detail 3F
  - vii. Four lanes with median/turnpocket and no parking (60 feet flowline to flowline), Detail 3G
  - viii. Four lanes with no parking (46 feet flowline to flowline), Detail 3H
  - 5. Primary Arterial Sections (Figure 3-8, Detail 4A)
    - i. Six lanes with median or turn pocket (80 feet flowline to flowline), Detail 4A
  - 6. Semi-Rural Roadways (Figure 3-9, Details 1R–3R):
    - i. Two lane Local with stabilized shoulders (20' flowline to flowline), Detail 1R
    - ii. Two lane Minor Arterial/Collector with stabilized shoulders (26' flowline to flowline), Detail 2R
    - iii. Four lane Major Arterial/Collector with stabilized shoulders (46' flowline to flowline), Detail 3R
    - iv. Off-Roadway Options (Details PR–NR)
- f. **Off-Roadway Standards.** Figure 3-10 provides several off-roadway options. The following are general guidelines for off-roadway access and landscaping features. Low-Impact Design (LID) stormwater management practices, BMPs, and surface drainage conveyance shall be incorporated in all of the following:
- 1. Standard Streetscape (sidewalk width 5 to 8 feet, tree lane width 7 feet), Detail S
  - 2. Village Streetscape (sidewalk and tree wells width 13 feet), Detail SA
  - 3. Bike Streetscapes
    - i. Pedestrian/Bike Multi-Use Trail (minimum 12-foot width), Detail P
    - ii. Standard Bike Path (6 feet, 6 inches width), Detail PA
    - iii. Bike Path at Windrow (12-foot width), Detail PB
    - iv. Bike path widths shall generally conform to street sections provided in the Special Plan Figure 3-10. Alternative widths may be used with approval of the maintenance entity.
    - v. Bike path material and detailing shall be 2 inches of asphalt concrete paving over 6 inches of native material compacted to 95% relative density. Alternative material (i.e., pervious pavement) may be used with approval of the maintenance entity.
- g. **Street Widths**
- 1. Street widths shall generally conform to the street sections included in Special Plan Figures 3-5 through 3-13.
  - 2. Unloaded streets shall not be required when the number of units accessed from a single point of entry exceeds 300.
  - 3. Streets may be designed with single cross-slope to minimize grading and increase efficiency of stormwater management system.
  - 4. Wherever possible, street drainage shall flow to a landscape area prior to entering piped drainage system.
  - 5. Consideration shall be given to providing sidewalks on one side only for low-density single-family residential streets. Where the sidewalk is provided on one side only it shall be a minimum of 6 feet wide.
  - 6. Block length goals may be met by providing pedestrian and bicycle access rather than traditional vehicular access every other block.
  - 7. Concrete strips and/or porous pavers shall be encouraged in driveways instead of traditional concrete to reduce impervious surface.

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8. The landscaped area between the curb and sidewalk should be used for passive stormwater BMPs and to convey drainage on the surface wherever adequate slope exists.
9. Street ROW may be shifted from the center line to better accommodate stormwater management facilities on one side of the street cross-section.
10. Average block length where lot width is at least 50 feet shall be a maximum of 1,000 feet.
11. Double-loaded one-way loop roads may be used for access up to a maximum of 40 homes (20 on each side).
12. One-way couplets may be used to promote pedestrian crossings and reduce total pavement.

**h. Alignment Criteria for Streets**

1. Minimum centerline radius of horizontal curvature shall be as follows:
  - i. Local/Alley Streets – 100 feet
  - ii. Arterial/Collector Streets – 300 feet
  - iii. Alternate horizontal curvature may be approved as part of the site plan review process provided that adequate access widths are maintained for at least one side of every occupied commercial or residential structure for emergency response vehicles

**i. Intersections (Figures 3-11 and 3-12)**

1. Curb return radii shall be 30 feet in residential, commercial, and industrial areas.
2. Property line cut-off dimensions at intersections shall include wheelchair ramps within the road ROWs.
3. Mid-block crossings may be implemented on arterial and collector streets in consultation with Kern County Public Works. Design shall be coordinated with Kern County Public Works and shall utilize alternative paving materials, striping, and/or signage and lighting identify mid-block crossings. Raised crosswalks may be used at mid-block crossings on minor collector streets as needed.
4. All streets entering upon any given street shall have their centerlines directly opposite each other or separated by at least 150 feet.
5. Tangent distance between end of horizontal curve and intersection shall be a minimum of 50 feet.
6. Alternate curb radii, centerline separation distances, and tangent distances, may be approved as part of the site plan review process, provided that the alternative provides for adequate access to at least one side of every occupied commercial or residential structure for emergency response vehicles.

**j. Roundabouts (Figure 3-13).** Roundabouts shall be designed based on accepted Caltrans standards and guidelines, and may be adjusted during the site plan review process based on the anticipated types and volumes of vehicles using the roundabout.**k. Dead-End Streets (Figure 3-1)**

1. Dead-end streets in excess of 200 feet in length shall be constructed to permit vehicles to turnaround at the end. The turnaround shall meet the Kern County Fire Code requirements.
2. The maximum length of a dead-end street shall not exceed 120% of the values listed in KCDS Section 104-1.03.

**l. Gradient Criteria for Streets.** The maximum grade on any street or alley shall be as follows:

1. Arterial and Collector Streets: 8% maximum
2. Local Streets and Alleys (excluding street turning areas in cul-de-sacs) –15% maximum.



3. Vertical curves shall be designed according to KCDS Section 104-2.04, except Arterials and Collectors shall be designed with a minimum vehicle speed of 45 miles per hour (mph).
4. The Point of Intersection (PI) method shall be used at curb returns, except on streets with gutter slopes of 0.5% or less. In these flatter areas, grade breaks at the curb returns will be allowed with a minimum gutter slope of 0.5%.

**m. Pavement Structural Sections**

1. Road surfacing shall conform to KCDS Section 104-4, except on all classes of streets and alleys pervious pavement shall be allowed outside of normal travel lanes (e.g., parking areas, alleys). Permeable pavement may also be utilized in public rights of way where the maintenance entity and safety agencies agree to such use.
2. Pervious pavement shall be designed according to accepted Caltrans standards.

- n. Access.** Full access intersection spacing and design shall be consistent with the Framework Circulation Plan (Figure 1-4) and the Special Plan typical intersection and street section design as shown in Figures 3-5 through 3-13. Alternative configurations may be approved during the site plan review process based on the specific planned land uses and vehicular and non-vehicular access needs, including intersection configurations designed to discourage through traffic by slowing traffic flows to promote walkability.

### 3.6. Signs

All signs permitted under this section shall be located outside the public street ROWs unless otherwise specified below, with the exception of directional kiosk signs per Section 19.84.070.C of the Kern County Zoning Ordinance (KCZO 2012). Project proponents may prepare design guidelines for street signs as long as the guidelines comply with the standards presented in this section. All signage shall conform to Chapter 19.84 of the KCZO, except as follows:

- a. Flags, banner, and pennants.** Permitted within the street ROW. Must be attached to existing light or other utility poles and must not obstruct traffic. Permitted in the landscape buffer area adjacent to Interstate 5 (I-5). Banner signs and seasonal pennants may be posted for no longer than 90 consecutive days.
- b. Billboards.** Billboards are permitted only along the frontage of the I-5 freeway at a minimum spacing of 1 per 0.75 mile, and may be placed at these intervals on both sides of the freeway.
- c. Pole Signs.** The maximum height of pole signs shall be 24 feet, with the exception of along the I-5 corridor where a maximum height of 120 feet is allowed, or as otherwise determined necessary (topography, sightline, public safety) by the master developer through an Architectural Committee, CC&Rs, Home Owner's Association, or other governing entity. Exceptions may be granted as outlined in Section 3.6.g below.
- d. Freestanding Post Signs.** Used primarily to identify office uses and are similar to monument signs utilizing only support posts, with a single sign face, and oriented parallel to the sidewalk.
  1. Freestanding post sign materials and colors must be compatible with the associated building design. Lettering must be carved, routed, or applied rather than painted on a flat board.



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2. The maximum sign area for freestanding post signs shall be 20 square feet and shall not be taller than 6 feet.
  3. Freestanding post signs may be externally illuminated by any means consistent with the provisions of Section 3.7.f, Accent Lighting of Other Objects.
  4. Freestanding post signs are allowed in all zoning districts.
- e. **Projecting Signs (Shingle Signs).** Projecting signs are attached to a building face and project out perpendicular to the building wall.
1. Projecting signs must be attached to building facades having a public entrance and must maintain a minimum clearance of 8 feet above the public ROW.
  2. Projecting signs may have a maximum sign area of 12 square feet
  3. Projecting signs may be illuminated by any means consistent with the provisions of Section 3.7.f, Accent Lighting of Other Objects. Projecting signs are allowed in the VMU, MU, and I Districts.
- f. **Awning Signs.** Signs on awnings shall be allowed where no alternatives for wall signs or projecting signs exist. Signage shall be limited to the skirt of the awning.
1. One awning sign is permitted per tenant space and must maintain a minimum clearance of 8 feet above any public ROW or private sidewalk.
  2. Signs on awnings shall not cover more than 25% of the main area of the skirt of the awning, or exceed 25 square feet in size, whichever is smaller.
  3. Awning signs shall be allowed in the VMU, MU, and I Districts.
- g. **Murals.** Certain building walls present opportunities for murals and should be considered public art.
1. Specific commercial messages shall not be comprised of more than 20% of the surface area of the mural.
  2. All murals are subject to the approval of the master developer through an Architectural Committee, CC&Rs, Home Owner's Association, or other governing entity.
  3. Murals may be located in all districts, subject to the approval of the master developer through an Architectural Committee, CC&Rs, Home Owner's Association, or other governing entity.
- h. **Directional Kiosks and Signs.** Directional/Directory signs are used for multi-tenant buildings to provide a directory of tenant locations; serve as the address sign for the property; identification of residential projects including subdivisions, apartments, townhouses, condominiums; and directional information to public amenities and open spaces.
1. Design and location of the temporary Directional/Directory Signs shall comply with the Design and Development Standard per KCZO Section 19.84.070.C.
  2. Design and location of the permanent Directional/Directory Signs shall comply with the Design and Development Standard per KCZO Section 19.84.080.
  3. Directory signs may be freestanding, or shall be fixed on an exterior wall where a 0-foot setback is allowed.
  4. One directory sign may be permitted per premises. Directory signs may be externally illuminated by any means consistent with 19.84.080 of the KCZO.
  5. Directory signs are allowed in all districts.
- i. **Exceptions.** Granting an exception to the sign regulations is subject to the approval of the Master Developer, and inclusion in the site plan.

1. An exception may be based on site-specific design considerations, such as:
  - i. Visual obstructions
  - ii. Unusual building location on site
  - iii. Unusual building design, architectural style, or historical significance
2. The exception must be consistent with the intent and purpose of the sign regulations.
3. The sign exception must include a superior design (e.g., will reduce visual clutter).

### 3.7. Lighting

It is the intent that lighting within the Specific Plan Area be consistent with the general provisions of the Dark Sky Ordinance in Section 19.81 of the Kern County Ordinance Code. Project proponents may prepare design guidelines for lighting as long as the guidelines comply with the standards presented in this section.

**a. Exceptions.**

1. Airports and Other Lighting Required by the Federal Aviation Administration: Outdoor lighting for public and private airports and any other uses that are regulated by the Federal Aviation Administration.
2. Emergency Light: Temporary emergency lighting needed by the sheriff's department, police department, fire department, public utility, rescue operation, or in conjunction with any other emergency service.
3. Temporary Construction: All temporary lighting used for the construction or repair of roadways, utilities, and other public infrastructure.
4. Neon, Argon, or Krypton: All fixtures illuminated solely by neon, argon, or krypton.
5. Lighting Required by Building Codes or other Regulations: Communication towers, exit signs, lighting for stairs/ramps, lighting for points of ingress/egress to buildings, and all other illumination required by air navigation safety provisions, building codes, OSHA standards, and other permitting requirements from state or federal agencies.
6. Fossil Fuel Light: All outdoor light fixtures producing light directly by the combustion of fossil fuels (e.g., kerosene lanterns, gas lamps)
7. Seasonal Displays: Displays using multiple low-wattage bulbs or lasers, provided that they do not constitute a fire hazard, create a nuisance, and are maintained in a safe condition. Such displays shall not be illuminated for more than 45 days per calendar year.

**b. Minimal Glare to Adjoining Properties.** All outdoor lighting fixtures shall be fully shielded, and shall be oriented downward to prevent direct uplighting and to prevent light spillover onto adjacent properties, in compliance with Section 19.81 of the KCZO.

**c. Energy Provision.** Provide energy-efficient exterior light fixtures. All exterior lighting shall meet or exceed the most current California Energy Commission standards for lighting efficiency.

**d. Height Allowances.** Maximum fixture height shall be as follows, unless site-specific design considerations warrant adjustments to ensure safe lighting conditions during the site approval process:

1. Residential
  - i. Freestanding shall not exceed 20 feet
  - ii. Attached shall not exceed the height of the structure

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2. Commercial, institutional, and industrial
    - i. Freestanding shall not exceed 40 feet
    - ii. Attached shall not exceed the height of the structure
  3. Special activities (see also Section 3.7.e below)
    - i. Freestanding shall not exceed 120 feet
    - ii. Attached shall not exceed height of structure
  4. Maximum fixture height shall be measured from the finished interior grade of the mounting area to the top point of the lighting fixture.
- e. **Special Activities.** Where playing fields or other special activity areas are to be illuminated by floodlight, lighting fixtures shall be mounted, aimed, and shielded so that beams fall within the primary playing area and immediate surroundings, and off-site light spillover onto any residential property is minimized.
1. Recreational facilities shall be illuminated for public or private use only when the facility is being utilized, except for security lighting.
  2. All non-security lighting must be turned off no later than 11:00 p.m. or 30 minutes after the termination of the event and/or use, whichever occurs last. At the conclusion of the event and/or use, a reduced-level lighting system shall be used to facilitate patrons leaving the facility, cleanup, nighttime maintenance, and other closing activities.
- f. **Accent Lighting of Other Objects.** For statues, public art, or other objects of interest where the light cannot be effectively contained by the structure and where objects cannot be illuminated with down lighting, upward lighting may be used in the form of narrow-cone spotlights that confine the illumination to the object of interest. Unrestricted uplighting of a displayed United States flag or the State of California flag shall be permitted.
- g. **All Other Lighting Aimed Against Structures.** An outdoor lighting fixture may be aimed against a structure only if: (1) the light is effectively contained by the structure, (2) no glare is visible from off site, and (3) the fixture is fully shielded so that none of the light that is emitted above the horizontal plane crosses over the property line of the parcel where the subject light is located.
- h. **Landscape Lighting.** Low-voltage landscape lighting, such as that used to illuminate fountains, shrubbery, trees, walkways, etc., shall be permitted provided that such lighting is limited to fixtures not mounted to poles or buildings, and the fixture is shielded to eliminate glare and light spillover onto adjacent properties.
- i. **Street lighting.** Design of street lighting shall be based on minimum foot-candles of illumination criteria rather than standard spacing. Consideration shall be given to providing street lighting in residential areas at intersections only. Where street lights are only provided at residential intersection, alternative lighting shall be provided to illuminate walkways (e.g., lighted bollards or inset wall lighting) and should be equipped with motion sensors.
- j. **Non-residential exterior lighting.** Design shall not exceed 0.2 horizontal and vertical foot-candles at the site boundary and no more than 0.01 horizontal foot-candles 15 feet beyond the site boundary. The Master Developer shall provide a narrative demonstrating specific site needs to exceed this lighting level for pedestrian safety, if necessary, at site plan review.

- k. **Integrated interior lighting systems and controls.** Design shall be shielded from the exterior of the building, or include a 50% reduction in lighting output between the hours of 11:00 p.m. and 5:00 a.m.
- l. **Energy Provision.** Only low mercury or LED lamps shall be used in new non-residential projects.

### 3.8. Landscaping

- a. **Exceptions.**
  - 1. Production farmland and community and school farms and gardens.
  - 2. Botanical gardens, arboretum, and zoos open to the public.
  - 3. Recreational playfields with turf (e.g., for football, baseball, and soccer use).
- b. **Landscaping within fuel modification zones.** All landscaping shall be consistent with the State Fire Safe regulations contained in Section 4290 of the Public Resources Code and in Title 14, California Code of Regulations, Division 1.5, Chapter 7, Subchapter 2. In addition, the following requirements shall be adhered:
  - 1. Roadside plantings within fuel modification zones, i.e., where a road occurs between the project and the conservation areas, fire-resistant trees shall be planted as long as vertical clearance is maintained at street edge. Tree selection shall be columnar and shall not encroach into the roadway or produce a closed canopy effect.
  - 2. Limit planting of large unbroken masses, especially trees and large shrubs within the fuel modification zones. Groups shall be two to three trees maximum, with mature foliage of any group separated horizontally by at least 10 feet if planted on a slope less than 20%, and 20 feet if planted on a slope greater than 20%.
  - 3. If shrubs are located underneath a tree's drip line, the lowest tree branch shall be at least three times as high as the understory shrubs at maturity or 10-feet, whichever is greater.
  - 4. Existing trees shall be pruned 15-feet away from roof, eave, or exterior siding, depending on the tree's physical or flammable characteristics and the building construction features.
  - 5. Wood mulch, jute netting, fiber matting, and straw wattle shall be prohibited within fuel modification zones.
  - 6. All tree branches shall be removed within 10-feet of a fireplace chimney or outdoor barbecue.
- c. **Stormwater Landscaping Provision.** Landscape areas will be used to help implement the LID features of Section 3.15, Stormwater Management Standards, where feasible.
- d. **Landscape Minimums.** A minimum of 5% of the total developed lot area shall be landscaped in the VMU District and a minimum of 10% in the MU District. A maximum of 20% of the total required landscaping in commercial areas may be turf, excluding common area recreational fields.
- e. **Landscape Turf Maximums.** A maximum of 25% of the total landscaped area in residential areas may be turf. A maximum of 20% of the total landscaped area in commercial areas may be turf.
- f. **Setback Landscaping.** If provided, front-yard and street side-yard setback areas, excluding approved driveway entrances, outdoor gathering areas, maneuvering areas, and public sidewalks,

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shall be landscaped. Within this area, trees are required and shall be planted no farther than 50 feet apart and no closer than 2.5 feet from the back of the sidewalks.

- g. **Landscape Medians.** No plant material planted in the street ROW shall be allowed to grow to a height of more than 3 feet measured from planting surface, excluding street trees.
- h. **Commercial and Industrial Landscape Buffering.** Where commercial or industrial uses abut residential uses, any interior property line abutting the residential uses shall be landscaped. The landscaping shall be sufficiently large and dense enough to provide a visual and sound buffer between the uses. Solid wood fencing may be incorporated into the landscaping to provide an additional buffer between the uses.
- i. **Water-Efficient Landscape Calculations and Alternatives**

  - 1. Native and other drought-resistant or drought-tolerant landscaping will be used, and landscaped areas will be grouped by water need, as required to limit outdoor irrigation water consumption to the levels identified in the Water Supply Assessment. Irrigation shall be low volume irrigation (i.e., low volume spray heads, bubblers, and spider bubblers) directed where needed.
  - 2. The project shall provide the calculated Maximum Applied Water Allowance (MAWA) and Estimated Total Water Use (ETWU) for the landscaped areas as part of a landscape documentation package submitted to the Master Developer. The MAWA and ETWU shall be calculated based on completing the Water-Efficient Landscape Worksheets as provided for in the State of California Model Water Efficient Landscape Ordinance dated July 2015 (MWELO).
  - 3. The ETWU allowable for the landscaped area shall not exceed the MAWA. The MAWA shall be calculated using an evapotranspiration adjustment factor (ETAF) of 0.55 for residential and 0.45 for non-residential except for the portion of the MAWA applicable to any special landscaped areas within the landscape project, which shall be calculated using an ETAF of 1.0. Where the design of the landscaped area can otherwise be shown to be equivalently water efficient, the project applicant may submit alternative or abbreviated information supporting the demonstration that the annual ETWU is less than the MAWA, at the discretion of, and for the review and approval of, the County.
  - 4. Water budget calculations shall adhere to the following requirements:

    - i. The MAWA shall be calculated using the Water-Efficient Landscape Worksheet and the Water Budget Calculations Worksheet as provided for in the KCZO Section 19.86.065.
    - ii. For the calculation of the MAWA and the ETWU, a project applicant shall use the reference Evapotranspiration (ET<sub>o</sub>) value listed for Arvin, CA located in Kern County in Appendix A of the MWELO. For the purpose of determining the MAWA, an average irrigation efficiency of 0.75 for overhead spray devices and 0.81 for drip systems shall be used. Irrigation systems shall be designed, maintained, and managed to meet or exceed these average irrigation efficiencies.
    - iii. For calculation of the ETWA, the plant water use factor shall be determined as appropriate to the project location from the Water Use Classification of Landscape Species (WUCOLS), prepared by the University of California Cooperative Extension. The plant water use factor ranges from 0 to 0.1 for very low water use plants, 0.1 to 0.3 for low-water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high-water use plants.

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- iv. Except for swimming pools and water spray parks used for recreational purposes, water features shall be defined as a high-water use hydrozone with a plant water use factor of 1.0.
- j. **Irrigation Design Plan.** As part of the site plan review, an Irrigation Design Plan shall be submitted with a landscape documentation package for review and approval by the Master Developer and shall demonstrate the efficient use of water. The irrigation system and its related components, including an irrigation schedule, shall be planned and designed to allow for proper installation, management, and maintenance.
- k. **Irrigation Schedule.** For the efficient use of water, the Irrigation Design Plan shall include an irrigation schedule designed to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:
  - 1. Irrigation scheduling shall be regulated by automatic weather-based irrigation controllers.
  - 2. Irrigation shall be scheduled to occur between the hours of 8:00 p.m. and 10:00 a.m. unless weather conditions such as frost or evening temperatures require temporary daytime irrigation to maintain plant health. Operation of the irrigation system outside the normal watering window is allowed for auditing and system testing and maintenance.
  - 3. For implementation of the irrigation schedule, irrigation run times, emission device types, flow volumes and rates, and evapotranspiration rates shall be taken into consideration so that the amount of applied water meets the ETWU. The total amount of annually applied water shall be less than or equal to the MAWA.
  - 4. Irrigation scheduling shall take into account the different phases of vegetative growth, including the vegetation establishment period and the mature established vegetation period. Temporary irrigation needs, such as areas devoted to native vegetation that will not be supported by permanent irrigation, shall also be considered and all such areas shall clearly be identified in the Landscape Design Plan. Goals for phasing out irrigation usage shall be included in this submittal.
  - 5. Exceptions to the irrigation scheduling and MAWA restrictions shall be permitted during plant establishment as follows:
    - i. Daytime irrigation with compliant irrigation systems shall be permitted for plant establishment between April and September and at other times of year as necessary to facilitate deep root encouragement and prevent plant mortality.
    - ii. Monitoring of flow by monthly meter reports and tracking of water application shall be used in place of MAWA during plant establishment.
  - 6. The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, sidewalks, parking lots, roadways, or structures.
- l. **Landscape Plans Preparation.** All landscape plans shall be prepared by either a licensed landscape architect or landscape designer and all irrigation plans shall be prepared by a licensed landscape architect, certified irrigation designer, or licensed landscape contractor.
- m. **Occupancy Requirements.** No use shall commence nor occupancy permit issued until:
  - 1. The landscaping and irrigation system has been completely installed; or
  - 2. The property owner has posted an acceptable financial assurance (performance bond, certificate of deposit, or letter of credit) in an amount equal to 150% of the estimated cost of



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installation of the required landscaping and irrigation system, in which case, the property owner shall have up to 90 days from the date of occupancy or commencement of use to install the required landscaping and irrigation system.

3. The estimated cost of installing the required landscaping and irrigation system shall be submitted in writing for approval prior to the property owner obtaining the required financial assurance.

**n. Drainage and Stormwater Management.**

1. Landscape areas for non-residential projects shall be designed to integrate LID practices and function as stormwater quality management BMPs and all pavement areas shall drain to landscape prior to entering piped systems that connect to the public storm drainage system in the public street.
2. Non-residential projects are required to provide on-site stormwater quality and quantity mitigation as defined in Section 3.15.

### **3.9. Open Space Requirements**

**a. Residential (SFR-Detached, SFR/MFR-Attached)**

1. All development with residential dwelling units shall provide a minimum of 48 square feet per unit of private open space or 50 square feet per unit of useable common open space.
2. Multi-family residential development shall provide active recreation elements for residents in common areas (outdoor, indoor, or both).
3. Residential units within mixed-use developments may meet the standard described in 3.9.a.1, above, by providing private open space (defined as exterior space attached to individual units, such as balconies or secure yard space) and common open space (defined as secure space available to all residents of a project, such as a courtyard, roof deck, or garden above the base of the building).

**b. Commercial/Retail and Office/R&D**

1. Development shall provide 100 square feet of usable public open space for every 2,000 square feet of developed building footprint. This open space may be provided off site in a plaza or paseo if it is immediately adjacent to the development subject to this requirement and approved during site plan review.
2. Legal parcels of less than 10,000 square feet are exempt from open space requirements.
3. Connectivity: All ground-floor public open spaces shall be accessible to the public during daylight hours and in the evening when businesses are open, and shall be designed to connect with public ROWs and adjacent public open spaces in the vicinity.

### **3.10. Service and Refuse Areas**

**a. Trash enclosures.** Trash enclosures, service areas, utility meters, and mechanical and electrical equipment shall be screened from public view and located for convenient access by service vehicles.

1. Enclosures shall be constructed of durable and washable materials and the color, texture, and architectural detailing shall be consistent with the overall site and building design. Materials shall be graffiti-resistant.



2. Trash enclosures shall be designed for collection from a side street, alleyway, or parking area to avoid collection trucks needing to maneuver in busy roadways.
3. Roofs of trash and service enclosures shall be designed to complement the project buildings' roof style and colors.
- b. Loading and service entrances shall not intrude upon the public view, nor interfere with pedestrian and vehicular flows within the Special Plan.
- c. The Master Developer shall provide recycling containers and implement a recycling program in all new buildings.
- d. The Master Developer shall implement a construction waste management plan to divert a minimum of 50% of construction waste from the landfill.

### 3.11. Wood Burning Restrictions

- a. Permanent indoor and outdoor wood-burning devices (such as fireplaces and stoves) are prohibited. However, open-hearth fireplaces with gas or alcohol fuel based log sets or other design features that don't use wood are allowed.
- b. Natural gas or propane hookups and electrical outlets should be provided on patios to support installation of non-wood-burning devices.

### 3.12. Wireless Communication Facilities

All wireless communication facilities shall conform to Chapter 19.91 of the KCZO.

**a. Exceptions.**

1. Wireless communication facilities are permitted in all districts.
2. All wireless communication facilities shall be designed as stealth facilities such that they are effectively unnoticeable to the general public. Acceptable designs in order of preference are:
  - i. Architectural features such as spires, clock towers, facade features, or roof-mounted appurtenances
  - ii. Freestanding features such as public art, statues, flag poles, signs, and crosses.
  - iii. Facilities may be located on existing water towers or tanks, petroleum storage tanks, light fixtures, and public utility structures subject to the following standards:
    - (1) Facilities shall only extend above the structure the minimum necessary to allow transmission.
    - (2) Facilities shall be painted the same color as the structure on which they are located. Where facilities extend beyond the structure they are attached to they will be colored to blend into the background.
    - (3) If it can be determined that such an installation will not adversely impact surrounding properties and roads during site plan review.
3. Treepoles are not permitted unless incorporated into a landscaping design as part of an overall tree-planting scheme.
4. Facilities shall provide for and allow maximum co-location.

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### **3.13. Fire Protection Standards**

A Fire Protection Plan has been prepared for the Grapevine project. The Fire Protection Plan summarizes important requirements that will protect the Grapevine Special Plan area and its essential infrastructure from potential wildfire as well as provide for fire and emergency medical response consistent with Kern County Fire Department standards. All fire protection standards shall conform to the Kern County Fire Code with the following exceptions:

- a. **Fire Hydrant Spacing.** Roadways serving no structures may eliminate hydrants or increase hydrant spacing to one-half mile as approved by the Kern County Fire Department.
- b. **Minimum Road Width Requirements for Dead-End Fire Apparatus Access Roads.** The minimum road width for dead-end fire apparatus access roads is 20 feet.

### **3.14. Water System Standards**

All engineering and design for water systems shall conform to state and local requirements, including the Tejon-Castac Water District (TCWD) Technical Specifications and the Kern County Fire Code.

### **3.15. Sanitary Sewer Standards**

All engineering and design for sanitary sewer systems shall conform to the TCWD Technical Specifications and other applicable state requirements.

### **3.16. Stormwater Management Standards**

All engineering and design for stormwater management facilities shall conform to the TCWD Technical Specifications, the Kern County Hydrology Manual (KCHM), the KCDS, and applicable state laws, with the following exceptions. In all cases, where the KCDS read "...approved/approval by the Director" shall read "...approved/approval by the maintenance entity."

- a. **Pipe Alignments.** The alignment of a closed conduit system shall be parallel or perpendicular with the centerline of the road or easement unless otherwise approved by the maintenance entity.
- b. **Manholes.** Manholes shall be provided at intervals no greater than 400 feet where the conduit diameter is smaller than 48 inches.
- c. **Retention/Detention Basin Design**
  1. Design Volume
    - i. The retention basin design volume should be calculated according to the KCDS; however, the average percentage of impervious area ( $a_i$ ) will be adjusted down based on the use of LID features as defined at the tentative map stage and approved by Kern County or the maintenance entity.

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2. Fencing shall conform with the KCDS Section 408-4, with the following exceptions:
    - i. Basins that are incorporated into other facilities to create a multi-purpose facility (e.g., basin/park site, basin/amphitheater) will not be required to be fenced unless the side slopes of the basin exceed a 4 to 1 slope.
    - ii. Fencing and access gate material shall be approved by the maintenance entity.
  3. General Construction Requirements
    - i. The maintenance way shall be sloped toward the top of bank at a minimum of 2%.
    - ii. Rodent barriers may be omitted with approval by the maintenance entity.
- d. **Levee Design.** No levee fencing requirements are imposed for this project.
- e. **LID Features.** Bioretention. LID design features will be implemented as part of the project where feasible, including generally:
1. Units shall be sized to meet the volume-base sizing criteria of 80% watershed capture and the 85th percentile, 24-hour storm volume (or other sizing criteria if LID flood control approach is approved).
  2. All non-residential projects shall design, construct, and maintain stormwater BMPs that manage rainfall on site and prevent the off-site discharge of precipitation from the first flush (80% capture of the 85 percentile 24-hour storm) or 0.5 inch of rainfall, whichever is larger from a 24-hour storm preceded by 48 hours of no measureable precipitation. Exceptions may be requested if infiltration cannot be accomplished in 72 hours.
  3. If sheet flow is conveyed to the treatment area over stabilized grassed areas, the site must be graded in such a way that minimizes erosive conditions. Sheet flow velocities shall not exceed 1 foot per second.
  4. The runoff entering the facility must completely drain the ponding area and the planting soil (unsaturated) within 48 hours.
  5. Drawdown of gravel layer below underdrains (if applicable) shall be 72 hours.
  6. Planting soil depth shall be a minimum of 2 feet, although 3 feet is preferred.
  7. Underdrains are required for soils with an underlying infiltration rate less than 0.5 inches per hour.
  8. Flow dispersion is required at the bioretention cell inlet.
  9. An overflow device is required at the 18-inch ponding depth.
  10. Infiltration pathways may need to be restricted due to the close proximity of roads, foundations, or other infrastructure. A geomembrane liner may be placed along the vertical walls to reduce lateral flows. This liner shall have a minimum thickness of 30 mils.
  11. If an underdrain is required, the following apply:
    - i. 6-inch-minimum diameter underdrain pipe(s)
    - ii. Underdrain pipe sloped at a minimum of 0.5%
    - iii. Underdrain shall be slotted pipe with 2 to 4 rows of slots cut perpendicular to the axis of the pipe or at right angles to the pitch of corrugations. Slots shall be 0.04- to 0.1-inch and shall have a length of 1- to 1.25-inch. Slots shall be longitudinally spaced such that the pipe has a minimum of one square inch per lineal foot.
    - iv. Rigid non-perforated observation pipes with a diameter equal to the underdrain diameter shall be connected to the underdrain every 250 to 300 feet to provide a clean-out port as well as an observation well to monitor dewatering rates. The wells/cleanouts shall be connected to the perforated underdrain with the appropriate

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manufactured connections. The wells/cleanouts shall extend 6 inches above the top elevation of the bioretention facility mulch, and shall be capped with a lockable screw cap. The ends of underdrain pipes not terminating in an observation well/cleanout shall also be capped.

- v. Elevate underdrain from the bottom of the bioretention facility by 6 inches within the 1.5-foot-deep gravel blanket.
  - vi. The underdrain must drain freely to an acceptable discharge point. The underdrain can be connected to a downstream open conveyance (vegetated swale), to another bioretention cell as part of a connected treatment system, daylight to a vegetated dispersion area using an effective flow dispersion device, stored for reuse, or to a storm drain.
- 12. The planting media placed in the cell shall be highly permeable and high in organic matter (e.g., loamy sand mixed thoroughly with no more than 25% compost amendment) and a surface mulch layer.
  - 13. Planting media shall consist of 60 to 70% sand, 15% to 25% compost (depends on plant palette), and 10% to 20% clean topsoil. The organic content of the soil mixture should be 8% to 12%; the pH range should be 5.5 to 7.5.
  - 14. The bioretention area shall be covered with 2–4 inches (average 3 inches) of mulch at the start and an annual placement of 1–2 inches of mulch beneath plants.

**f. Disconnected Downspouts**

- 1. Include energy dissipation at the outlet of the downspout
- 2. Direct runoff to another bioretention facility, or at least 5 feet away from foundations, using a downspout extension rock, or vegetated channel, flow spreading, or combination of methods that protect against erosion.
- 3. Maintenance of gutters to ensure performance of disconnected downspouts will be required by the appropriate maintenance entity.

**g. Permeable Pavement.** Permeable pavement is encouraged to be utilized in the development of individual parcels, residences, or commercial sites. Permeable pavement may also be utilized in public rights of way where the maintenance entity and safety agencies agree to such use.

- 1. Concrete pavers shall have a minimum 3.125-inch thickness; other permeable pavement material thickness may vary with design
- 2. Bedding course layer (under permeable pavement) shall be 1.5 to 3 inches minimum thickness (e.g., no. 8 aggregate) for applications with no run-on. For applications with run-on directed onto the permeable pavement, the thickness shall correspond the amount of run-on area divided by the pavement area times the 1.5 to 3 inches to provide the appropriate storage amount.
- 3. Overflow pipes from the subgrade shall be provided if overflows are not managed via perimeter drains to swales, bioretention, or storm water conveyance system inlets. Screens shall be fastened over overflow inlets.
- 4. Connect outfall pipes to downstream stormwater conveyance system. Outfall pipes shall be sloped towards the collection system.
- 5. Soil subgrade shall have zero slope.
- 6. Drawdown time for the subsurface gravel layer shall not exceed 72 hours.

## Development Standards

7. If infiltration or partial infiltration is allowed, a geotextile fabric, choking stone, or both shall be placed on top of the subsurface gravel layer. If no infiltration is allowed, an impermeable liner shall surround the subsurface gravel layer.
8. If an underdrain is required, the following apply:
  - i. 6-inch minimum diameter (or adjusted if bedding course is shallow)
  - ii. Sloped at a minimum of 0.5%
  - iii. Slotted pipe (polyvinyl chloride [PVC] or equivalent high-density polyethylene [HDPE]) shall have 2 to 4 rows of slots cut perpendicular to the axis of the pipe or at right angles to the pitch of corrugations. Slots shall be 0.04 to 0.1 inch and shall have a length of 1 to 1.25 inch. Slots shall be longitudinally spaced such that the pipe has a minimum of one square inch per lineal foot.
  - iv. Rigid non-perforated observation pipes with a diameter equal to the underdrain diameter shall be connected to the underdrain every 250 to 300 feet to provide a clean-out port as well as an observation well to monitor dewatering rates. The wells/cleanouts shall be connected to the perforated underdrain with the appropriate manufactured connections. The wells/cleanouts shall be connected with the perforated underdrain with the appropriate manufactured connections. The wells/cleanouts shall be placed flush with the pavement surface and shall be capped with a lockable screw cap. The ends of underdrain pipes not terminating in an observation well/cleanout shall also be capped.
  - v. Elevate underdrain from the bottom of the permeable pavement by 6 inches within the gravel layer.
  - vi. The underdrain must drain freely to an acceptable discharge point.
9. Permeable pavement shall be laid close to level, the bottom of the base layers must be level to ensure uniform infiltration.
10. Permeable pavement surfaces shall not be used to store site materials during construction, unless the surface is well protected from accidental spillage or other contamination.
11. To prevent/minimize soil compaction in the area of the permeable pavement installation during construction, use light equipment with tracks or oversized tires.
12. Divert storm water from the area as needed (before and during installation).
13. The pavement shall be the last installation done at a development site. Landscaping shall be completed and adjacent areas stabilized before pavement installation to minimize risk of clogging.
14. Vehicular traffic shall be prohibited for at least 2 days after installation.

### **h. Swales.**

1. Meandering bends are recommended where possible for aesthetic purposes and flow dampening.
2. Bottom slope shall be 2%–6%. For slopes less than 2%, an underdrain may be used.
3. Check dams shall be included along length of swale if bottom slope exceeds 4%.
4. Hydraulic residence time shall be at least 10 minutes.
5. Bottom width shall be 2 to 10 feet, or up to 16 feet as long as the 10-minute residence time is retained and a dividing berm is provided for widths over 10 feet.
6. Design flow velocity shall not exceed 1 foot per second.
7. Side slopes shall not exceed 2H:1V.
8. Overall depth of the side walls to the swale bottom shall be at least 12 inches.
9. Length shall be greater than 100 linear feet.
10. A flow spreader shall be used at the inlet, or if applicable, at the toe of each check dam vertical drop.

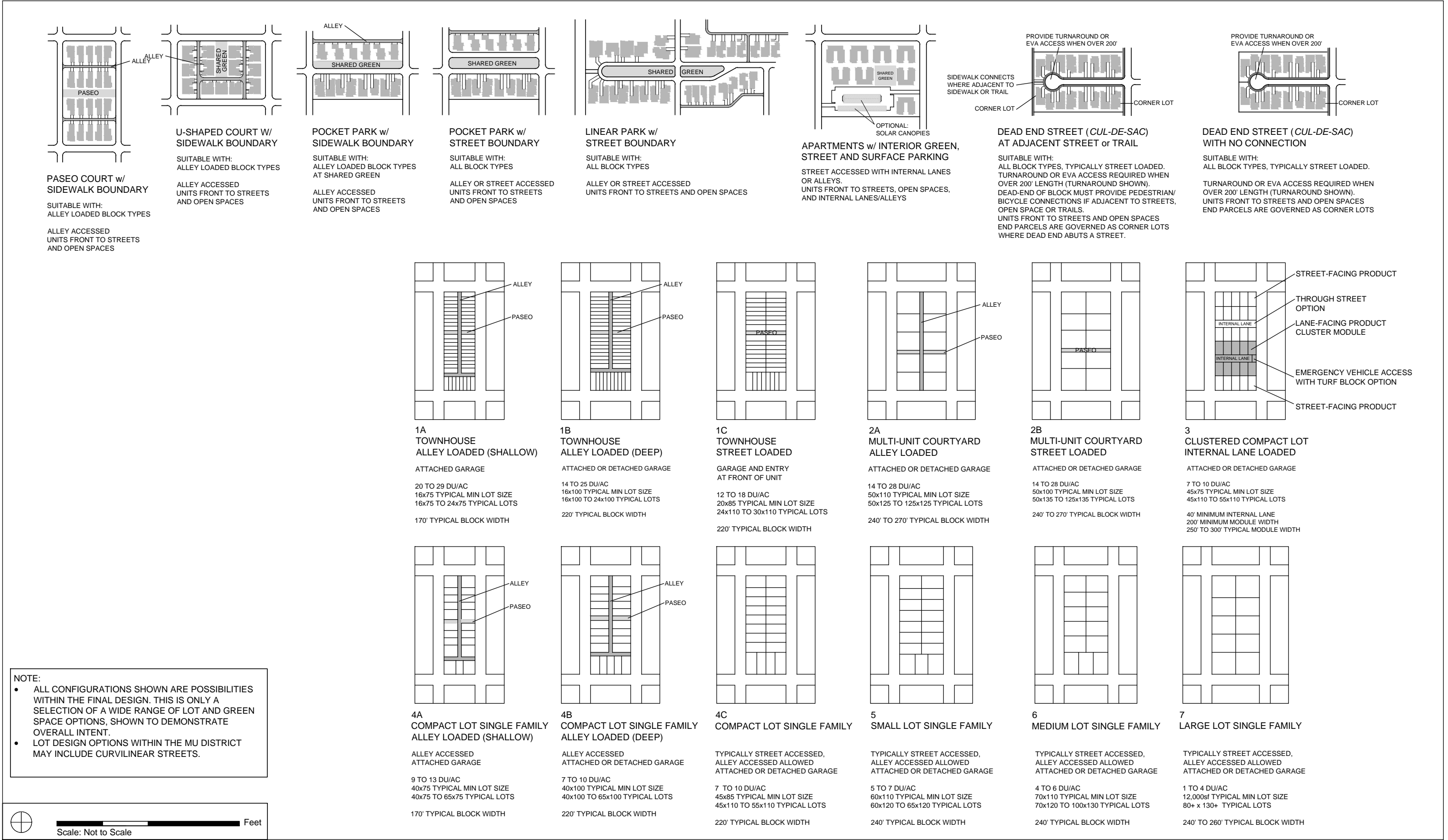
**Development Standards**

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11. Turf swale soils shall be amended with 2 inches of well-rotted compost, unless the organic content is already greater than 10%. The compost shall be mixed into the native soils to a depth of 6 inches to prevent soil layering and washout of compost. The compost will contain no sawdust, green or under-composted material, or any other toxic or harmful substance. It should contain no unsterilized manure, which can lead to high levels of pathogen indicators (coliform bacteria) in the runoff.
12. The swale area should be appropriately vegetated with a mix of erosion-resistant plant species that effectively bind the soil. A diverse selection of low-growing plants that thrive under the specific site, climatic, and watering conditions should be specified by a landscape architect.
13. Vegetative cover should be at least 4 inches in height, ideally 6 inches. Swale water depth should ideally be 2 inches below the height of the shortest plant species and should not exceed 4 inches.

**3.17. Oil and Gas Exploration and Production**

- a. **Oil and Gas Activities.** Oil and gas exploration and production and ancillary activities are permitted subject to the standards and procedures of Chapter 19.98, Oil and Gas Activities, of the KCZO. Figure 1-3, Special Plan District Map, specifies two separate Tier areas (Tier 1 and Tier 3) that relate to the Chapter 19.98 permitting procedures to be followed in allowing oil and gas facilities within the Grapevine Special Plan boundary.
- b. **Interim Exclusive Agriculture (A) District.** Within the interim Exclusive Agriculture (A) District for which no subdivision maps have been filed, oil and gas activities are permitted subject to the applicable Tier 1 or Tier 2 standards and procedures of Chapter 19.98, Oil and Gas Activities, of the KCZO. For purposes of identifying the specific Tier Area standards and procedures for Tier 1 and 2 areas within the interim Exclusive Agriculture (A) District, Figure 19.98.015, Oil and Gas Activities Boundary Area Map in Chapter 19.98 of the KCZO delineates such areas.
- c. **In addition:**
  1. Require as part of tentative and final map subdivisions that include residential, park, or school uses that Special Plan Drilling Islands (DI) be designated when necessary to accommodate oil and gas exploration and production activities. Within each DI, oil and gas applicants must comply with Tier 3 requirements of Chapter 19.98 of the KCZO. The minimum parcel size for a DI is 2.5 acres.
  2. Provide as part of tentative and final parcel maps for industrial uses in Sub Areas 6c, the north half of 6d and 6e include any provisions of Tier 1 oil and gas permitting requirements (where oil and gas activities would continue to be the dominant use), and all other lands would be subject to the Tier 3 requirements of Chapter 19.98 of the KCZO.



NOTE:

- ALL CONFIGURATIONS SHOWN ARE POSSIBILITIES WITHIN THE FINAL DESIGN. THIS IS ONLY A SELECTION OF A WIDE RANGE OF LOT AND GREEN SPACE OPTIONS, SHOWN TO DEMONSTRATE OVERALL INTENT.
- LOT DESIGN OPTIONS WITHIN THE MU DISTRICT MAY INCLUDE CURVILINEAR STREETS.

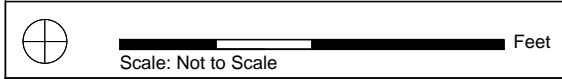


FIGURE 3-1

Residential Lot Design Options

GRAPEVINE SPECIAL PLAN



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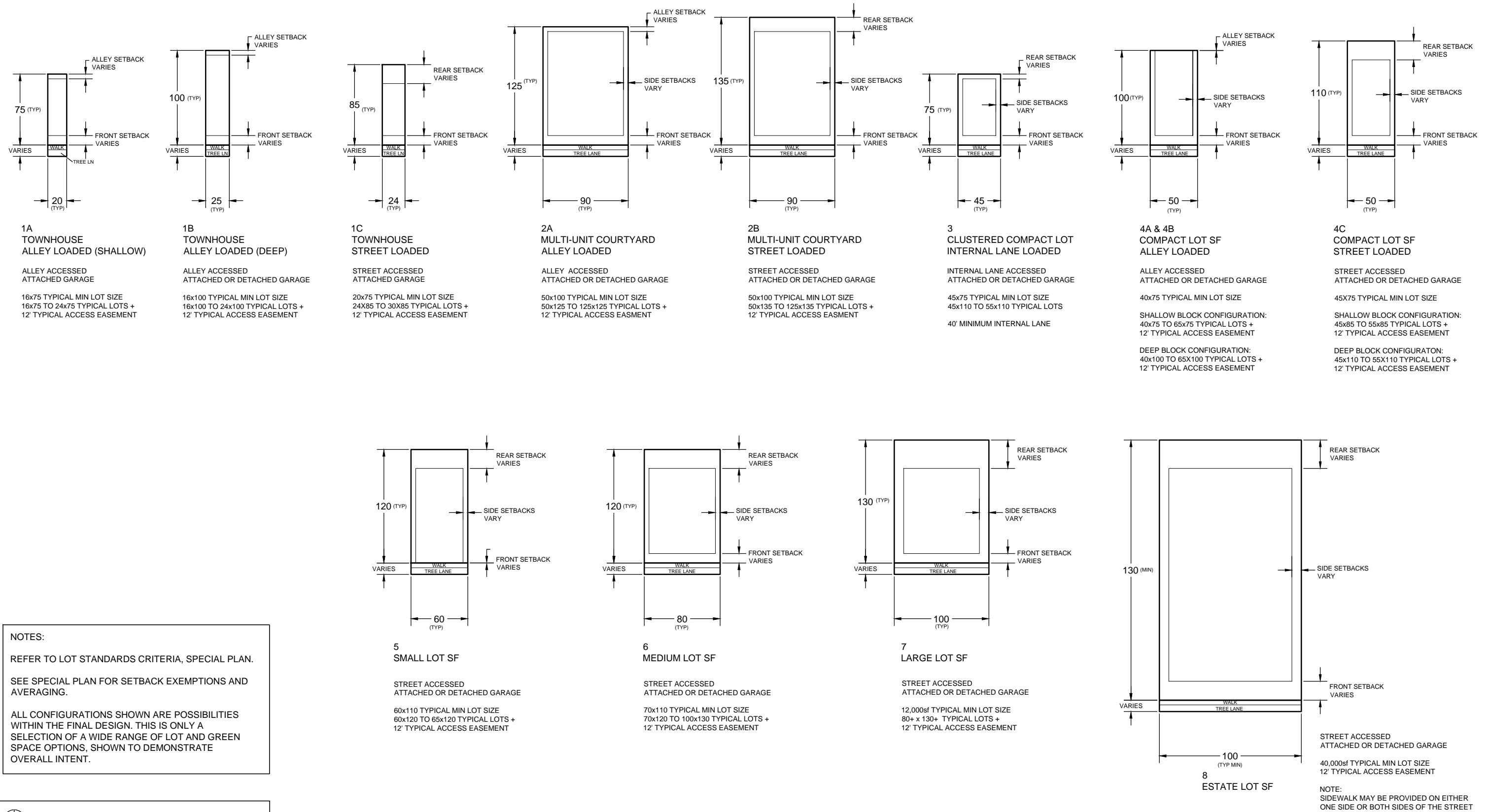
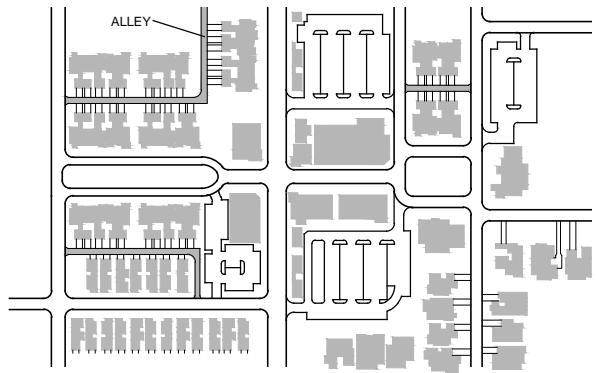


FIGURE 3-2  
 Residential Lot Options

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MIXED-USE MAIN STREET

DEFINING ELEMENTS AND CONDITIONS:

WALKABLE PEDESTRIAN-FOCUSED ENVIRONMENT SETS STAGE FOR ALL LAND USES AND ACTIVITIES.

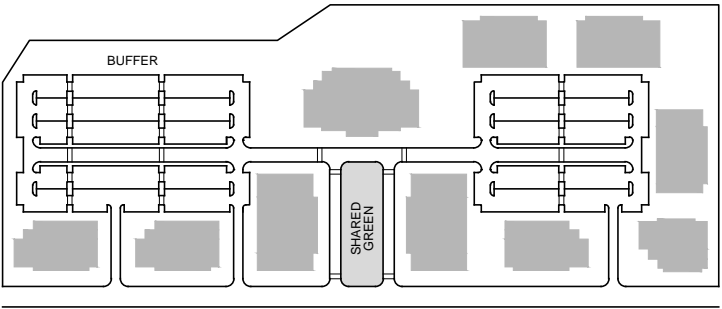
ACTIVE USES LINE MAIN STREET: STOREFRONTS, OFFICES, AND OTHER ACTIVE USES LINE THE SIDEWALK. UPPER FLOOR USES AT CORE: TO FOSTER ACTIVITY WHERE FEASIBLE, OFFICE OR RESIDENTIAL IS ENCOURAGED ON UPPER FLOORS, ESPECIALLY ALONG MAIN STREET.

PARKING: SOME PROVIDED ON-STREET, THE MAJORITY PROVIDED IN LOTS PLACED MID-BLOCK, AWAY FROM MAIN STREET AND SCREENED ON CORNERS AND WHEN ADJACENT TO RESIDENTIAL USES.

CIVIC FOCAL POINT: A PARK, SQUARE, SCHOOL, CHURCH OR OTHER CIVIC USE PROVIDES FOR A RANGE OF ACTIVITIES AND REINFORCES THE MIXED-USE MAIN STREET AS THE NEIGHBORHOOD CENTER.

HIGH AND MEDIUM DENSITY RESIDENTIAL USES SURROUND CORE TO PROVIDE A CRITICAL MASS OF USERS.

SMALLER SCALED "CORNER-STYLE" COMMERCIAL IS ALSO PERMITTED IN RESIDENTIAL NEIGHBORHOODS.



LARGE FORMAT - R&D

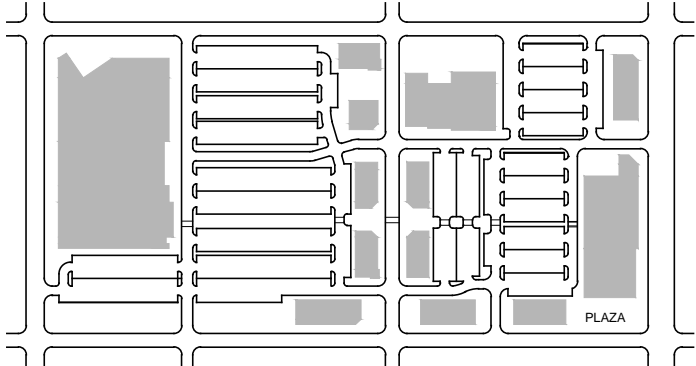
DEFINING ELEMENTS AND CONDITIONS:

BUILDINGS ARE USED TO FORM IMPORTANT PLACES AND TO ADDRESS MAJOR ADJACENCIES, SUCH AS STREETS, FREEWAY FRONTAGES, OR OPEN SPACE AMENITIES.

SOME ADJACENCIES SHOULD HAVE A BUFFERED EDGE TO MINIMIZE UNDESIRABLE VIEWS.

PARKING IS GENERALLY CENTRALLY LOCATED WITHIN THE SITE AND VISUALLY MINIMIZED. SOME GUEST AND ADA PARKING IS USUALLY PROVIDED NEAR MAJOR ENTRANCES. PARKING LOTS MAY BE LANDSCAPED OR SHADED WITH SOLAR PANELS.

ONE OR MORE AMENITY SPACES FOR GATHERING AND/OR RECREATION SHOULD BE PROVIDED, PREFERABLY AS AN ORGANIZING DEVICE FOR THE SITE PLAN.



LARGE FORMAT - RETAIL

DEFINING ELEMENTS AND CONDITIONS:

ANCHOR RETAIL - LARGE FORMAT RETAILERS OFTEN ANCHOR THE DEVELOPMENT. THESE BUILDINGS ARE USUALLY PLACED WITHIN THE BLOCK, VISIBLE FROM THE STREET, BUT DIRECTLY ADJACENT TO PARKING.

PADS - SMALLER RETAIL OR MIXED-USE BUILDINGS ARE USED TO LINE STREETS OR AISLES THROUGH THE SITE. A MINI MAIN STREET FORMED BY PADS ON EITHER SIDE OF AN ENTRY DRIVE IS A COMMON DESIGN FEATURE.

PEDESTRIAN ENVIRONMENT - DIRECT, LANDSCAPED WALKING ROUTES TO DESTINATIONS WITHIN THE SITE HUMANIZE PARKING FIELDS AND PROMOTE THE EFFICIENCY OF "PARK ONCE" CONCEPTS.

PRIVATE GATHERING AND OPEN SPACE AREAS ARE LOCATED AWAY FROM BUSY TRAFFIC OR BUFFERED.

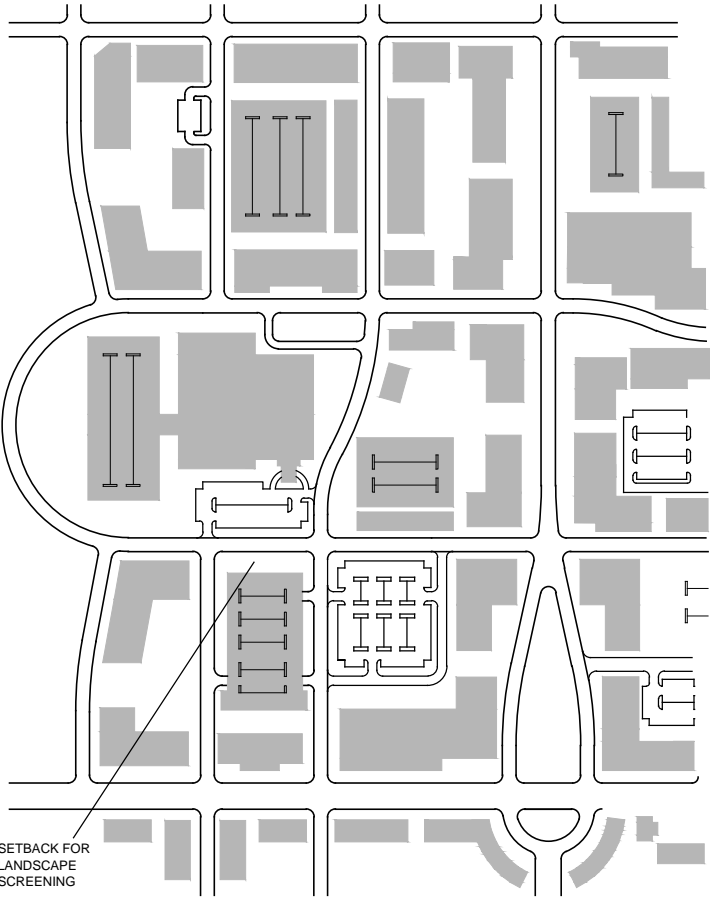
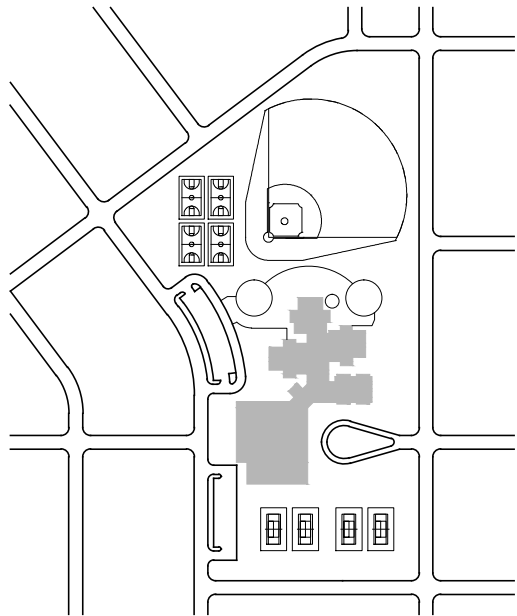
ELEMENTARY SCHOOL / COMMUNITY PARK

DEFINING ELEMENTS AND CONDITIONS:

INTEGRATED INTO AND CONNECTED WITH THE NEIGHBORHOOD

THE SHARED FACILITY COMBINES AN ELEMENTARY SCHOOL WITH SHARED PARK SPACE AND SPORTS FIELDS.

NOTE:  
TYPICAL FOR ELEMENTARY SCHOOLS/PARKS. SIMILAR JOINT USE DESIGN CONCEPT FOR MIDDLE SCHOOLS AND HIGH SCHOOL. (REFER TO SCHOOL SITING CRITERIA, SPECIFIC PLAN).



MEDICAL CENTER

DEFINING ELEMENTS AND CONDITIONS:

THE MEDICAL CENTER CAN BECOME A MULTI-USE DISTRICT, COMBINING A HOSPITAL, CLINIC, OR OTHER PRIMARY MEDICAL FACILITY WITH RELATED OTHER BUSINESSES: MEDICAL OFFICES, MEDICAL SUPPLIES, ANCILLARY SERVICES, FOOD SERVICES, ETC.

A WALKABLE STREET NETWORK AS ORGANIZING ELEMENT CONNECTS FACILITIES AND PROVIDES FOR VERSATILE GROWTH OVER TIME.

BUILDINGS SHOULD LINE STREETS AND PROVIDE STREET ACCESS TO GENERAL INTEREST USES, SUCH AS FOOD SERVICES, PHARMACY, ENTRY LOBBIES, AND OFFICES, WHERE APPROPRIATE.

PARKING SHOULD BE PLACED MID-BLOCK, WITH VERY CLEAR ROUTING AND SIGNAGE.

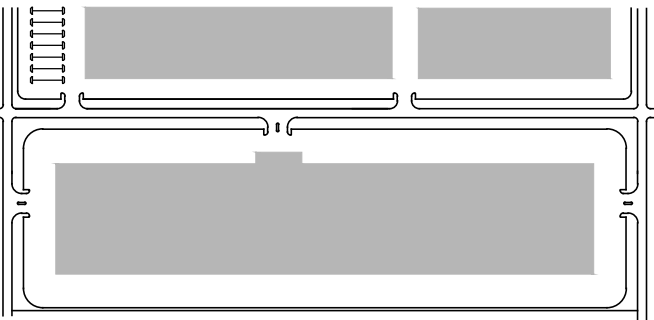
WAREHOUSE / LIGHT INDUSTRIAL

DEFINING ELEMENTS AND CONDITIONS:

BUILDING AND SITE RELATIONSHIPS ARE GENERALLY ARRANGED TO FACILITATE THE EFFICIENT AND SAFE MOVEMENT OF GOODS AND PRODUCTS TO AND FROM THE SITE.

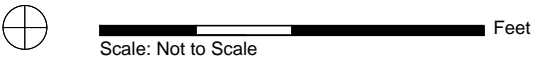
PEDESTRIAN AND BICYCLE ACCESS FROM THE PUBLIC STREET NETWORK TO BUILDING ENTRIES ARE TO BE MAINTAINED WHILE CIRCULATION AND PARKING ARE ACCOMMODATED FOR ALL MANNER OF VEHICLES FROM SEMI-TRUCK AND TRAILER TO EMPLOYEE AND VISITOR PASSENGER VEHICLES.

LANDSCAPE PERIMETERS AT STREET FRONTAGE AND ADJACENT PARCELS, ALONG WITH ADJACENT OPEN SPACE AREAS, ARE TO BE UTILIZED TO HELP SOFTEN EDGES AND SCREEN LONG BUILDING ELEVATIONS.



NOTE:

THE PROTOTYPE DESIGN OPTIONS REPRESENTED IN THIS EXHIBIT ARE CONCEPTUAL AND ARE NOT INTENDED TO PRECLUDE OTHER INNOVATIVE DESIGN SOLUTIONS THAT COMPLY WITH THE DEVELOPMENT STANDARDS AND PERMITTED USES AS DEFINED IN THE SPECIAL PLAN.



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PALETTE APPROACH  
TO CREATING STREETS

ALL STREET SECTIONS ARE COMPRISED OF TWO COMPONENTS:

**ROADWAY SECTIONS**  
CONDITIONS THAT OCCUR WITHIN THE CURB LINES OF THE STREET. SEE FIGURES 3-5 THROUGH 3-9 FOR ALL POSSIBLE ROADWAY SECTIONS.

**OFF-ROADWAY SECTIONS**  
CONDITIONS OUTSIDE OF THE ROADWAY SECTION, BETWEEN THE CURB LINE AND THE RIGHT-OF-WAY LINE AND/OR EASEMENT. SEE FIGURE 3-10 FOR ALL POSSIBLE OFF-ROADWAY SECTIONS.

EACH STREET TYPE HAS A STANDARD CONDITION, ALONG WITH A PALETTE OF OPTIONS AND ALTERNATIVES THAT MAY BE SELECTED. ANY OFF-ROADWAY SECTION OPTION MAY BE PAIRED WITH ANY ROADWAY SECTION, BASED ON SURROUNDING LAND USES AND CHARACTER TO FIT ITS CONTEXT AND NEED.

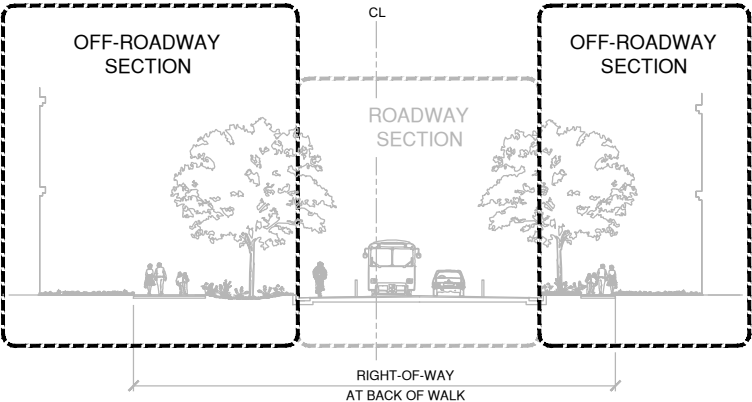
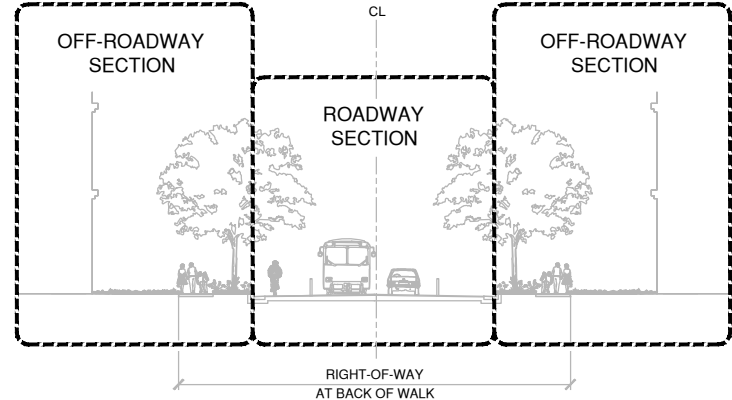
OFF-ROADWAY SECTION  
FLEXIBILITY

THE OPTIONS SHOWN IN THIS EXHIBIT REFLECT THE ALTERNATIVES FOR CONDITIONS OUTSIDE OF THE ROADWAY SECTION.

NOT ALL STREETS WILL HAVE THE SAME OFF-ROADWAY CONDITION ON BOTH SIDES. DETERMINATION OF OFF-ROADWAY SECTION TO BE USED FOR EACH STREET CONDITION SHALL BE MADE DURING THE FINAL DESIGN TO FIT CONTEXT.

STREET SECTION FIGURES

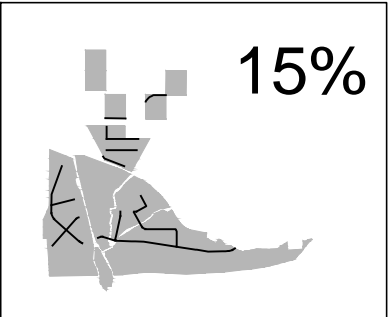
- FIGURE 3-4 PALETTE APPROACH & STREET TYPES
- FIGURE 3-5 TYPE 1 | LOCAL STREET, ALLEY, & LANE SECTIONS
- FIGURE 3-6 TYPE 2 | MINOR ARTERIAL/COLLECTOR SECTIONS
- FIGURE 3-7 TYPE 3 | MAJOR ARTERIAL/COLLECTOR SECTIONS
- FIGURE 3-8 TYPE 4 | PRIMARY ARTERIAL SECTIONS
- FIGURE 3-9 SEMI RURAL ROADWAY SECTIONS
- FIGURE 3-10 OFF ROADWAY SECTION



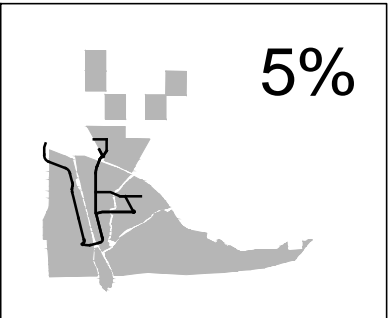
STREET TYPES & APPROXIMATE  
PERCENTAGE OF PROPOSED  
STREETS (LINEAL)



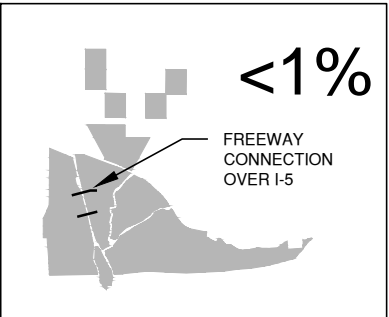
① LOCAL STREETS



② MINOR ARTERIALS/COLLECTORS



③ MAJOR ARTERIALS/COLLECTORS



④ PRIMARY ARTERIAL

NOTES

Notes apply to all street sections

- SEE FIGURE 3-10 FOR OFF-ROADWAY SECTION INFORMATION. SEE FIGURES 3-5 THROUGH 3-9 FOR ROADWAY SECTION INFORMATION.
- PUBLIC RIGHT-OF-WAY IS LOCATED AT THE BACK OF WALK. RIGHTS-OF-WAY VARY DEPENDING ON SELECTED COMBINATION OF ROADWAY AND OFF-ROADWAY OPTIONS.
- TRAFFIC IMPACT ASSESSMENT, IN BALANCE WITH COMMUNITY-SUPPORTIVE GOALS SUCH AS WALKABILITY, SHALL DETERMINE FINAL ROADWAY OPTION SELECTION AND LANE REQUIREMENTS.
- WHERE LEFT TURN MOVEMENTS ARE UNNECESSARY, A MEDIAN MAY BE PLACED IN THE CENTRAL SECTIONS. MEDIAN WIDTHS MAY VARY WITH THE APPROVAL OF THE PLANNING DIRECTOR.
- BIKE PROTECTION MAY INCLUDE, BUT IS NOT LIMITED TO: TUBULAR MARKERS, RAISED MEDIANS/CURBS, MOVABLE PLANTERS, AND STRIPING.
- SIDEWALK AND PED/BIKE MULTI-USE TRAIL WIDTHS MAY INCREASE IN AREAS OF HIGH INTENSITY PEDESTRIAN OR BICYCLE USE.
- MINOR ARTERIALS/COLLECTORS AND LOCAL STREETS MAY BE CROSS-SLOPED OR CROWNED, TO BEST FIT GRADING CONDITIONS AT FINAL DESIGN.
- TREE LANES, LANDSCAPED AREAS, AND MEDIANS MAY BE USED FOR BIORETENTION, OR OTHER APPLICABLE LOW IMPACT DEVELOPMENT PRACTICES.
- LOCAL STREETS MAY HAVE VERTICAL OR ROLLED CURBS.
- ALTERNATIVE PAVING MATERIALS, SUCH AS DECOMPOSED GRANITE, MAY BE USED FOR SIDEWALK OR BIKE PATHS WHERE SUFFICIENT HARDSCAPE SURFACE IS PROVIDED ELSEWHERE.
- CIRCULATION PLAN AND STREET SECTIONS ARE BASED UPON FULL BUILD OUT. DEPENDING UPON PROJECTED TRAFFIC VOLUMES AND CURRENT PROJECT DEVELOPMENT, STREETS MAY BE CONSTRUCTED IN PHASES.
- DIMENSIONS SHOWN ARE TYPICAL.

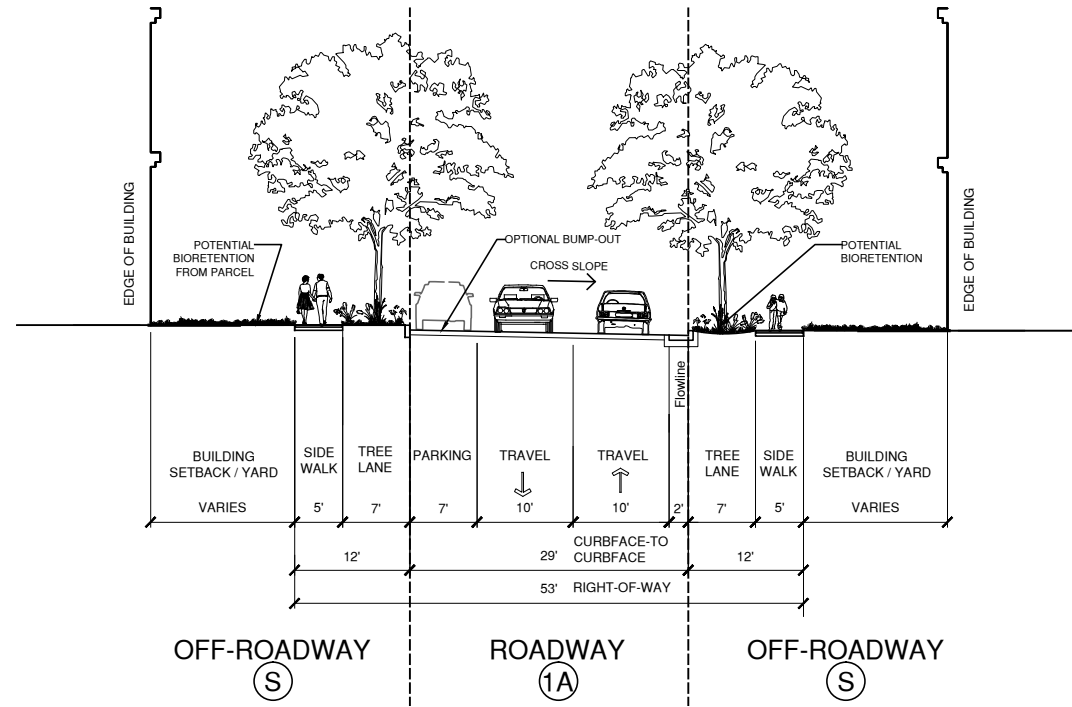


FIGURE 3-4

Palette Approach & Street Types

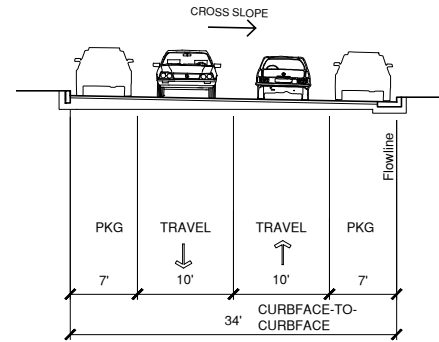
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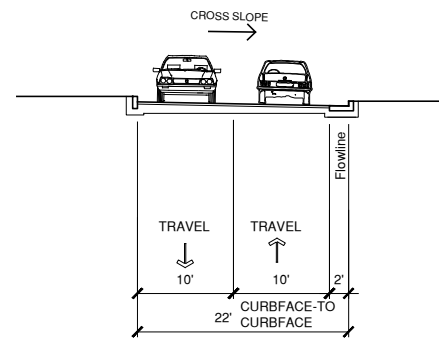


LOCAL STREET - STANDARD CONDITION

1B  
PARKING BOTH SIDES

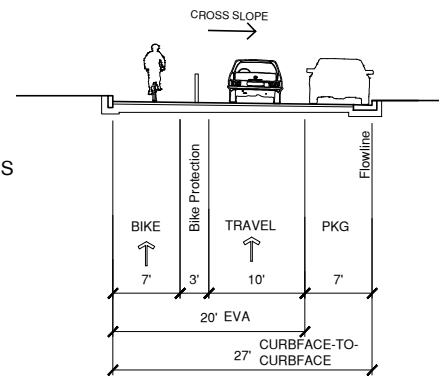


1C  
NO PARKING



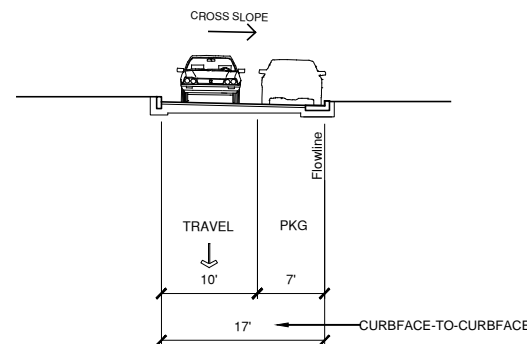
1D  
ONE-WAY TRAVEL  
PROTECTED BIKE LANES

NOTE:  
BIKE PROTECTION MARKERS  
MUST BE EVA COMPLIANT

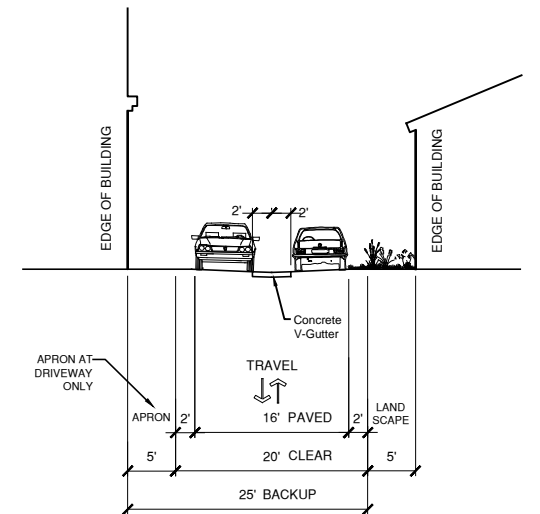


1E  
ONE-WAY

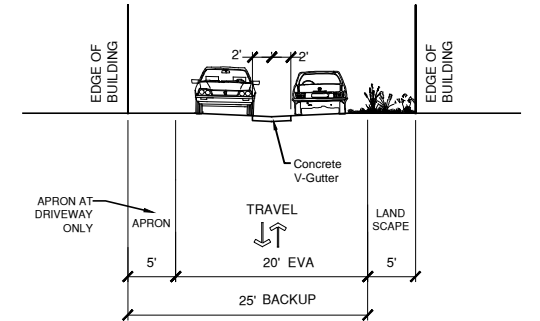
NOTE:  
ONLY USED WHEN EVA IS  
ACCOMMODATED ELSEWHERE



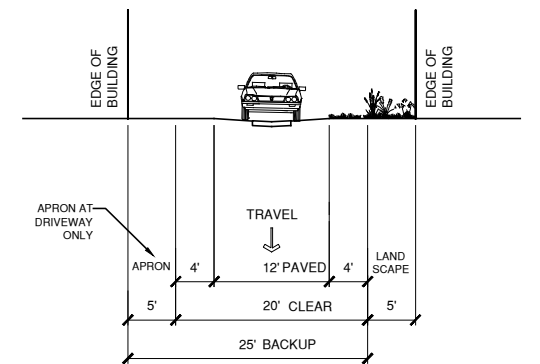
AA  
ALLEY - STANDARD  
CONDITION



AB  
ALLEY - EVA ACCESS

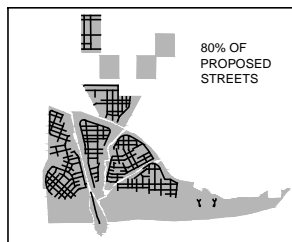
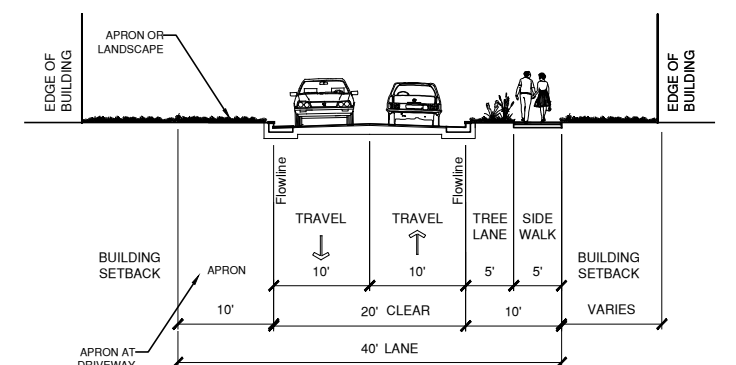


AC  
ALLEY - ONE-WAY TRAVEL



LA  
INTERNAL LANE  
LOADED

NOTE:  
FOR CLUSTERED COMPACT  
LOT TYPES



NOTE:  
TREE LANES, LANDSCAPED  
AREAS, AND MEDIANS MAY  
BE USED FOR BIORETENTION,  
OR OTHER APPLICABLE LOW  
IMPACT DEVELOPMENT  
PRACTICES.

SEE FIGURE 3-10 FOR  
OFF-ROADWAY SECTION  
INFORMATION.

LOCAL STREETS

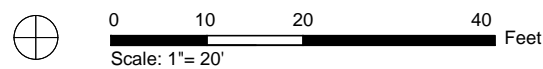
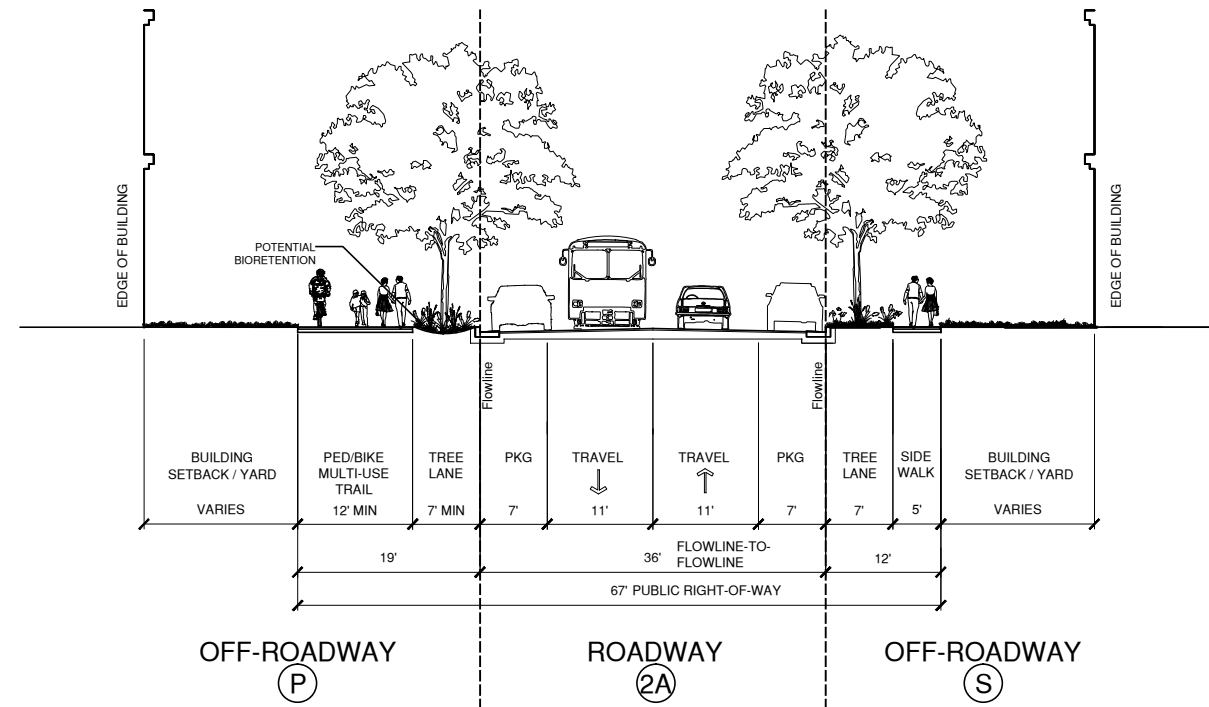


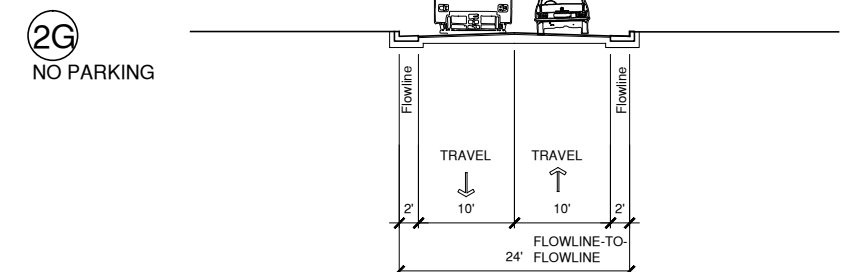
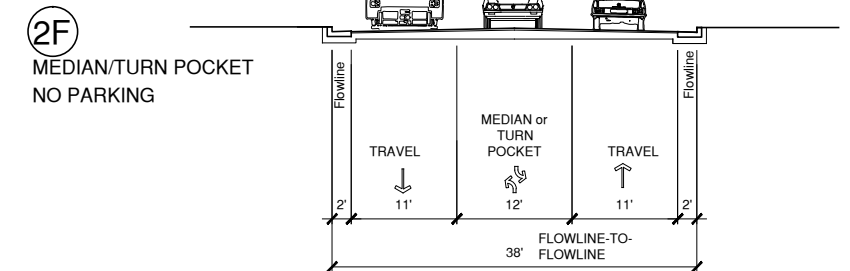
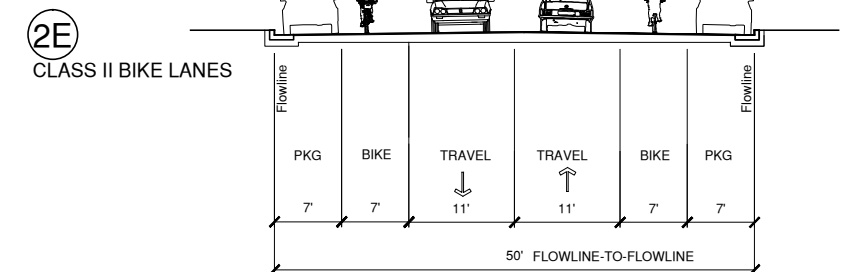
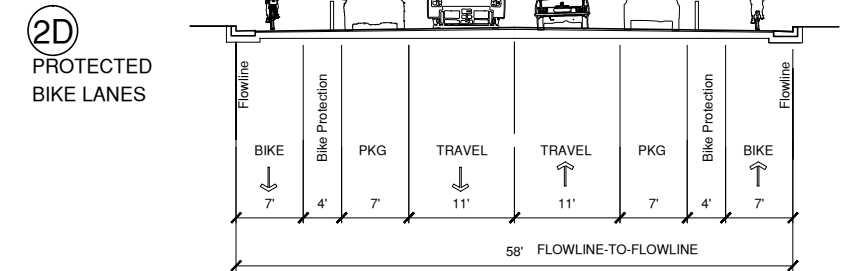
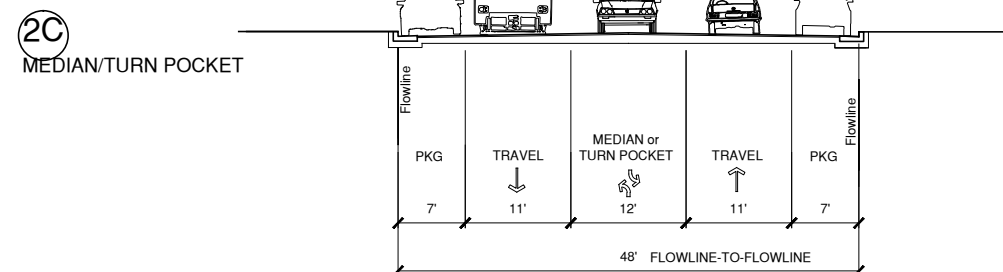
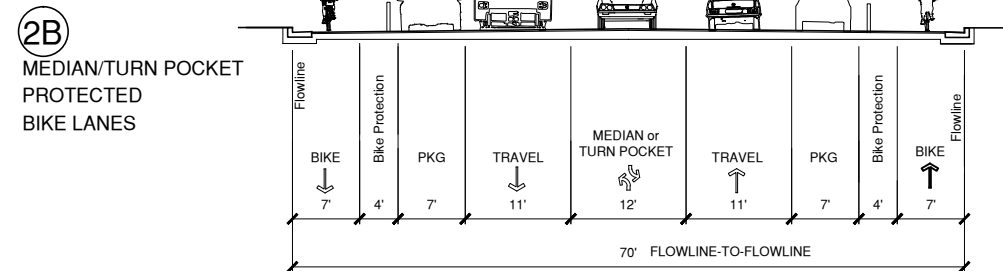
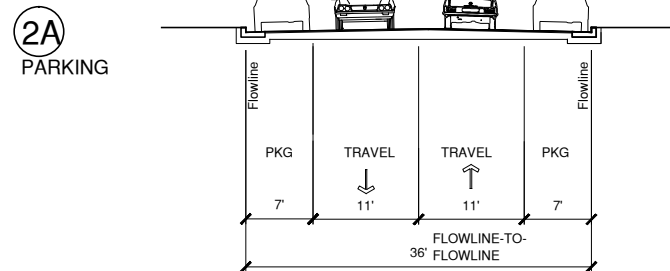
FIGURE 3-5

Types 1 A L | Local Street, Alley, and Lane Sections

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MINOR ARTERIAL/COLLECTOR - STANDARD CONDITION



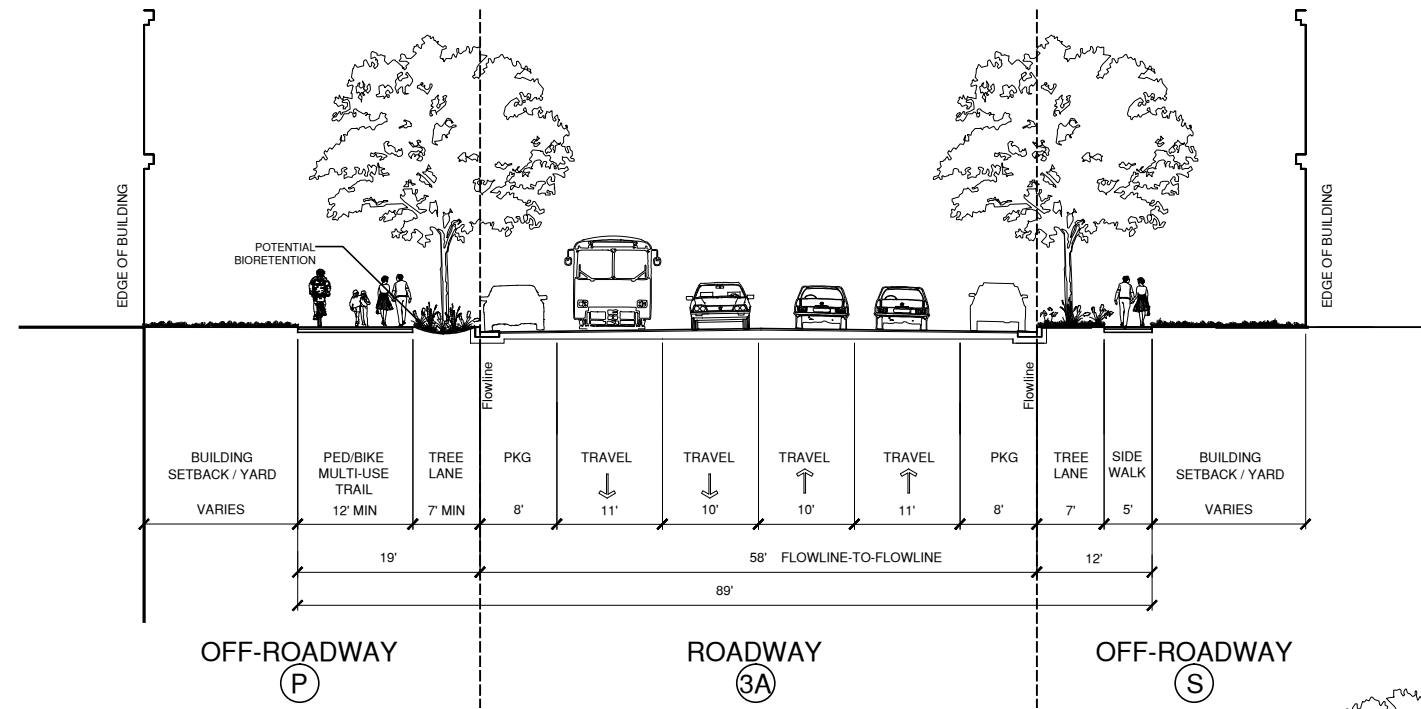
NOTE:  
TREE LANES, LANDSCAPED AREAS, AND MEDIANS MAY BE USED FOR BIORETENTION, OR OTHER APPLICABLE LOW IMPACT DEVELOPMENT PRACTICES.  
SEE FIGURE 3-10 FOR OFF-ROADWAY SECTION INFORMATION.

MINOR ARTERIAL/COLLECTOR

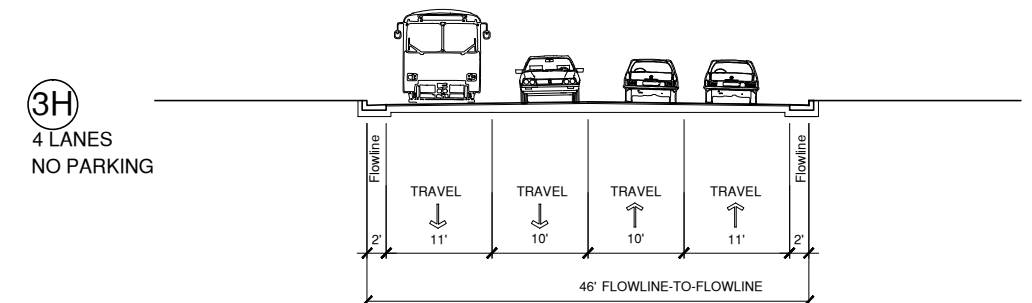
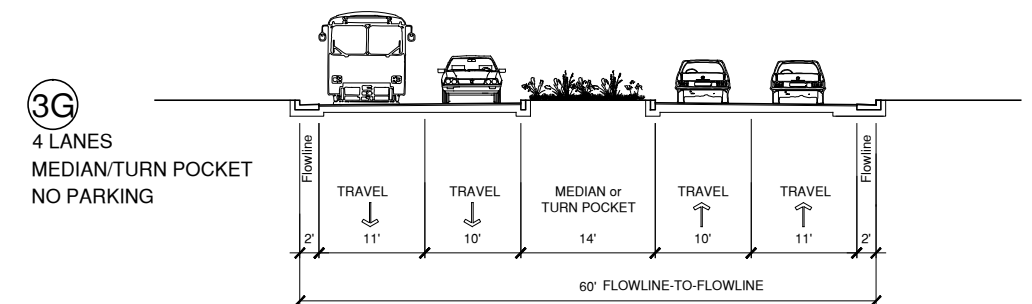
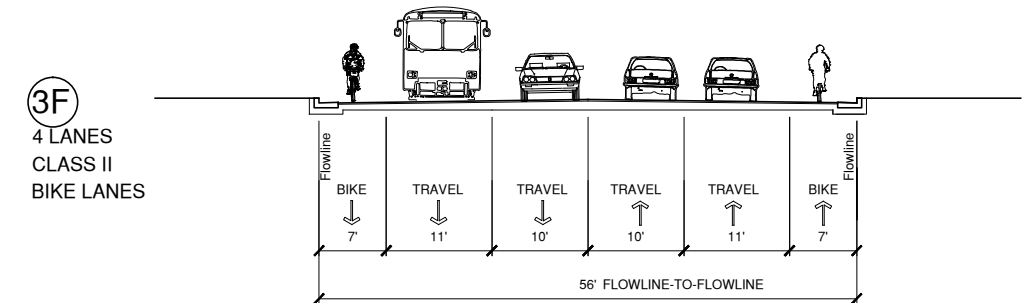
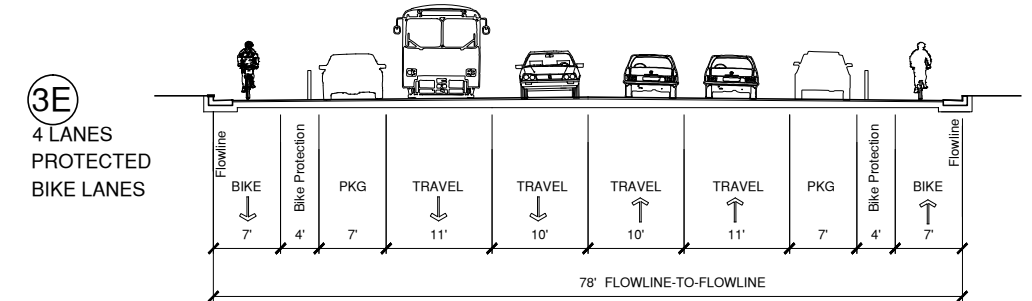
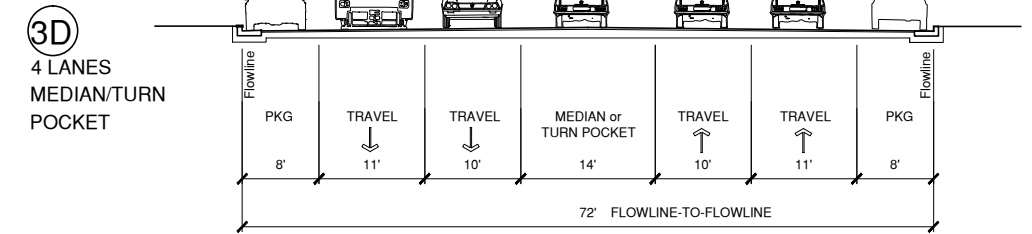
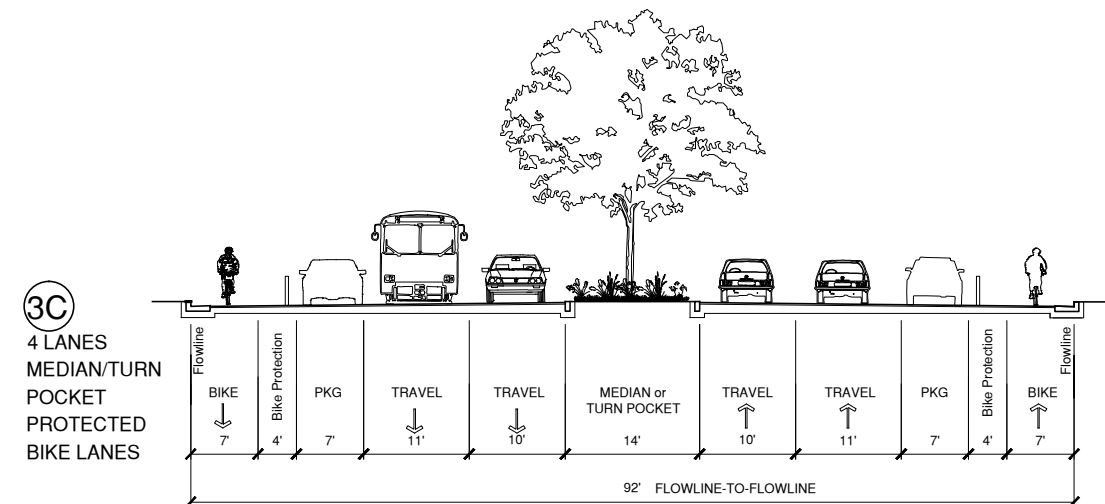
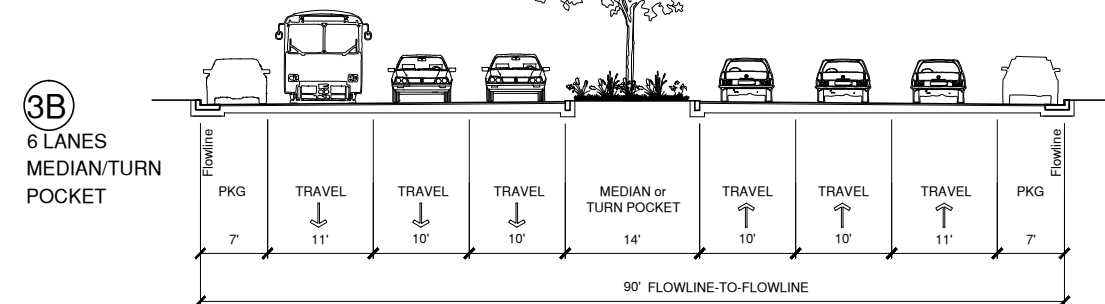
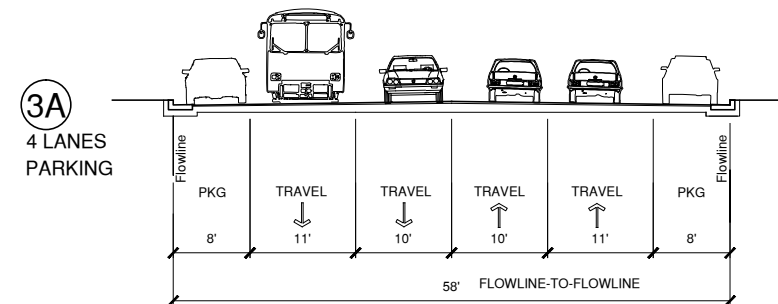


FIGURE 3-6  
Type ② | Minor Arterial/Collector Sections

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### MAJOR ARTERIAL/COLLECTOR - STANDARD CONDITION



NOTE: TREE LANES, LANDSCAPED AREAS, AND MEDIANS MAY BE USED FOR BIORETENTION, OR OTHER APPLICABLE LOW IMPACT DEVELOPMENT PRACTICES.

SEE FIGURE 3-10 FOR OFF-ROADWAY SECTION INFORMATION.

### MAJOR ARTERIAL/COLLECTOR

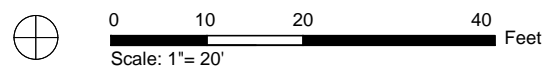
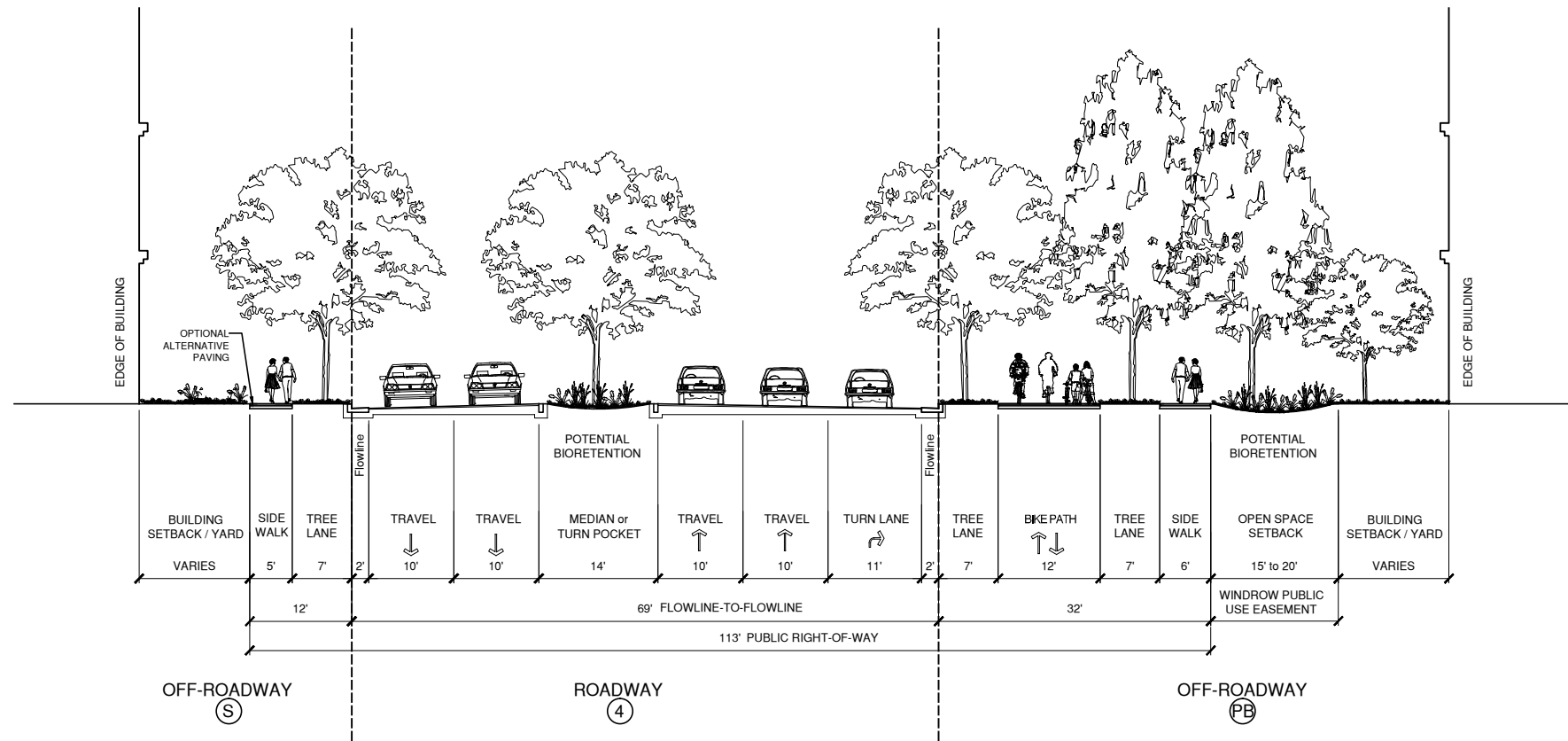


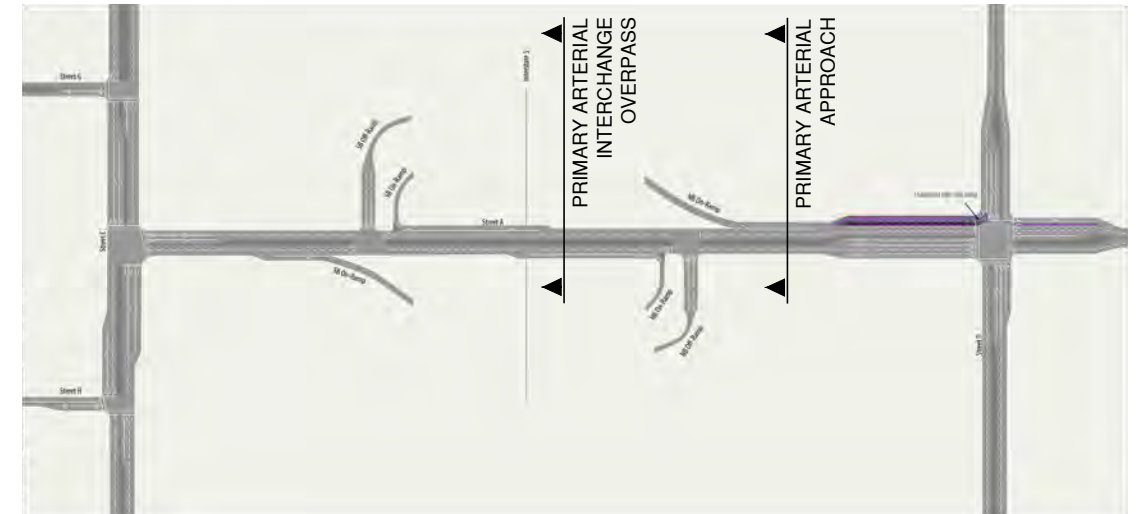
FIGURE 3-7

Type ③ | Major Arterial/Collector Sections

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PRIMARY ARTERIAL APPROACH



I-5 INTERCHANGE AND PRIMARY ARTERIAL CONCEPTUAL LANE CONFIGURATIONS

NOTE:  
ONE INTERCHANGE OVERPASS AND ONE NON-INTERCHANGE OVERPASS WILL BRIDGE OVER THE FREEWAY. SEE FIGURE 1-4 OF THE SPECIAL PLAN FOR THE TWO LOCATION OPTIONS.

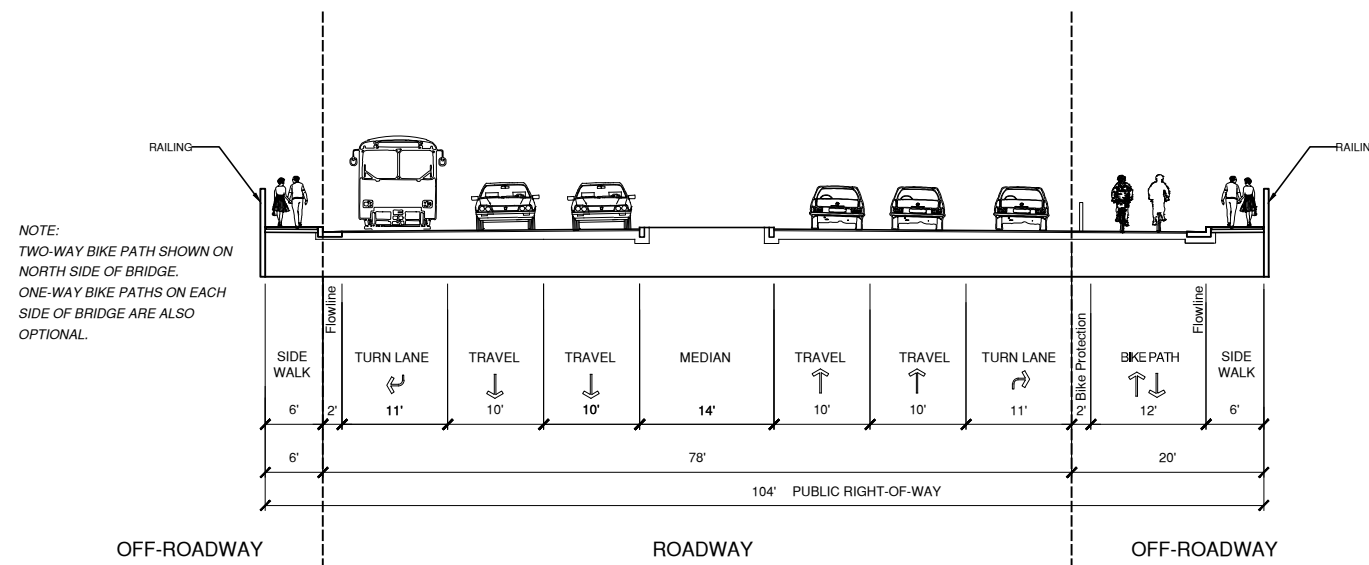
TREE LANES, LANDSCAPED AREAS, AND MEDIANS MAY BE USED FOR BIORETENTION, OR OTHER APPLICABLE LOW IMPACT DEVELOPMENT PRACTICES.

ADDITIONAL TURN LANES PROVIDED AS NEEDED, PER TRAFFIC ANALYSIS AND FINAL DESIGN.

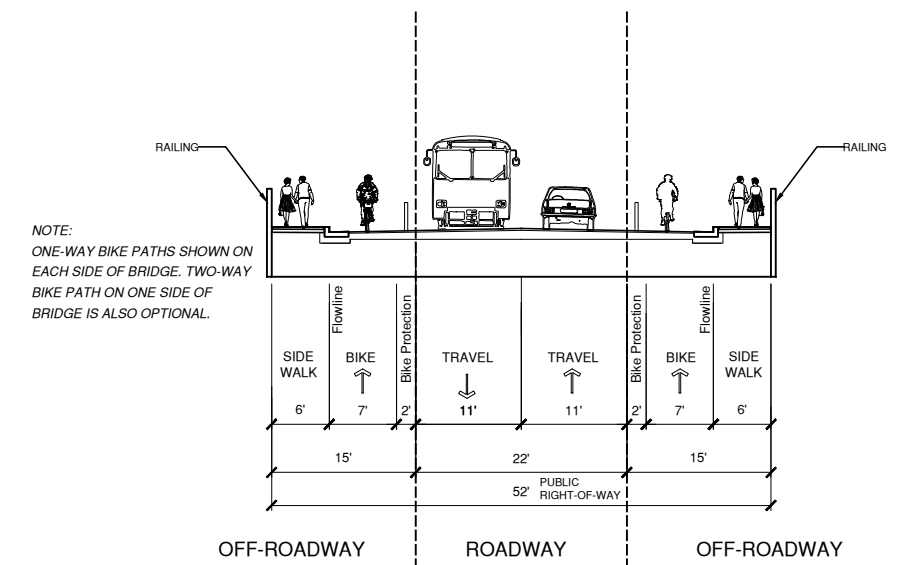
SEE FIGURE 3-10 FOR OFF-ROADWAY SECTION INFORMATION.



PRIMARY ARTERIAL



PRIMARY ARTERIAL INTERCHANGE OVERPASS



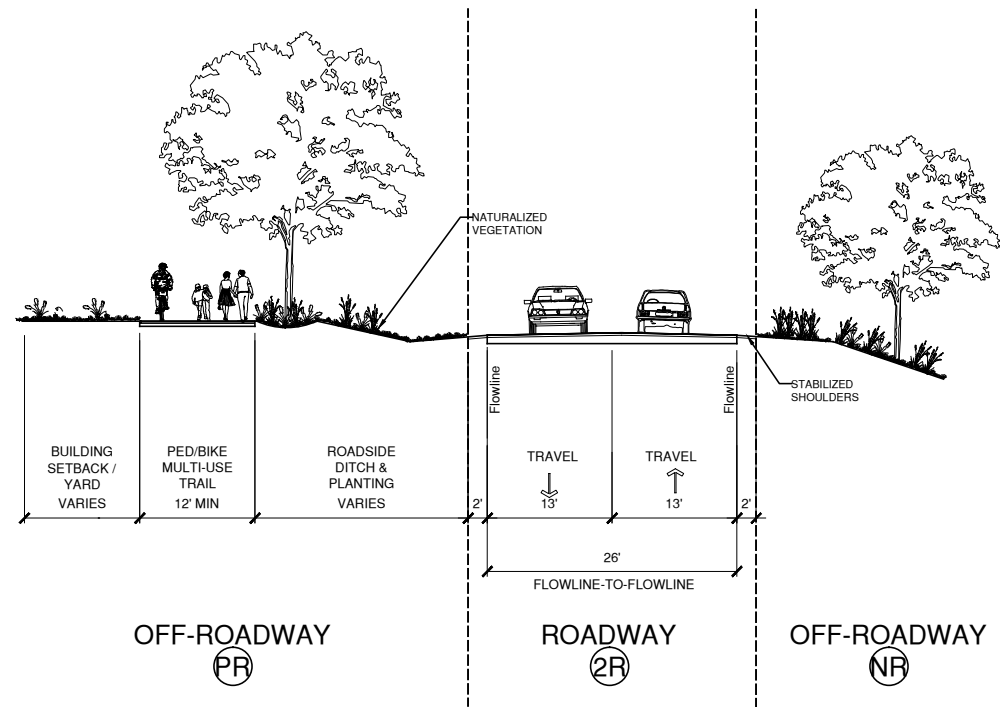
NON-INTERCHANGE FREEWAY OVERPASS

FIGURE 3-8

Type (4) | Primary Arterial Sections



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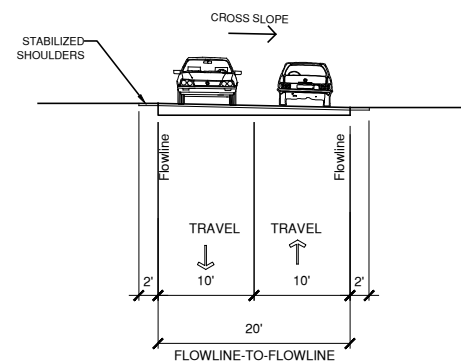


OFF-ROADWAY (PR)  
 ROADWAY (2R)  
 OFF-ROADWAY (NR)

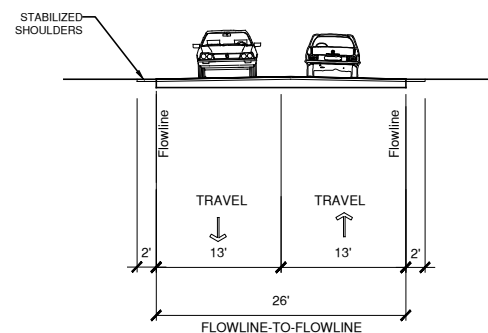
**MINOR ARTERIAL / COLLECTOR, SEMI-RURAL CONDITION**  
 (E.G. EDMONSTON PUMPING PLANT ROAD)

## ROADWAY OPTIONS

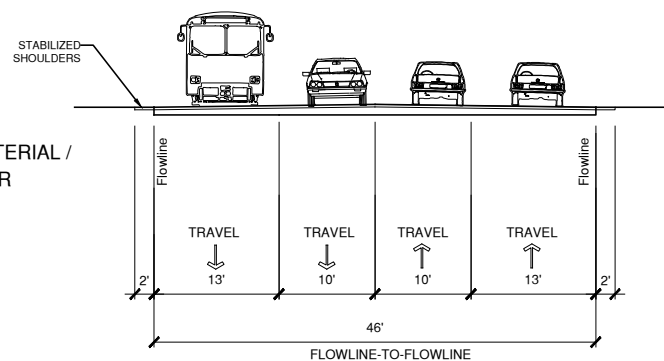
(1R)  
 2 LANE  
 LOCAL



(2R)  
 2 LANE  
 MINOR ARTERIAL /  
 COLLECTOR

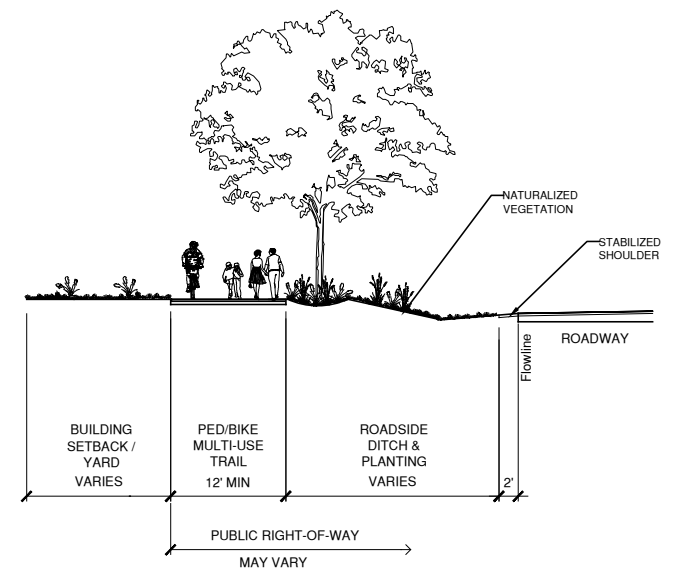


(3R)  
 4 LANE  
 MAJOR ARTERIAL /  
 COLLECTOR

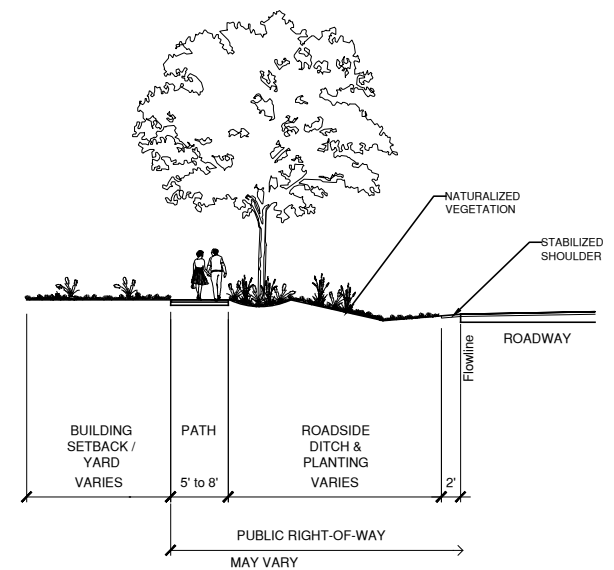


## OFF-ROADWAY OPTIONS

(PR)  
 SEMI-RURAL  
 PEDESTRIAN / BIKE  
 MULTI-USE TRAIL



(SR)  
 SEMI-RURAL  
 STREETSCAPE



(NR)  
 NATURALIZED  
 CONDITION

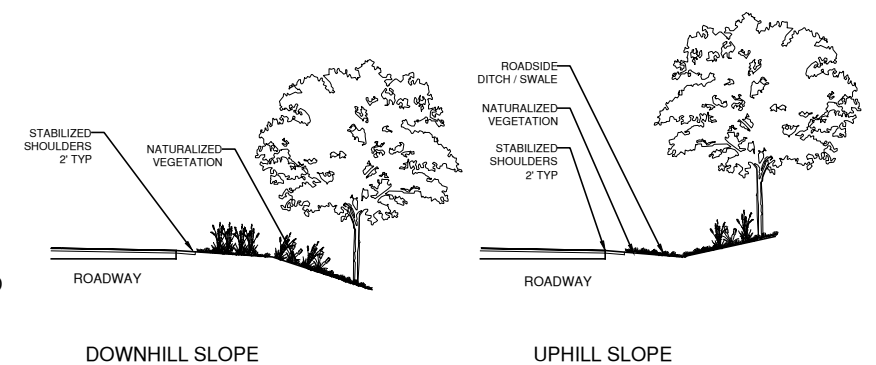
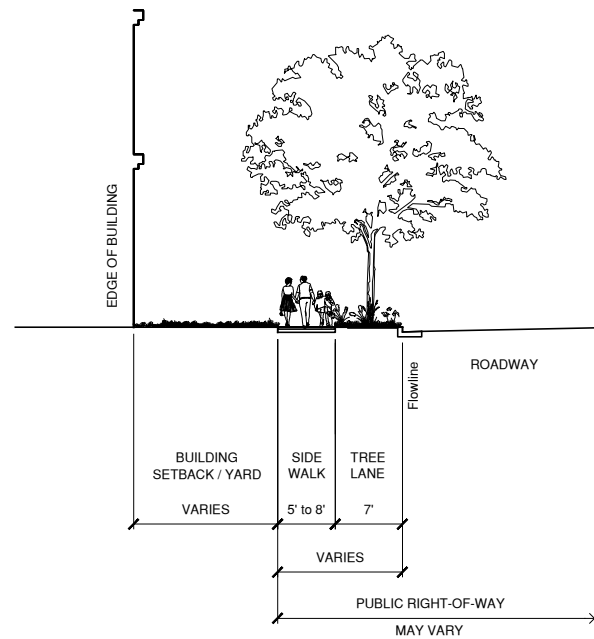
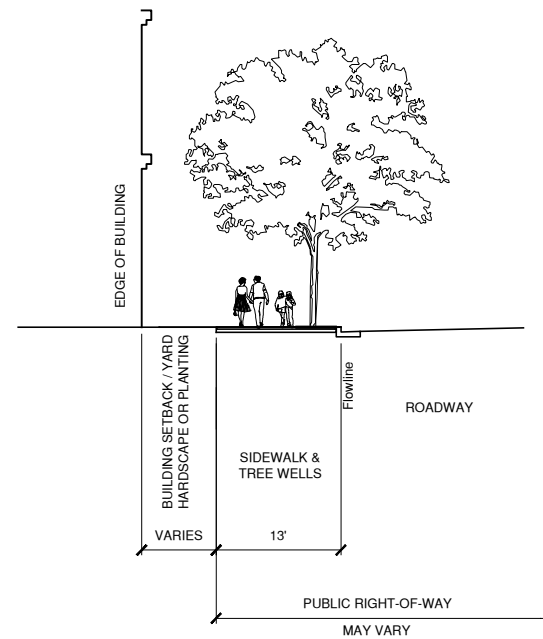


FIGURE 3-9  
 Semi-Rural Roadway Sections

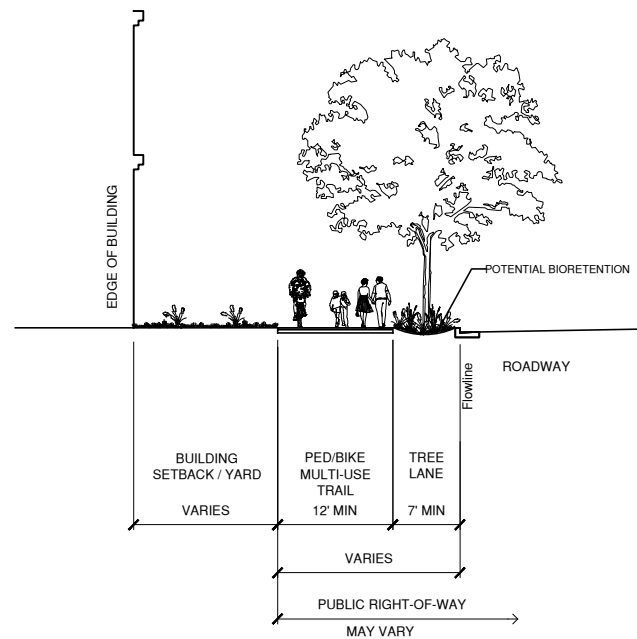
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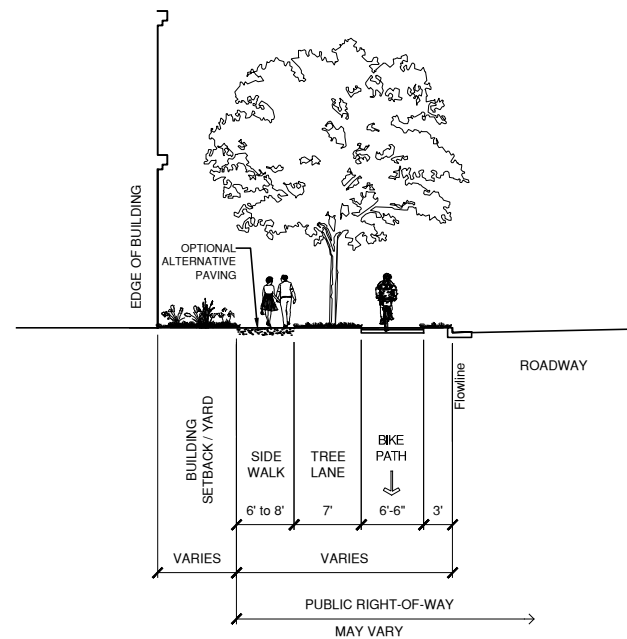
**(S)**  
STREETSCAPE - STANDARD CONDITION



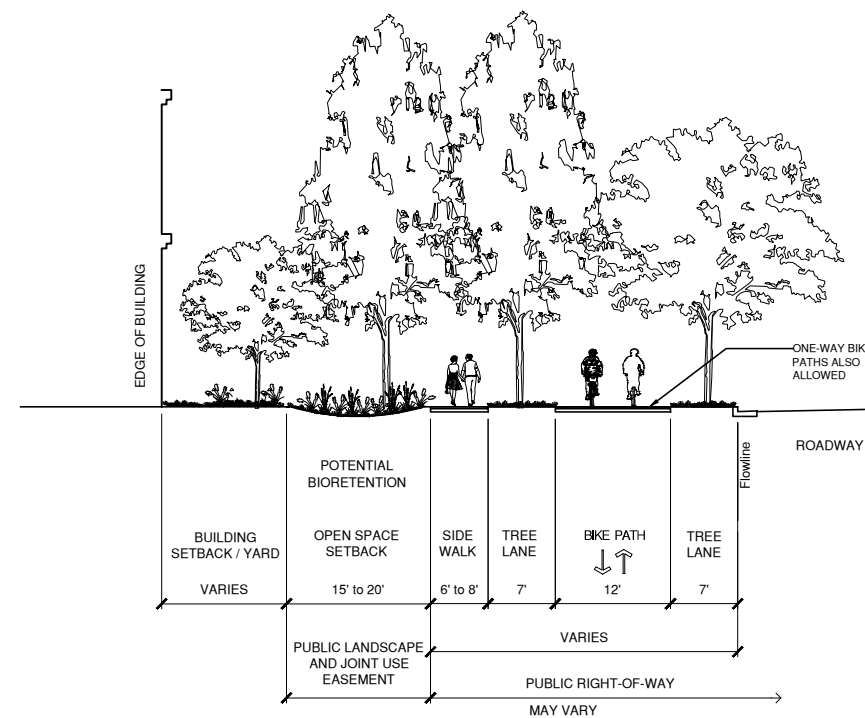
**(SA)**  
VILLAGE STREETSCAPE



**(P)**  
PEDESTRIAN/BIKE MULTI-USE TRAIL - STANDARD CONDITION



**(PA)**  
BIKE PATH



**(PB)**  
BIKE PATH  
WINDROW



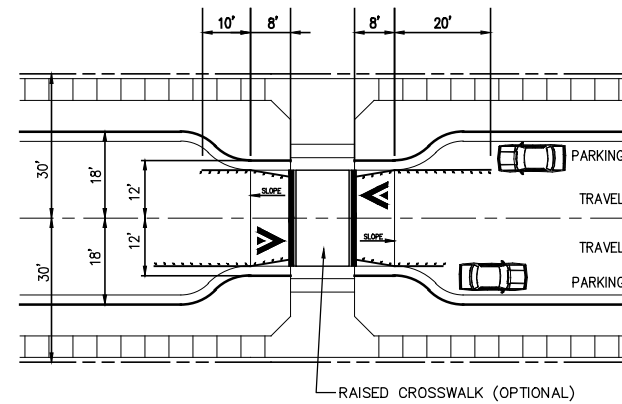
0 10 20 40 Feet  
Scale: 1" = 20'

NOTE: TREE LANES, LANDSCAPED AREAS, AND MEDIANS MAY BE USED FOR BIORETENTION, OR OTHER APPLICABLE LOW IMPACT DEVELOPMENT PRACTICES.

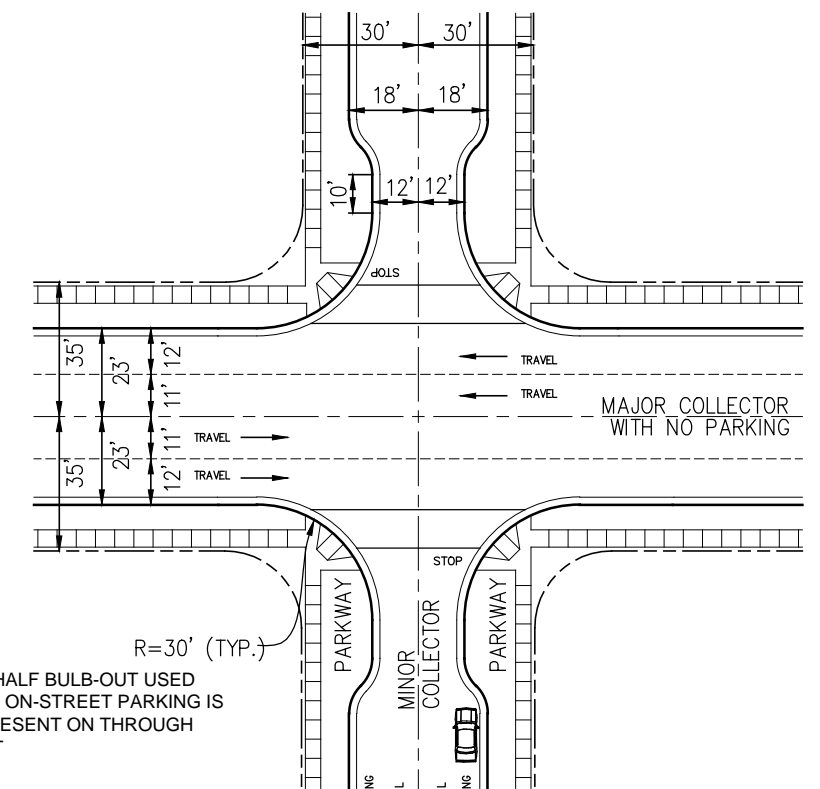
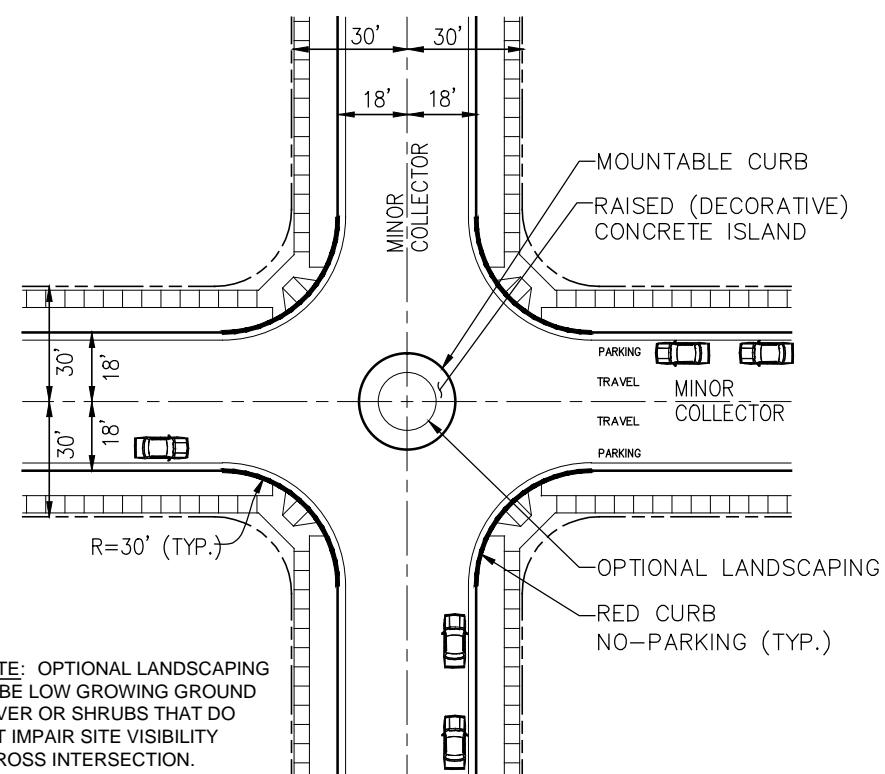
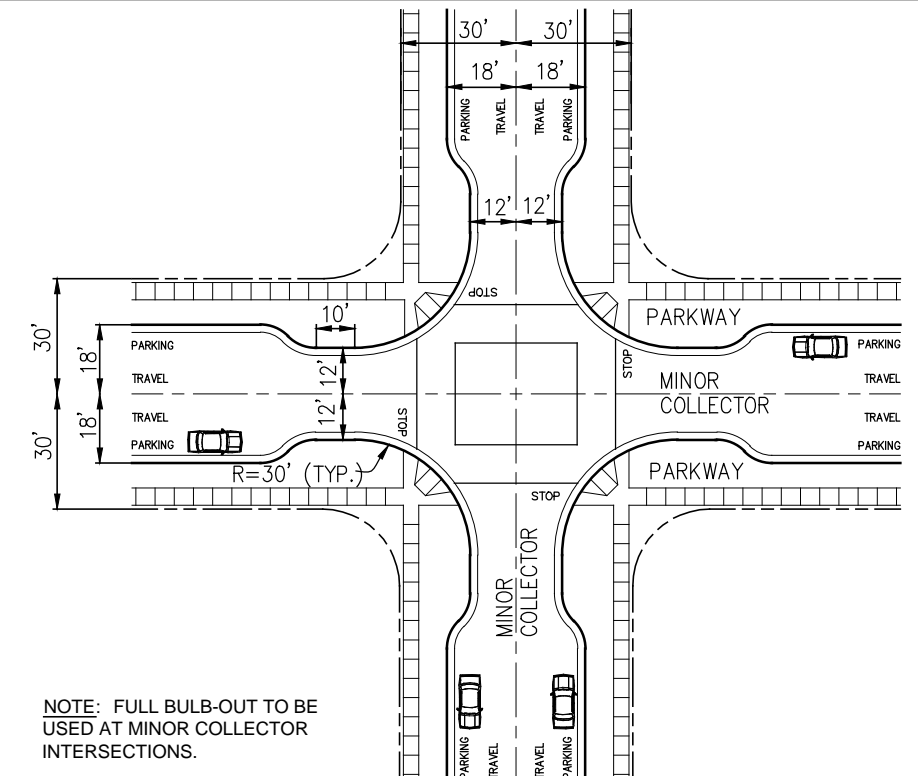
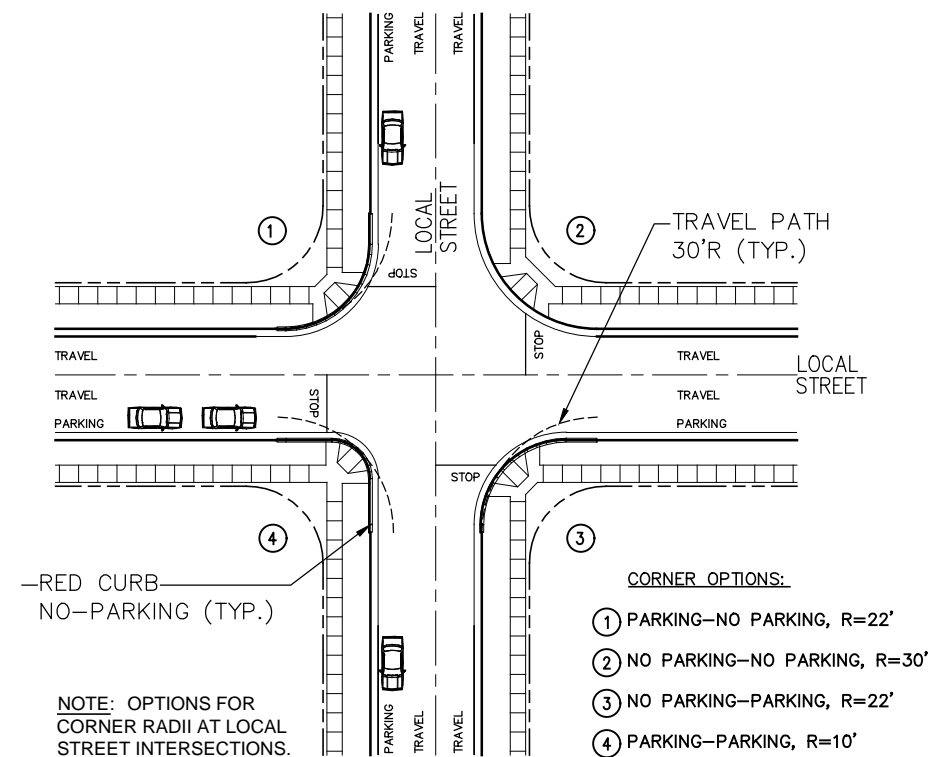
FIGURE 3-10

Types **(S)** **(P)** | Off-Roadway Sections

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**NOTE: RAISED CROSSWALKS TO BE USED AT MID-BLOCK CROSSING ON COLLECTOR STREETS AS NEEDED FOR PEDESTRIAN CIRCULATION.**



NOTE:  
DIMENSIONS SHOWN ARE TAKEN FLOWLINE TO FLOWLINE.

**NOTE:** OPTIONAL LANDSCAPING  
TO BE LOW GROWING GROUND  
COVER OR SHRUBS THAT DO  
NOT IMPAIR SITE VISIBILITY  
ACROSS INTERSECTION.

NOTE: HALF BULB-OUT USED  
WHERE ON-STREET PARKING IS  
NOT PRESENT ON THROUGH  
STREET

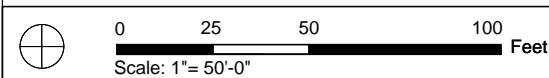
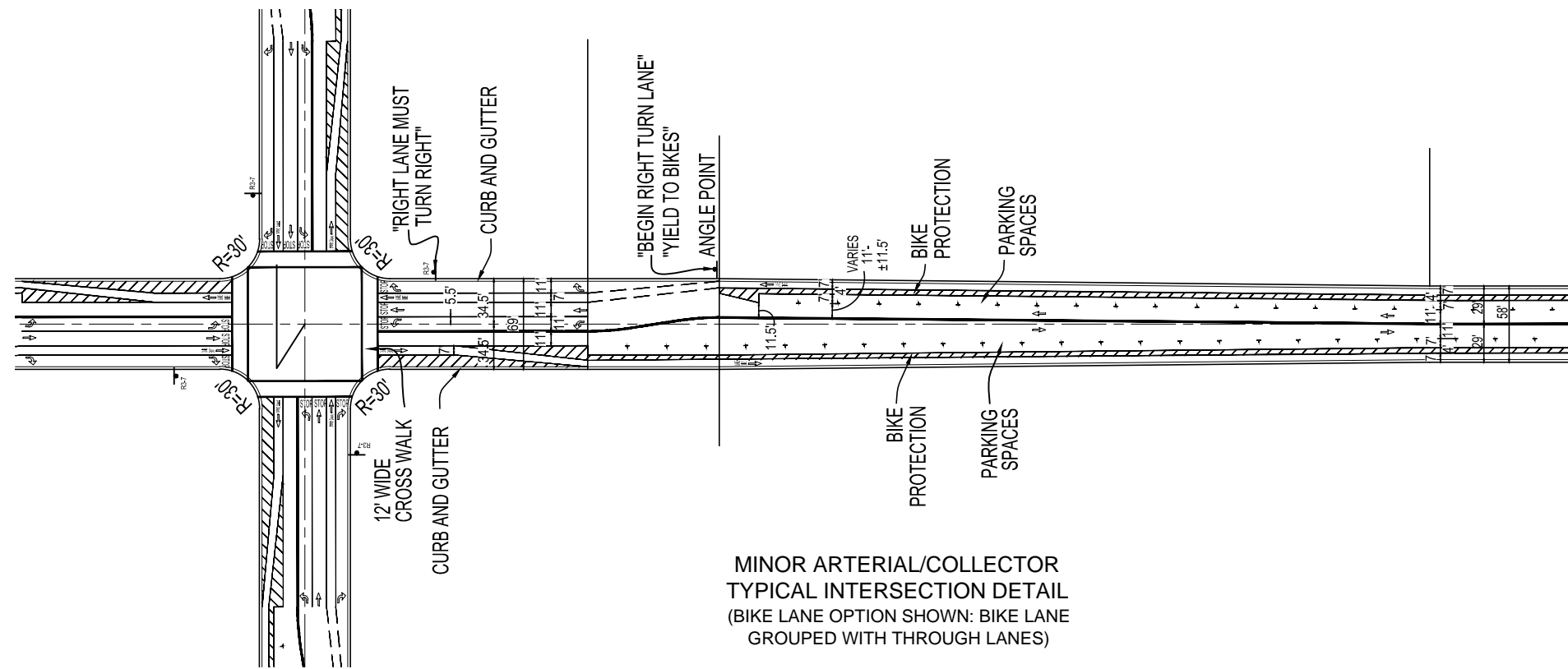
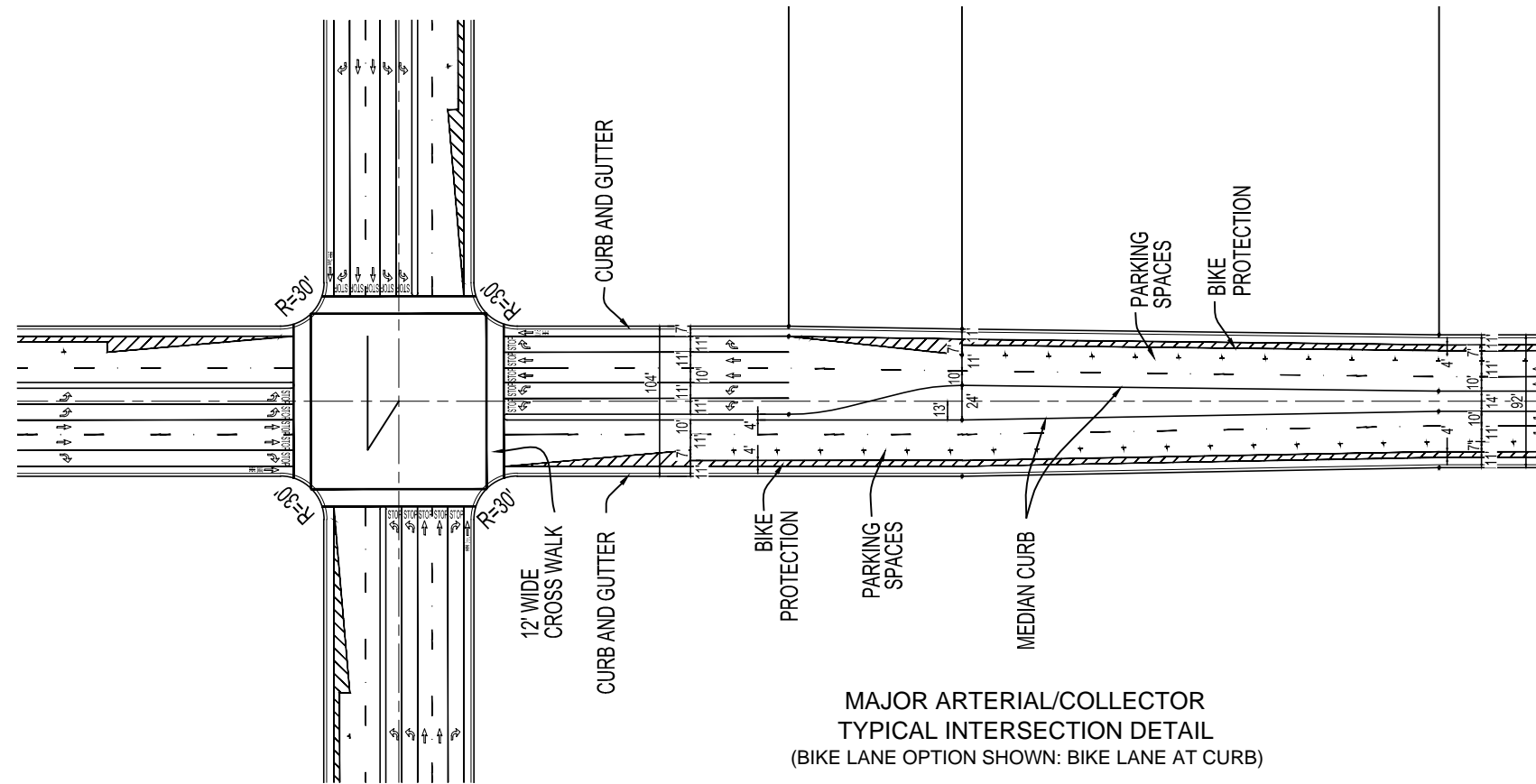


FIGURE 3-11

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NOTE:

TWO OPTIONS FOR BIKE LANE ALIGNMENTS AT INTERSECTIONS ARE SHOWN. OPTION TO BE CHOSEN AS PER TRAFFIC ANALYSIS AND FINAL DESIGN.

DIMENSIONS SHOWN ARE TAKEN FLOWLINE TO FLOWLINE.

BIKE PROTECTION MAY INCLUDE, BUT IS NOT LIMITED TO: TUBULAR MARKERS, RAISED MEDIANS/CURBS, MOVABLE PLANTERS, AND STRIPING.

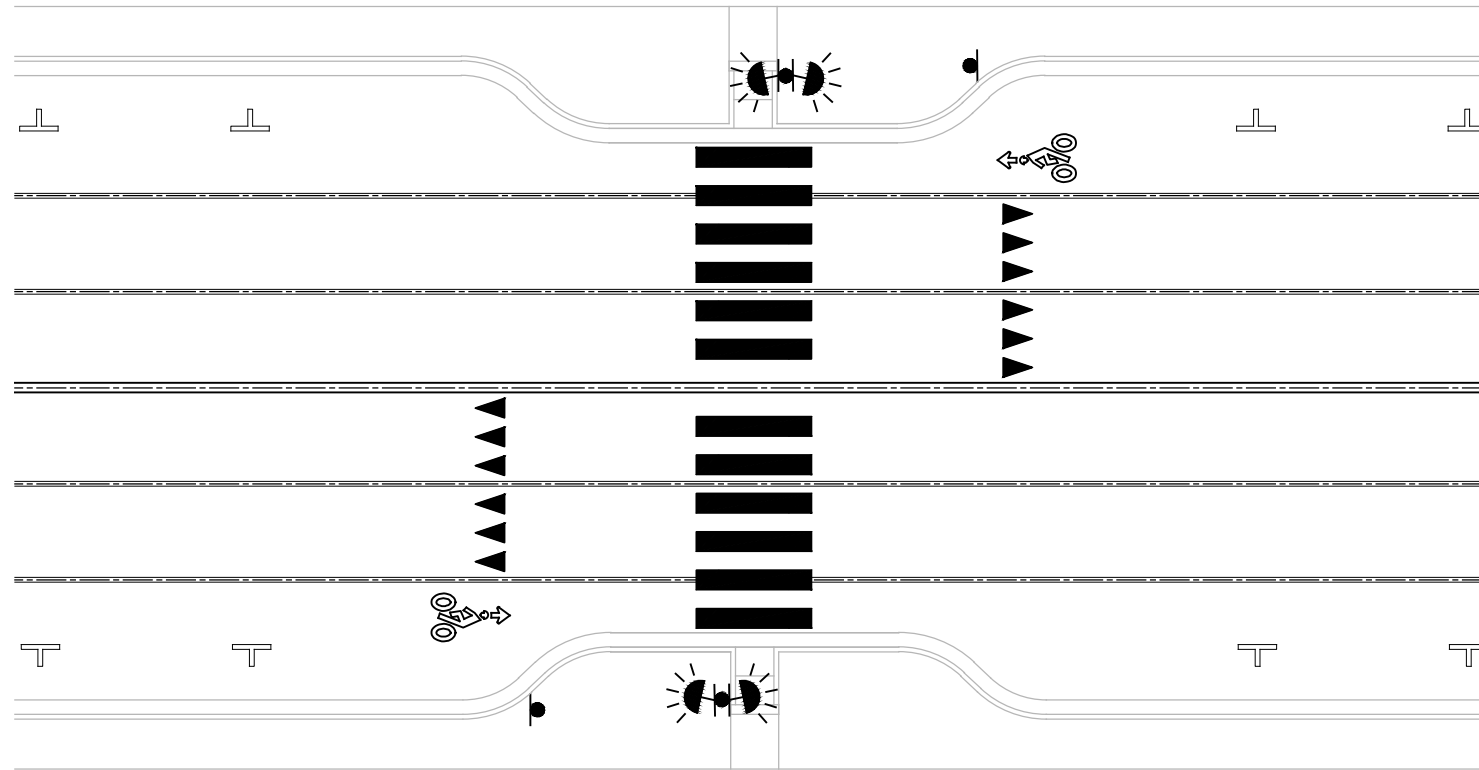
TRAFFIC IMPACT ASSESSMENT SHALL DETERMINE FINAL ROADWAY OPTION SELECTION AND LANE REQUIREMENTS



0 60 120 240 Feet  
Scale: 1" = 120'-0"

FIGURE 3-12

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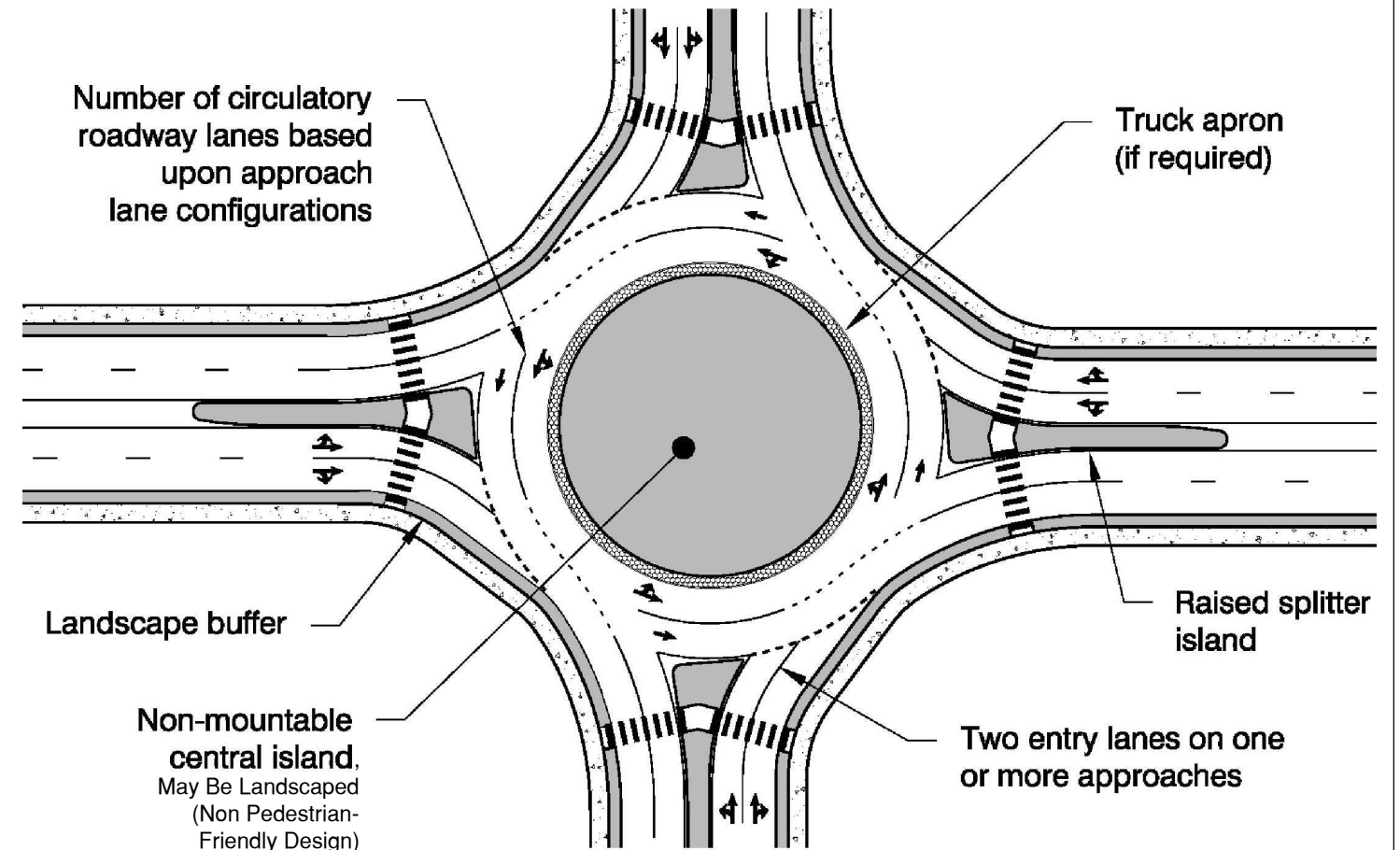


ARTERIAL / COLLECTOR  
TYPICAL MID-BLOCK CROSSING

0 10 20 40 Feet

NOTE:  
TYPICAL PLAN SHOWS CLASS II BIKE LANES.  
FOR PROTECTED BIKE LANES, 4' OF BUFFERED  
PROTECTION WILL BE ADDED TO THE SECTION, SEE  
FIGURE 3-7.

BIKE PROTECTION MAY INCLUDE, BUT IS NOT LIMITED TO:  
TUBULAR MARKERS, RAISED MEDIANS/CURBS, MOVABLE  
PLANTERS, AND STRIPING.



TYPICAL TWO-LANE  
ROUNDBABOUT  
NOT TO SCALE

NOTE:  
LANE DETAILS TO BE APPROVED  
AT THE TENTATIVE TRACT MAP  
STAGE.

0 Feet  
Scale: As Shown

FIGURE 3-13

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# Section 4

## DEVIATIONS FROM STANDARDS

All development within the Grapevine Special Plan Area shall conform to the Kern County Development Standards (KCDS) with the following exceptions described in Table 4-1.

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
<b>Kern County Building and Construction Code</b>				
17.32.038.503.2.1	Dimensions of fire apparatus access roads	Section 3.5	If all-weather paved access roads are required in Exclusive Agriculture (EA) areas, the project will comply as applicable except as indicated in the Special Plan development standards. Development standards provide that the minimum unobstructed widths may consist of a reduced paving section in certain cases plus an additional width of drivable, permeable crushed rock or road base to minimize impervious surfaces, maximize infiltration, and thereby reduce stormwater runoff while still providing all-weather access for emergency vehicles.	Reducing the width of fire access roads facilitates efficient land use by reducing excessive paving in EA areas consistent with the Special Plan purpose of promoting innovative land use that maximizes infiltration and reducing storm water runoff by minimizing unnecessary paving. Fire road width and paving material will be coordinated with the Kern County Fire Department to assume public safety.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
17.32.042.507	Fire protection water supplies	Section 3.13	<p>Project will comply as applicable with the following exceptions:</p> <ul style="list-style-type: none"> <li>• Stretches of roadway serving no structures may eliminate hydrants or include spacing of 0.50 mile between hydrants as approved by the Kern County Fire Department.</li> <li>• The required fire flow is based on all structures having approved fire sprinkler systems, with a resulting 50% reduction in the Fire Code fire flow requirements, consistent with Appendix B of the adopted 2013 California Building Code.</li> </ul> <p>These exceptions provide the same practical effect as the requirements of the code and are defined in Section 3.13.</p>	The exceptions to the provision of providing fire protection water supplies are designed to provide for the efficient provision of fire protection infrastructure while also assuming the availability of adequate fire protection water supplies for public safety. The provision of reduced hydrant spacing as approved by the Kern County Fire Department will facilitate unnecessary and premature extension of fire protection water infrastructure which is consistent with the Special Plan purpose of promoting compact and efficient land use that will adequately address public health and safety.
17.32.109	Dead-end streets	Section 3.5	<p>Project will comply as applicable except that the Special Plan allows cul-de-sacs to be up to 20% longer with the provision of attic sprinklers and additional fuel modification requirements. In addition, the minimum road width will be 20 feet, regardless of parcel size, and shall conform to Section 3.5.</p>	The provision of a reduced minimum road width is designed to minimize excessive paving areas while also providing adequate access for fire protection consistent with the Special Plan purpose of promoting innovative land use while protecting public health and safety.

## Deviations from Standards

**Table 4-1  
Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
<b>Kern County Land Division Ordinance</b>				
18.55.030	Improvements required: Minimum right-of-way and street widths; access via private streets; sewer connections; private drainage improvements	Sections 3.5 and 3.15	<p>Project will comply as applicable, except that the Special Plan specifies that subdivisions and improvements within the project area are classified as:</p> <p>Street improvements shall be Type A; however, right-of-way widths and design for streets, alleys, public travel-ways, and easements shall conform to standards in the Special Plan.</p> <p>Connection to sewers is anticipated for every property; however, the Special Plan allows the use of alternative solutions (i.e., on-site wastewater treatment systems) for lots over 0.25 acre and more than 1,000 feet away from an active or proposed sewer system.</p>	The provision for reduced right-of-way widths, street improvement widths, alleys and other public travel ways is consistent with the Special Plan purpose of promoting land use efficiency and innovation in the provision of the transportation network serving the Specific Plan. The provision of sewer and alternative on-site wastewater treatment systems for specified lot size and locational situations not proximate to the proposed sewer system also promote diversity and innovation in sewage requirements for a wide-range of Specific Plan land use intensities.
18.55.030.A.2.a	Dead-end streets longer than 150 feet shall include a turnaround.	Section 3.5	Special Plan development is designed to provide traffic calming and enhance public safety in certain areas with lane-fronted “Clustered Small Lot” residences, which have a dead-end street, which are referred to in the Special Plan as an Internal Lane that does not allow through traffic. In addition, Private access easements over existing ranch roads to provide legal access shall be permitted with dead ends in excess of 150 feet without turnarounds. See Special Plan Figure 3-1, Residential Design Options.	Consistent with the Special Plan purpose of providing innovative and efficient land use, the Special Plan provides for Clustered Small Lot Internal Lanes that necessitate deviations from street length and turnaround requirements, Such roadway configurations will be designed to enhance public safety and will be coordinated with the Kern County Fire Department.



## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
18.55.050.B.1.a c	Minimum street right-of-way width	Section 3.5	<p>Project will comply as applicable with the following exceptions:</p> <p>Street improvement standards for all streets shall be as stated and shown on Special Plan Figures 3-5 through 3-9, Roadway Street Sections.</p> <p>Private access easements over existing ranch roads to provide legal access shall be permitted with reduced street widths.</p>	Consistent with the Special Plan purpose of providing innovative and efficient land use, street right-of-way widths will promote efficient widths that provide for an efficient traffic network while also promoting the “neighborhood scale” of land uses. Adequate access will be provided to serve the range of uses accommodated by the Specific Plan.
18.55.050.B.1.h	Industrial street design and industrial cul-de-sacs	Section 3.5	Street improvement standards for all streets shall be as stated in Section 3.5, Circulation Standards.	In order to provide innovative and efficient land use consistent with the purpose of the Special Plan, industrial street and cul-de-sac design provides for an efficient traffic network appropriate to serve industrial uses.
18.55.050.B.1.j	Dead-end roads	Section 3.5	Project will comply as applicable, except that Section 3.5, Circulation Standards, allow cul-de-sacs to be up to 20% longer with the provision of attic sprinklers and additional fuel modification requirements. In addition, private access easements over existing ranch roads to provide legal access shall be permitted with dead ends in excess of 150 feet without turnarounds.	In order to promote efficient land use with adequate means of access for fire protection purposes consistent with the purpose of the Special Plan, provision for deviation to cul-de-sac standards is provided. Alternative access will be coordinated with the Kern County Fire Department and provided for fire protection access.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
18.55.050.C.1.b	Primary means of vehicular access shall be from the street that fronts the lot	Section 3.5	In keeping with the master plan design, rowhouses, townhouses, and clustered small lot residences are accessed by alleys or lanes as an integral part of the overall design. In addition, private access easements over existing ranch roads to provide legal access shall be permitted with dead ends in excess of 150 feet without turnarounds.	Consistent with the purpose of the Special Plan to provide a variety of housing types that facilitate creative and innovative land use types, the transportation network utilizes various approaches to traffic roadway design that promote transportation efficiencies, walkability and the use of alternative means of transportation.
18.55.050.C.2.a	Minimum 30-foot-wide alley	Section 3.5	In keeping with the master plan design, rowhouses, townhouses, courtyard multi-family, and clustered small lot residences are accessed by alleys or lanes that are less than 30 feet wide, as an integral part of the overall design.	In keeping with the Special Plan purpose of promoting innovative land use with efficient roadway networks, alley design reductions are proposed that will ensure adequate local circulation.
18.55.050.C.2.b	Intersecting alleys require 20-foot by 20-foot cut-off	Section 3.5	In keeping with the master plan design, rowhouses, townhouses, courtyard multi-family, and small lot residences are accessed by alleys or lanes that intersect. The narrow lot width is an integral part of the overall design, which constrains the cut-off dimension.	In keeping with the Special Plan purpose of promoting innovative design involving narrow and small lot design, deviating from the cut-off dimension promotes an efficient and walkable land use patterns.
18.55.050.C.2.c	Alleys not to be included in single-family residential land division	Section 3.5	In keeping with the Special Plan design, rowhouses, townhouses, and small lot residences are accessed by alleys or lanes. The alley-loaded residences are an integral part of the overall design, and alleys shall conform to the standards in Section 3.5.	In keeping with the Special Plan purpose of promoting an innovative design of alley-oriented residential land use patterns the accommodation of such a network will enhance land use efficiency and provide for adequate local circulation.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
18.55.050.D	Block length and width	Section 3.1	Block design criteria are not applicable to development with mixed development combining district. Site design will be driven by Special Plan areas, natural resources, and topography, with road connections made where prudent and safe.	In keeping with the innovative and walkable scale of development, the provision for block design criteria are inflexible. The Special Plan provides flexibility for a range block design criteria while also promoting a safe and adequate transportation network.
18.55.050.E	Residential block intersections shall be a minimum 20-foot radius	Section 3.1	In keeping with the master plan design, the narrow lot widths of rowhouses, townhouses, and small lot residences constrains the radius requirement.	Consistent with the Special Plan purpose of promoting innovative and efficient land use patterns, the subdivision radius design warrants deviation,
18.55.050.F.1	Minimum width and depth of lots	Section 3.1	Lot dimensions and shapes will be governed by the development standards in Section 3.1 and Special Plan Figures 3-1 through 3-3.	Consistent with the Special Plan purpose of encouraging innovation in land use and a diversity of land use types and patterns, the deviation from minimum lot widths and lot depth requirements is warranted.
18.55.050.F.3	Lot depth no more than three times lot width.	Section 3.1	Lot dimensions and shapes will be governed by the development standards in Section 3.1 and Special Plan Figures 3-1 through 3-3.	Consistent with the Special Plan purpose of encouraging innovation in the use of the land, the depth provision warrants deviation to promote a diversity of land use patterns.
18.55.050.F.4	Prohibits double-frontage lots	Section 3.1	Lot dimensions and shapes will be governed by the development standards in Section 3.1 and Special Plan Figures 3-1 through 3-3.	Consistent with the Special Plan purpose of encouraging innovation in land use, lot design options require flexibility to promote land use efficiency and a range of housing types.
19.82	Off-Street Parking	Section 3.4	The parking standards shall be governed by the development standards in Section 3.4.	Reduced the size and number of parking spaces to reduce the site impervious areas devoted to vehicle parking and promote alternative modes of transportation.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
19.84	Signs	Section 3.6	The signage standards shall be governed by the development standards in Section 3.6.	Clearly defines the use an types of signs for the project land uses requirements throughout the community and specifically along the frontage of the I-5 Freeway..
19.86	Landscaping	Section 3.8	The landscaping shall be governed by the development standards in Section 3.8	Provides the water efficiency standards contained in the newly revised State MWELD dated July 2015.
<b>Kern County Development Standards</b>				
102-8d	Bike lane requirements on arterials and collectors	Section 3.5	The bike lanes and multi-purpose trails shall be as shown on Figures 3-5 through 3-10 and discussed in Section 3.5, Circulation Standards, to promote biking, walking, and accessibility.	Consistent with the Special Plan purpose of providing innovative and efficient transportation networks that are designed for public safety, bike lane requirements are provided for in the Special Plan.
103-1, 103-2.02, and 103-2.03 (Plates R-1 through R-14, inclusive)	Street improvement requirements	Section 3.5	Street improvements shall be Type A; however, rights-of-way, widths, and design for streets, alleys, public ways and easements shall conform to Section 3.5, Roadway and Off-Roadway Standards.	In keeping with the Special Plan purpose of providing innovative transportation networks, street improvement requirement deviations are necessary to enhance land use efficiency and accommodate a variety of housing types while providing for adequate local circulation.
104-1.01	Minimum street centerline radius	Section 3.5	Project will comply as applicable with the minimums allowed by exception as granted by the Engineering, Surveying and Permit Services Director per County Development Standards Section 104-1.01. In addition, private access easements over existing ranch roads to provide legal access may contain centerline radii less than 500 feet.	In order to promote efficient land use patterns and a variety of housing types served by alleys, public ways and streets, deviation from minimum street standards is required. This is consistent with the Special Plan purpose of providing creative use of the land while also providing adequate circulation.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
104-1.02.a	Streets shall intersect at right angles where practicable	Section 3.5	Project will comply as applicable with the following exceptions:  Street intersections may be governed by the Specific Plan community character, natural resources, and topography, and improvement standards for streets shall be as approved during Site Development Plan Review. In addition, private access easements over existing ranch roads to provide legal access shall be permitted with intersections at angles greater than 15% skew.	In keeping with the Special Plan purpose of providing creative land use patterns and enhance community character, deviation from this standards is warranted while also providing for adequate local circulation and ensuring public safety of street intersection design.
104-1.02.b	Curb return radius	Section 3.5	Project will comply as applicable, except that industrial areas will have a curb return radius of 30 feet.	In order to provide innovative and efficient land use consistent with the purpose of the Special Plan, curb return radius deviations are warranted while also providing for public safety and adequate local circulation.
104-1.02.c (Plate R-41)	20-foot by 20-foot block intersection cut-off	Section 3.5	In keeping with the master plan design, rowhouses, townhouses, courtyard multi-family, and small lot residences are accessed by alleys or lanes that intersect. The narrow lot width is an integral part of the overall design that constrains the cut-off dimension.	In order to provide for innovative and efficient land use designed to accommodate a variety of housing types access by alleys and public ways, deviation to the cut-off dimension is warranted.
104-1.02.f	Tangent distance between horizontal curves	Section 3.5	In keeping with the master plan design of narrower, traffic calming roadways, the tangent distance between horizontal curves shall be a minimum of 50 feet.	In order to provide innovative and efficient land use consistent with the purpose of the Special Plan, deviation of the tangent distance between horizontal curves is warranted to enhance community character.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
104-1.02	Roundabouts	Section 3.5	In keeping with the Special Plan design, roundabouts will be utilized on traffic calming roadways as defined in Section 3.5.	Consistent with the Special Plan purpose of promoting innovative land use and traffic movement, roundabouts will be used that provide for traffic circulation consistent with the community character.
104-1.03 (Plate R-46)	Dead-end roads	Section 3.5	Project will comply as applicable, except that the Special Plan allows cul-de-sacs to be up to 20% longer with the provision of attic sprinklers and additional fuel modification requirements.	In order to provide a transportation network that provides for innovative land use consistent with the Special Plan, Dead-end Road deviations are warranted.
104-2.02	Maximum street gradient	Section 3.5	The maximum street gradient for all roads will comply with in Section 3.5. In addition, private access easements over existing ranch roads to provide legal access shall be permitted with maximum grades greater than 8%.	In order to provide a transportation network that promotes innovative land use and efficient circulation patterns, maximum street gradient deviations are warranted for streets as well as private access.
104-2.04	Vertical curve	Section 3.5	Private access easements over existing ranch roads to provide legal access shall be permitted without vertical curves where changes in grade exceed 0.5%. In addition, vertical curves will be designed for a vehicle speed of 45 miles per hour on arterials and collectors, as defined in Section 3.5.	In order to promote a transportation network that facilitates creative land use consistent with the Special Plan, deviations to vertical curve standards are warranted to reflect the use of existing ranch roads as integral to the community's transportation network.
104-2.06	Maximum intersection gradient	Section 3.5	Private access easements over existing ranch roads to provide legal access shall be permitted with maximum grades through intersections greater than 8%, as defined in Section 3.5.	In order to promote an efficient transportation network that incorporates existing ranch roads and innovative land use consistent with the purpose of the Special Plan, deviations to maximum intersection gradient standards are warranted.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
104-4.02	Road surfacing	Section 3.5	Project will comply as applicable; however, pervious pavement shall also be allowed outside travel lanes and areas promoting water quality, as defined in Section 3.5.	In order to enhance infiltration, reduce storm water runoff and water quality in creative ways that is acknowledged by the Special Plan, deviations to road surfacing is warranted.
104-6	Street lighting standards	Section 3.7	Project will comply as applicable, with the following exception:  In keeping with the Kern County Dark Skies Ordinance and to limit development impacts on the dark sky condition, street lighting will be provided only as necessary for safety, as defined in Section 3.7, Lighting.	In order to acknowledge the unique character of the Grapevine project site and promote innovative land use consistent with the Special Plan, deviations to the street lighting standards is warranted.
105-3.01	1/3-mile intersection spacing on arterials	Section 3.5	Project will comply as applicable, with the following exception:  Street intersections may be governed by the Specific Plan community character, natural resources, and topography; improvement standards for streets shall be as approved by Site Development Plan Review as defined in Section 3.5, Circulation Standards.	Deviations to street intersection spacing on arterials is warranted to acknowledge the creative land use patterns and unique character of the Grapevine Community. Intersection spacing will be designed to provide adequate traffic circulation that assures public safety.
Standards Section 105-3.02 Plates R-49 and R-50	Local street access to arterials and collectors	Section 3.5	Project will comply as applicable, with the following exception:  Street intersections may be governed by the Specific Plan community character, natural resources, and topography; improvement standards for streets shall be as approved by Site Development Plan Review as defined in Section 3.5, Circulation Standards.	In order to acknowledge the Special Plan purpose of accommodating innovative land use that recognizes topography and the project site's natural resources, deviations to local street accesses standards to arterials and collectors is warranted.



## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
105-5.01 and 105-5.02	Turn lanes at access points	Section 3.5	Where access points are allowed, turn lanes are not proposed. Site design will be governed by Special Plan community areas, natural resources, and topography, with road connections made where prudent and safe, as defined in Section 3.5, Circulation Standards.	Given the site's topography and natural resource character and the Special Plan's intent of acknowledging innovative land use and related traffic patterns, deviations for turn lanes at access points will be provided in a manner that assures public safety.
108-1.04 and 108-1.05	Corner landscape 30-inch height limitation	Section 3.8	In keeping with the Special Plan design, the narrow lot widths of rowhouses, townhouses, and small lot residences constrains the landscape requirement and is as defined in Section 3.8, Landscaping.	Given the unique land use patterns and accommodation of a variety of housing types consistent with the purpose of the Special Plan, deviations to the corner landscape height provision is warranted.
Kern County Development Standards	Subdivision street improvement notes	Section 3.5	All notes shall comply with the Specific and Special Plans.	Consistent with the Special Plan purpose of acknowledging unique land use patterns, deviations to subdivision street improvement notes are necessary to acknowledge provisions in the Grapevine Specific Plan and Special Plan.
409-2.01	Require concrete low-flow channel in detention basins	Section 3.16	In keeping with the goals and policies of the Grapevine Specific Plan, no hard lining will be required in detention basins. In addition, all development shall be consistent with Section 3.16.	Given the unique character and natural resources surrounding the project site, deviations to the concrete low-flow channel in detention basins is necessary. This deviation is consistent with the use of innovative features that is acknowledged in the Special Plan.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
Division Two Standards for Water Systems	Water system standards	Section 3.14	All engineering and design for water systems shall conform to the Tejon-Castac Water District (TCWD) Technical Specifications and the Kern County Fire Code because the system will be owned and maintained by the district.	Consistent with the use of innovative approaches advocated by the Special Plan, necessary deviations to water system standards are provided to conform with the TCWD standards.
Division Three Standards for Sanitary Sewers	Sanitary sewer standards	Section 3.15	All engineering and design for sanitary sewer systems shall conform to the TCWD Technical Specifications because the system will be owned and maintained by the district.	Consistent with the use of innovative approaches advocated by the Special Plan, necessary deviations to sanitary sewer standards are provided to conform with the TCWD standards.
408-1	Retention basin design volume	Section 3.16	The retention basin design volume should be calculated according to the Kern County Development Standards; however, the average percentage of impervious area will be adjusted down based on the use of Low-Impact Design (LID) features.	Deviations to retention basin design volume are acknowledged consistent with the LID features and the Special Plan concept of accommodating innovative features in the community.
408-4	Basin fencing	Section 3.16	Project will comply as applicable; however, basins that are incorporated into other facilities to create a multi-purpose facility (e.g., basin/park site) will not be required to be fenced. In addition, fencing and access gate material shall be approved by the maintenance entity. Rodent barriers may be omitted with approval of the maintenance entity.	Basin fencing deviations are warranted consistent with the Special Plan provisions of accommodating innovative approaches in land use planning which includes multi-purpose basin/park site use which enhances land use efficiencies.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
408-4	Levee fencing	Section 3.16	In keeping with the theme of the project, no fencing will be required along levees.	Levee fencing deviations are warranted in keeping with the unique character of the community and the Special Plan purpose of acknowledging unique and innovative features in the use of the land.
Division Four Standards for Drainage	Low-impact design features	Section 3.16	The retention basin design volume should be calculated according to the KCDS; however, the average percentage of impervious area (ai) will be adjusted down based on the use of LID features as defined at the tentative map stage and approved Kern County or the maintenance entity.	Consistent with the Special Plan purpose of accommodating innovative approaches to land use, retention basin design deviations are warranted to account for LID features.
Division Four Standards for Drainage	Low-impact design features	Section 3.16	Fencing shall conform with the KCDS Section 408-4, with the following exceptions:  Basins that are incorporated into other facilities to create a multi-purpose facility (e.g., basin/park site, basin/amphitheater) will not be required to be fenced unless the side slopes of the basin exceed a 4 to 1 slope.  Fencing and access gate material shall be approved by the maintenance entity.	Basin fencing deviations are warranted consistent with the Special Plan provisions of accommodating innovative approaches in land use planning which includes multi-purpose basin/park site use that enhances land use efficiencies.
Division Four Standards for Drainage	Low-impact design features	Section 3.16	General Construction Requirements  The maintenance way shall be sloped toward the top of bank at a minimum of 2%.  Rodent barriers may be omitted with approval by the maintenance entity.	Drainage Standard deviations are warranted for construction requirements as the will incorporate LID features consistent with the Special Plan provisions of incorporating innovative approaches of land use development including supportive drainage facilities.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
Division Five Standards for Landscaping	Master landscaping plan	Section 3.8	Project will comply as applicable; however, landscape widths along arterial and collector roads will be governed by the Specific/Special Plan and a master landscaping plan. In addition, landscape areas will be utilized to promote low-impact development according to Section 3.16, LID Features.	Landscaping standard deviations along arterial and collector roads are necessary to allow for landscaping that is unique to the project site and promotes innovation consistent with the Special Plan purpose.
Plate R-31	Parkway areas	Section 3.5.	Project will comply as applicable; however, street sections and details will be as shown in Section 3.5.	In keeping with the innovative land use and circulation network planning approaches promoted by the Special Plan, Parkway deviations to street sections and details are warranted,
Plate R-43 and R-44	Cul-de-sac locations	Section 3.5	Project will comply as applicable; however, street sections and details shall conform to Section 3.5. All cul-de-sacs shall provide pedestrian/bicycle pass-throughs.	Cul-de-sac deviations to standards are warranted to accommodate pedestrian/bicycle pass-throughs consistent with the innovative approach advocated by the Special Plan.
Plate R-47	Standard knuckles on local streets	Section 3.5	Project will comply as applicable; however, local street design shall conform to details contained in Section 3.5.	Deviations are consistent with the Special Plan use of innovative land use and circulation network approaches.
Plate R-52	Standard curbs	Section 3.5	Project will comply as applicable; however, Caltrans Type A1-6 curbs shall also be allowed.	Deviations are consistent with Special Plan use of innovative land use and circulation network approaches.
Plate R-53	Setbacks	Section 3.1	Setbacks shall conform to Section 3.1, Development Standards.	Deviations to setbacks are consistent with Special Plan use of innovative land use concepts and the development character of the community.

## Deviations from Standards

**Table 4-1**  
**Deviations from Standards**

Current Standards		Special Plan Deviations		
<sup>a</sup> Section	<sup>b</sup> Standard	<sup>c</sup> Section	<sup>d</sup> Proposed Standard	<sup>e</sup> Benefit
Plate R-56	Standard minimum access design	Section 3.5	In keeping with the Special Plan design, the narrow lot widths of rowhouses, townhouses, and small lot residences constrains the minimum access requirement and will conform to Section 3.5.	In order to accommodate a variety of housing types and lot designs consistent with the Special Plan concept of utilizing innovative planning concepts, deviations to minimum access provisions are warranted.
Plate R-75	Street lights	Section 3.7	Project will comply as applicable; however, decorative street lights may be used, as defined in Section 3.7, Lighting.	In order to accommodate decorative street lights consistent with the community's design character and the Special Plan concept of encouraging innovative land use and circulation network concepts, deviation to standards is warranted.
Plates R-1 through R-82	Other development standards	Sections 3.1 through 3.17	Project will comply as applicable; however, deviations as specified in the Special Plan may be warranted.	Other deviations to Kern County Development Standards may be needed to effectively implement the Special Plan. Accordingly, other deviations not specifically mentioned above are acknowledged consistent with accommodating the innovative land use and circulation features of the Grapevine Special Plan.

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# Section 5

## REVIEW AND APPROVAL PROCEDURES

### 5.1. Purpose

The purpose of this Section is to establish the review and approval procedures under the Grapevine Special Plan in compliance with Chapter 19.52, Special Planning (SP) District, of the Kern County Zoning Ordinance (KCZO). The Grapevine Special Plan has established internal design requirements as well as development review procedures and implementation processes as required under Chapter 19.112 [Title 19 KCZO] in order to address the development of the Grapevine's Special Planning (SP) District.

### 5.2. Special Plan Initiation and Approval

#### 5.2.1. Establishment Procedures

Consistent with Chapter 19.52.130 of the KCZO, the Grapevine Special Plan is established in accordance with the procedures set out in Chapter 19.112 of Title 19 of the KCZO and in conjunction with review and approval of a Site Development Plan, as set forth below in Section 5.3.3, Site Development Plan Review Process. Further, the Special Plan has been established in accordance with the procedures set forth in Sections 19.102.190 through 19.102.230 of Title 19 of the KCZO (2015).

#### 5.2.2. Adoption by Ordinance

Pursuant to Chapter 19.52.160 of the KCZO, the Grapevine Special Plan shall be adopted by ordinance and shall include all standards and conditions approved in connection with the review of the site application. As such, the Grapevine Special Plan shall be referenced by ordinance number on the official zoning maps of the County.

### 5.3. Subsequent Special Plan Implementation Approvals

Refer to Figures 5-1 through 5-3 for flowcharts that demonstrate the approval processes described in detail below.

#### 5.3.1. Parcel Maps, Tentative Tract Maps, and Financing Tentative Tract Maps

- a. **Parcel Maps.** Parcel maps within the Special Plan shall be processed subject to County Ordinance Code, Title 18, Kern County Land Division Ordinance. Discretionary approvals for each parcel map shall be made through a Director's Hearing and the recorded Parcel Map may be utilized for financing



## **Review and Approval Procedures**

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and conveyance of land and infrastructure within the Special Plan. Upon final discretionary approval of each residential, commercial, or industrial parcel map by the Planning Director or applicable hearing body (on appeal) and recordation of the final map, the approved map will implement the Special Plan.

- b. Tentative Tract Maps.** Tentative tract maps within the Special Plan shall be processed subject to County Ordinance Code, Title 18, Kern County Land Division Ordinance. Upon final discretionary approval of each Tentative Tract Map by the Planning Commission or Board of Supervisors on appeal and the recordation of the final map the approved map will implement the Special Plan.
  - 1. Proposed tentative tract map adjustments greater than the established development caps may be approved in accordance with the Grapevine Land Use Exchange (Special Plan Table 3-4) by the County with a tentative tract map application provided no substantial new adverse traffic impacts would result from exceeding the established development caps. A proposal to exceed the development caps shall require a determination by staff of the appropriate California Environmental Quality Act (CEQA) action.
  - 2. Tentative tract map proposals including commercial, recreational, or industrial parcels shall require a discretionary Site Development Plan Review approval process through the Planning Commission and shall be processed in conjunction with the tentative tract map.
    - i. Lots for commercial, industrial, and/or recreational uses shall demonstrate size and shape that facilitates these future potential uses in accordance with the requirements of the Special Plan. Requirements include submittal of a conceptual design that shows the following: parking with most intense potential use of the property, driveways, landscape plans, building footprints, and utilities shall be sufficient to serve future potential development on such proposed lot(s).
- c. Financing Tentative Tract Maps.** Applications for a financing tentative tract map(s) may be submitted in order to create individual legal parcels solely for the purpose of obtaining financing without encumbering the remainder of the project site. A financing tentative tract map shall be submitted, reviewed, and approved in conformance with the requirements and procedures established in Chapter 18.15 of the Kern County Land Division Ordinance.

### **5.3.2. Final Map Approval Process**

Final maps are subject to the review and approval of the County Surveyor. Upon County Surveyor approval, all final maps are forwarded to the Clerk of the Board of Supervisors who shall certify that all necessary certificates, securities, deposits and dedications have been made pursuant Sections 18.45.040 (final tract map) and 18.45.080 (final parcel map) of the Kern County Land Division Ordinance.

### **5.3.3. Site Development Plan Review Application (prior to issuance of Grading or Building Permits)**

Subdivision lot and parcel development within the Special Plan shall comply with the following Site Development Plan review and approval process:

- a. Grapevine Master Developer (MD) Review and Approval.** The MD shall conduct an internal design review and approval process for all parcel-specific development proposals to ensure planning,

## Review and Approval Procedures

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design, and character of individual property development is consistent with the overall design objectives of the Special Plan and Specific Plan prior to submittal to the Kern County Planning Department. This process shall apply the development standards in Section 3 of the Special Plan and ensure compliance with the Specific Plan, including the accompanying appendices, conditions, and mitigation measures. This internal review through the MD will include design review per the Grapevine Design Principles document (Appendix B of the Specific Plan), which will be used to approve the design of proposed development, and sustainability review per the Grapevine Sustainability Principles document (Appendix C of the Specific Plan), which will be used to approve the sustainability measures of proposed development.

- b. **Planning Department Site Development Plan Review and Approval.** The proposed development shall comply with all applicable development regulations, implementation requirements, and mitigation measures of the Specific Plan and its appendices.
  
- c. **County Review Submittal Requirements.** Applications for a Site Development Plan review must include the following in lieu of the required Site Development Plan contents identified in Section 19.52.140 of the KCZO (2015):
  1. Name and address of applicant.
  2. Name(s) and address(es) of property owner(s).
  3. Assessor's Parcel Number(s).
  4. Legal description of the property.
  5. A site plan drawn at XX-scale [specified by Planning Director], which includes the following information:
    - i. Existing topography of each Sub Area;
    - ii. Circulation Plan;
    - iii. Location of buildings;
    - iv. Location of other proposed uses;
    - v. Proposed setbacks;
    - vi. Overlay location of parks or public or quasi-public buildings;
    - vii. Landscape documentation package;
    - viii. Water Supply and Distribution;
    - ix. Sewage Disposal System;
    - x. Drainage System; and
    - xi. North arrow depicting directional information.
  6. Acres of each Special Plan District area.
  7. Number of maximum dwelling units allowable within each Sub Area.
  8. A narrative description, if applicable, of the proposed development, including:
    - i. An explanation of the proposed deviations from the standards that would otherwise apply to the proposed uses and why the deviations are necessary or desirable; and
    - ii. Phasing approach description(s).
  
- d. **Plan Set Requirements.** An approved set of plans from the MD review and approval process shall constitute the required submittal material for the County design review process.
  1. The MD-approved plans shall be accompanied by an application in the format and number of copies specified by the Planning Director. Absence of an approved MD Site Development Plan package will cause the County to reject the application.

## **Review and Approval Procedures**

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2. Review criteria to be checked for issuance of a Site Development Plan include setbacks, building height, parking, grading, permitted use, infrastructure development standards as set out in this Special Plan under 5.3.3.c.
  3. The MD-approved plans shall include applicable mitigation measures as set out in Grapevine's adopted Mitigation Monitoring and Reporting Program.
- e. **County Grapevine Residential Site Development Plan Review Process.** Site Development Plan review for residential development shall require a ministerial review by County Planning Staff pursuant to Sections 19.102.050 through 19.102.060, Ministerial Permits Issued by the Planning Director, to confirm if all development conditions and environmental impacts identified in the Mitigation Monitoring and Reporting Program, special plan conditions, and conditions of the subdivision map have been met. For uses that are identified in Table 2-1, Permitted Uses, as requiring a "Sensitivity Review," the Site Development Plan review process shall also include a Sensitivity Review as described in Section 5.3.4.b.
- f. **County Grapevine Commercial/Industrial and Institutional/Recreational Site Development Plan Review Process.** Site Development Plan Review for commercial/industrial and institutional/recreational development shall require a discretionary permit approval by the Planning Director through a Director's hearing process. If a Site Development Plan application is bundled with a tentative tract map, the Director may schedule a public hearing directly before the Planning Commission, in which case a decision shall be rendered in accordance with Section 19.102.160. Applications for Director's approval shall be processed according to the provisions set forth in Sections 19.102.070 through 19.102.120 (including the appeals process to the Board of Supervisors) of the KCZO and shall address Section 3 of the Grapevine Special Plan (Development Standards) with the following exceptions:
1. The approved set of plans and specifications from the MD review and approval process shall constitute necessary plan submittal requirements for this process.
  2. The proposed development plans shall be in conformance with required development standards and the prototypical development design options contained within the Special Plan (see Figures 3-1 through 3-3).
  3. The Site Development Plan review process shall evaluate the potential for adverse public safety and hazard impacts in relation to the nearest residential or school use, or approved tract or parcel map authorizing such a sensitive use. The buffer distance between the proposed new use and the sensitive use must be adequate, as defined in Table 2-1, Permitted Uses, to protect the sensitive-use locations from the potential public health and safety risks relative to the hazards, odors, noise, and air emissions from the proposed new use.

### **5.3.4. Additional Review Processes**

- a. **Special Use Permit Review.** The Special Use Permit Review process establishes procedures to ensure compatibility of specified uses with neighboring land uses, as identified in Table 2-1, Permitted Uses. This discretionary process would be subject to the application review and approval procedures of KCZO Sections 19.102.130 through 19.102.180, Discretionary Permit Decisions, issued by the Planning Commission.
- b. **Sensitivity Review.** For uses that are identified in Table 2-1, Permitted Uses, as requiring a "Sensitivity Review," the Site Development Plan review process shall reflect a five-hundred-foot

## Review and Approval Procedures

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setback from sensitive uses (residence, school and tract or parcel maps authorizing residential use). Such uses subject to a Sensitivity Review must also be in compliance with the Specific Plan's Noise Element Standards. Uses requiring a Sensitivity Review shall be reviewed by the Planning Director for approval subject to the aforementioned standards as part of the Site Development Plan review process.

- c. **Variance.** Variance applications shall be in accordance with the procedures set forth in Chapter 19.106 [Title 19 KCZO] where special physical circumstances exist limiting the development of a particular property in accordance with development standards. This application process is may be approved in accordance with the procedures set forth in Sections 19.102.070.I through 19.102.120, Discretionary Permit Decision by the Planning Director.
- d. **Oil and Gas Activities.** Oil and gas activities and ancillary uses will be subject to the ministerial land use permit procedures specified in Chapter 19.98 of the KCZO. Special Plan Section 3.16, Oil and Gas Production, provides direction for the implementation of Tier Area standards and permit procedures as used in Chapter 19.98 of the KCZO.

### 5.3.5. Modifications

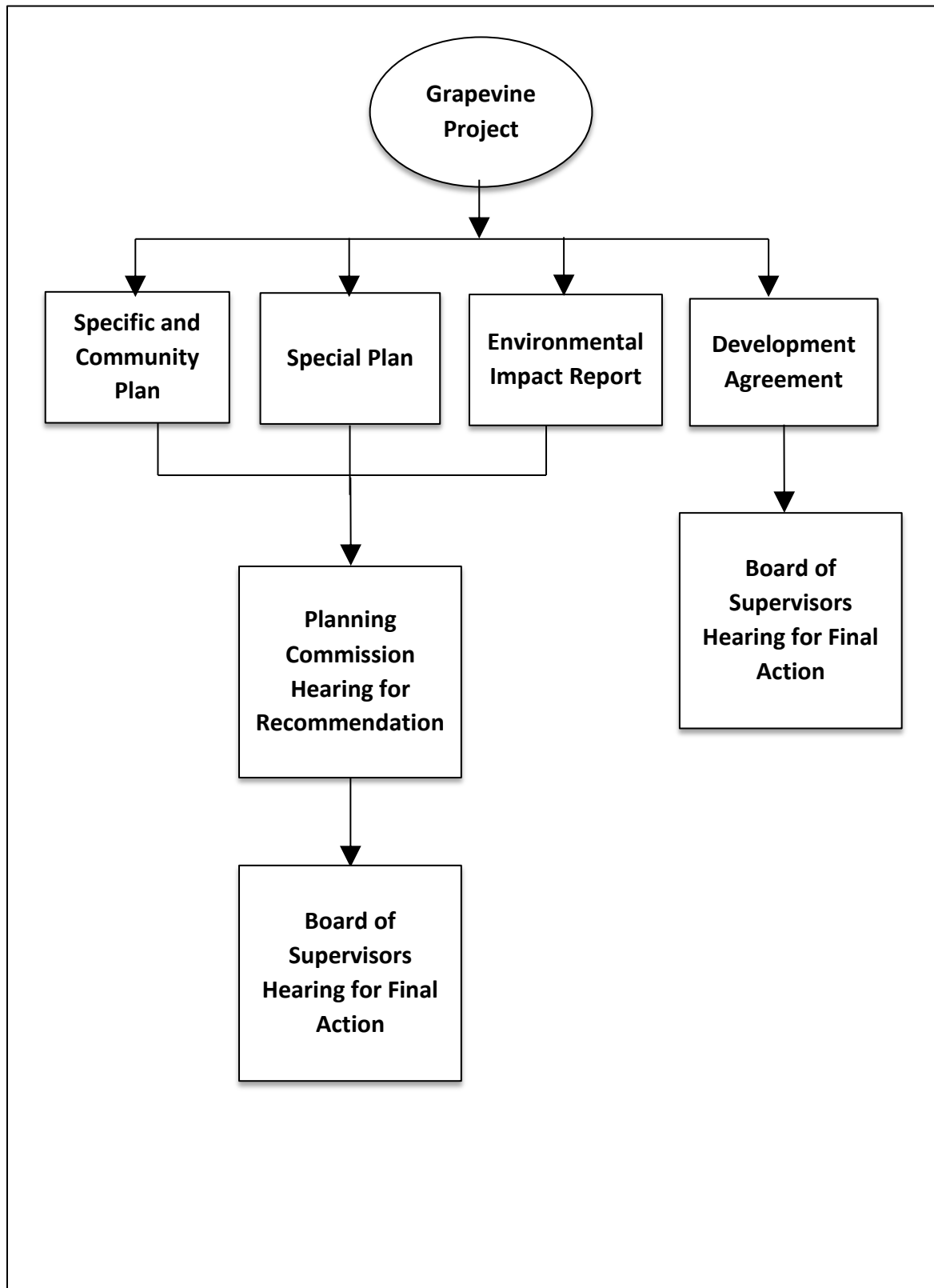
The purpose of a modification application is to provide a mechanism by which certain regulations in the Special Plan may be adjusted if the proposed development continues to meet the intended purpose of the Grapevine Specific Plan or Special Plan.

- a. **Major Modification (or Amendment).** A major modification or amendment may be approved in accordance with the procedures set forth in KCZO Chapter 19.112, Amendments to Zoning, which allows a modification to be taken to a Planning Director's hearing with an appeal to the Board of Supervisors.
- b. **Zone Modification.** Zone modification applications shall be in accordance with the procedures set forth in Chapter 19.110 [Title 19 KCZO]. The following standards may be approved as listed under Section 19.110.040:
  1. Minimum lot size, not to exceed 15% reduction
  2. Off-street parking, not to exceed 15% reduction where 10 or more parking spaces are required
  3. Setback requirements, not to exceed 25% reduction
  4. Height limits excluding signs, not to exceed 25%
  5. Height, location, or construction requirements for fences, walls or hedges.

## Review and Approval Procedures

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### 5.3.6. Initial and Subsequent Review Processes



**Figure 5-1 Initial Approvals**

## Review and Approval Procedures

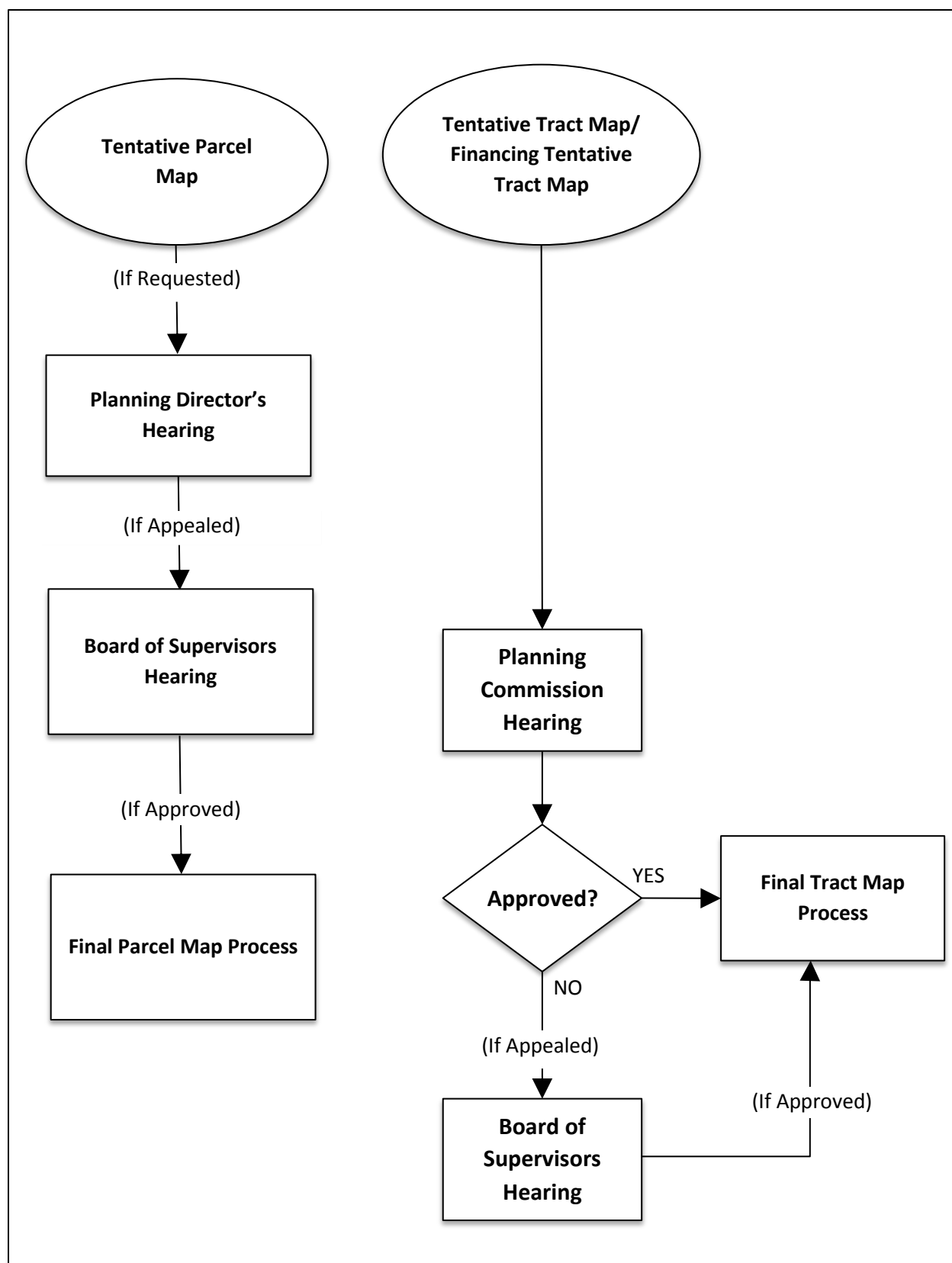
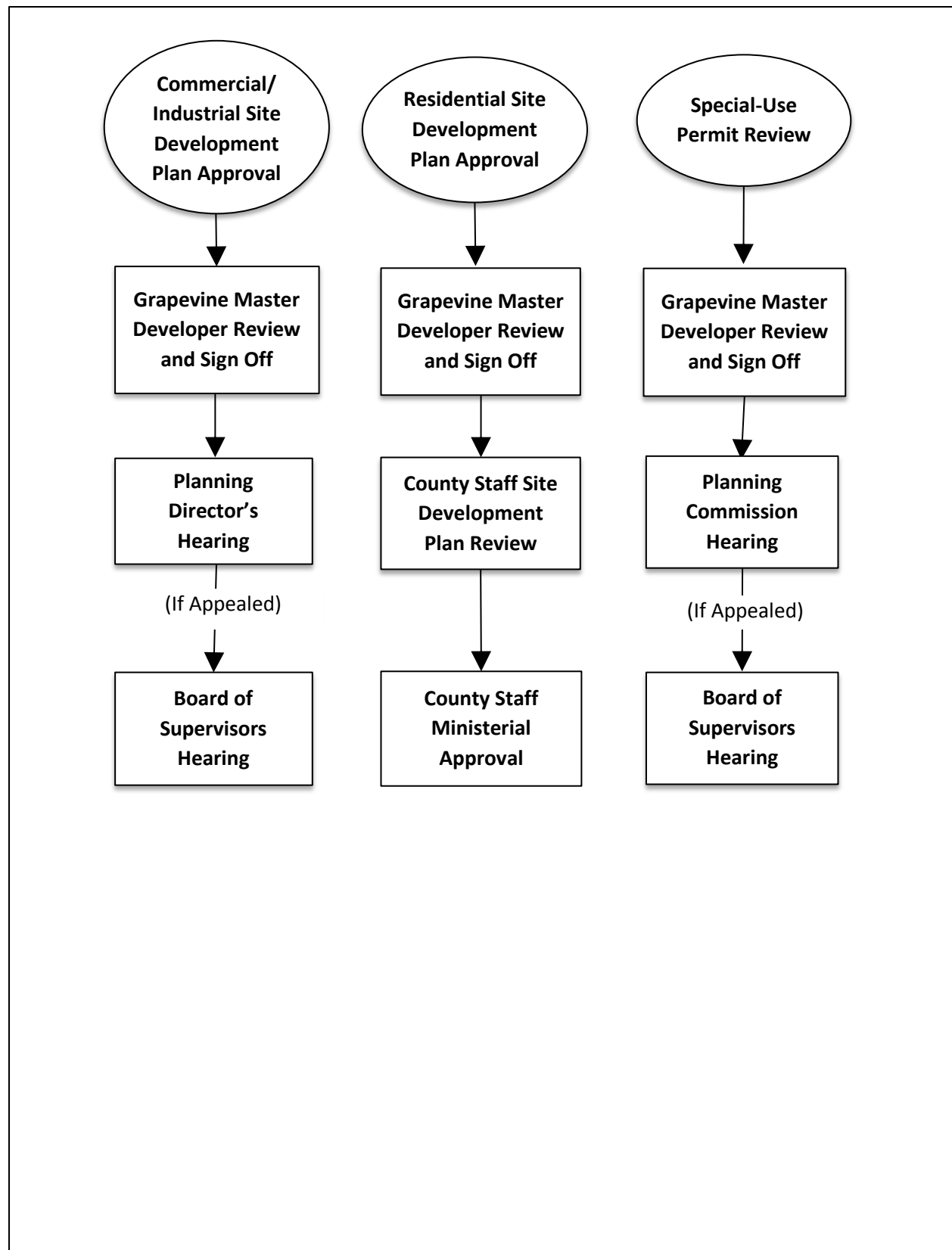


Figure 5-2 Subsequent Land Division Approvals

## Review and Approval Procedures



**Figure 5-3** Subsequent Land Use Approvals



## 5.4. Development Cap Review Process

To ensure the development of the Special Plan Area over time is consistent with approved development caps identified in the Grapevine Specific Plan, as outlined in Section 3.2 of this Special Plan, the MD or assignee will maintain a cumulative statistical summary. This summary will identify the “draw down” against the Grapevine development caps for each land use type (Residential, Retail, Office/R&D, Industrial/Warehouse) and for each Sub Area individually, with accounting of incremental parcel development. The summary will be maintained in a format showing the development caps, the use or reduction of each cap, and a cumulative “remaining balance” for each applicable development cap after parcel development. The overall development cap of 12,000 residential units and 5,100,000 square feet of non-residential uses for the project will also be indicated.

A Development Cap Summary Table and a Tentative Tract Map and Site Plan Submittal Tracking Summary Table will be attached to every site plan (see tables below for a conceptual format of these ongoing cumulative summaries). The MD will submit an annual report summarizing the data. In order to maintain a true picture of the “remaining balance,” the annual report will include calculations detailing adjustments made consistent with Table 3-4, Land Use Exchange. The reports shall be due 1 year from first submittal date and may be submitted early.

## Review and Approval Procedures

### Grapevine Special Plan Development Cap Status

Sub Area	Residential 12,000 DUs				Retail 1,200,000 Gross Leasable SF		Office/R&D 2,450,000 Gross Floor Area SF		Industrial/ Warehouse 1,450,000 Gross Floor Area SF	
	<i>SFR-Detached</i>		<i>SFR/MFR-Attached</i>		<i>Total to Date</i>	<i>Maximum (SF)</i>	<i>Total to Date</i>	<i>Maximum (SF)</i>	<i>Total to Date</i>	<i>Maximum (SF)</i>
	<i>Total to Date</i>	<i>Maximum (DUs)</i>	<i>Total to Date</i>	<i>Maximum (DUs)</i>						
1		1,750		325		70,000		560,000		500,000
2		2,490		1,375		670,000		1,090,000		450,000
3		1,650		1,025		990,000		910,000		380,000
4		2,590		80-		165,000		250,000		150,000
5a		2,425		465		100,000		250,000		250,000
5b		50		n/a		n/a		n/a		n/a
6a		820		1,050		350,000		405,000		1,400,000
6b		n/a		n/a		n/a		n/a		400,000
6c-6e		n/a		n/a		n/a		n/a		450,000
<b>TOTAL (To Date)</b>										
<b>Land Use Exchange Adjustments (To Date)</b>	+		+		-		-		-	
<b>Adjusted TOTAL</b>										
<b>Remaining (To Date)</b>										

**Grapevine Special Plan  
Tentative Tract Map and Site Plan Submittal Tracking Summary**

Sub Area	TTM No.	Residential (DUs)	Residential Maximums (DUs)	Commercial/Industrial					
				<i>Retail (SF)</i>	<i>Retail Maximums (SF)</i>	<i>Office/R&amp;D (SF)</i>	<i>Office/R&amp;D Maximums (SF)</i>	<i>Industrial/Warehouse (SF)</i>	<i>Industrial/Warehouse Maximums (SF)</i>
1			2,075		70,000		560,000		500,000
2			3,865		670,000		1,090,000		450,000
3			2,675		990,000		910,000		380,000
4			3,390		165,000		250,000		150,000
5a			2,890		100,000		250,000		250,000

## Review and Approval Procedures

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### Grapevine Special Plan Tentative Tract Map and Site Plan Submittal Tracking Summary

Sub Area	TTM No.	Residential (DUs)	Residential Maximums (DUs)	Commercial/Industrial					
				Retail (SF)	Retail Maximums (SF)	Office/R&D (SF)	Office/R&D Maximums (SF)	Industrial/Warehouse (SF)	Industrial/Warehouse Maximums (SF)
5b			50		n/a		n/a		n/a
6a			1,870		350,000		405,000		1,400,000
6b			n/a		n/a		n/a		400,000
6c			n/a		n/a		n/a		450,000
6d			n/a		n/a		n/a		450,000

**Grapevine Special Plan  
Tentative Tract Map and Site Plan Submittal Tracking Summary**

Sub Area	TTM No.	Residential (DUs)	Residential Maximums (DUs)	Commercial/Industrial					
				<i>Retail (SF)</i>	<i>Retail Maximums (SF)</i>	<i>Office/R&amp;D (SF)</i>	<i>Office/R&amp;D Maximums (SF)</i>	<i>Industrial/Warehouse (SF)</i>	<i>Industrial/Warehouse Maximums (SF)</i>
6e			n/a		n/a		n/a		
<b>TOTAL</b>		<b>12,000 DUs</b>	<b>12,000 DUs</b>	<b>1,200,000 Gross Leasable SF</b>	<b>1,200,000 Gross Leasable SF</b>	<b>2,450,000 Gross Floor Area SF</b>	<b>2,450,000 Gross Floor Area SF</b>	<b>1,450,000 Gross Floor Area SF</b>	<b>1,450,000 Gross Floor Area SF</b>
<b>Land Use Exchange Adjustments (To Date)</b>									
<b>Adjusted TOTAL</b>									
<b>Remaining (To Date)</b>									

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# Section 6

## GLOSSARY

All terms used in this Special Planning (SP) District Plan (Special Plan) have the same definitions as provided in the Kern County Zoning Ordinance (KCZO), Chapter 19.04, Definitions, except the following terms, which are governed by the definitions listed below.

**amphitheaters** – Unroofed or partially enclosed building or structure, used for residents and guests, seating less than 400 people.

**architectural projections** – Any projection which is not intended for occupancy and which extends beyond the height of the building roof but shall not include signs.

**breweries, micro** – Production of beer, primarily for consumption on the premises in any bar, cocktail lounge, or restaurant.

**Caltrans** – California Department of Transportation.

**community use overlays** – Symbols on the Special Planning (SP) District Plan exhibits that designate approximate locations of public facilities and recreational uses.

**development caps** – Plan-wide development maximums or yield maximums to be implemented through the broad land use designations for dwelling units and commercial/industrial square footage.

**festival** – A program of cultural events consisting of performances, processions, and dances, and similar activities as determined by the Planning Director of Kern County. Circus or carnival events are not included within this definition.

**final map** – A map showing a subdivision for which a tentative and final map are required by the California Subdivision Map Act or Land Division Ordinance of Kern County, prepared in accordance with the provisions of Land Division Ordinance of Kern County and the California Subdivision Map Act, and designed to be recorded in the office of the county recorder.

**finance map** – A parcel map or subdivision map solely for the purpose of finance or conveyance of parcels. Recordation of a finance map does not require bonding for improvements or construction of any kind and does not permit construction.



## **Glossary**

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**fuel modification zone** – A strip of land where combustible native or ornamental vegetation is partially or totally removed and/or replaced with drought-tolerant, low-fuel-volume plant materials. These zones may have prescribed widths and may consist of multiple zones with varying fuel modification treatments.

**live/work** – a structure or spaces within structures that are used jointly for commercial and residential purposes.

**information centers** – A center that provides information to the public regarding the community, including new home developments.

**master developer** – Tejon Ranchcorp and its successors or assigns.

**maximum non-residential building square footage** – The maximum non-residential building square footage allowed for a given Planning Area as set forth in the Special Plan. (Applies only to commercial/industrial square footage.)

**model home complex** – A group of homes temporarily used as examples to sell future homes and including a sales office, which is removed and/or converted or sold within nine months of the sale of the last home in the housing tract.

**real estate tract sales office** – A temporary facility whose purpose is to coordinate real estate sales operations which is removed and/or sold within nine months of the sale of the last real estate component in the tract.

**research and development facilities** – Facilities for scientific research, and the design, development and testing of electrical, electronic, magnetic, optical and computer and telecommunications components in advance of product manufacturing, and the assembly of related products from parts produced off-site, where the manufacturing activity is secondary to the research and development activities, and where no more than 30 percent of the total floor area is office. Includes pharmaceutical, chemical, and biotechnology research and development.

**residential “lock-out” units** – Interior secondary dwelling unit.

**special management areas** – Those areas identified in the Exclusive Agriculture (EA) zoning district that contain unique biological and cultural resource values that require preservation in place.

**Specific Plan** – The Grapevine Specific and Community Plan.

**Specific Plan Area** – The area of Grapevine specifically designated in the Specific Plan Legal Description, as adopted by the Kern County Board of Supervisors.

**transit facility** – Enables residents, guests, and employees to make connection with existing travel opportunities (i.e., bus stop).

# Section 7

## REFERENCES

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## **References**

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Appendix D

# **Grapevine Agricultural Resources Technical Report**

# **Agricultural Resources Technical Report Grapevine Project**

*Prepared for:*

**Tejon Ranchcorp**  
4436 Lebec Road  
Tejon Ranch, California 93243  
*Contact: Diana Hurlbert*

*Prepared by:*

**DUDEK**  
853 Lincoln Way, Suite 208  
Auburn, California 95603  
*Contact: Cathy Spence-Wells*

**APRIL 2016**



# Agricultural Resources Technical Report

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# Agricultural Resources Technical Report

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## EXECUTIVE SUMMARY

This agricultural resources technical report discusses the potential effects of development on agricultural resources within the Grapevine study area, and provides recommendations for mitigation measures as needed. The proposed Grapevine Specific and Community Plan (proposed project) is located in the west-central portion of Tejon Ranch (the Ranch). The Grapevine Specific Plan area includes approximately 8,010 acres, of which approximately 3,232 acres (or about 40%) would be designated for agriculture (with grazing and open space as the predominant land uses) and approximately 4,778 acres (about 60%) would be developed as a new residential community and employment center. Implementation of the proposed project requires 77 acres of infrastructure-related impacts outside of the 8,010-acre Specific Plan area (off-site improvements), for a total of 8,087 acres within the Grapevine study area.

The proposed project would result in the permanent conversion of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (collectively, Important Farmland) to nonagricultural use, which is considered a significant impact; however, Mitigation Measure AG-1 requires the completion of conservation easements or deed restrictions to mitigate the loss of Important Farmland at a ratio of 1:1, which is consistent with Kern County requirements.

A majority of the study area is currently zoned Exclusive Agriculture (A) and development of the proposed project would conflict with this zoning in certain areas; however, the project proposes a zone change to allow for the proposed development. Therefore, with approval of the proposed project, there would be no conflict with zoning. In addition, the proposed project would conflict with the existing Agricultural Preserve No. 19 and with portions of the study area that are under existing Williamson Act contracts, resulting in a significant impact. The project proponent has filed notices of non-renewal on all 7,775 acres within Agricultural Preserve No. 19 and all 3,761.21 acres that are currently under Williamson Act contracts within the Specific Plan area. The proposed off-site improvements would not conflict with Agricultural Preserve No. 19 nor Williamson Act contracts. Mitigation Measure AG-2 prohibits non-agricultural development within the lands currently under Williamson Act contracts or within Agricultural Preserve No. 19 until those contracts expire or until Tejon Ranchcorp elects to cancel the Williamson Act contracts, paying appropriate cancellation fees, in accordance with applicable Williamson Act provisions.

Although the proposed project would result in the conversion of Important Farmland to nonagricultural use, this impact would be mitigated by Mitigation Measure AG-1. In addition, since the proposed project would allow for residential and commercial development adjacent to grazing lands within the study area, there is a potential for conflicts between these on-site uses. Therefore, the project would cause a significant impact and Mitigation Measure AG-3, which

## Agricultural Resources Technical Report

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would ensure that buyers of future residential parcels within 100 feet of irrigated farmlands or grazing lands are informed of these uses, is recommended to reduce this potential impact.

There are no Farmland Security Zone contracts within or adjacent to the study area, and none would be canceled by project construction activities. Therefore, the project would result in no impacts related to the cancellation of a Farmland Security Zone contract.

The mitigation measures provided in Section 3.3 are proposed to reduce impacts to agricultural resources, as described above. Implementation of Mitigation Measures AG-1, AG-2, and AG-3 would reduce all impacts to agricultural resources to a less-than-significant level. In addition, although the proposed project in combination with cumulative projects could result in a significant cumulative impact to agricultural resources, implementation of the mitigation described above would ensure that the project's contribution to significant cumulative impacts is reduced to a less-than-significant level.

## 1 INTRODUCTION

This agricultural resources technical report identifies the agricultural and farmland resources in the Grapevine project area, discusses the potential effects of the proposed Grapevine project on those resources, and provides recommendations for mitigation measures as needed. Conserving productive agricultural lands requires a careful, project-specific evaluation of the direct and indirect effects of agricultural land conversion. In order to analyze the proposed project's potential impact to agricultural lands, this study utilized factors identified in the Kern County Guidelines for Agricultural Soils/Farmland Conversion Studies and the Kern County General Plan (Kern County 2009).

### 1.1 Purpose and Scope

The purpose of this report is to document the impacts associated with the conversion of agricultural land to nonagricultural use. This report also discusses the potential conflicts between proposed urban uses and current agricultural activities in the vicinity of the proposed project. Mitigation measures are recommended to reduce the significance of impacts, where applicable.

The Lead Agency (County of Kern; County) typically bases a determination of agricultural resources significance on the thresholds established by the California Environmental Quality Act (CEQA) Guidelines (14 CCR 15000 et seq.). The Environmental Checklist Form of the CEQA Guidelines (Appendix G) contains a list of impacts that may be deemed potentially significant. The lead agency should address questions from this checklist that are relevant to a project's environmental effects. The County CEQA Implementation Document and County Environmental Checklist questions are provided in Section 3.1.

### 1.2 Project Description

The proposed project would implement the Grapevine Specific and Community Plan within the 8,010-acre Specific Plan area. The Specific Plan designates approximately 3,232 acres (about 40%) for ongoing open space use and approximately 4,778 acres (about 60%) for development of a new residential community and employment center. Implementation of the proposed project requires 77 acres of infrastructure-related improvements outside of the 8,010-acre Specific Plan area, which are described as off-site improvements. In order to describe the environmental setting of the proposed project, the term study area is used to describe both the 8,010-acre Specific Plan area and the 77-acre off-site improvement areas; the study area totals 8,087 acres.

### 1.2.1 Project Location

The proposed project is located in the west-central portion of the Ranch. The approximately 270,000-acre Ranch is currently held in private ownership by Tejon Ranchcorp. The Ranch includes a large portion of the Tehachapi Mountains as well as smaller portions of the San Joaquin and Antelope Valleys. Generally, the Ranch extends from State Route 58 (SR 58) on the northern side to SR 138 on the southern side (Figure 1).

The 8,087-acre Grapevine study area is entirely within unincorporated Kern County just south of the junction of I-5 and SR 99. Downtown Bakersfield is approximately 25 miles north of the study area (Figure 1). The majority of the study area is on the east side of I-5, but a smaller portion lies on the west side of I-5. The study area is bisected by the California Aqueduct (Figure 2).

The Grapevine study area lies mainly in the Grapevine and Pastoria Creek U.S. Geological Survey 7.5-minute quadrangles. There is one parcel and a portion of two other parcels in the study area that lie entirely within the Mettler U.S. Geological Survey 7.5-minute quadrangles. The latitude and longitude of the approximate center of the site is 34°57'9" N and 118°55'39" W. The Universal Transverse Mercator (UTM) coordinates for the approximate center are UTM Easting (meters) 323999 and UTM Northing (meters) 3869472 in Zone 11.

### 1.2.2 Project Overview

The 8,087-acre study area is within the 15,644-acre Grapevine Planning Area identified in the Tejon Ranch Land Use and Conservation Agreement (Ranchwide Agreement), a landmark agreement reached in 2008 with leading environmental organizations (including the Sierra Club, Natural Resources Defense Council, California Audubon Society, Endangered Habitats League, and Planning and Conservation League) to permanently conserve over 90% of Tejon Ranch as open space and limit development to designated areas near existing infrastructure such as I-5. The precise boundaries of the 8,087-acre study area may be further adjusted based on the results of the ongoing environmental review and permitting process for the project, but will remain within the Grapevine Planning Area.

The Grapevine Specific Plan area includes approximately 8,010 acres, of which approximately 3,232 acres (or about 40%) would be designated for agriculture (with grazing and open space as the predominant land uses) and approximately 4,778 acres (about 60%) would be developed as a new residential community and employment center. The community would leverage and build upon the economic expansion and job growth that has occurred at Tejon Ranch Commerce Center, located immediately north of the project on I-5 (see Figure 2). The Grapevine project

## Agricultural Resources Technical Report

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would feature a series of compact neighborhoods linked by bicycle and pedestrian trails that provide convenient access to grocery and drugstores, professional services, schools, and parks.

The study area is located along I-5, at the gateway to the Central Valley, and is immediately adjacent to the extensive open space that was conserved in the Ranchwide Agreement. As such, one of the land use goals identified in the Specific Plan is to establish a community that creates a positive gateway to Kern County and displays the rich agricultural heritage of the San Joaquin Valley. Therefore, the Grapevine project will integrate agricultural elements into community to create an ethos of farm-to-table, such as the use of orchards and vineyards for landscaping and community agriculture, including farming and animal husbandry.

The proposed project, which would include up to 12,000 residential units and 5.1 million square feet of commercial land uses, is designed as a series of conveniently located village centers, each composed of a mix of housing, neighborhood-serving retail and office uses, schools, parks, and community services. Other potential public facilities, including two fire stations, sheriff substation, transit facility / park-and-ride, and water and wastewater treatment facilities, are proposed throughout the community. Outside the village cores, the Grapevine project includes a mix of residential uses, office, research and development, regional commercial, freeway-oriented commercial, and light industrial/warehouse uses.

Access to the first phases of the Grapevine community will be from I-5 at the existing Grapevine Road and Laval Road interchanges. During later phases of development, the existing Grapevine Road/I-5 interchange may be expanded and relocated to the north. To allow for the relocation and replacement of the interchange, an existing California Department of Transportation (Caltrans) Commercial Vehicle Enforcement Facility may be relocated to a Tejon Ranchcorp-owned parcel on the west side of the junction of I-5 and SR 99. The project would also improve an existing Tejon Ranchcorp agricultural road east of the project area to provide access for truck traffic currently using Edmonston Pumping Plant Road to travel to properties east of the project. The circulation network within the project is composed of two- and four-lane arterials, collector streets, and local streets organized in a grid pattern. All roads within the Specific Plan area will be public. Multipurpose trails are proposed along Grapevine Creek, Cattle Creek, the southern foothills, and the open space adjacent to the California Aqueduct and at other locations throughout the Specific Plan area. Some of these trails would connect to on-street, Class 2 bike lanes. Water and sewer service will be provided by the Tejon–Castac Water District. The proposed off-site improvements, totaling 77 acres, are associated with the connection of the backbone infrastructure to I-5, across the California Aqueduct, and between discontinuous project parcels.

### 1.2.3 Project Construction Scenario

The Specific Plan area is divided into six planning areas ranging in size from approximately 450 to 1,400 acres. Development will be phased over a period of 19+ years, starting with the development of Planning Areas 2 and 6a and continuing with the balance of the planning areas (1, 3, 4, 5, and 6b-6e). Build-out of each phase is projected to take approximately 2 to 4 years (Phase 1: 2 years; Phase 2: 4 years; Phase 3: 3 years; Phase 4: 4 years; Phase 5: 4 years; Phase 6: 2 years), with the first phase commencing in 2016. The portions of the site that are proposed to remain in exclusive agriculture/open space are primarily located along the southern edge of the California Aqueduct, along the southern portion of the Specific Plan area at the foothills of the Tehachapi Mountains, and along Grapevine and Cattle Creeks.



## **2 SETTING**

### **2.1 Environmental Setting**

#### **2.1.1 Regional**

The 8,087-acre Grapevine study area lies at the southern end of the San Joaquin Valley in Kern County just south of the junction of I-5 and SR 99, at the gateway to the Central Valley. Kern County is California's third-largest county in land area and encompasses approximately 8,202 square miles. The County's geography includes mountainous areas, valley floor, and deserts. The County's dominant land use is agriculture. Figure 1 identifies the location and regional setting of the proposed project.

According to the most recent California agricultural statistics report prepared by the U.S. Department of Agriculture (USDA) (2013a), California had 80,500 farms and ranches in 2012. This number represents 3.7% of the nation's total farming operations; however, these farms account for 11% of the national gross cash receipts from farming. The total sales value of California crops in 2012 was \$44.7 billion.

California land in farms totaled 25.4 million acres for the year 2012. The average size farm in California is 316 acres. In 2012, the average value of California farm real estate increased 4.3% per acre to \$7,200 per acre. California's top 20 crop and livestock commodities account for 81% of the state's gross farm income. The top 10 commodities are as follows: milk and cream, grapes, almonds (shelled), cattle and calves, nursery, berries (strawberries), hay, lettuce, walnuts, and tomatoes (USDA 2013a).

Between 1998 and 2012, a total of 13,240 acres of agricultural lands in the unincorporated portions of the County were converted to nonagricultural use. The majority of agricultural land conversions in recent years have been due to solar projects approved in Kern County (2013).

#### **2.1.2 Local**

The Grapevine study area is located approximately 25 miles south of downtown Bakersfield on property owned by Tejon Ranchcorp. I-5 and the California Aqueduct bisect the site. The 8,010-acre project development area is within the 15,644-acre Grapevine Planning Area identified in the Ranchwide Agreement, which permanently conserves approximately 90% of Tejon Ranch as open space and limits development to designated areas near existing infrastructure, including I-5. The project development area has also been adjusted to accurately reflect stream locations at the base of the Tehachapi Mountains. The precise boundaries of the 8,087-acre study area may be further adjusted based on results of the ongoing environmental review and permitting process for the project, but will be within the overall development area envelope in the Grapevine Planning Area.

## Agricultural Resources Technical Report

The Tehachapi Mountains and Tejon Ranch conservation lands are located immediately to the south, east, and west of the portion of the study area east of I-5, and the Tejon Ranch Tecuya Creek conservation easement is to the west. Tejon Ranch Commerce Center is to the north. The slopes to the south and east of the site are generally undeveloped.

The Los Padres National Forest is located south and west of the portion of the study area located west of I-5, as is the Wind Wolves Preserve conservation area. The Pastoria Energy Facility, Griffith Sand and Gravel Mine, and Edmonston Pumping Plant are all located several miles east of the project area.

On site, the existing uses include grazing, hunting, film production, limited agriculture, and oil and gas production. The site also includes hospitality facilities and general commercial uses at the Grapevine interchange. Major gas, electric, and communications easements and the California Aqueduct traverse the site.

### 2.1.3 General Plan and Zoning

The Kern County General Plan (General Plan; Kern County 2009) identifies planning goals and objectives for land within the County. Goals and objectives for specific parcels are identified by the adoption of certain land use map codes that are described in the Land Use, Open Space, and Conservation Element of the General Plan. General Plan land use designations are implemented by the County through the adoption of appropriate zoning classifications in Title 19 of the County's zoning ordinance. The existing General Plan designations and zoning classifications for the Grapevine study area are provided in Tables 1 and 2 and shown graphically on Figures 3 and 4.

**Table 1**  
**Existing General Plan Land Use**

Map Code	Land Use	Acreage
1.1	State and Federal Land*	12
3.1/2.5	Public or Private Recreation Areas/Flood Hazard	5
4.3	Specific Plan Required**	438
6.2	General Commercial	79
6.2/2.5	General Commercial/Flood Hazard	34
8.1	Intensive Agriculture (minimum 20 acre parcel size)	188
8.1/2.5	Intensive Agriculture (minimum 20 acre parcel size)/Flood Hazard	95
8.3	Extensive Agriculture (minimum 20 acre parcel size)	3,482
8.3/2.1	Extensive Agriculture (minimum 20 acre parcel size)/Seismic Hazard	397
8.3/2.2	Extensive Agriculture (minimum 20 acre parcel size)/Landslide	712
8.3/2.4	Extensive Agriculture (minimum 20 acre parcel size)/Steep Slope	999
8.3/2.5	Extensive Agriculture (minimum 20 acre parcel size)/Flood Hazard	961

## Agricultural Resources Technical Report

**Table 1**  
**Existing General Plan Land Use**

Map Code	Land Use	Acreage
8.4	Mineral and Petroleum (minimum 5 acre parcel size)	529
8.4/2.5	Mineral and Petroleum (minimum 5 acre parcel size)/Flood Hazard	142
GI	General Industrial	14
Total		8,087

Source: Kern County 2015.

\* This land is owned by Tejon Ranchcorp, and the Map Code 1.1 status appears to have been a mapping error.

\*\* Grapevine Commercial – Highway Commercial (360 acres maximum)

**Table 2**  
**Existing Zoning Classifications**

Classification	Zone	Acreage
A	Exclusive Agriculture	7,932
C-2 PD	General Commercial	145
FPP	Floodplain Primary	6
--	Right of Way	4
Total		8,087

Source: Kern County 2014a.

As indicated in Tables 1 and 2, the majority of the study area is currently designated and zoned for agricultural uses. A total of 6,834 acres of the study area are currently designated Intensive Agriculture (Map Codes 8.1 and 8.1/2.5) and Extensive Agriculture (Map Codes 8.3, 8.3/2.1, 8.3/2.2, 8.3/2.4, and 8.3/2.5) in the General Plan, and 7,932 acres of the study area are currently zoned Exclusive Agriculture (A).

The Intensive Agriculture designation is applied to “areas devoted to the production of irrigated crops or having a potential for such use. Other agricultural uses, while not directly dependent on irrigation for production, may also be consistent with the intensive agriculture designation. Minimum parcel size is 20 acres gross” (Kern County 2009).

The Extensive Agriculture designation is applied to “agricultural uses involving large amounts of land with relatively low value-per-acre yields, such as livestock grazing, dry land farming, and woodlands. Minimum parcel size is 20 acres gross, except lands subject to a Williamson Act Contract/Farmland Security Zone Contract, in which case the minimum parcel size shall be 80 acres gross” (Kern County 2009).

## Agricultural Resources Technical Report

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### 2.1.4 Agricultural Production

#### Kern County

The most recent agricultural crop report prepared by the Kern County Department of Agriculture and Measurement Standards states that in 2013, Kern County contained 839,079 acres of harvested land and an additional 1,488,000 acres in rangeland. Within that acreage, the top commodities include 422,146 acres harvested for fruit and nut crops, 339,746 acres of field crops and rangeland, and 73,550 acres of vegetable crops. The 2013 total value of agricultural commodities produced in Kern County was \$6,769,855,590. The top five commodities in Kern County for 2013 were grapes, almonds, milk, citrus, and cattle, which make up more than \$4.6 billion (68%) of the total crop value (Kern County 2014b).

#### Study Area

As a part of the Tejon Ranch, the Grapevine study area is characteristic of a landscape that has been used for ranching and hunting for many years. The agricultural uses on the Grapevine study area include almond orchards and wine grapes, as well as several corrals associated with cattle ranching operations existing on site. On Grapevine, oil and gas production wells consisting of both active and inactive wells are located throughout portions of the project area, which are operated through mineral leases. Several underground oil and gas pipelines also extend through the project area. Linear utilities and associated utility easements for water, gas, and electricity cross the site. Within the area of the existing Grapevine interchange, existing commercial uses are served by water, sewer, natural gas, and electricity.



Livestock grazing occurs Ranch-wide on approximately 240,000 of the Ranch's approximately 270,000 acres. Under the current management regime, the number of cattle on the Ranch ranges from 8,000 to 17,000; in an average year, the number of cattle is 14,500. Numerous improvements for grazing, including fences, watering systems, and corrals, are present throughout the Ranch. The specific livestock practices vary from year to year based upon a number of factors, including the climate, which can affect the forage quantity and quality. On the Tejon Ranch property, livestock operations include a 55,000-acre lease on the northern portion of the ranch and a 195,000-acre lease in the central and southern areas of the ranch. With respect to the 8,087-acre



## Agricultural Resources Technical Report

Grapevine study area in general, on the west side of I-5, the area is grazed by livestock from winter to spring, depending on foraging production, and on the east side of I-5, livestock are moved to the study area for birthing and processing in late fall to early winter before returning to higher elevations based on forage production and operational considerations.

A review of the 2013 Kern County Agricultural Crop Report (Kern County 2014b), 2013 Crop Map provided by Tejon Ranch Company, and Bing Aerial Image Service was completed to determine the agricultural crop production within the study area. The 2013 agricultural crop report contains the most recent available crop report data. Table 3 identifies the agricultural crops, yield per acre, unit value per ton, and net value of each year's crop. Figure 5 shows the location of each crop within the Grapevine study area. As shown on Figure 5, there were approximately 371 acres of fallow farmland<sup>1</sup> within the study area as of 2013 (Kern County 2013).

**Table 3**  
**Grapevine Study Area Crop Value (2013)**

Crop Type	Bearing Acreage	Per Acre Yield/Ton	Unit Value per Ton	Total Value
Almonds	454 <sup>1</sup>	1.14	\$5,490.00	\$2,841,404.40
Wine grapes	35	11.18	\$408.00	\$159,650.40
<b>Total</b>	<b>489</b>	<b>—</b>	<b>—</b>	<b>\$3,001,054.80</b>

**Source:** Kern County 2013, 2014b.

<sup>1</sup> 8% of one on-site agricultural block is off site. Therefore, 147 acres of the 160-acre block is included in the bearing acreage.

Compared to 2013 Countywide crop acreages, the Grapevine study area irrigated lands produce crop yields that make up approximately 0.06% of the total 839,079 acres of harvested land, and 0.04% of the total \$6.8 billion crop value (Kern County 2013, 2014b).

The 489 acres identified in Table 3 are the only irrigated lands within the study area, making up only 6.1% of the study area. The almond orchards have access to water sources from the Wheeler Ridge Maricopa Water Storage District (WRMWSO) and three wells near these fields. Together these water sources supply water to this area through existing WRMWSO infrastructure. The wine grape fields are irrigated from on-Ranch water sources.



The grazing land south of the aqueduct is not irrigated and is not suitable for production agriculture because there is no existing infrastructure for irrigation. In addition, the grazing land does not have any water contracts, which are the amount of water available from the State Water Project. Due to variations in water supply availability, water management costs, and current agricultural uses

<sup>1</sup> Acreages of fallow lands are based upon spatial acreages.

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which require annual water supplies, expanding irrigated uses on the site is not feasible for Tejon Ranchcorp. Non-irrigated lands are most suitable for low value agricultural activities, such as grazing, which currently occurs on approximately 84% (6,770 acres) of the study area.

The Grapevine grazing lands have been used in the past from October to January for calving operations for a herd of approximately 400 cows. However, due to drought conditions in recent years, the calving operations have moved to other Tejon Ranch land. Thus the use of the Grapevine grazing lands has become optional. The Grapevine grazing lands vary in forage production, depending on precipitation amounts and timing of rainfall. At this time, the fields have low economic value for cattle operations.

### 2.1.5 Soils

The Natural Resources Conservation Service (NRCS) prepares soil surveys to map and describe soil types. Characteristics such as soil texture, slope, erodibility, frequency of flooding, and the ability of the soil to support agricultural activities are identified. In addition to soil types mapped by the NRCS, soils are classified under the USDA Land Capability Classification according to their potential to support agricultural activity. The soils present within the Grapevine study area are shown on Figure 6 (USDA 2007, 2009).

### 2.1.6 Climate

The Tejon Rancho National Oceanic and Atmospheric Administration Cooperative Station is approximately 8 miles to the northeast of the Grapevine study area at an elevation of 1,420 feet above mean sea level (amsl). Given the proximity to the study area and the elevation of the station, which is close to the midpoint of the study area elevation (i.e., approximately 1,403 feet amsl), the approximate climate of the study area is characterized herein using the data collected at this station.

The study area is at the base of the Tehachapi Mountains on the extreme southern end of the San Joaquin Valley floor. However, the majority of the study area is in the San Joaquin Valley, which has a semiarid climate characterized by long, hot, dry summers and damp, short winters that have a heavy fog layer for weeks at a time. The average high temperature during the summer approaches 96 degrees Fahrenheit (°F), with an annual average of 75.9°F. Low temperatures range from approximately 37°F–68°F, with an annual average low temperature of 51.2°F. The average annual precipitation is 11.68 inches. The majority of the rainfall (precipitation over 1 inch/month) during the year occurs between November and April, the typical rainy season for this region. The summer months are virtually rainless, with average monthly rainfalls ranging from 0.02 to 0.1 inch/month (WRCC 2013).

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### 2.2 Regulatory Setting

#### 2.2.1 Federal

##### Farmland Protection Policy Act (7 U.S.C. Section 4201)

The purpose of the Farmland Protection Policy Act (FPPA) is to minimize the extent to which federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. It additionally directs federal programs to be compatible with state and local policies for the protection of farmlands. For the purpose of the FPPA, farmland includes Prime Farmland, Unique Farmland, and Farmland of Statewide or Local Importance, as defined in 7 U.S.C. 4201. Federal agencies are required to develop and review their policies and procedures to implement the FPPA every 2 years.

The FPPA does not authorize the federal government to regulate the use of private or nonfederal land or affect the property rights of owners of such land. Projects are subject to FPPA requirements if they may irreversibly convert farmland (directly or indirectly) to nonagricultural use and are completed by a federal agency or with assistance from a federal agency (USDA 2013b).

#### 2.2.2 State

##### Farmland Mapping and Monitoring Program

The FMMP was created by the California Legislature in 1982. It requires the California Department of Conservation (DOC) to prepare, update, and maintain Important Farmland series maps and other soils and land capability information. Under the FMMP, the DOC categorizes land as described below (DOC 2012). Table 4 shows the acreage of each farmland category within the Grapevine study area and the acreage of each farmland type that is currently irrigated.

**Table 4**  
**Grapevine Study Area FMMP and Irrigated Lands**

FMMP Classification	Total Study Area Acreage	Irrigated Acres <sup>1</sup>
Prime Farmland	127	108
Farmland of Statewide Importance	291	273
Unique Farmland	115	108
Grazing Land	6,792	—
Urban and Built-Up Land	37	—
Other Land	725	—
<b>Grand Total</b>	<b>8,087</b>	<b>489</b>

Source: DOC 2012.

<sup>1</sup> Irrigated acreages that spanned more than one type of FMMP classification were calculated by the percentage of the spatial acreage of each agricultural block in the classification multiplied by the bearing acreage.



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### *Prime Farmland*

This farmland has the best combination of physical and chemical characteristics for crop production. It has the soil quality, growing seasons, and moisture supply needed to produce sustained high-yield crops when treated and managed, including water management, according to current farming methods.

In order to be shown on FMMP's Important Farmland maps as Prime Farmland, land must meet the following two criteria. First, it must have been used for irrigated agricultural production at some time during the 4 years prior to the Important Farmland map date; FMMP staff determines irrigated land use by analyzing current aerial photos, local comment letters, and related GIS data, supplemented with field verification. Second, the soil must meet the physical and chemical criteria for Prime Farmland or Farmland of Statewide Importance as determined by the USDA NRCS. The NRCS compiles lists of which soils in each survey area meet the quality criteria. Factors considered in qualification of a soil by the NRCS include the following:

- Water moisture regimes, available water capacity, and developed irrigation water supply
- Soil temperature range
- Acid–alkali balance
- Water table
- Soil sodium content
- Flooding (uncontrolled runoff from natural precipitation)
- Erodibility
- Permeability rate
- Rock fragment content
- Soil rooting depth.

Prime Farmland soils commonly get an adequate and dependable supply of moisture from precipitation or irrigation. Temperature and growing season are favorable, and the level of acidity or alkalinity is acceptable. The soils have few rocks and are permeable to water and air, are not excessively erodible or saturated with water for long periods, and are not flooded during the growing season. Approximately 127 acres of the study area consists of land mapped as Prime Farmland by the DOC as part of the FMMP (DOC 2012) (see Figure 7).

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### ***Farmland of Statewide Importance***

This is land other than Prime Farmland that has a good combination of physical and chemical characteristics for the production of crops and has been used for the production of irrigated crops within the 4 years prior to the mapping date. Approximately 291 acres of the study area consists of land mapped as Farmland of Statewide Importance by the DOC as part of the FMMP (DOC 2012).

### ***Unique Farmland***

This is land that does not meet the criteria for Prime Farmland or Farmland of Statewide Importance and that is currently used for the production of specific crops with high economic value. It has the special combination of soil quality, location, growing season, and moisture supply needed to produce sustained high quality or high yields of specific crops (e.g., oranges, olives, avocados, cut flowers) when treated and managed according to current farming methods. This category excludes abandoned orchards or vineyards. Land must have been cropped at some time during the 4 years prior to the mapping date. Approximately 115 acres of the study area consists of land mapped as Unique Farmland by the DOC as part of the FMMP (DOC 2012).

### ***Farmland of Local Importance***

This land produces crops or has the capability of production, or is used for the production, of confined livestock. It may be important to the local economy due to its productivity. A local advisory committee set up by the Soil Conservation Service in each county initially identified Farmland of Local Importance. The Kern County Board of Supervisors has determined that there will be no Farmland of Local Importance in Kern County; therefore, none of the study area is in this category.

### ***Grazing Land***

This is land on which the existing vegetation, whether grown naturally or through management, is suitable for grazing or browsing of livestock. It is identified in minimum mapping units of 40 acres and does not include land previously identified above. Approximately 6,792 acres of the study area consists of land mapped as Grazing Land by the DOC as part of the FMMP (DOC 2012).

### ***Urban and Built-Up Land***

This land is used for residential, industrial, commercial, construction, institutional, and public administrative purposes, among others. Approximately 37 acres of the study area consists of land mapped as Urban and Built-Up Land by the DOC as part of the FMMP (DOC 2012).

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### ***Other Land***

This is land not included in any of the other mapping categories and generally includes rural development with a density of less than one structure per 1.5 acres, marginal agricultural lands, brush, timber, roads, and other rural land uses. Vacant and nonagricultural land surrounded on all sides by urban development and greater than 40 acres is mapped as Other Land. Approximately 725 acres of the study area is classified as Other Land by the DOC as part of the FMMP (DOC 2012).

### **California Land Conservation Act (Williamson Act)**

The California Land Conservation Act of 1965, also known as the Williamson Act, was established with the basic intent of encouraging preservation of the state's agricultural lands in view of the increasing trends toward their "premature and unnecessary" urbanization. The Williamson Act enables local governments to enter into contracts with private landowners for the purpose of restricting land to agricultural or related open space use. In return, landowners receive property tax assessments that are much lower than normal because assessments are based on farming and open space uses as opposed to full market value. Local governments have traditionally received annual subvention of forgone property tax revenues from the state via the Open Space Subvention Act of 1971, but payments have been reduced or eliminated since 2009 due to budgetary decisions made by the Governor and Legislature.

Williamson Act contracts must have an initial term of at least 10 years. Williamson Act contracts are available only when the land is located within an established agricultural preserve. Every year, absent a notice of nonrenewal, the contract is automatically extended, or "renewed," for an additional year. Within the Grapevine study area there are 3,838.21 acres of land under Williamson Act contracts (Figure 8) (Kern County 2014a).

### ***Williamson Act Contract Termination Methods***

#### **Nonrenewal**

The landowner or the local government may file a notice of nonrenewal. The automatic annual renewal does not occur, and the contract eventually expires at the end of the applicable 10-year term. During this time, property taxes gradually rise to the full, unrestricted rate at the end of the nonrenewal period. Tejon Ranch has filed notices of non-renewal on all 3,761.21 acres within the Specific Plan area that are currently under Williamson Act contracts, as discussed further below.

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### Cancellation

If a landowner desires to terminate a contract in advance of the nonrenewal period, contract cancellation is an option under limited circumstances and conditions set forth in California Government Code, Section 51280 et seq. In such cases, landowners may petition the Board of Supervisors (Board) for Williamson Act contract cancellation. The Board may grant tentative cancellation if it makes required statutory findings (California Government Code, Section 51282(a)). The required findings include that cancellation is not likely to result in the removal of adjacent lands from agricultural use or result in discontinuous patterns of urban development and the alternative use is consistent with the general plan, or that other public concerns substantially outweigh the objectives of the Williamson Act. Additionally, the Board must find that there is no proximate, non-contracted land that is both available and suitable for the proposed use, or that development of the contracted land would provide more contiguous patterns of urban development. If the required findings are met, the landowner is required to pay a cancellation fee equal to 12.5% of the unrestricted fair market value of the property (California Government Code Section, 51283(b)). Alternatively, instead of paying the fee, the landowner may provide a restrictive easement on other land under the DOC's easement exchange program (California Government Code, Sections 51256–51256.3). Cancellations are also subject to review by the DOC.

### **Farmland Security Zone Act**

The Farmland Security Zone Act is similar to the Williamson Act and was passed by the California State Legislature in 1999 to ensure that long-term farmland preservation is part of public policy (California Government Code, Sections 51296–51297.4). Farmland Security Zone Act contracts are sometimes referred to as “Super Williamson Act Contracts.” Under the provisions of this act, a landowner already under a Williamson Act contract can apply for Farmland Security Zone status by entering into a contract with the county. Farmland Security Zone contracts must be for an initial term of at least 20 years. As with Williamson Act contracts, each year an additional year is automatically added to the contract term unless a notice of nonrenewal is given. In return for a further 35% reduction in the property tax value of land and growing improvements (in addition to Williamson Act tax benefits), the owner of the property promises not to develop the property into nonagricultural uses during the term of the contract. Farmland Security Zone contracts may also be canceled, but only upon a finding that cancellation would both serve the purposes of the Williamson Act and be in the public interest (California Government Code, Section 51297). No portion of the study area is under a Farmland Security Zone contract.

### 2.2.3 Local

#### **Kern County General Plan – Land Use Designations**

The Kern County General Plan (Kern County 2009) assigns land use designations to all property within the County’s jurisdiction. These designations govern the allowable uses of land. The Grapevine study area currently contains the designations shown below (see also Figure 3) (Kern County 2015).

##### ***Map Code 1.1 (State and Federal Land)***

This designation is applied to approximately 12 acres in the southeastern portion of the study area. The general plan applies this designation “to all property under the ownership and control of the various State and federal agencies operating in Kern County (military, U.S. Forest Service, Bureau of Land Management, Department of Energy, etc.)” (Kern County 2009). This land is owned by Tejon Ranchcorp, and the Map Code 1.1 status appears to have been a mapping error.

##### ***Map Code 4.3 (Specific Plan Required)***

This designation is applied to the western portion of the study area (438 acres)—Grapevine Commercial. The general plan applies this designation to “areas wherein large-scale projects have been previously proposed by the project landowner(s). This map code recognizes the need for additional assessment and evaluation of these proposals and does not create a commitment on the part of Kern County to approve any such proposals. The project proponent bears the burden of demonstrating the suitability of the property for the conceptual uses and densities. Areas designated Map Code 4.3 shall be subject to development, consideration, and adoption of a specific plan in accordance with all applicable local and State requirements pertaining thereto. The Maximum Allowed Land Use Density tables (Appendix C [of the general plan]) showing acreages and densities are conceptual and shall be used as guidelines should a specific plan be developed. Actual land uses and densities shall be based on consistency with the General Plan goals, policies and environmental review and may require reduction or elimination” (Kern County 2009). This portion of the study area is currently designated for Highway Commercial uses in the General Plan.

##### ***Map Code 6.2 (General Commercial)***

This designation is applied to the approximately 113-acre Grapevine Center commercial area adjacent to I-5. The general plan applies this designation to “retail and service facilities of less intensity than regional centers providing a broad range of goods and services which serve the day-to-day needs of nearby residents. Uses shall include, but are not limited to, the following: Neighborhood shopping centers, convenience markets, restaurants, offices,

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wholesale business facilities, resort hotels and motels, hospitals, schools (including trade schools), churches, and commercially related light manufacturing or storage within fully enclosed facilities” (Kern County 2009).

### ***Map Code 8.1 (Intensive Agriculture)***

This designation is applied to the approximately 283 acres in the northeast portion of the study area. The general plan applies this designation to “areas devoted to the production of irrigated crops or having a potential for such use. Other agricultural uses, while not directly dependent on irrigation for production, may also be consistent with the intensive agriculture designation. Minimum parcel size is 20 acres gross. Uses shall include, but are not limited to, the following: irrigated cropland; orchards; vineyards; horse ranches; raising of nursery stock, ornamental flowers, and Christmas trees; fish farms, ‘bee keeping,’ ranch and farm facilities, and related uses; one single-family dwelling unit; cattle feed yards; dairies; dry land farming; livestock grazing; water storage; groundwater recharge acres; mineral; aggregate; and petroleum exploration and extraction; hunting clubs; wildlife preserves; farm labor housing; public utility uses; and agricultural industries pursuant to provisions of the Kern County Zoning Ordinance, and land within development areas subject to significant physical constraints” (Kern County 2009).

### ***Map Code 8.3 (Extensive Agriculture)***

This designation is applied to the majority (82%) of the study area (6,551 acres). The general plan applies this designation to “agricultural uses involving large amounts of land with relatively low value-per-acre yields, such as livestock grazing, dry land farming, and woodlands. Minimum parcel size is 20 acres gross, except lands subject to a Williamson Act Contract/Farmland Security Zone Contract, in which case the minimum parcel size shall be 80 acres gross. Uses shall include, but are not limited to, the following: Livestock grazing; dry land farming; ranching facilities; wildlife and botanical preserves; and timber harvesting; one single-family dwelling unit; irrigated croplands; water storage or groundwater recharge areas; mineral; aggregate; and petroleum exploration and extraction; and recreational activities, such as gun clubs and guest ranches; and land within development areas subject to significant physical constraints” (Kern County 2009).

### ***Map Code 8.4 (Mineral and Petroleum)***

This designation is applied to approximately 671 acres in the northern portion of the study area. The general plan applies this designation to “areas which contain producing or potentially productive petroleum fields, natural gas, and geothermal resources, and mineral deposits of regional and Statewide significance. Uses are limited to activities directly associated with the resource extraction. Minimum parcel size is five acres gross. Uses shall include, but are not limited to, the following: Mineral and petroleum exploration and extraction, including aggregate

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extraction; extensive and intensive agriculture; mineral and petroleum processing (excluding petroleum refining); natural gas and geothermal resources; pipelines; power transmission facilities; communication facilities; equipment storage yards; and borrow pits” (Kern County 2009).

### **Kern County General Plan – Policy Document**

The Kern County General Plan (Kern County 2009) is a policy document that guides County decisions regarding growth and resource management within the unincorporated Kern County jurisdiction, excluding the Metropolitan Bakersfield planning area. The general plan recognizes that agriculture has been and will continue to be vital to the County’s economy and “the loss of valuable agricultural lands to urban development is a prime concern.” The general goal of the Land Use, Conservation, and Open Space element of the general plan is to “ensure that the County can accommodate anticipated future growth and development while maintaining a safe and healthful environment and a prosperous economy by preserving valuable natural resources, guiding development away from hazardous areas, and assuring the provision of adequate public services.”

The Kern County General Plan provides goals, policies, and implementation measures for the conservation of and/or improvements on agricultural lands. The general plan content expected to be most applicable to analysis and consideration of development within the study area is excerpted below. The goals, policies, and implementation measures identified below are taken from the Land Use, Conservation, and Open Space Element, Section 1.9, Resources. These goals and policies are discussed in greater detail in Section 3.3, including an evaluation of project consistency with these goals and policies in Table 6.

#### ***Goals: Resources***

1. To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations that will not impair the economic strength derived from the petroleum, agriculture, rangeland, or mineral resources, or diminish the other amenities that exist in the County.
2. Protect areas of important mineral, petroleum, and agricultural resource potential for future use.
3. Ensure the development of resource areas minimize effects on neighboring resource lands.
5. Conserve prime agriculture lands from premature conversion.

#### ***Policies: Resources***

1. Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the County regardless of General Plan designation.



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3. The County will support programs and policies that provide tax and economic incentives to ensure the long-term retention of agriculture, timber, and other resource lands.
5. Areas of low intensity agriculture use (Map Code 8.2 (Resource Reserve), Map Code 8.3 (Extensive Agriculture), Map Code 8.5 (Resource Management)) should be of an economically viable size in order to participate in the State Williamson Act Program/Farmland Security Zone Contract.
7. Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.
8. Provide for the orderly expansion of new urban-scale infrastructure and development and the creation of new urban-scale centers in a manner that minimizes adverse effects on agriculture and natural resource uses.
9. When evaluating General Plan Amendment proposals to change a Map Code 8.1 (Intensive Agriculture) designation to accommodate residential, commercial, or industrial development, the County shall consider the following factors:
  - a. Approval of the proposal will not unreasonably interfere with agricultural operations on surrounding lands.
  - b. Necessary public services (fire, sheriff, etc.) and infrastructure are available to adequately serve the project.
  - c. There is a demonstrated need for the proposed project location based upon population projections, market studies and other indicators.
  - d. The requested change in land use designation is accompanied by a zone change and other implementing land use applications for a specific development proposal.
  - e. The site is contiguous to properties that are developed or characterized by nonagricultural land uses.
  - f. Past agricultural use of the site has led to soil infertility or other soil conditions which render the property unsuitable for long-term agricultural use.
  - g. Approval of the proposed project outweighs the need to retain the land for long-term agricultural use.
  - h. Where adjacent or within proximity (1/2 mile) to existing urban areas, the County shall discourage agricultural conversion that is discontinuous with urban development.
12. Areas identified by the Natural Resource Conservation Service (Formerly Soil Conservation Service) as having high range-site value should be conserved for Extensive Agriculture uses or Resource Reserve, if located within a County water district.

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13. Any property in an Agriculture Preserve proposing to be subject to a Williamson Act Contract or Farmland Security Zone Contract must have a Resource designation.
21. The County shall encourage qualifying agricultural lands to participate in the Williamson Act program or Farmland Security Zone program.
24. Urban residential or commercial development on property contiguous to property designated Map Code 8.1 (Intensive Agriculture) should employ landscaping, lot size, open space buffering, increased building setbacks, or other techniques to reduce the potential for land use conflicts when it can be demonstrated that such measures will provide for public welfare and benefit and promote continued agricultural uses.
25. Discourage incompatible land use adjacent to Map Code 8.4 (Mineral and Petroleum) areas.

### ***Implementation Measures: Resources***

- B. Areas designated as Resource Reserve (Map Code 8.2), Extensive Agriculture (Map Code 8.3), Resource Management (Map Code 8.5) that are under Williamson Act Contracts or Farmland Security Zone Contracts will have a minimum parcel size of 80 acres until such time as a contract is expired or is canceled, at which time the minimum parcel size will become 20 acres.
- F. Prime agricultural lands, according to the Kern County Interim-Important Farmland 2000 map produced by the Department of Conservation, which have Class I, or II soils and a surface delivery water system shall be conserved through the use of agricultural zoning with minimum parcel size provisions.
- G. Property placed under the Williamson Act/Farmland Security Zone Contract must be in a Resource designation.

### **Kern County Zoning Ordinance**

The Kern County Ordinance Title 19, Zoning (Kern County 2012), was adopted to promote and protect the public health, safety, and welfare through the orderly regulation of land uses throughout the unincorporated area of the County. The vast majority of the Grapevine study area (7,932 acres) is zoned Exclusive Agriculture, but near the I-5 interchange there is also Floodplain Primary (6 acres) zoning and a commercial area that is zoned C-2 PD (General Commercial–Precise Development Combining District) (145 acres). The zoning ordinance provides the following definitions of these zoning designations (see Figure 4) (Kern County 2012, 2014a).

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### ***Exclusive Agriculture (A) District***

The Exclusive Agriculture designation is applied to areas that are suitable for agricultural uses to prevent the encroachment of incompatible uses onto agricultural lands and premature conversion of such lands to nonagricultural uses. Allowable land uses within this zone include growing and harvesting crops, breeding and raising animals, agricultural industries, residential uses to house farm workers or the landowner, Christmas tree farms, utility corridors, resource extraction, waste facilities, institutional/educational uses, and various miscellaneous uses such as animal shelters and clubs.

### ***General Commercial (C-2) District***

The purpose of the General Commercial (C-2) District is to designate areas for the widest range of retail commercial activities, including regional shopping centers and heavy commercial uses. The C-2 District should be located on major highways.

### ***Precise Development (PD) Combining District***

The purpose of the Precise Development (PD) Combining District is to designate areas with unique site characteristics or environmental conditions or areas surrounded by sensitive land uses to ensure that development in such areas is compatible with such constraints. All development in the PD Combining District shall be subject as a minimum to Special Development Standards as specified in Chapter 19.80 of this title; however, a Special Development Standards Plot Plan Review shall not be required. The application of the PD Combining District may be initiated by either the property owner or the county. The PD Combining District may be combined with any base district. The regulations established by the PD Combining District shall be in addition to the regulations of the base district with which the PD Combining District is combined. Permitted uses in a PD Combining District are those uses permitted by the base district with which the PD Combining District is combined.

### ***Floodplain Primary (FPP) District***

The purpose of the Floodplain Primary (FPP) District is to protect the public health and safety and minimize property damage by designating areas that are subject to flooding with high velocities or depths and by establishing reasonable restrictions on land use in such areas. The FPP District shall be applied to those areas lying within the “Floodway” as shown on the Flood Boundary Floodway Map or within the “Designated Floodway” on the State of California’s Board of Reclamation’s Kern River Designated Floodway Studies, or other maps where engineering studies have been made and adopted by the Kern County Board of Supervisors. Uses in the FPP District are limited to those low-intensity uses not involving buildings, structures, and other activities that might adversely affect or be adversely affected by flow of water in the floodway.

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### **Agricultural Preserve Standard Uniform Rules**

The California Land Conservation Act, also known as the Williamson Act, requires that local jurisdictions create and designate areas as agricultural preserves to identify lands that are eligible for tax-incentive preservation programs, including Williamson Act and Farmland Security Zone contracts. Kern County has adopted a set of Agricultural Preserve Standard Uniform Rules that identify land uses that are considered compatible uses within agricultural preserves established under the Williamson Act. These rules are designed to restrict the uses of land enrolled in a Williamson Act contract to agriculture or other compatible uses. Agricultural uses include crop cultivation, grazing operations, commercial wind farms, livestock breeding, dairies, and uses that are incidental to agricultural uses. Other compatible uses include trails and incidental recreation, and the erection of gas, electric, communications, water, and other similar public utilities. Approximately 7,852 acres, or 97%, of the study area are in Kern County Agricultural Preserve No. 19. These areas of the site are currently subject to the County's Exclusive Agriculture (A) zoning designation. The portions of the study area that are within Agricultural Preserve No. 19 are identified in Figure 9. Tejon Ranch filed notices of non-renewal on all 7,775 acres within the Specific Plan area that are currently within Agricultural Preserve No. 19. The remaining 77 acres within Agricultural Preserve No. 19 are associated with the proposed off-site improvements and notices of non-renewal were not filed for these lands.

### **Tejon Ranch Conservation and Land Use Agreement**

In June 2008, Tejon Ranch Company entered into a comprehensive Land Use and Conservation Agreement (Ranchwide Agreement) with several major environmental organizations, including Audubon California, the Endangered Habitats League, Natural Resources Defense Council, Planning and Conservation League, and the Sierra Club. The Ranchwide Agreement covers the entirety of Tejon Ranch, and provides for the permanent preservation of over 90% of Tejon Ranch (approximately 240,000 acres) through a combination of donated and acquired conservation easements, and designated open space areas within the remaining areas of the Ranch. The Ranchwide Agreement also designates areas for potential future development that would not be opposed by the signatories to the Ranchwide Agreement, including Tejon Mountain Village, Centennial (a project in Los Angeles County), and the Grapevine Specific Plan area. The Ranchwide Agreement does not authorize development, nor does it create any exemptions from applicable local, state, and federal governmental environmental review or permitting processes.

The Ranchwide Agreement allows the Tejon Ranchcorp to continue certain existing uses on Conserved Lands, including grazing, game management, and filming activities, which are generally permitted Ranch-wide; and farming, sand and gravel mining, and oil and gas extraction activities, which are permitted within existing areas and defined expansion areas.

### 3 IMPACT ANALYSIS

#### 3.1 Thresholds of Significance

According to the Kern County CEQA Implementation Document and Kern County Environmental Checklist, a project would have a significant impact on agriculture and forest resources if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use;
- Conflict with existing zoning for agricultural use, or a Williamson Act contract;
- Involve other changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland to nonagricultural use or the conversion of forestland to nonforest use; or
- Result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or a Farmland Security Zone Contract for any parcel of 100 or more acres (14 CCR 15206(b)(3)).

#### 3.2 Study Assumptions

For each of the following discussion topics, it is assumed that impacts would occur to any agricultural resource located in the 8,010-acre project area.

The Kern County Guidelines for Agricultural Soils/Farmland Conversion Studies require a discussion of the following farmland conversion impacts, which is provided below and in subsequent impact discussions, as noted:

- A. Discuss the type, amount of land and location of farmland conversion that would result from implementation of the project.
- B. Discuss the impact on current and future agricultural operations; include:
  1. From countywide figures, the percentages of land no longer available for production of the types of crops grown on the site or on soils found on the site.
  2. Economic loss based on countywide averages for the types of crops grown on the site or on soils found on the site.
  3. Any changes to methods of agricultural husbandry applied to adjacent lands that would occur as a result of implementation of the project. (Discussed under Impact AG-3.)

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- C. Discuss the cumulative and growth-inducing impact of the development on farmland in the project area and surrounding area. (Discussed in Section 3.4, Cumulative Impacts.)

### 3.3 Impact Assessment

**Impact AG-1** The project would convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use.

The CEQA thresholds use the DOC's FMMP categories of Prime Farmland, Unique Farmland, and Farmland of Statewide Importance (collectively, "Important Farmland") to define agricultural land for the purposes of assessing environmental impacts (California Public Resources Code, Section 21060.1(a)).

Development within the Grapevine Specific Plan area has the potential to result in a conversion of approximately 78 acres of land mapped as Prime Farmland, 289 acres of Farmland of Statewide Importance, and 115 acres of Unique Farmland, for a total of 482 acres (see Table 5 and Figure 10). These lands are located primarily in the northern portion of the Specific Plan area (Planning Areas 6a, 6b, and 6c) and consist of land used for farming almonds. A total of 42 acres of Prime Farmland within the southern portion of Specific Plan area, which is currently used for vineyards, would not be impacted by development, and agricultural use of this land is expected to continue, as depicted in Figure 10. The proposed off-site improvement includes approximately 9 acres of Important Farmland, including 2 acres of Farmland of Statewide Importance and 7 acres of Prime Farmland associated with the improved agricultural haul road. The proposed agricultural haul road would improve an existing agricultural road to provide access for agricultural operations in the area and is considered compatible with agricultural uses. For this reason, the 9 acres of Important Farmland identified within the off-site improvement areas would not result in the conversion of this land to non-agricultural uses.

**Table 5**  
**Grapevine Project Impacts to Important Farmland**

FMMP Classification	Total Study Area Acreage	Total Acreage Impacted by Development
Prime Farmland	127	78
Farmland of Statewide Importance	291	289
Unique Farmland	115	115
<b>Total</b>	<b>519</b>	<b>482</b>

Source: DOC 2012.

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To determine whether the proposed conversion of 482 acres of farmland would result in a significant impact, several factors must be considered. These factors include the quality of the land being converted, the availability of the water supply to support farming activities on the land, and whether the land could once again be used for agricultural production.

Of the 482 acres mapped as Prime Farmland, Farmland of Statewide Importance, and Unique Farmland that would be impacted by the proposed project (Figure 10), 454 acres currently support or have recently supported crop production, specifically farming almonds. When compared to countywide crop production, this loss of 454 acres of almonds accounts for 0.32% of the total acreage of almonds farmed in Kern County. The total economic loss associated with this loss of farmland based on 2012 crop data equals \$2,771,942.40, or 0.34% of the countywide total for almonds.

The 454 acres used for farming almonds and the additional 28 acres designated as Important Farmland have access to irrigation water from WRMWSD and three wells located nearby. Given the availability of irrigation, these properties have a demonstrated ability to support agricultural production. Development of urban land uses as part of the project is expected to result in the permanent conversion of 482 acres of Important Farmland, since these lands would not be restored to support agricultural production in the future. The project would therefore result in a **significant** impact due to the conversion of Important Farmland to nonagricultural use.

In addition to the Prime Farmland, Unique Farmland, and Farmland of Statewide Importance that would be impacted by the proposed project, approximately 4,133 acres of Grazing Land would be impacted by development (see Figure 10); however, impacts to Grazing Land are not considered significant under this threshold. Approximately 40% of the Specific Plan area (3,232 acres) and most of the surrounding ranchlands owned by Tejon Ranchcorp would continue to be used for grazing in accordance with the proposed specific plan and the Ranchwide Agreement, which provides for the permanent preservation of over 90% of Tejon Ranch (approximately 240,000 acres) through a combination of donated and acquired conservation easements, and designated open space areas within the remaining areas of the Ranch. Additional discussion of impacts to Grazing Land is provided under Impact AG-3.

### Mitigation Measures

**MM AG-1** Prior to the recordation of any final subdivision map, the project proponent shall provide written evidence of completion of conservation easements to mitigate the loss of Important Farmland at a ratio of 1:1 for net acreage before conversion. The net acreage calculation shall exclude existing roads and areas already developed with structures, and a plot plan shall be submitted to substantiate the net acreage calculation, along with written evidence of



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compliance. Mitigation shall be provided on Tejon Ranch lands that are currently preserved under the Tejon Ranch Land Use and Conservation Agreement (Ranchwide Agreement) within the San Joaquin Valley and for which comparable agricultural uses are authorized under the Kern County General Plan and Zoning Code and the Ranchwide Agreement. The easement property shall meet the definition of Prime Farmland, Farmland of Statewide Importance, and/or Unique Farmland, and be of similar agricultural quality or higher, as established by the California Department of Conservation. The easement property shall be preserved for agricultural production and use in the form of orchard, vineyard, row crop, and grain crop planting, cultivation, and harvesting activities, subject to the terms of the Ranchwide Agreement, the conservation easement, and other rights and obligations applicable to the easement property.

### **Level of Significance after Mitigation**

Implementation of Mitigation Measure AG-1 would ensure that impacts to Important Farmland are reduced to a less-than-significant level by completing conservation easements within the Tejon Ranch at a ratio of 1:1. This mitigation measure would ensure that Important Farmland within the San Joaquin Valley is conserved for future agricultural use.

**Impact AG-2** The project would conflict with existing zoning for agricultural use, or a Williamson Act contract.

The proposed project would allow for residential and commercial development on the Specific Plan area, as well as off-site improvements. Proposed development would impact approximately 4,778 acres (60%) of the Specific Plan area currently zoned Exclusive Agriculture. However, the proposed project would continue to maintain approximately 3,232 acres, or about 40% of the Specific Plan area, as Exclusive Agriculture (A), with grazing and open space as the predominant land uses. With adoption of the proposed Specific Plan and special plan, the Specific Plan area would be rezoned to allow for the proposed uses within the Specific Plan area and thus eliminate the conflict with existing zoning (see Figure 11). Additional information regarding the proposed zoning is provided in the Land Use and Planning Technical Report.

The off-site improvements includes 54 acres zoned Exclusive Agriculture (A), including 22 acres associated with the agricultural haul road, 15 acres associated with the various roadway connections and interchange improvements, and 17 acres associated with the CVEF weigh station. Allowable land uses within this zone include growing and harvesting crops, breeding and raising animals, agricultural industries, residential uses to house farm workers or the landowner, Christmas tree farms, utility corridors, resource extraction, waste facilities,

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institutional/educational uses, and various miscellaneous uses such as animal shelters and clubs (Kern County 2014a). Since the off-site improvements include roadways and institutional uses, the proposed improvements would not conflict with the existing zoning for agricultural use.

The proposed zoning is accompanied by amendments to the General Plan land use designations to accommodate the proposed specific plan. The Kern County General Plan recommends that certain factors be evaluated when determining the appropriateness of a proposed change of Map Code 8.1 (Intensive Agriculture) designation to a non-agricultural use. These factors are evaluated in Table 6, which includes a consistency analysis of the proposed project and the relevant General Plan goals and policies.

**Table 6**  
**Project Consistency with Kern County General Plan**

<i>Land Use, Opens Space, and Conservation Element, Chapter 1.9, Resources</i>		
Goal 1	To contain new development within an area large enough to meet generous projections of foreseeable need, but in locations that will not impair the economic strength derived from the petroleum, agricultural, rangeland, or mineral resources or diminish the other amenities that exist in the county.	Existing agricultural activities, which include ranching and limited crops, would continue as development would be phased in over time as well as upon the expiration or termination of Williamson Act Contracts that were non-renewed. Approximately 3,232 acres of the Specific Plan (40% of Specific Plan area) is designated for Map Code 8.5 (Resource Management) use including agriculture, grazing, and compatible open space use. Development would minimize disruption of existing agricultural and ranching activities. The northern portion of the Specific Plan is within the California Division of Oil, Gas, and Geothermal Resources (DOGGR) Administrative Boundaries of the Tejon Oil Field. Many producing and plugged oil and gas production wells exist within the northern portion of the Specific Plan. The Grapevine Specific Plan includes policies that promote continued agriculture, grazing and mineral resource use. Therefore, the project would be consistent with this goal.
Goal 2	Protect areas of important mineral, petroleum, and agricultural resource potential for future use.	The Grapevine Specific Plan through the planned Exclusive Agriculture designation provides for continued agricultural and oil and gas production use. In addition, the Industrial designation will recognize existing and future oil and gas production and mineral use. Therefore, the project would be consistent with this goal.
Goal 3	Ensure that the development of resource areas minimize effects on neighboring resource lands.	The Grapevine Specific Plan and Grapevine Special Plan contain policies and standards that recognize adjacent resource lands. Buffers, lighting restrictions, setbacks, landscaping, and open space provisions will minimize effects on neighboring resource lands. Therefore, the project would be consistent with this goal.
Goal 5	Conserve prime agriculture lands from premature conversion.	The Grapevine Specific Plan, Map Code 8.5 (Resource Management) land use designation and Agricultural Resource policies will promote continued agricultural and grazing use and will minimize effects of premature conversion of agricultural lands. More than 40% of the project area would be designated for exclusive agriculture, grazing and open space use. Therefore, the project would be consistent with this goal.

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**Table 6**  
**Project Consistency with Kern County General Plan**

<i>Land Use, Opens Space, and Conservation Element, Chapter 1.9, Resources</i>		
Policy 1	Appropriate resource uses of all types will be encouraged as desirable and consistent interim uses in undeveloped portions of the county regardless of general plan designation.	Historic ranching activities are permitted uses within the Grapevine Specific Plan open space areas; ranching and agricultural activities would also be allowed as an interim use until land is developed. Therefore, the project would be consistent with this policy.
Policy 3	The county will support programs and policies that provide tax and economic incentives to ensure the long-term retention of agriculture, timber, and other resource lands.	As provided in the Grapevine Specific Plan, Chapter 2, Land Use, Conservation, Open Space and Recreation, ongoing grazing uses and agricultural uses will continue on agricultural areas affected by the project footprint until Williamson Act Contracts expire. Outside of the project footprint, grazing, agriculture and other ranching uses will continue. More than 40% of the project area would be designated for exclusive agriculture, grazing and open space use. Therefore, the project would be consistent with this policy.
Policy 5	Areas of low-intensity agricultural use (Map Code 8.2 [Resource Reserve], Map Code 8.3 [Extensive Agriculture], and Map Code 8.5 [Resource Management]) should be of an economically viable size to participate in the state Williamson Act Program/Farmland Security Zone Contract.	Within the Specific Plan Area, 3,761.21 acres are currently under Williamson Act contracts. Notices of Nonrenewal have been filed for all 3,761.21 acres within the Specific Plan Area. The expiration of these existing contracts will occur on December 31, 2023. The adoption of the Specific Plan land use designations and implementation of the Special Plan for these areas would be in suspense until the expiration or termination of these contracts, as provided by provisions of the Specific Plan and zoning. Upon expiration, the agricultural zoning would expire in favor of the underlying Grapevine Special Plan zoning and Grapevine Specific Plan land use designations. Therefore, the project would be consistent with this policy.
Policy 7	Areas designated for agricultural use, which include Class I and II and other enhanced agricultural soils with surface delivery water systems, should be protected from incompatible residential, commercial, and industrial subdivision and development activities.	The Grapevine Specific Plan includes Class I or II agricultural soils. Proposed urban uses would replace agricultural and grazing uses. However, the Tejon Ranch Company entered into a significant Conservation and Land Use Agreement with environmental groups that provide permanent protection through the dedication or sale of approximately 240,000 acres (90%) of the Ranch, including open space acreage planned within and adjacent to the Grapevine Specific Plan. The conserved areas include locations in agricultural use particularly around Old Headquarters which is approximately 10 miles from the Grapevine site. Although the proposed project would result in the conversion of agricultural soils to non-agricultural use, the effect would be mitigated through the provision of conservation easements or deed restrictions to compensate for the loss of agricultural soils at a ratio of 1:1. In addition, the development of the Grapevine project would not affect areas designated and used for agricultural operations in the surrounding area since opens space buffers surround the proposed development areas, separating them from adjacent agricultural uses. In addition, the Tejon Ranch Land Use and Conservation Agreement provides for permanently preserving over 90% of Tejon Ranch as open space including lands designated for agricultural use. Therefore, the project would be consistent with this policy.

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**Table 6**  
**Project Consistency with Kern County General Plan**

<i>Land Use, Opens Space, and Conservation Element, Chapter 1.9, Resources</i>		
Policy 8	Provide for the orderly expansion of new urban-scale infrastructure and development and the creation of new urban-scale centers in a manner that minimizes adverse effects on agriculture and natural resource uses.	The project is a planned new community that phases the development of new infrastructure and urban uses through a comprehensive Specific Plan that includes clustered urban/commercial/village centers, the provision of agricultural buffers and the provision of substantial open space areas that provides for compatibility and minimizes adverse effects on agricultural and resource uses. All development would be compatible with the rural, agricultural nature of the area due to large scale conservation planning described above in Policy 7. Infrastructure consistent with the scale of the community would be provided in an orderly manner that is accessible from the utility corridors that cross the site. Therefore, the project would be consistent with this policy.
Policy 9	<p>When evaluating General Plan Amendment proposals to change a Map Code 8.1 (Intensive Agriculture) designation to accommodate residential, commercial, or industrial development the County shall consider the following factors:</p> <ul style="list-style-type: none"> <li>a. Approval of the proposal will not unreasonably interfere with agricultural operations on surrounding lands;</li> <li>b. Necessary public services (fire, sheriff, etc.) and infrastructure are available to adequately serve the project;</li> <li>c. There is a demonstrated need for the proposed project location based upon population projections, market studies and other indicators;</li> <li>d. The requested change in land use designation is accompanied by a zone change and other implementing land use applications for a specific development proposal;</li> <li>e. The site is contiguous to properties that are developed or characterized by non-agricultural land uses;</li> <li>f. Past agricultural use of the site has led to soil infertility or other soil conditions which render the property unsuitable for long-term agricultural use;</li> <li>g. Approval of the proposed project outweighs the need to retain the land for long-term agricultural uses;</li> <li>h. Where adjacent or within proximity (1/2 mile) to existing urban areas, the County shall discourage agricultural conversion that is discontinuous with urban development.</li> </ul>	<p>Considerations in changing Map Code 8.1 designation to accommodate the Grapevine Specific Plan are as follows:</p> <ul style="list-style-type: none"> <li>a. Only a small amount (276 acres) of Map Code 8.1 land is affected by the Specific Plan. The removal of this designation in the northeast portion of the Specific Plan area will not unreasonably interfere with other Map Code 8.1 areas or agricultural operations on surrounding lands due to Tejon Ranch Company's entering into a significant Land Use and Conservation Agreement with environmental groups that provide permanent protection through the dedication or sale of approximately 240,000 acres (90%) of the Ranch including open space acreage planned within and around the Grapevine Specific Plan. The provision of opens space buffers also provide for separation of the developed areas from the agricultural areas so as to avoid conflicts on other Map Code 8.1 lands. In addition, the provision of conservation easements or deed restrictions to compensate for the loss of agricultural land at the ratio of 1:1 will mitigate for the loss of Map Code 8.1 designated area;</li> <li>b. The Grapevine Specific Plan is designed to provide adequate public services and infrastructure utilizing appropriate funding mechanisms to adequately serve the project;</li> <li>c. The Grapevine Specific Plan's strategic location adjacent to the existing and expanding TRCC employment generator is important in providing needed housing for existing and future employees. The Population and Housing Technical Report demonstrates that the Grapevine Specific Plan's provision of a range of housing types will help to improve the jobs/housing balance in the southern portion of Kern County;</li> <li>d. The Grapevine Specific Plan land use application request includes an amendment of the General Plan to an Accepted County Plan (Map Code 4.1) and the adoption by Ordinance of the Grapevine Special Planning (SP) District Plan which provides the zoning and development standards for implementing the Grapevine development proposal;</li> <li>e. The Grapevine Specific Plan area is contiguous to TRCC which is an existing and expanding warehousing, distribution and commerce center. In addition, the Specific Plan is contiguous</li> </ul>

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**Table 6**  
**Project Consistency with Kern County General Plan**

<i>Land Use, Opens Space, and Conservation Element, Chapter 1.9, Resources</i>		
		<p>with existing commercial development at the Grapevine interchange with I-5. Thus, the site will provide for the expansion of non-agricultural land use in a logical manner;</p> <p>f. Over 82% of the Grapevine Specific Plan area is designated for Map Code 8.3 extensive agricultural use involving agricultural uses involving low value-per-acre yields, such as livestock grazing, dry land farming and other ranching activities. The presence of only a small amount of Map Code 8.1 among areas that are predominantly widespread grazing, oil and gas production and ranching render this 276 acre area unsuitable for long-term agricultural use;</p> <p>g. The Grapevine Specific Plan will provide for economic development and the provision of housing adjacent to TRCC. The needed housing for TRCC employees, and the new jobs created by the Specific Plan development will provide tax revenues for the County as noted in the Grapevine Fiscal and Economic Technical Report. Thus, the added jobs, housing, and economic development outweigh the need to retain the land for long-term agricultural uses.</p> <ul style="list-style-type: none"> <li>As noted above, the Grapevine Specific Plan is contiguous with TRCC as well as existing commercial development at the Grapevine interchange with I-5. Thus, the conversion of agricultural lands is not discontinuous with urban development and represents a logical expansion of existing developed areas adjacent to I-5.</li> </ul>
Policy 12	Areas identified by the Natural Resource Conservation Service (formerly Soil Conservation Service) as having high range-site value should be conserved for Extensive Agriculture uses or as Resource Reserve if located within a county water district.	The Grapevine Specific Plan does not include any areas designated by the Natural Resource Conservation Service as having high range-site value. Therefore, the project would be consistent with this policy.
Policy 13	Any property in an Agriculture Preserve proposing to be subject to a Williamson Act contract or Farmland Security Zone contract must have a resource designation.	The project includes land that is currently part of Agricultural Preserves and currently subject to Williamson Act contracts some of which have been noticed for non-renewal. These portions of the site are within an existing Agricultural Preserve and are subject to a resource designation under the current General Plan. Specific Plan policies and Special Plan standards have been included to ensure that no incompatible development occurs on Williamson Act contracted land until such time as the existing contract expires through the non-renewal process or is terminated. Any properties going through Williamson Act non-renewal or a termination process will also be excluded from the Agricultural Preserve when the Williamson Act contract ceases to exist or is terminated. The portions of the project that will be retained in open space and continued to be used for agricultural purposes will have a resource designation consistent with the General Plan. More than 40% of the project area would be designated for exclusive agriculture, grazing and open space use. Therefore, the project would be consistent with this policy.

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**Table 6**  
**Project Consistency with Kern County General Plan**

<i>Land Use, Opens Space, and Conservation Element, Chapter 1.9, Resources</i>		
Policy 21	The county shall encourage qualifying agricultural lands to participate in the Williamson Act program or Farmland Security Zone program.	The Grapevine Specific Plan includes 3,761.21 acres currently under the Williamson Act program. In addition, there is ample open space acreage within the Specific Plan boundaries. This would provide for permanent open space lands suitable for, grazing and agricultural uses, rather than the 10-year period applicable to Williamson Act contracts. All 3,761.21 acres of the Williamson Act contracts would expire in 10 years unless otherwise cancelled. The activation of Grapevine Specific Plan land use designations and implementation of the Grapevine Special Plan for the areas of non-renewal would not occur until the expiration of these contracts. Upon expiration, the agricultural zoning would expire in favor of the underlying Grapevine Special Plan zoning and land use designations while lands within the Specific Plan boundary would be removed in a phased manner through nonrenewal from the Williamson Act program over time when the contracts expire, approximately 155,000 acres of neighboring Tejon Ranch lands would continue to be under active Williamson Act contracts. The continued participation of Tejon Ranch lands outside of the Specific Plan boundary in the Williamson Act program would be consistent with this policy.
Policy 24	Urban residential or commercial development on property contiguous to property designated Map Code 8.1 (Intensive Agriculture) should employ landscaping, lot-size, open-space buffering, increased building setbacks, or other techniques to reduce the potential for land use conflicts when it can be demonstrated that such measures will provide for public welfare and benefit and promote continued agricultural uses.	The Grapevine Specific Plan and Grapevine Special Plan provide for open space buffering, grouping of land uses, clustering of mixed use and higher density development, building setbacks, landscaping and other provisions to minimize effects on adjacent lands designated Map Code 8.1 (Intensive Agriculture). Therefore, the project would be consistent with this policy.
Policy 25	Discourage incompatible land use adjacent to Map Code 8.4 (Mineral and Petroleum) areas.	Upon approval of the Grapevine Specific Plan, all land in the project area would be re-designated to 4.1 (Accepted County Plan) and corresponding map codes 5.1 (Residential—29 Dwelling Units/Net Acre Maximum), 5.2 (Residential—16 Dwelling Units/Net Acre Maximum), 6.1 (Regional Commercial), 6.2 (General Commercial), 7.1 (Light Industrial), 7.3 (Heavy Industrial), 8.5 (Resource Management), 3.3 (Other Facilities), 3.2 (Educational Facilities) and 3.1 (Parks and Recreation Areas), and would be consistent with the amended General Plan. Map Code 7.2 (Service Industrial), is a compatible land use designation proposed adjacent to Map Code 8.4 (Mineral and Petroleum) areas. Buffers and setbacks have been incorporated into the project design, providing compatibility with the adjacent 8.4 land use designations. Therefore, the project would be consistent with this policy.

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The vast majority of the study area (7,852 acres or 97%) is within Agricultural Preserve No. 19; however, the project proponent has filed notices of non-renewal on all 7,775 acres within the Specific Plan area that are currently within Agricultural Preserve No. 19. The off-site improvements also include 77 acres located in Agricultural Preserve No. 19. Kern County has adopted a set of Agricultural Preserve Standard Uniform Rules that identify land uses that are considered compatible uses within agricultural preserves. Agricultural uses include crop cultivation, grazing operations, commercial wind energy facilities, livestock breeding, dairies, and uses that are incidental to agricultural uses. Other compatible uses include trails and incidental recreation, and the erection of gas, electric, communications, water, and other similar public utilities. Since the off-site improvements include roadways and other public utilities, the proposed improvements would not conflict with the existing Agricultural Preserve No. 19.

Approximately 3,761.21 acres (47%) within the study area are presently under a Williamson Act contract. The vast majority of the Williamson Act contract lands within the study area are currently or have previously been used for grazing operations. The project proponent has filed notices of non-renewal on all 3,761.21 acres within the Specific Plan area that are currently under Williamson Act contracts.

As described above, approximately 40% of the Specific Plan area (3,232 acres) and most of the surrounding ranchlands owned by Tejon Ranchcorp would continue to be used for grazing in accordance with the proposed specific plan and the Ranchwide Agreement, which provides for the permanent preservation of over 90% of Tejon Ranch (approximately 240,000 acres) through a combination of donated and acquired conservation easements, and designated open space areas within the remaining areas of the Ranch. Grazing would continue to occur throughout portions of the Specific Plan area and adjacent areas. The Specific Plan requires that the existing agricultural zoning and land uses applicable to the portions of the Specific Plan area that are currently subject to Williamson Act contracts be maintained until those contracts expire. No project development that would be inconsistent with the Williamson Act would occur in any area of the site that is under a Williamson Act contract until after the contracts expire based on notices of non-renewal already on file, or are terminated pursuant to the completion of the early termination process described above. Project construction would therefore not conflict with any Williamson Act contracts.

Development proposed as part of the project on the lands currently within Agricultural Preserve No. 19 and the lands under Williamson Act contracts would conflict with existing contracts and result in a **significant** impact.

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### Mitigation Measures

**MM AG-2** The County of Kern shall design a method to ensure that the proposed specific plan and zone change approval for lands currently enrolled in the Williamson Act program and under existing contracts, and the removal of these from Agricultural Preserve No. 19, as applicable, does not become effective until such time as the existing Williamson Act contracts have expired or been terminated. Any subdivision maps allowing development (and excluding parcel and subdivision maps created for finance and conveyance purposes), shall clearly show that those areas remain under Williamson Act contracts as of the project approval date, and evidence that such lands are no longer under Williamson Act contracts shall be included as a condition of approval for a final subdivision map. At such time as lands are not subject to Williamson Act contracts, the land use and zoning classifications adopted in conjunction with the proposed specific plan amendment and zone change, and the exclusion of the lands from the agricultural preserves, shall immediately become effective.

### Level of Significance after Mitigation

Implementation of Mitigation Measure AG-2 would ensure that no development would take place on land currently within Agricultural Preserve No. 19 or enrolled in the Williamson Act program until the expiration date of the contracts or termination of the contracts. This mitigation would reduce impacts to a **less-than-significant** level.

**Impact AG-3** The project would involve other changes in the existing environment which, due to their location or nature, could result in the conversion of Farmland to nonagricultural use or the conversion of forestland to nonforest use.

As described previously, the proposed project would result in the conversion of approximately 78 acres of land mapped as Prime Farmland, 115 acres of Unique Farmland, and 289 acres of Farmland of Statewide Importance, for a total of 482 acres (see Figure 10). However, Mitigation Measure AG-1 would ensure that conservation easements are completed to mitigate the loss of Important Farmland at a ratio of 1:1 for net acreage before conversion. Of the 482 acres of Important Farmland that would be impacted by the proposed project, 454 acres are currently used for farming almonds. An additional 4,133 acres designated as Grazing Land would be converted to nonagricultural use. Cattle ranching leases are currently managed by Tejon Ranchcorp within the Specific Plan area and in adjacent lands. As proposed, approximately 3,232 acres (or about 40%) of the Specific Plan area would be designated for agriculture (with grazing and open space as the predominant land uses) and approximately 4,778 acres (about 60%) would be developed as a new residential community and employment center. Tejon Ranchcorp would continue to manage



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grazing leases within the Specific Plan area and throughout its landholdings adjacent to the project in accordance with the Ranchwide Agreement.

The off-site improvement areas do not include any existing farming operations that would be impacted by the improvements. Additionally, as described in the Impact AG-1 and AG-2 discussions, the proposed improvements would be compatible with agricultural uses, including those in the surrounding area.

Since the proposed project would allow for residential and commercial uses adjacent to existing and future grazing land within the study area, there is the potential for conflicts to occur between future residents and grazing operations. In order to reduce the potential for conflicts, the specific plan provides that the proposed project would prepare an education program to be disseminated to all project residents that would discuss the environmental, fire safety, and other values of grazing operations within and adjacent to the project.

With the exception of the northern planning areas (6b through 6e), the study area is surrounded by properties that are part of the Ranch, including land that is currently used for grazing and other agricultural uses. Grazing on adjacent lands within the Ranch is expected to continue in the future; however, the design and development of the project is not expected to cause any changes to these adjacent properties that would result in the conversion of farmland. As described above, an education program would be disseminated to all project residents that would discuss the environmental, fire safety, and other values of grazing operations within and adjacent to the project. The northern portions of the study area (planning areas 6b through 6e) are designated Industrial (I), which would have low potential for conflict with adjacent agricultural operations. It is not expected that development of the Grapevine project would have direct or indirect effects on agricultural operations in the surrounding area. The study area will also continue to accommodate grazing and irrigated agricultural activities, including the existing vineyard located in the southern portion of the study area, community gardens throughout the development areas, and grazing and agricultural uses within open space areas.

Since the proposed project would allow for residential and commercial development within and adjacent to irrigated agricultural and grazing areas, conflicts between these uses leading to conversion of agricultural lands could occur and impacts are considered **potentially significant**.

### Mitigation Measures

**MM AG-1** See Mitigation Measures under Impact AG-1.

**MM AG-3** Sellers of future residential parcels located within 100 feet of irrigated farmlands or grazed lands shall provide buyers with a disclosure of these adjacent uses, and of the value and benefits of such uses including environmental, fire safety, food

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security, and other values and benefits, and shall be provided with information regarding practical measures that can be voluntarily undertaken if desired to minimize impacts of adjacent agricultural uses (e.g., closing windows to minimize potential odor or dust occurrences). No K-12 school shall be sited within 100 feet of any irrigated agricultural use, with the exception of community or school gardens that may be located on or adjacent to a school, or other farming operations that do not involve pesticide use.

### Level of Significance after Mitigation

The project design includes an open space buffer between the community and adjacent land uses and in accordance with the Ranchwide Agreement, Tejon Ranchcorp would continue to manage grazing leases and engage in agricultural activities within and surrounding the Specific Plan area and throughout its landholdings in the greater vicinity of the project area. With the planned buffer, operational requirements within the Ranchwide Agreement and with the implementation of Mitigation Measures AG-1 and AG-3 the potential for the project to induce conversion of agricultural lands would be reduced to a **less-than-significant** level.

**Impact AG-4** The project would not result in the cancellation of an open space contract made pursuant to the California Land Conservation Act of 1965 or a Farmland Security Zone Contract for any parcel of 100 or more acres (14 CCR 15206(b)(3)).

An agricultural preserve defines the boundary of an area within the county that meets the criteria for property owners to enter into Williamson Act land use contracts and Farmland Security Zone contracts. Only land within an agricultural preserve is eligible for such contracts. The Grapevine study area currently includes a total of 7,852 acres within Agricultural Preserve No. 19 (see Figure 9). However, there are no Farmland Security Zone contracts within or adjacent to the study area, and none would be canceled by project construction activities. In addition, the project proponent has filed notices of non-renewal on all 7,775 acres within the Specific Plan area within Agricultural Preserve No. 19, and the off-site improvements would not conflict with the remaining 77 acres within Agricultural Preserve No. 19.

As described previously, approximately 3,761.21 acres of the study area are currently under Williamson Act contracts; however, Tejon Ranch has filed notices of non-renewal on all 3,761.21 acres. No project development activity that would be inconsistent with the Williamson Act would occur in any area of the site that is under a Williamson Act contract until after the contracts expire, or are terminated, as discussed above. Mitigation Measure AG-2 prohibits development within the lands currently under Williamson Act contracts until those contracts

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expire or are terminated. Therefore, impacts related to the cancellation of an open space contract or a Farmland Security Zone Contract would be **less than significant**.

### Mitigation Measures

No mitigation measures are required.

### Level of Significance after Mitigation

Impact AG-4 would be **less than significant**.

## 3.4 Cumulative Impacts

Although the environmental effects of an individual project may not be significant when that project is considered independently, the combined effects of several projects may be significant when considered collectively. Such impacts are “cumulative impacts.” Section 15355 of the CEQA Guidelines defines cumulative impacts as “two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts” (14 CCR 15000 et seq.). The discussion in this section evaluates the potential for the proposed project to contribute to an adverse cumulative impact on agricultural resources.

### 3.4.1 Cumulative Impacts Study Area

The Default Study Area for agricultural resources encompasses the 6-mile radius around the Grapevine study area. The Default Study Area includes the Valley floor and Tehachapi foothills beginning at the I-5/SR 99 juncture and extending south to the northern boundary of Tejon Mountain Village (east of I-5) and the Wind Wolves Preserve conservation area (west of I-5).

The County provided a list of past, present, and reasonably foreseeable projects within the Default Study Area (see Table 7). A map showing the location of the cumulative projects is provided in Figure 12.

**Table 7**  
**Cumulative Projects in the Default Study Area**

Project Number	Project Name/Applicant	Location	Project Request
1.	Bob Shiralan by Chase Inc.	9012 Grapevine Road, Lebec	Conditional Use Permit to allow a cargo container accessory to mini-mart/gas station
2.	Brian J. Mettler	Highway 5 and Highway 166	Zone Change from A-1 to M-1 PD
3.	Cal Cart/WZI	Northeast corner of Frazier Mountain Park Road & Cuddy Canyon Road	Surface Mine/Reclamation

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**Table 7**  
**Cumulative Projects in the Default Study Area**

Project Number	Project Name/Applicant	Location	Project Request
4.	Cingular Wireless/Afl Telecommunications	6132 Frazier Mountain Park Road	Cellular Communication Facility
5.	De La Torre, Cecelia/J.R. Design Group	1835 Mettler Road	Commercial Coach, Permanent Installation
6.	ENXCO Development Corporation	David Road East of Edison Road	6 MW Solar Project
7.	Frazier Park Estates/Cornerstone	Frazier Mountain Park Road	General Plan Amendment to 5.5/2.1 & 6.2/2.1, Zone Change from A to SP
8.	Garone, Frank/Rickles	Valpredo Road Frontage/SR 99	General Plan Amendment to 7.1/2.5, Zone Change to M-1 PD
9.	Goertzen, Vernon	4358 Laval Road, Arvin	Wallboard Processing To Ag Gypsum
10.	Lee Benda	Northwest corner of Tecuya Drive & Whispering Pine	Small Water Treatment Facility
11.	Michael and Karen Hessel	Southest corner of Arroyo Trail and Canada	PD for Proprietor's Quarters for firewood
12.	Phillips, Kathy	317 Pine Canyon Drive, Frazier Park	2 Cargo Containers
13.	Robrahn, Russ & Lolette	667 Canyon Drive, Lebec	Cat Rescue Facility
14.	Rosa Dairy/Agricultural Man Systems	South of Herring, West of Wheeler Ridge Road (S14)	Dairy
15.	Sheffield, Richard & Tammy	Eastside of Pine Road, 100 South Lockwood Valley Rd	General Plan Amendment to 5.3/2.1 to 6.2, FPP to C-2 PD
16.	Silver Oak/David & Douglas Kaiser	Northeast corner of Teale Road & Adobe Road	Dairy
17.	Solari Sand and Gravel by Granite Construction	South of Sebastian Road and West of Old Tejon Headquarters	Surface Mining and Reclamation Plan
18.	Tejon Ranch Commerce Center	East and west of I-5 north of Grapevine	Commercial/Industrial Development
19.	Tejon Ranchcorp	East of I-5 between Grapevine & Lebec	Tejon Mountain Village Specific Plan
20.	Terwilliger, Thomas	Eastside of Lebec Road	RV Park
21.	Wainright, James/French & Association	Southwest corner of Lebec Road & Houser Avenue	Specific Plan Amendment to 5.4/2.1
22.	William Bonderov	Camelia & Wildflower Street	Zone Change from R-1 to MP

Source: Kern County 2014c.

### 3.4.2 Cumulative Impact Assessment

A significant cumulative impact to agricultural resources would occur if combined projects create a significant loss in farmland or land designated for agricultural uses. As described in Section 3.3, Impact Assessment, the proposed project would result in significant impacts due to the conversion of Important Farmland to nonagricultural use, conflicts with the existing

## Agricultural Resources Technical Report

Agricultural Preserve No. 19 and existing Williamson Act contracts, and potential conflicts between proposed on-site agricultural uses and non-agricultural uses. Implementation of Mitigation Measures AG-1, AG-2, and AG-3 would reduce all impacts to agricultural resources to a less-than-significant level.

The cumulative projects listed in Table 7 would have the potential to contribute incrementally to cumulative impacts if the projects convert Important Farmland to non-agricultural use, conflict with existing zoning for agricultural use or Williamson Act contracts, or involve other changes that could result in the conversion of Farmland to non-agricultural use. Potential impacts to agricultural resources from the cumulative projects are shown in Table 8.

**Table 8**  
**Cumulative Project Impacts in Acres**

Project Name/Applicant	Important Farmland Impacts	Williamson Act Contract Conflicts	Agricultural Zoning Conflicts
Bob Shiralan by Chase Inc.	—	—	297.4
Brian J. Mettler	11.5	—	26.0
ENXCO Development Corporation	39.2	—	39.2
Frazier Park Estates/Cornerstone	—	—	4,303.5
Garone, Frank/Rickles	29.3	—	29.4
Goertzen, Vernon	196.0	352.0	352.0
Solari Sand and Gravel by Granite Construction Co.	6.8	—	700.2
Tejon Ranch Commerce Center	310.9	0.9	9.5
Tejon Ranchcorp	114.8	157.1	17,027.6
William Bonderov	1.9	—	—
<b>Total Cumulative Project Impacts</b>	<b>710</b>	<b>510</b>	<b>22,785</b>
Grapevine Project (prior to mitigation)	482	3,761	4,778
<b>Total Cumulative Impacts with Grapevine Project</b>	<b>1,190</b>	<b>4,271</b>	<b>27,563</b>

Source: Kern County 2014c, DOC 2012.

As shown in Table 8, the cumulative projects could result in the conversion of approximately 710 acres of Important Farmland to nonagricultural use, and would conflict with existing Williamson Act contracts on 510 acres, and existing Exclusive Agriculture or Limited Agriculture zoning on 22,785 acres. When combined with the impacts of the proposed project, the cumulative impacts would include the conversion of 1,190 acres of Important Farmland, would conflict with existing Williamson Act contracts on 4,271 acres, and existing Exclusive Agriculture or Limited Agriculture zoning on 27,563 acres. The proposed project, in combination with the cumulative projects, would therefore result in a significant cumulative

## **Agricultural Resources Technical Report**

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impact to agricultural resources. However, as described above, the proposed project would be required to implement mitigation measures that would reduce the project's impacts to agricultural resources to a less-than-significant level. Therefore, with implementation of required mitigation, the project's contribution to the significant cumulative impact to agricultural resources would not be cumulatively considerable.

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SOURCES: McIntosh & Associates (2013); TRC 2013a, 2013b

The Grapevine project site (McIntosh & Associates 2013) and Tejon Ranch (2013a) boundaries appear on subsequent figures; the source information will not be provided on subsequent figures.

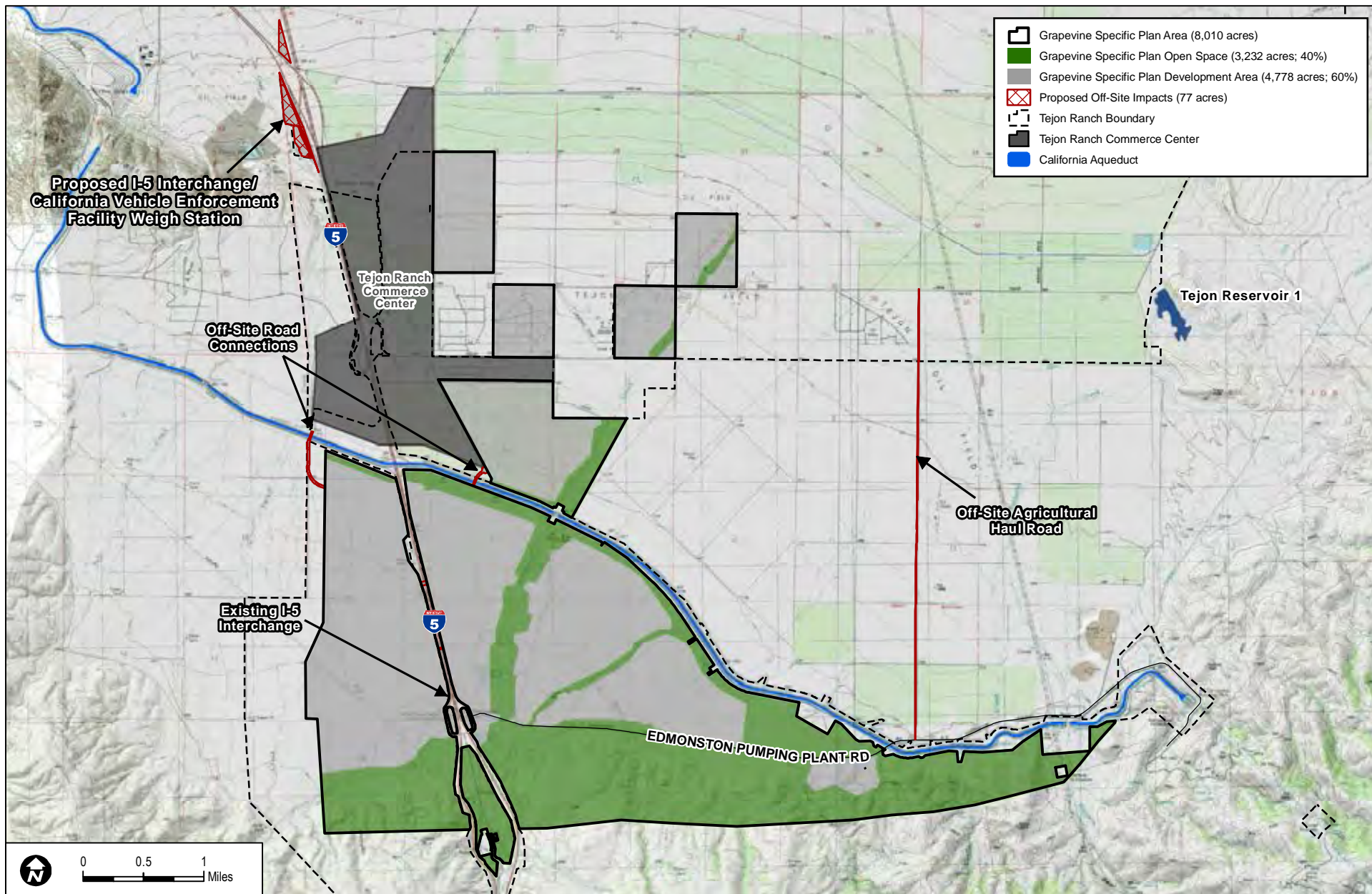
**FIGURE 1**  
**Regional Location**

## Agricultural Resources Technical Report

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SOURCES: McIntosh & Associates 2014; TRC 2013c

The California aqueduct (TRC 2013c) appears on subsequent figures; the source information will not be provided on subsequent figures.

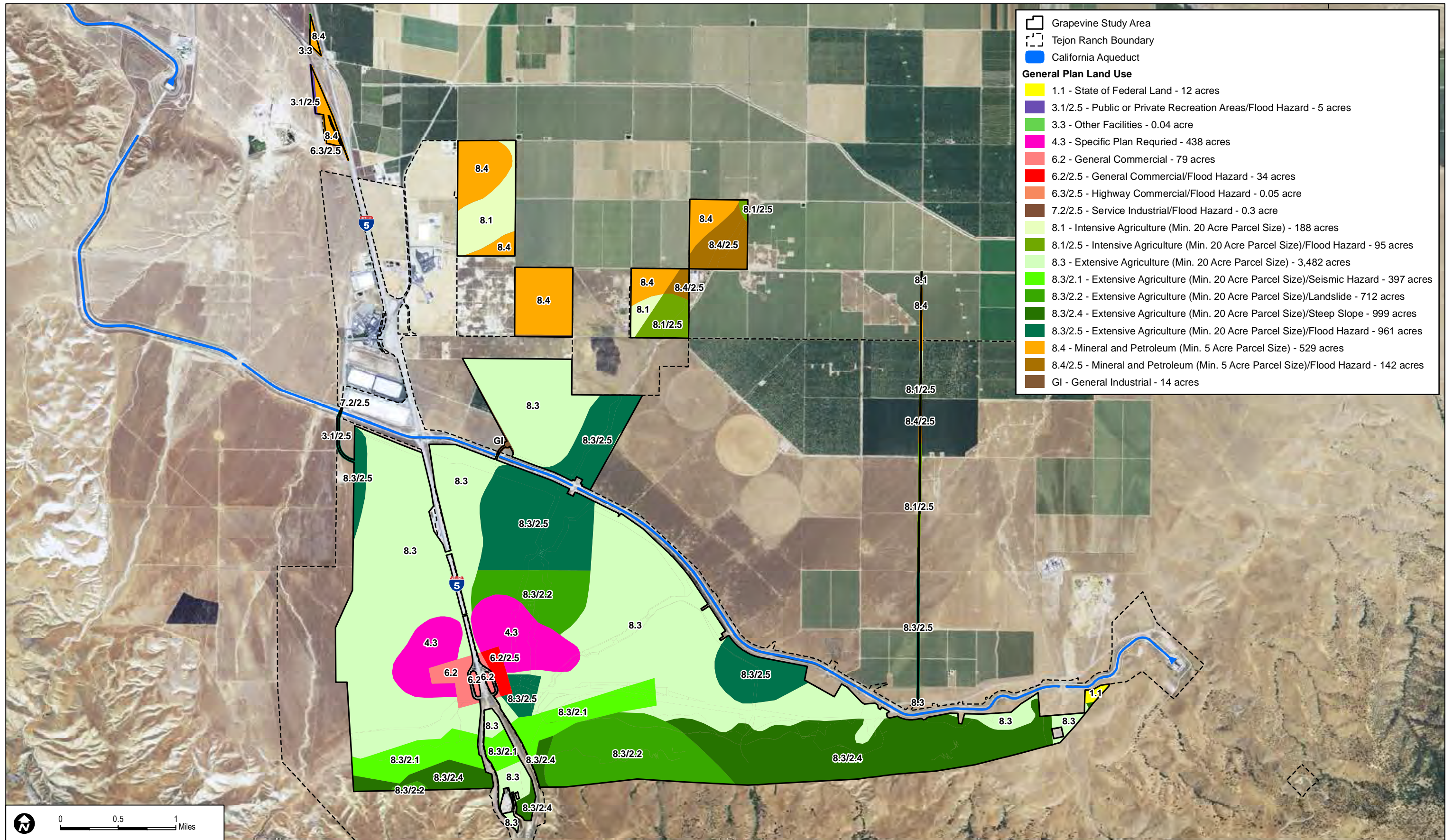
**FIGURE 2**  
**Vicinity Map**

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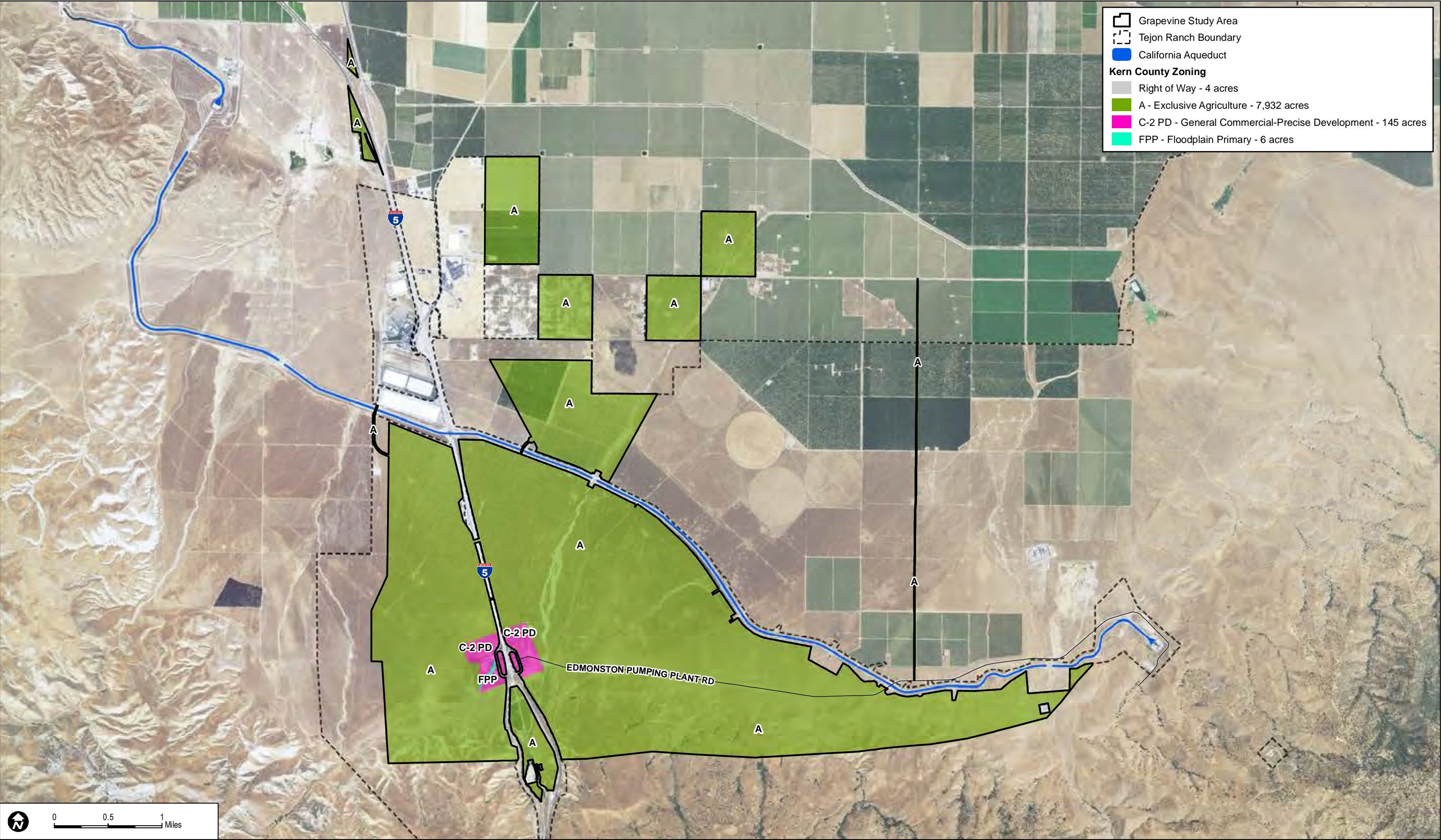
SOURCES: Kern County 2013a; 2015

**FIGURE 3**  
**Existing General Plan Land Use Map**



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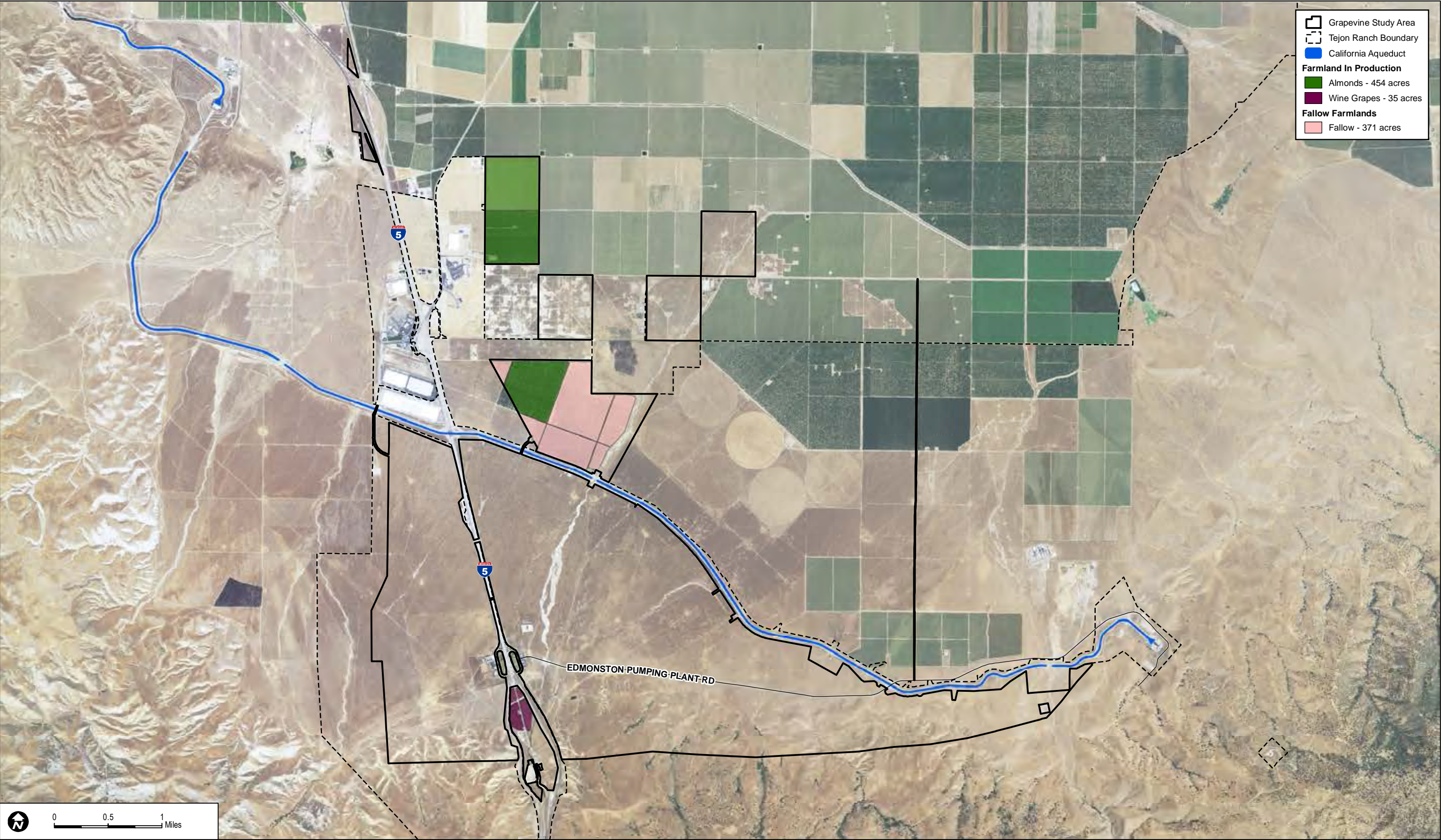
SOURCES: Kern County 2014

**FIGURE 4**  
**Existing Zoning Map**



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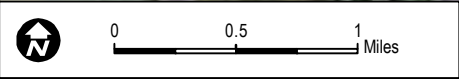
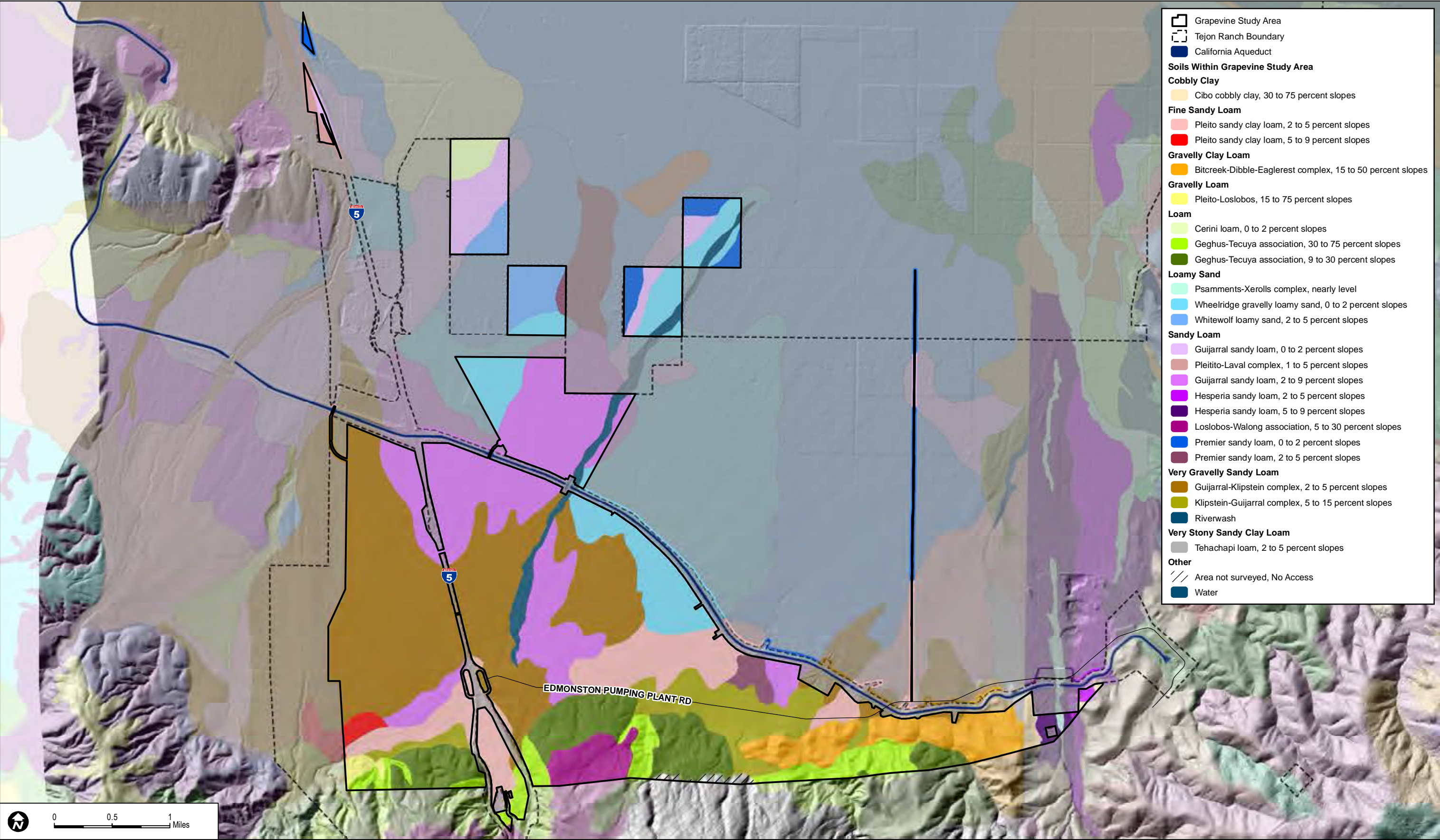


SOURCES: Kern County 2013b

**FIGURE 5**  
**Existing Farmlands in Production**



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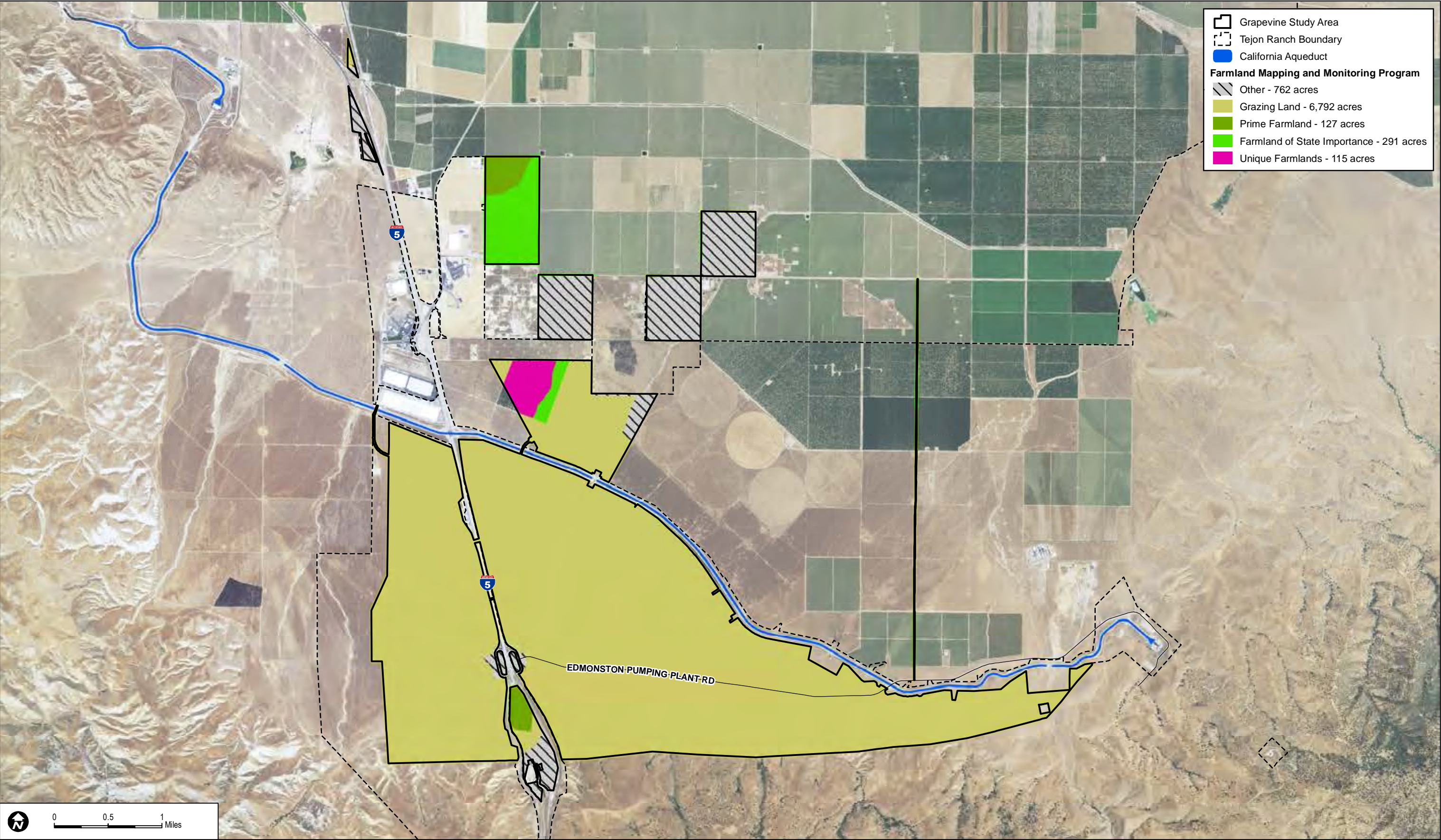


SOURCES: USDA 2007, 2009

FIGURE 6  
Soils Within Grapevine Study Area

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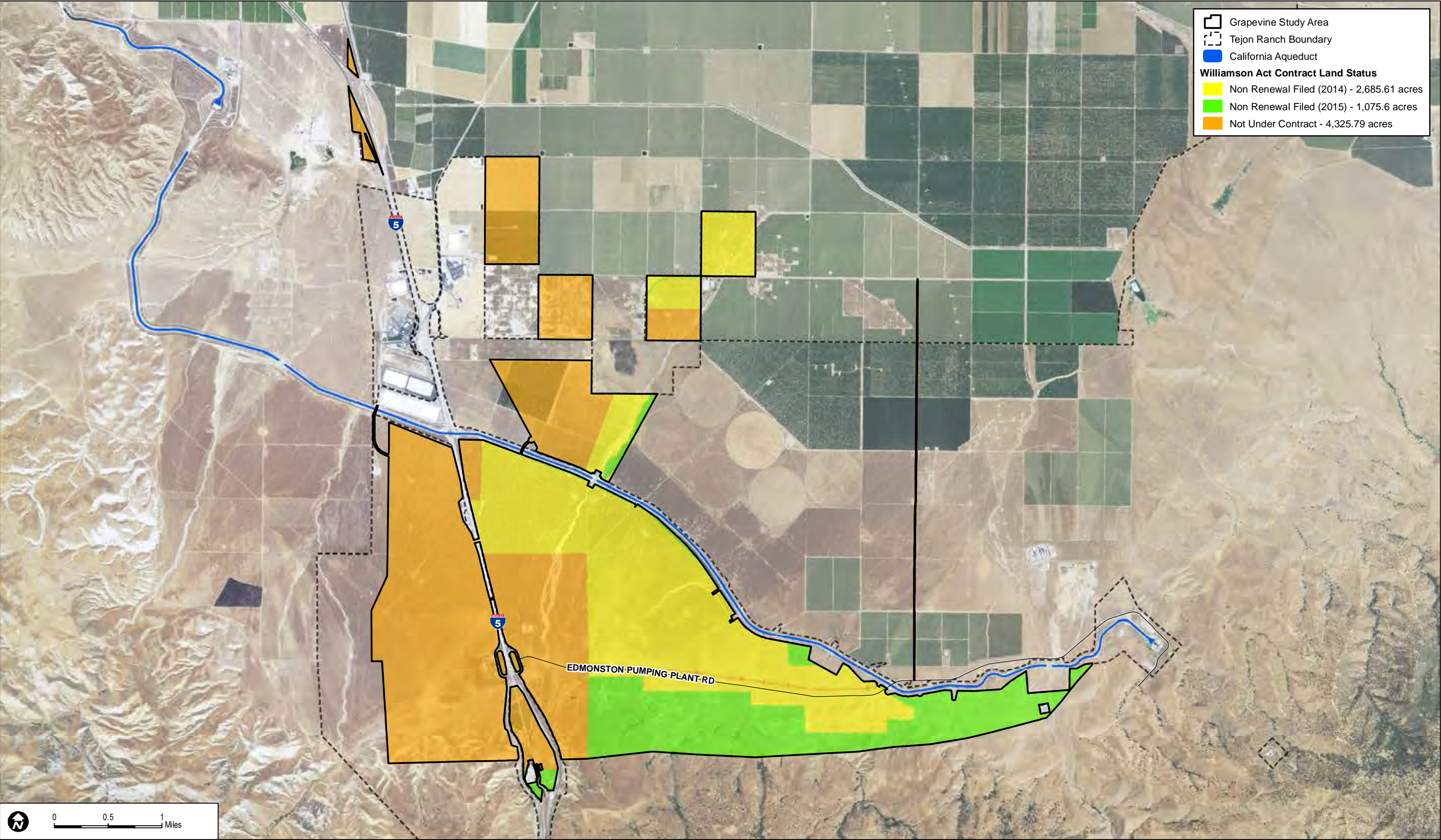
SOURCES: CA Dep. of Conservation (DOC) 2012

**FIGURE 7**  
**Existing Farmland Mapping and Monitoring Program (FMMP) Map**



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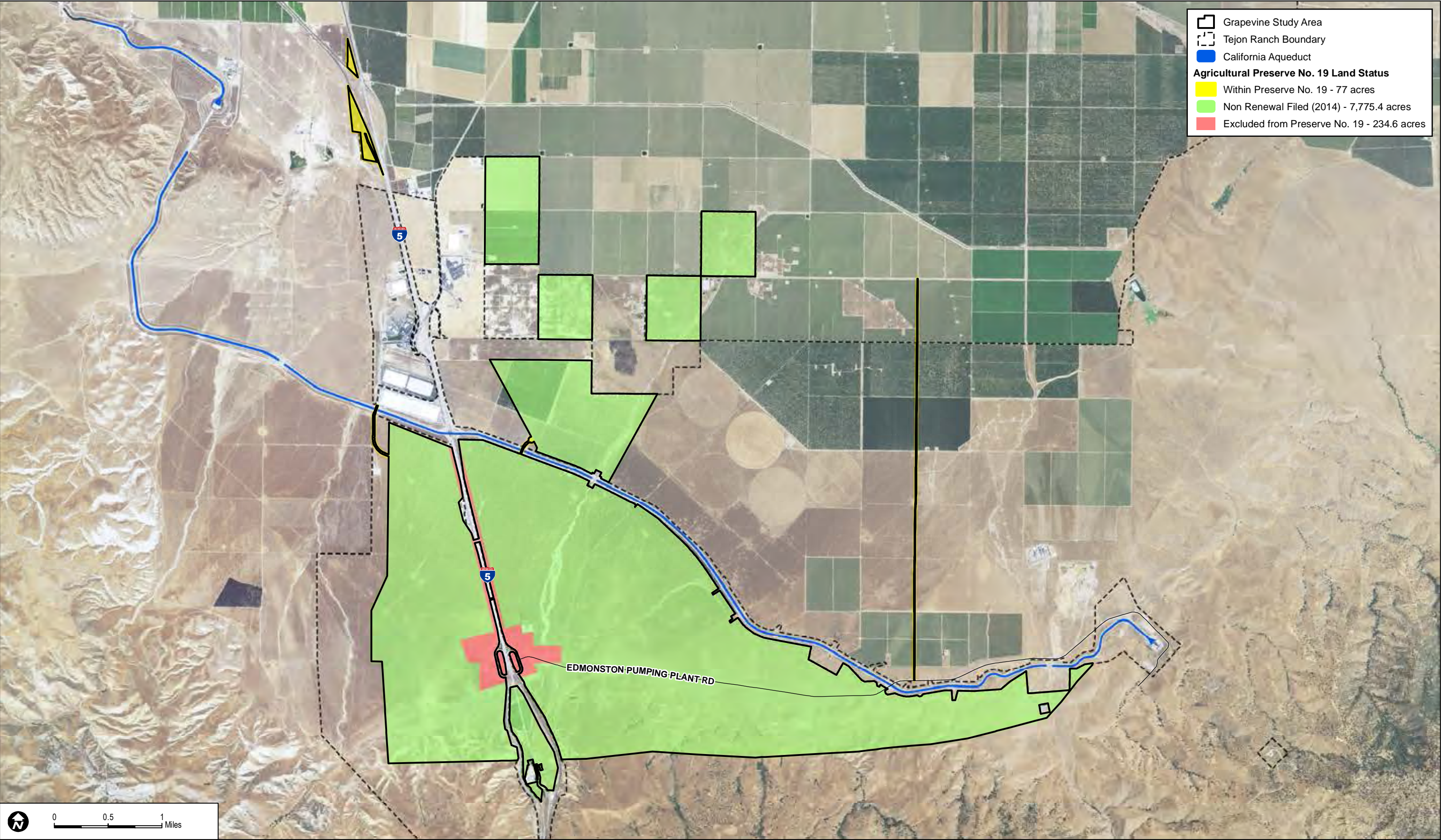
SOURCES: Kern County 2014; TRC 2015

**FIGURE 8**  
**Existing Williamson Act Contract Lands Map**



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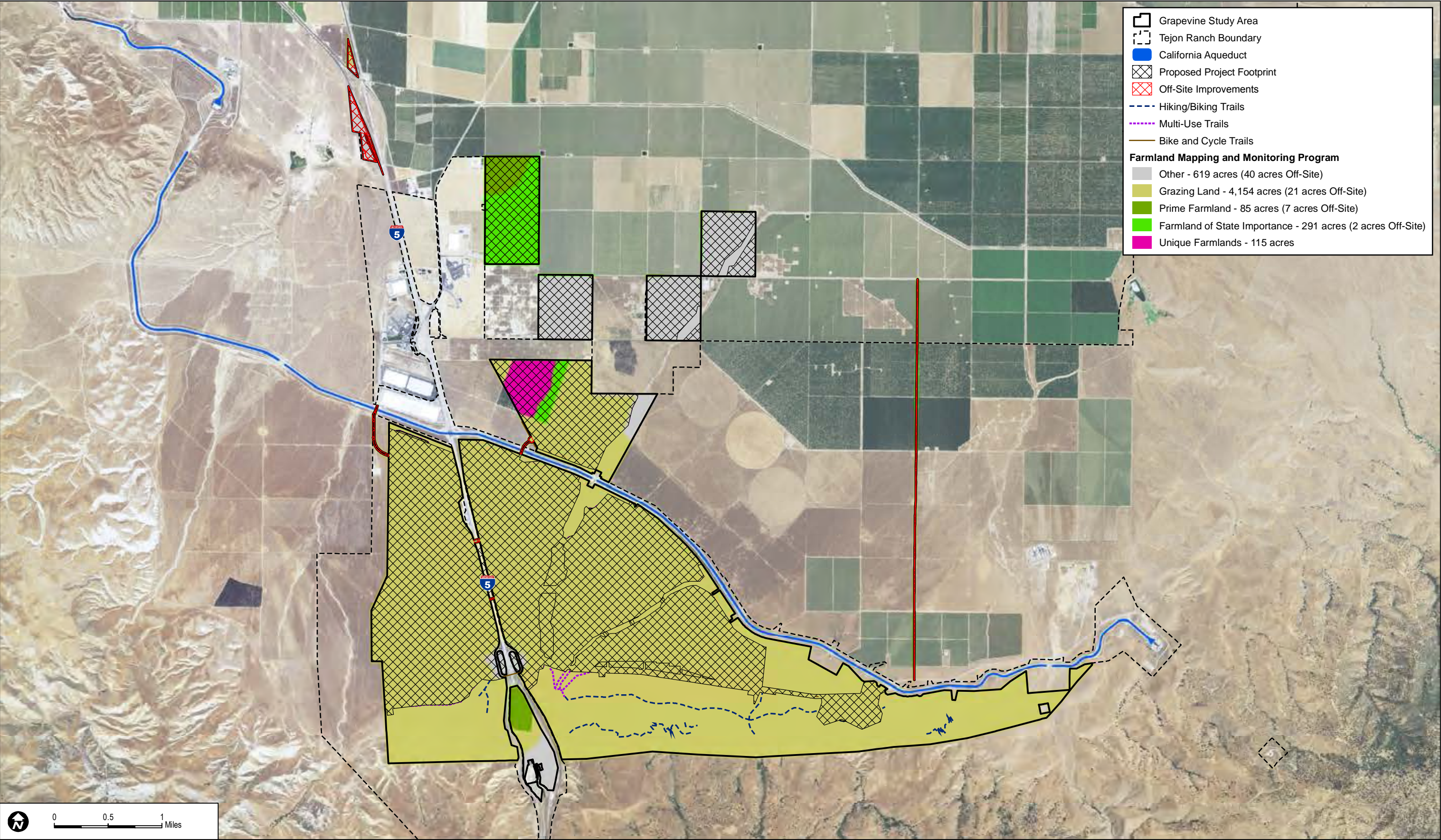
SOURCES: Kern County 2014

**FIGURE 9**  
**Existing Agricultural Preserve Map**



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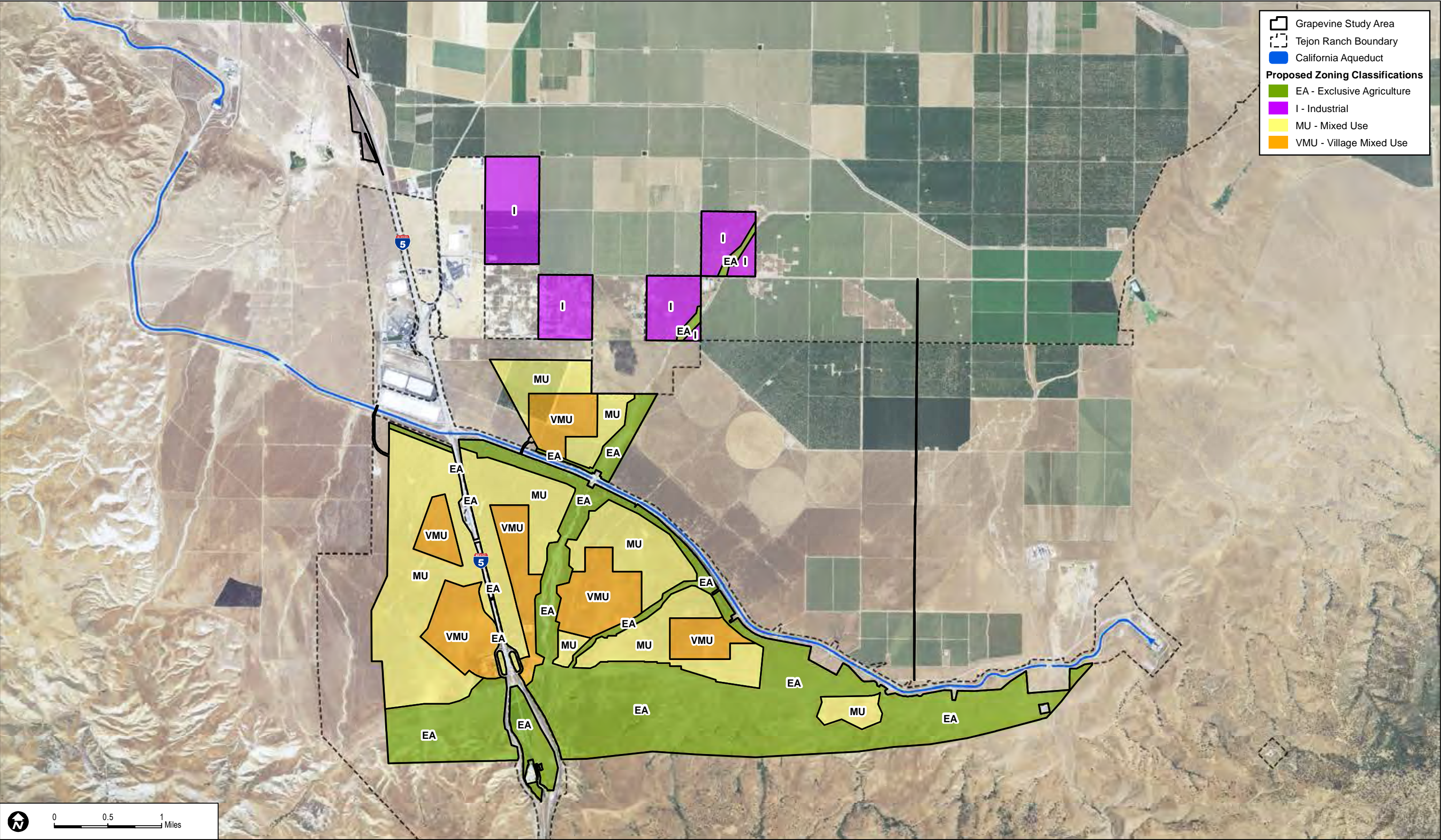
SOURCES: CA Dep. of Conservation (DOC) 2012

**FIGURE 10**  
**Farmland Mapping and Monitoring Program (FMMP) Impacts Map**



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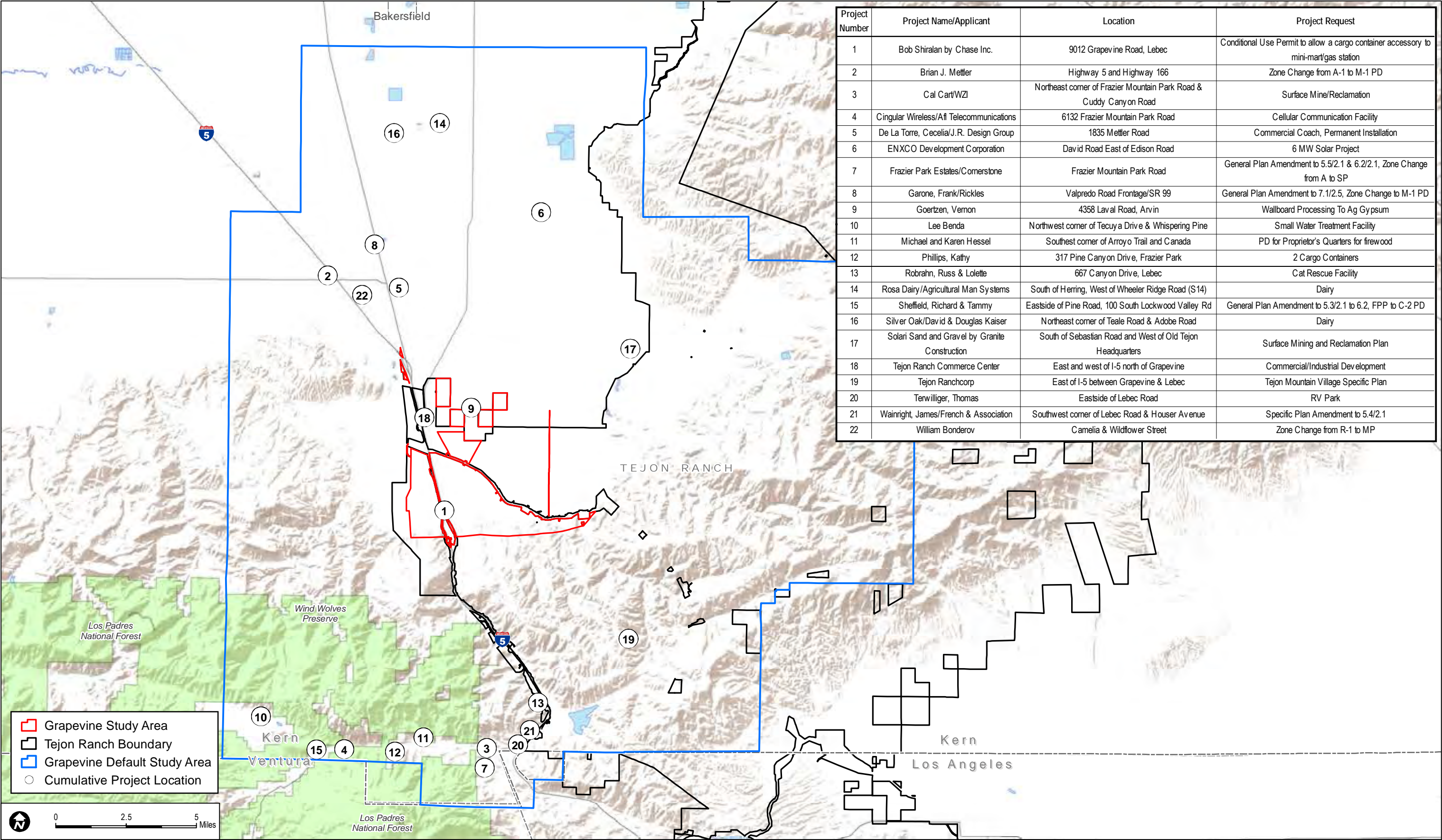


SOURCES: Ken Kay Associates 2014

**FIGURE 11**  
**Proposed Zoning Map**



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SOURCES: Kern County 2014c

**FIGURE 12**  
**Cumulative Project Map**



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Appendix E.1

## **Air Quality/Climate Change Study**

**AIR QUALITY AND GREENHOUSE GAS EMISSIONS  
ANALYSIS TECHNICAL REPORT  
for the  
GRAPEVINE SPECIFIC and COMMUNITY PLAN PROJECT**

*Prepared for:*

**Tejon Ranch Company Inc.**

4436 Lebec Road

Tejon Ranch, California 93243

*Contact: Diana Hurlbert*

*Prepared by:*

**DUDEK**

31878 Camino Capistrano No. 200

San Juan Capistrano, California 92675

*Contact: Jennifer Reed*

MARCH 2016



# Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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Grapevine Specific and Community Plan Project**

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# Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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## ACRONYMS AND ABBREVIATIONS

Acronym/Abbreviation	Definition
°F	degrees Fahrenheit
µg/m <sup>3</sup>	micrograms per cubic meter
AB	Assembly Bill
ATCM	Airborne Toxic Control Measure
AWPF	Advanced Water Purification Facility
BACT	best available control technology
BAU	Business-as-Usual
BMP	best management practice
BPS	best performance standards
Btu	British thermal unit
CAAQS	California Ambient Air Quality Standards
CAAWPF	Central Area Advanced Water Purification Facility
CAFE	Corporate Average Fuel Economy
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CALGreen	California's Green Building Standards
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CH <sub>4</sub>	methane
CHP	California Highway Patrol
CO	carbon monoxide
County	Kern County
CPUC	California Public Utilities Commission
CVEF	Commercial Vehicle Enforcement Facility
DPM	diesel particulate matter
EIR	environmental impact report
EPA	United States Environmental Protection Agency
GAMAQI	Guidance for Assessing and Mitigating Air Quality Impacts
GHG	greenhouse gas
GWP	global warming potential
HARP	Hotspots Analysis Reporting Program
HFCs	hydrofluorocarbons
HRA	health risk assessment
I-5	Interstate 5
IPCC	Intergovernmental Panel on Climate Change
ISR	Indirect Source Review

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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Acronym/Abbreviation	Definition
Kern COG	Kern County Association of Governments
kW	kilowatt
LID	low-impact development
LOS	level of service
mph	miles per hour
MT	metric tons
MW	megawatt
MWh	megawatt-hour
N <sub>2</sub> O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHTSA	National Highway Traffic Safety Administration
NO	nitric oxide
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	oxides of nitrogen
O <sub>3</sub>	ozone
OEHHA	Office of Environmental Health Hazard Assessment
PFCs	perfluorocarbons
PG&E	Pacific Gas & Electric
PM <sub>2.5</sub>	particulate matter with an aerodynamic diameter less than or equal to 2.5 microns
PM <sub>10</sub>	particulate matter with an aerodynamic diameter less than or equal to 10 microns
ppb	parts per billion
ppm	parts per million
RACT	Reasonably Available Control Technology
Ranch	Tejon Ranch
Ranchwide Agreement	Conservation and Land Use Agreement
ROC	reactive organic compound
ROG	reactive organic gas
RTP	Regional Transportation Plan
SB	Senate Bill
SCS	Sustainable Communities Strategy
SF <sub>6</sub>	sulfur hexafluoride
SIP	State Implementation Plan
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Unified Air Pollution Control District
SO <sub>2</sub>	sulfur dioxide
SO <sub>x</sub>	sulfur oxides
SR	State Route
TAZ	traffic analysis zone
TRC	Tejon Ranch Company
TRCC	Tejon Ranch Commerce Center
USGS	U.S. Geological Survey

## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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Acronym/Abbreviation	Definition
UTM	Universal Transverse Mercator
VMT	vehicle miles traveled
VOC	volatile organic compound
WWTP	wastewater treatment plant
ZEV	zero-emission vehicle

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# Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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## EXECUTIVE SUMMARY

### Project Description

The Grapevine Specific and Community Plan project (project) is located in the west-central portion of Tejon Ranch (the Ranch). The 8,010-acre Grapevine Specific Plan Area is entirely within unincorporated Kern County (County) just south of the junction of Interstate 5 and State Route (SR) 99. The study area is located within the San Joaquin Valley Air Basin (SJVAB) under the jurisdiction San Joaquin Valley Air Pollution Control District (SJVAPCD).

The project is a planned residential community sustainably designed and located to provide convenient access to employment, shopping, parks, schools, and housing that complements the jobs being created at Tejon Ranch Commerce Center (TRCC), all the while embodying the agricultural character and values of Kern County. The project was designed as a series of village centers linked by bicycle and pedestrian trails, each composed of a mix of housing, neighborhood-serving retail and office uses, schools, parks, and community services, and would include 12,000 single-family and multi-family residential units and 5.1 million square feet of commercial, retail, and industrial land uses. A total of 175 acres of the study area has been set aside for schools, and 96 acres has been set aside for parks. Other public facilities, including fire stations, a sheriff substation, transit facilities/park-and-rides, and water and wastewater treatment facilities, are proposed in the new Grapevine Community. The project intends to maintain 40% of the Specific Plan area as Exclusive Agriculture to accommodate ongoing resource, grazing, and open space uses. The project site is divided into 6 general planning areas (1, 2, 3, 4, 5, and 6), which are further broken down into 11 sub-planning areas (1, 2, 3, 4, 5A, 5B, 6A, 6B, 6C, 6D, and 6E) ranging from approximately 190 to 1,630 acres, with proposed development areas ranging from approximately 170 to 900 acres.

A Voluntary Emissions Reduction Agreement (VERA) is available for projects where design elements and compliance with SJVAPCD rules and regulations<sup>1</sup> may not be sufficient to reduce project-related air quality impacts to less-than-significant levels. Tejon Ranchcorp has entered into a VERA with the SJVAPCD to reduce emissions of reactive organic gases (ROGs), oxides of nitrogen (NO<sub>x</sub>), and particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM<sub>10</sub>) in the study area. The VERA was executed by Tejon Ranchcorp and the SJVAPCD Governing Board on February 18, 2016, and is provided as Appendix H. Per the VERA, Tejon Ranchcorp would mitigate the project's NO<sub>x</sub>, ROG, and PM<sub>10</sub> (inclusive of PM<sub>2.5</sub>) emissions from construction and operations by achieving surplus, quantifiable, and enforceable

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<sup>1</sup> Unless otherwise noted in this report, references to rule or regulations refer to those adopted and enforced by the SJVAPCD.

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emission reductions; “surplus” emission reductions are reductions that are not otherwise required by existing laws or regulations. Stationary-source emissions would also be fully mitigated under SJVAPCD permit requirements and the VERA.

### **Air Quality Analysis**

The air quality impact analysis evaluated the potential for adverse impacts to ambient air quality due to construction and operational emissions resulting from the project. Impacts were evaluated for their significance based on the SJVAPCD environmental thresholds of significance (SJVAPCD 2015d).

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. Criteria air pollutants include ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), PM<sub>10</sub>, particulate matter with an aerodynamic diameter less than or equal to 2.5 microns (PM<sub>2.5</sub>), and lead. Pollutants that are evaluated herein include ROG (also referred to as volatile organic compounds (VOCs) and reactive organic compounds (ROCs)), NO<sub>x</sub>, CO, sulfur oxides (SO<sub>x</sub>), PM<sub>10</sub>, PM<sub>2.5</sub>. ROG and NO<sub>x</sub> are important because they are precursors to O<sub>3</sub>.

### ***Air Quality Plan Consistency***

The SJVAPCD has prepared plans to attain federal and state ozone and particulate matter ambient air quality standards as required under the federal and California Clean Air Acts. The SJVAPCD has established thresholds of significance for criteria pollutant emissions, and projects with emissions below the thresholds of significance for criteria pollutants would be determined to “not conflict or obstruct implementation of the District’s air quality plan” (SJVAPCD 2015d). As determined in the assessment of project-generated construction and operational emissions, the project would generate substantial ozone precursor and particulate matter emissions from construction and operational activities. These project-level emissions would be reduced to a no-net increase level through a combination of SJVAPCD stationary source permitting rules requiring offsets above designated thresholds, and the VERA for remaining construction and operational emissions of NO<sub>x</sub>, ROG, and PM<sub>10</sub> (inclusive of PM<sub>2.5</sub>). The VERA requires emission reductions beyond those required by the applicable air quality rules and regulations and, as such, the project would not cause or contribute to nonattainment conditions of any ambient air quality standards, and would also be consistent with the applicable SJVAPCD air quality attainment plans.

The project was evaluated in relation to Kern County Council of Governments (Kern COG) 2014 Regional Transportation Plan and Sustainable Communities Plan (RTP/SCS), which is required



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to meet federal and state benchmarks for transportation and land use emissions of criteria pollutants as well as greenhouse gas emissions (GHG). As described in greater detail in the Land Use Technical Report (James 2015), the RTP/SCS plan is updated every 4 years to reflect increasing population and economic growth within Kern County. The project site has been designated for urbanized development in the approved RTP/SCS, which anticipates very substantial increases in population, employment, and housing development for the traffic analysis zones (TAZ) that includes the project community. While project buildout has been conservatively assumed to be completed by the year 2036, and the RTP/SCS planning horizon extends only to year 2035, it is anticipated that future updates to the RTP/SCS will include adjustments for full project buildout through the 4-year update process. In addition, the RTP/SCS designates the project site as a “Planned Transit Priority Area” and a “Strategic Employment Center” to provide for walkable, mixed-use land use and circulation patterns and the integration of transit and other sustainable development concepts. The project has been designed to be consistent with these policy components of the 2014 RTP/SCS.

### ***Construction Criteria Air Pollutant Emissions***

Construction of the project would result in a temporary addition of pollutants to the local airshed caused by soil disturbance, dust emissions, and combustion pollutants from on-site construction equipment and earth-moving activities, as well as from off-site trucks hauling construction materials. Construction emissions were estimated using the California Emissions Estimator Model (CalEEMod) software.

Project-generated emissions were estimated for construction of each planning area in order of the anticipated construction initiation date: Planning Areas 6A, 2, 1, 3, 4, 6B, 5A, 6C, 6D, 6E, and 5B. The emissions associated with construction of Planning Areas 6A, 2, 1, 3, 4, and 5A would exceed the SJVAPCD annual ROG threshold of 10 tons per year during one or more construction years in the unmitigated and/or mitigated scenarios. The emissions associated with construction of Planning Areas 6A, 2, 1, 3, and 4 would exceed the SJVAPCD annual NO<sub>x</sub> threshold of 10 tons per year in one or more construction years in the unmitigated and/or mitigated scenarios. The emissions associated with construction of the project would not exceed the SJVAPCD annual thresholds for CO, SO<sub>x</sub>, PM<sub>10</sub>, or PM<sub>2.5</sub> under either the unmitigated or mitigated scenario at any time. In addition, with implementation of fugitive dust controls pursuant to SJVAPCD Regulation VIII, fugitive dust emissions would be less than significant. Under the VERA, the developer would mitigate the project’s emissions of NO<sub>x</sub> and ROG from construction by achieving surplus, quantifiable, and enforceable emission reductions. As such, the project would result in a less-than-significant impact to air quality during construction.

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In regards to ambient air quality, the project would result in construction activities that would generate concentrations of criteria pollutants below the applicable thresholds. Overall, the project's impact related to the potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation as a result of construction emissions would be less than significant.

### ***Operational Criteria Air Pollutant Emissions***

Operation of the project would generate operational criteria air pollutants from mobile sources (vehicles), area sources (hearths, consumer product use, architectural coatings, and landscape maintenance equipment), energy (natural gas), and stationary sources. Project-generated operational emissions were estimated at the buildout for each Planning Area (e.g., Planning Area 6A (2019), Planning Area 2 (2023), until completion) and for complete buildout of the project. Buildout of the planning areas was assumed in each operational year analyzed. Operational buildout years assessed herein are the following: 2019, 2023, 2025, 2028, 2032, 2034, 2035, and 2036 (full buildout) to illustrate how the project would potentially result in emissions throughout the assumed 20 years of development. The determination of the project's potential to generate emissions that would result in significant impacts was based on the maximum annual emissions that would occur after full buildout in 2036.

Project-generated operational emissions were also estimated using CalEEMod. Estimated project-generated operational emissions at full buildout would exceed the SJVAPCD annual thresholds of 10 tons per year ROG, 10 tons per year of  $\text{NO}_x$ , 100 tons per year of CO, 15 tons per year of  $\text{PM}_{10}$ , and 15 tons per year of  $\text{PM}_{2.5}$ . Project operation would not exceed the SJVAPCD annual operational threshold for  $\text{SO}_x$ .

As explained above, the project proponent has executed a VERA with the SJVAPCD, which—along with compliance with stationary-source permitting rules implemented by the SJVAPCD—would help ensure that operational emissions of  $\text{NO}_x$ , ROG, and  $\text{PM}_{10}$  (inclusive of  $\text{PM}_{2.5}$ ) within the SJVAB are fully offset. As such, the project would result in less-than-significant impacts of  $\text{NO}_x$ , ROG,  $\text{PM}_{10}$ , and  $\text{PM}_{2.5}$  as a result of operation, and the project's impact related to the potential to violate an air quality standard or contribute substantially to an existing or projected air quality violation as a result of operational emissions of these pollutants would be less than significant. Since the VERA would not reduce CO, project-generated operational CO emissions would exceed the SJVAPCD operational CO emissions threshold after incorporation of mitigation, which would be a significant and unavoidable impact. However, the Kern County portion of the SJVAB is in attainment of federal and state CO standards, and CO hotspot and stationary source ambient air quality impact modeling

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determined that the project would not contribute substantially to an existing or projected CO air quality violation.

As allowed by the proposed zoning, the project is expected to include various stationary sources associated with industrial facilities, and these potential industrial facilities were evaluated based on allowable uses within the study area designated for industrial land uses.<sup>2</sup> To evaluate these potential future industrial uses, emissions associated with the following potential stationary sources were estimated: a cannery/food processing plant, several gas stations, a green waste composting facility, an asphaltic concrete plant, a commercial bakery, three wastewater treatment plants, 500-kilowatt diesel emergency generators at the water and wastewater treatment plants, and general manufacturing uses as described further below. Annual emissions associated with this projected array of future stationary sources were estimated to be approximately 25 tons per year of ROG, 2 tons per year of NO<sub>x</sub>, 16 tons per year of CO, 0.4 ton per year of SO<sub>x</sub>, 2 tons per year of PM<sub>10</sub>, and 2 tons per year of PM<sub>2.5</sub>. Stationary-source emissions associated with the project would exceed the SJVAPCD ROG threshold of 10 tons per year for permitted sources; project-generated stationary source emissions would not exceed the SJVAPCD thresholds for NO<sub>x</sub>, CO, PM<sub>10</sub>, or PM<sub>2.5</sub> for permitted sources. Implementation of the VERA would ensure that stationary source emissions of ROG would be less than significant.

In regards to ambient air quality, the stationary sources evaluated would generate concentrations of criteria pollutants below the applicable thresholds. Overall, the project's impact related to the potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation as a result of operational emissions would be less than significant.

### ***Valley Fever***

Coccidioidomycosis, more commonly known as "Valley Fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. The project would be required to comply with Rule 8021, Section 6.3, which would require the project to develop, prepare, submit, obtain approval of, and implement a dust control plan. Compliance with this plan would reduce fugitive dust impacts to less than significant for all construction phases of the project, which would also minimize the release of the *Coccidioides immitis* fungus from construction activities. Project-generated fugitive dust emissions would be below the SJVAPCD thresholds with Mitigation Measure

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<sup>2</sup> Allowable project land uses may include warehousing, distribution centers, light manufacturing and assembly facilities, research and development, and other related uses that could be considered industrial uses. For the purposes of this analysis, such uses are considered to be commercial in nature and not anticipated to involve substantial stationary sources of the types discussed here.

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(MM) MM-AQ-2 dust control measures incorporated. MM-AQ-7 would further reduce impacts associated with Valley Fever and would protect on-site construction workers and nearby receptors. As detailed in Section 2.5.3.1, these mitigation measures would include a variety of mandatory actions to be employed during project construction that would reduce risk associated with Valley Fever, such as construction worker education and the use of respirators and other personal protective equipment. Implementation of MM-AQ-2 and MM-AQ-7 would reduce impacts related to Valley Fever to a level that is less than significant.

### ***Stationary Source Health Risk Assessment***

Potential stationary sources included in the health risk assessment include a cannery/food processing plant, several gas stations, a green waste composting facility, an asphaltic concrete plant, a commercial bakery, three wastewater treatment plants, 500-kilowatt kW diesel emergency generators at the water and wastewater treatment plants, and general manufacturing sources. Stationary sources would emit toxic air contaminants (TACs), which would result in maximum residential cancer risk below the SJVAPCD threshold of 20, chronic hazard index below the SJVAPCD threshold of 1, and acute hazard index below the SJVAPCD threshold of 1. Sensitive uses within the project site would also be required to comply with the setback distances and other measures required for Tier 1 and Tier 3 areas, respectively, as further described in the Specific Plan and Special Plan.

### ***Interstate 5 Health Risk Assessment***

Some residential and other sensitive receptors proposed under the project would be in proximity to Interstate 5 and would potentially be exposed to elevated levels of diesel particulate matter from on-road vehicles and associated cancer risk. However, existing and potential future mandates to use engine and fuel technologies that have lower particulate matter emissions, including increased reliance on electric and alternative-fuel vehicles and the CARB regulation of in-use diesel vehicle fleets, are anticipated to result in lower health risks near highways over time. This report identifies the areas proximate to Interstate 5 that would require additional measures, such as residential high-efficiency air filtration, for sensitive receptors based on an assessment of freeway-related emissions using existing motor vehicle technology. Prior to construction of sensitive uses such as residences near Interstate 5, an updated risk assessment is required as well as specification of filtration devices or other appropriate measures to address freeway-related emissions.

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### ***Oil & Gas Production***

Oil and gas extraction wells and related equipment exist on the project site, and like many areas of Kern County, oil and gas production activities are anticipated to continue to occur over time. Kern County completed a comprehensive Environmental Impact Report (EIR) and updated its oil and gas production ordinances in 2015 to protect public health and safety and the environment, with design standards (e.g., mandatory setback distances between oil wells and residences or other sensitive uses) as well as 88 mitigation measures. Project oil and gas activities are required to comply with these County requirements (including Kern County's Chapter 19.98 for Tier 1 and Tier 3 lands requirement), and compliance will continue to be required pursuant to the Specific Plan.

### ***Carbon Monoxide Hotspots***

High carbon monoxide (CO) concentrations are typically associated with roadways or intersections operating at an unacceptable level of service. As such, projects contributing to adverse traffic impacts may result in the formation of CO hotspots. The SJVAPCD and Kern County have established criteria to determine if a project would potentially result in a CO hotspot, which is based on level of service (LOS) estimates for study area intersections. The Traffic Impact Study (TIS) prepared for this project (Fehr & Peers 2015a) evaluated the LOS (i.e., increased congestion) impacts at the intersections affected by the project. Fehr & Peers evaluated three scenarios: Existing Conditions, Existing Plus Project Conditions, Cumulative Conditions. Only two intersections warranted a CO hot spot analysis based on projected LOS impacts of E or F: intersections of Street D/ Street A (Existing Plus Project Conditions and Cumulative Conditions) and Street I/ Street A (Existing Plus Project Conditions). The potential impact of the project on localized CO levels was assessed at these intersections with the Caltrans CL4 interface, which is based on the California LINE Source Dispersion Model (CALINE4). Maximum CO concentrations predicted for the 1-hour averaging period would be 2.1 ppm, which is below the state 1-hour CO standard of 20 ppm. Maximum predicted 8-hour CO concentrations of 1.3 ppm would be below the state CO standard of 9.0 ppm. Neither the 1-hour nor 8-hour state standard would be equaled or exceeded at any of the intersections studied. Accordingly, CO exposure impacts would be less than significant.

### ***Visibility Impacts***

Kern County's CEQA thresholds include criteria for designated types of industrial projects and for mining projects to determine if a project would potentially result in an air quality-related visibility impact. The project is not a large industrial, stationary-source project or a mining project, and it would not have long-term operational components that could generate dust or

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emission plumes related to visibility. Compliance with SJVAPCD Regulation VIII, including implementation of all feasible dust control measures specified in SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts* and incorporated into a dust control plan, would avoid adverse visibility impacts from construction. The project does not include any operational sources that could potentially cause significant visibility impacts from air emissions and no mitigation would be required.

### ***Odors***

The project could include land uses with sources that have the potential to generate odors, including green waste composting, food processing, an asphaltic concrete plant, and wastewater treatment. To ensure that odor impacts would be reduced to the extent feasible, MM-AQ-9, requiring the implementation of an Odor Complaint Management Plan, would be required for uses that could cause a significant odor impact. As specific discretionary permits are requested for potential odor-generating land uses, Kern County and SJVAPCD may further evaluate odor emissions from such uses to determine if additional environmental review is warranted at that time. Based on SJVAPCD screening distances for evaluating potential odor impacts, however, the project could locate land uses with sources that have the potential to generate perceptible odors near sensitive receptors. Ambient odors also occur within the County (including the project site) from a variety of sources, including agriculture, oil and gas operations, and confined animal feeding operations. Because project residents could be exposed to perceptible odors from ambient conditions or nearby uses, this impact is considered significant and unavoidable.

### ***Cumulative Impacts***

The potential for the project to result in a cumulatively considerable impact, per the SJVAPCD guidance and thresholds, is based on the project's potential to exceed the project-specific annual thresholds. The project would exceed the annual SJVAPCD thresholds for ROG, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> during construction and/or operation; however, the project's emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> (inclusive of PM<sub>2.5</sub>) from construction and operation, including stationary-source emissions, would be mitigated through the SJVAPCD's permit program (requiring offsets for stationary sources with emissions exceeding designated thresholds) and the VERA (for all other project sources). Project-generated operational CO emissions would exceed the SJVAPCD operational CO emissions threshold after incorporation of mitigation, which would be a significant and unavoidable project-level and cumulative impact. However, the Kern County portion of the SJVAB is in attainment of federal and state CO standards, and CO hotspot and stationary source ambient air quality impact modeling determined that the project would not contribute substantially to an existing or projected CO air quality violation.

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With implementation of the VERA, the project would not result in significant project-specific impacts or a cumulatively considerable contribution to air quality impacts of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> per the SJVAPCD guidance. However, because of scientific uncertainty regarding the relationship between the mitigation measures that can be used to satisfy the VERA obligations, and because other future projects within the air basin are not required to fully offset air emissions, the County practice is to conclude that cumulative emissions of nonattainment pollutants would continue to be significant and unavoidable.

The project's proposed development is consistent with the development projected in the Kern COG RTP/SCS, as described in greater detail in the Land Use Technical Report (James 2015). Additionally, the mixed-use land use, integration of transit- and pedestrian-friendly environments, and other sustainable development concepts would ensure that the project is consistent with the policies and programs of the 2014 RTP/SCS. In addition, the VERA requires emission reductions beyond those required by the applicable air quality plans and, as such, the project would be consistent with the policies of the applicable SJVAPCD air quality attainment plans.

Based on the considerations above, the project's potential to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard would be significant and unavoidable.

### **Greenhouse Gas Emissions Analysis**

Global climate change is primarily considered a cumulative impact, but must also be evaluated on a project-level under CEQA. A project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gas (GHG) emissions.

GHGs are gases that absorb infrared radiation in the atmosphere. The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect. Principal GHGs regulated under state and federal law and regulations include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O).

Construction of the project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. The project would generate operational GHG emissions from vehicular sources, area sources (natural gas combustion and landscape maintenance), electrical generation (including electrical generation associated with water supply and wastewater treatment), and solid waste. Vehicles traveling to and from the project would be the primary source of project-generated



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GHG emissions. Annual GHG emissions associated with construction activity and long-term operations were quantified using CalEEMod.

The project would incorporate smart growth community design strategies to help reduce GHG emissions associated with energy use, vehicle traffic, and water use.

### *Compliance with Regulatory Programs that Would Reduce Greenhouse Gas Emissions*

The project will comply with applicable regulations that would reduce GHG emissions, thus contributing to the achievement of AB 32's goals. As described more fully in Section 3.5.1.1, regulations that would reduce GHGs apply to various categories of GHG emission sources of the project, including area, energy, mobile, solid waste, water supply/wastewater, stationary, and construction source categories. Notably, some measures were not necessarily adopted with the intent of reducing GHG emissions but could nonetheless result in reductions; other measures were adopted to reduce GHG emissions but it is not certain at this time whether the actual project uses would be subject to such regulations. Some regulatory measures were promulgated prior to or independently of AB 32, and others were identified in CARB's 2008 Climate Change Scoping Plan and promulgated subsequent to approval of the Scoping Plan.

### *Project-Generated Construction and Operational Greenhouse Gas Emissions*

Before mitigation, the project would generate approximately 97,781 metric tons (MT) of carbon dioxide equivalent (CO<sub>2</sub>E)<sup>3</sup> during construction of the project over 19 years. In addition, construction of the proposed transportation improvement projects necessitated by the project are anticipated to generate approximately 5,270 MT CO<sub>2</sub>E during construction (assuming worst-case intersection construction). Estimated project-generated construction emissions were annualized<sup>4</sup> over 20 years and added to the estimated project-generated operational emissions. Estimated annual unmitigated project-generated GHG emissions in 2036 at project buildout would be approximately 585,147 MT CO<sub>2</sub>E per year as a result of project operations and annualized construction; estimated annual mitigated operational project-generated GHG emissions in 2036 would be approximately 570,777 MT CO<sub>2</sub>E per year. The greatest estimated annual project-generated GHG emissions during buildout of the project would occur in 2036 at full buildout of the

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<sup>3</sup> The CO<sub>2</sub>E for a gas is derived by multiplying the mass of the gas by the associated global warming potential (GWP), such that MT of CO<sub>2</sub>E = (MT of a GHG) × (GWP of the GHG).

<sup>4</sup> Annualized emissions (also referred to as amortized emissions) reflects the average of the total GHG emissions on an annual basis. As presented in Section 3.5, Impact Analysis, the maximum total project-generated construction emissions of approximately 103,050 MT CO<sub>2</sub>E annualized over 20 years was estimated to be approximately 5,153 MT CO<sub>2</sub>E per year.

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project when construction activity would be complete under both the unmitigated and mitigated scenarios.

Under the SJVAPCD's guidance for determining significance of project-generated GHG emissions under CEQA, a project would not result in a significant impact if it would result in a 29% reduction from business as usual (BAU). BAU has been defined to include legal mandates to reduce GHGs that were in effect as of CARB's adoption of the initial Scoping Plan to comply with AB 32, as further described below. Estimated annualized project construction GHG emissions, and estimated annual operational GHG emissions generated under the BAU scenario in 2036 would be approximately 712,925 MT CO<sub>2</sub>E per year. Estimated annual mitigated operational project-generated emissions would be approximately 570,777 MT CO<sub>2</sub>E per year. The project would result in a reduction of approximately 142,147 MT CO<sub>2</sub>E per year, which is an approximately 20% reduction from BAU. The project would result in a 20% reduction from BAU, which is less than the 29% reduction from BAU significance threshold recommended by the SJVAPCD. However, this comparison has been included for informational purposes only since the majority of project-related GHG emissions would be associated with combustion of fuels (such as for stationary sources and heating, on-road vehicles, and construction equipment) and with electricity, which would be subject to elements of the cap-and-trade regulations for fuels and for electricity providers, respectively. In accordance with SJVAPCD policy, the project's GHG emissions are nearly all covered under the cap-and-trade regulation.

The County has jurisdictional authority to implement some applicable regulatory measures that would reduce project-generated GHG emissions. These measures include, but are not limited to, implementation of Title 24 energy efficiency building standards, compliance with County Code of Ordinances related to water efficient landscaping requirements, and energy and water conservation design requirements that would be a building permit condition. The County, however, does not have jurisdictional authority to implement applicable regulatory measures that are statewide regulations such as cap-and-trade and RPS. Implementation of many measures incorporated in the analysis are regional or statewide in nature and do not provide a County-enforceable mechanism that guarantees GHG emission reductions on a cumulative basis. Although many other agencies with the necessary jurisdiction are currently taking action to reduce GHG emissions, the County cannot assure that these measures, or additional mitigation measures, would ultimately be implemented or sufficient to address climate change. Therefore, project-generated GHG emissions would result in significant and unavoidable project-level and cumulative impacts.

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### ***Consistency with Applicable Greenhouse Gas Reduction Plans***

Under the SJVAPCD's CEQA thresholds for GHG, a project would not have a significant GHG impact if it is consistent with an applicable plan to reduce GHG emissions, and a CEQA-compliant analysis was completed for the GHG reduction plan. Kern COG's RTP/SCS is an applicable plan adopted for reducing GHGs from the land use and transportation sectors in Kern County, and it was adopted after completion of a programmatic Environmental Impact Report (PEIR). CARB accepted the RTP/SCS in 2015. The project could result in a significant impact due to a conflict with an applicable plan, policy, or regulation if it would be inconsistent with the adopted Kern COG RTP/SCS.

In compliance with Senate Bill (SB) 375, the state law mandating GHG reductions from the land use and transportation sectors, CARB established reduction targets of 5% for 2020 and 10% for 2035 from 2005 levels of CO<sub>2</sub> emissions to be achieved by the Kern County COG and other San Joaquin Valley COGs. The Kern COG RTP/SCS found that "[b]ased on the analysis of strategies included in the SCS, CO<sub>2</sub> emissions are anticipated to be 14.1% lower than 2005 levels by 2020 and 16.6% lower by 2035, exceeding the targets established by CARB" (Kern COG 2014a). The 2005, 2020, and 2035 levels estimated in the SCS are 16.70, 14.35, and 13.92 pounds of CO<sub>2</sub> per day per capita, respectively.

As described above and in the Land Use Technical Report (James 2015), the project is consistent with the urbanized growth designation for the project site and with the smart growth and other policies included in the Kern COG RTP/SCS. Accordingly, the project is consistent with the 2014 RTP/SCS. The proposed RTP/SCS document includes a Map of Forecasted Development Patterns – Kern Region 2035.

The SCS Transit Priority and Strategic Employment Place Types Map in the RTP/SCS designates the Grapevine Specific Plan Area as both a Planned Strategic Employment Center and a Planned Transit Priority Center. Such Transit Priority Centers are intended by the RTP/SCS to be developed for urbanized uses around which future transit, vanpooling services, and other smart growth and transportation practices can be implemented to accommodate future population and economic growth to meet the GHG reduction targets established for the region under SB 375.

The 2014 RTP/SCS presents a range of transit, transportation-demand management road projects, pricing, and land use strategies that the Kern COG, transit agencies, local governments, and the SJVAPCD can implement consistent with the RTP/SCS (Kern COG 2014a). Of particular importance is a land use strategy to be implemented by local governments to locate housing "closer to employment/shopping areas" (Kern COG 2014a). This strategy is specifically acknowledged for use in outlying communities near jobs, which is consistent with Tejon

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Ranchcorp's objective of providing Grapevine housing proximate to the TRCC (Kern COG 2014a). The project site's RTP/SCS designation as a "Planned Transit Priority Area" and a "Strategic Employment Center" to provide for walkable, mixed-use land use and circulation patterns, and the integration of transit and other sustainable development concepts into future site development. The Grapevine Specific Plan has been designed to be consistent with these RTP/SCS land use designations and policies.

In addition, the project would be consistent with the applicable strategies and measures in the Scoping Plan, which establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions and recommends strategies for implementation at the statewide level to meet the goals of AB 32. Several statewide regulations have been adopted by CARB to implement the strategies proposed in the Scoping Plan. To the extent these regulations are applicable to the project, its inhabitants, or uses, the project would comply with these regulations. In addition, CARB forecasts that implementation of and compliance with the Scoping Plan requirements puts the state on a trajectory of meeting future reduction targets (i.e., 80% reduction below 1990 levels by 2050). Based on these considerations, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and no mitigation is required. This impact would be less than significant.

## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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# **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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## **1 INTRODUCTION**

### **1.1 Purpose and Scope**

This report includes the following:

- A description of the Grapevine Specific and Community Plan (project), including construction and operational details.
- A summary of the project's smart growth community design strategies that would reduce criteria air pollutant and greenhouse gas (GHG) emissions.
- A discussion of the project's Voluntary Emissions Reduction Agreement (VERA) and emission sources that would be covered under the VERA.
- Identification of air pollutants of concern for this project, including criteria air pollutants and toxic air contaminants (TACs).
- A summary of the existing conditions, including regional climate and meteorology, air quality monitoring data, the area's attainment status with respect to criteria air pollutants, current regional air quality management and transportation improvement plans, and the most recent emissions inventory information.
- A summary of the greenhouse effect, GHGs and global warming potential (GWP), contributions to GHG emissions (i.e., global, national, state, and local inventories), and the potential effects of climate change.
- A discussion of the regulatory framework that identifies the federal, state, and local air quality and GHG laws, regulations, and policies.
- A description of the thresholds, analytical methodologies, and assumptions used to estimate project-generated emissions and evaluate the significance of potential project air quality and GHG emissions impacts.
- An evaluation of potential project-level and cumulative air quality and GHG emissions impacts consistent with Kern County (County) and the San Joaquin Valley Air Pollution Control District (SJVAPCD) guidance.
- Proposed mitigation measures, and an assessment of the significance of project impacts before and after mitigation within the impact analysis.
- A summary of the mitigation measures that would be incorporated.

This introductory section provides a description of the project location and existing conditions, a project description including construction and operational details, project design features to

# **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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reduce project-generated emissions, and a discussion of the VERA. Section 2 of this report describes the environmental setting, regulatory setting, existing conditions, thresholds of significance and analytical methodology, project-level and cumulative impacts, and mitigation measures for criteria pollutant and TAC emissions, odors, and Valley Fever. Section 3 presents the GHG emissions analysis, which follows the same format as Section 2; it similarly describes the environmental setting, regulatory setting, existing conditions, thresholds of significance and analytical methodology, project-level and cumulative impacts, and mitigation measures in relation to project-generated GHG emissions.

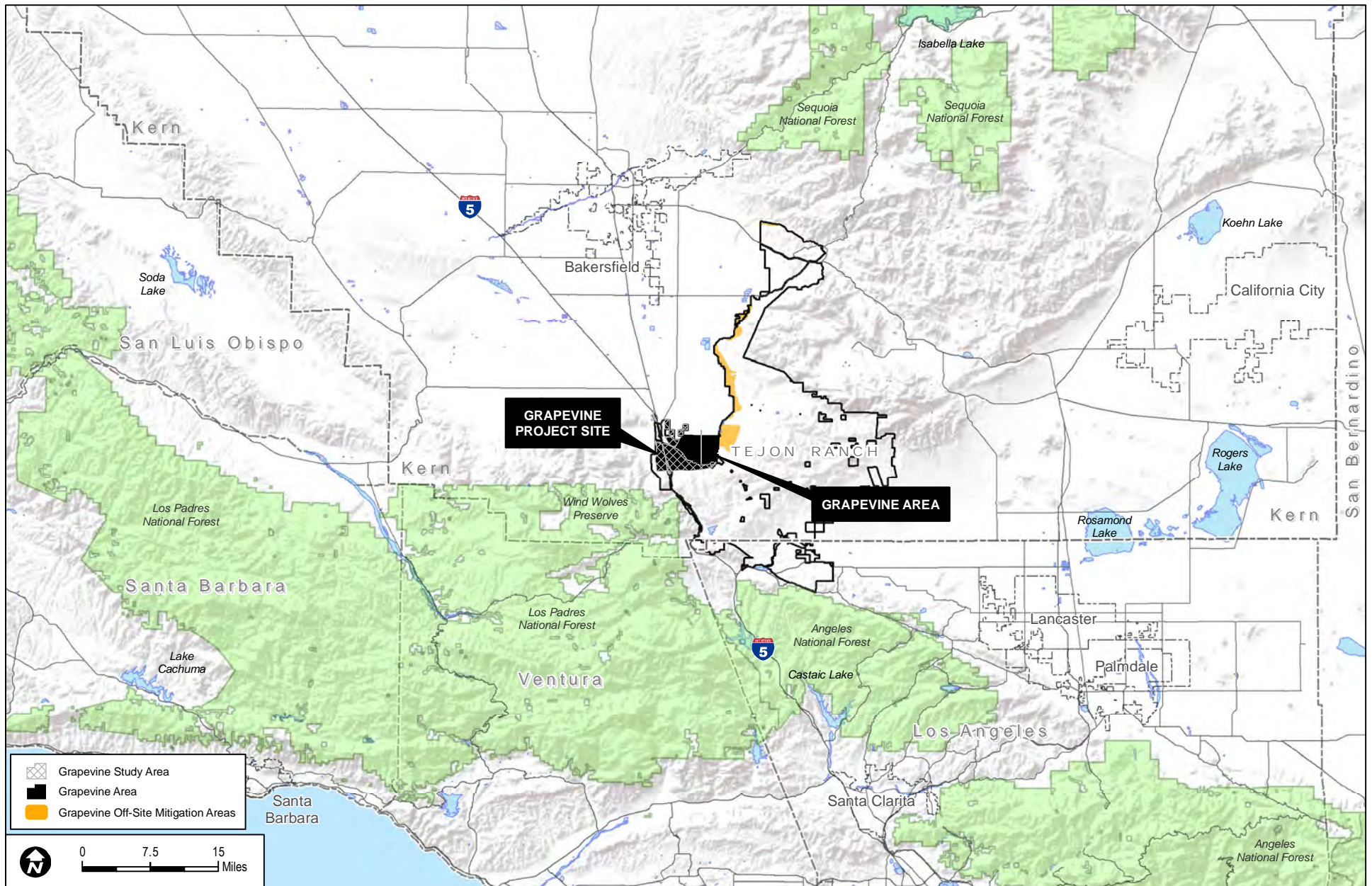
## **1.2 Project Location**

The project site is located in the west-central portion of Tejon Ranch (the Ranch). The approximately 270,000-acre Ranch is currently held in private ownership by Tejon Ranchcorp. The Ranch stretches from the southern edge of the San Joaquin Valley floor to the northern portion of the Antelope Valley (in the Mojave Desert) and incorporates large portions of the Tehachapi Mountains. The geographic location of the ranch serves as an important linkage between the Sierra Nevada Mountains, Mojave Desert grasslands, San Joaquin Valley woodlands, and coastal mountain ranges. Generally, the Ranch extends from Interstate 5 (I-5) on the western side to State Route (SR) 58 on the northern side (Figure 1, Regional Location).

The 8,010-acre project site is within the 15,644-acre Ranchwide Agreement Grapevine Development Area identified in the Tejon Ranch Land Use and Conservation Agreement, a landmark agreement reached in 2008 with leading environmental organizations (including the Sierra Club, Natural Resources Defense Council, California Audubon Society, Endangered Habitats League, and Planning and Conservation League) to permanently preserve more than 90% of Tejon Ranch as open space and limit development to designated areas near existing infrastructure, including I-5.

The project site is located within the San Joaquin Valley Air Basin (SJVAB) under the jurisdiction SJVAPCD. The project site is entirely within unincorporated Kern County just south of the junction of I-5 and SR-99. Downtown Bakersfield is approximately 25 miles north of the Specific Plan area, and the unincorporated community of Wheeler Ridge in Los Angeles County is located approximately 70 miles southeast of the Specific Plan area. The majority of the Specific Plan area is on the east side of I-5, but a smaller portion lies on the west side of I-5. The project site is composed of two large parcels that straddle I-5 and four smaller parcels adjacent to Laval and Gibson Roads. Edmonston Pumping Plant Road extends in an east–west direction from the existing Grapevine Road interchange.





SOURCES: McIntosh & Associates (2013); TRC 2013a, 2013b

The Grapevine project site (McIntosh & Associates 2013) and Tejon Ranch (2013a) boundaries appear on subsequent figures; the source information will not be provided on subsequent figures.

**FIGURE 1**  
**Regional Location**

## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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The California Aqueduct, part of the California State Water Project, traverses the site in an east–west direction for approximately 7 miles. Several turnouts and other facilities operated by the Wheeler Ridge-Maricopa Water Storage District are present on site. The project site ranges in elevation from approximately 898 to 2,186 feet above mean sea level (amsl). The majority of the site is at the lower to mid-elevation range of approximately 1,000 to 1,400 feet above mean sea level. The southern end of the site extends from the valley floor approximately 0.5 mile into the adjacent San Emigdio and Tehachapi Mountains (Figure 2, Vicinity Map).

The Grapevine Specific Plan area lies mainly in the Grapevine and Pastoria Creek U.S. Geological Survey 7.5-minute quadrangles. There is one parcel and a portion of two other parcels in the Specific Plan area that lie entirely within the Mettler U.S. Geological Survey 7.5-minute quadrangle. The latitude and longitude of the approximate center of the site is 34°57'9" N and 118°55'39" W. The Universal Transverse Mercator (UTM) coordinates for the approximate center are UTM Easting (meters) 323999 and UTM Northing (meters) 3869472 in Zone 11. Tecuya, Grapevine, and Pastoria Canyons are the major local drainages. The Tecuya, Grapevine, and Pastoria Creeks have formed large alluvial fans that extend northward across portions of the project site. The berm and channel of the California Aqueduct form a barrier to north–south surface drainage except for a series of culverts/elevated flumes and wider at-grade channel crossings at Grapevine and Pastoria Creeks.

The project site is within the General Shafter Elementary, Kern Union High School Districts and the Central Valley Regional Water Control Board region. A majority of the site is within the Wheeler Ridge Maricopa Water Storage District. It is proposed that the project site be annexed to Tejon–Castac Water District, which currently provides water and wastewater services to the adjacent Tejon Ranch Commerce Center (TRCC) (Figure 2), located immediately north of the project site off of I-5. The project would feature a series of compact neighborhoods linked by bicycle and pedestrian trails that would provide access to grocery and drugstores, professional services, schools, and parks. The project site is located along I-5, at the gateway to the Central Valley, and is immediately adjacent to the extensive open space that was conserved in the Tejon Ranch Land Use and Conservation Agreement.

### **1.3 Existing Conditions**

#### **1.3.1 Existing Land Uses**

The project site includes approximately 144 acres of highway-oriented commercial services, including restaurants, motels, and gas stations in the vicinity of the Grapevine Road interchange, as well as ranching, agricultural, and oil and gas production uses on the remainder of the project site. Agricultural uses on the project site include almond orchards and wine grapes, and several

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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corrals associated with cattle ranching operations. Oil and gas production wells consisting of active and inactive wells also exist in the project site, which are operated through mineral leases. Several linear utilities and associated utility easements for water, gas, and electricity cross the site. Several underground gas pipelines also extend through the project site. Within the area of the existing Grapevine Road interchange, existing commercial uses are served by water, sewer, natural gas, and electricity. Several underground oil and gas pipelines cross the site.

### 1.3.2 Existing Planning and Zoning

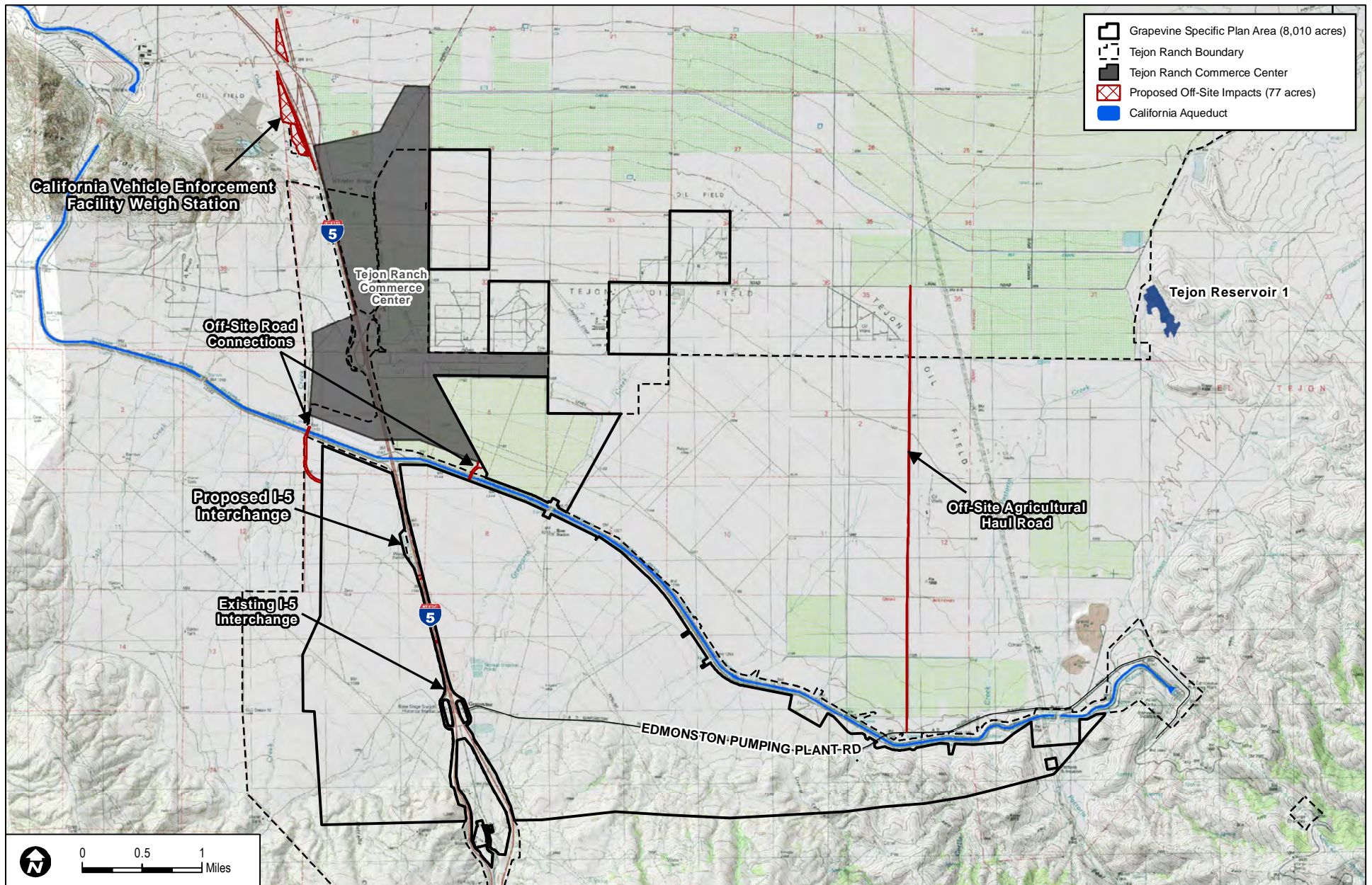
The Kern County General Plan (General Plan) identifies planning goals and objectives for land within the County. The General Plan was last updated in 2009 (Kern County 2009), and the Housing Element was updated in 2008 (Kern County 2008). An update to the Housing Element is currently in preparation and is expected to be completed in 2015. Goals and objectives for specific parcels are identified by the adoption of certain land use map codes that are described in the Land Use, Open Space, and Conservation Element of the General Plan. General Plan land use designations are implemented by the County through the adoption of appropriate zoning classifications in Title 19 of the County's zoning ordinance. The existing General Plan designation and zoning classifications for the project site are presented in Table 1-1.

**Table 1-1  
Existing Land Use Designations**

Existing General Plan Land Use <sup>1</sup>		
<i>Map Code</i>	<i>Land Use</i>	<i>Acres</i>
1.1	State and Federal Land	12
4.3	Specific Plan Required	438
6.2	General Commercial	114
8.1	Intensive Agriculture (minimum 20 acres)	276
8.3	Extensive Agriculture (minimum 20 acres)	6,543
8.4	Mineral Extraction	627
Total		8,010
Existing Zoning Classifications		
<i>Classification</i>	<i>Zone</i>	<i>Acres</i>
A	Exclusive Agriculture	7,869
C-2 PD	General Commercial	135
FP-P	Floodplain-Primary	6
Total		8,010

Source: Kern County 2009





SOURCES: McIntosh & Associates 2014; TRC 2013c

The California aqueduct (TRC 2013c) appears on subsequent figures; the source information will not be provided on subsequent figures.

**FIGURE 2**  
**Vicinity Map**

## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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### **1.3.3 Tejon Ranch Conservation and Land Use Agreement**

On June 17, 2008, Tejon Ranchcorp entered into a Conservation and Land Use Agreement (Ranchwide Agreement) with Audubon California, the Endangered Habitats League, the Natural Resources Defense Council, the Planning and Conservation League, and the Sierra Club (Resource Groups), and the newly formed nonprofit Tejon Ranch Conservancy (Conservancy). The Ranchwide Agreement provides for permanent protection through the dedication or sale of conservation easements over approximately 90% of the 270,000-acre Ranch, while allowing Tejon Ranch Company (TRC) and its development partners to pursue approvals for development on designated portions of the Ranch, including Tejon Mountain Village, without opposition from the Resource Groups. Consistent with the Ranchwide Agreement, the newly formed Conservancy was established on June 11, 2008.

## **1.4 Project Description**

### **1.4.1 Project Overview and Proposed Development**

The Grapevine Specific and Community Plan project is a planned residential community designed to create a livable community defined by convenient access to employment, shopping, parks, schools, and housing that complements the jobs being created at TRCC and embodying the agricultural character and values of Kern County. The project is designed as a series of village centers linked by bicycle and pedestrian trails, each composed of a mix of housing, neighborhood-serving retail and office uses, schools, parks, and community services, and would include 12,000 single-family and multi-family residential units and 5.1 million square feet of commercial, retail, and industrial land uses. A total of 175 acres of the project site has been set aside for schools, and 96 acres has been set aside for parks. Other public facilities, including fire stations, a sheriff's substation, transit facilities/park-and-rides, and water and wastewater treatment facilities are proposed. Outside the village centers, the project would include a mix of lower-density residential, office, research and development, retail, and light industrial/warehouse uses. Additional service/industrial uses would be located in the northern portion of the project site. The project intends to maintain approximately 40% of the Plan Area as Exclusive Agriculture to accommodate ongoing resource, grazing, and open space uses. Development included in the Grapevine Specific Plan is summarized in in Table 1-2.



## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

**Table 1-2  
Grapevine Specific Plan Development Summary**

Development Land Use Category	Development Size
<i>Residential</i>	
Residential Total	12,000 dwelling units <sup>1</sup>
<i>Non-Residential</i>	
Retail	1,200,000 square feet gross leasable area
Office/Research and Development (R&D)	2,450,000 square feet gross floor area
Industrial/Warehouse	1,450,000 square feet gross floor area
Commercial/Industrial Total	5,100,000 square feet
Schools	75 acres
Parks	131 acres

Note:

<sup>1</sup> Up to 2,000 additional residential units may be allowed through a land use exchange that would ensure a commensurate reduction of commercial/industrial square footage based on vehicle trip equivalency ratios. Trip equivalency would be demonstrated by employing the trip conversions outlined in Chapter 2, Land Use, Conservation, Open Space and Recreation, of the Specific Plan.

The overall development cap for the entire project is a maximum of 12,000 dwelling units and a maximum of 5,100,000 square feet of commercial and industrial floor area. However, based on the built and permitted commercial/industrial uses at the adjacent TRCC, Grapevine may ultimately support up to 2,000 additional dwelling units. The additional 2,000 units would be authorized only with a corresponding reduction of commercial/industrial square footage based on vehicle trip equivalency ratios, and only to the extent that the additional units would not cause any significant new adverse impacts, or increase the severity of previously identified adverse impacts. At the time a land use exchange may be proposed, the most current Institute of Transportation Engineers Trip Generation Manual would be used to calculate the vehicle trip generation for each use involved in the land use exchange, as outlined in the Grapevine Specific and Community Plan (collectively referred to as the “Specific Plan”). This mechanism to provide for a future increase in the number of residential units and correlated reduction in commercial and/or industrial uses is necessary to allow flexibility to ensure a jobs-housing balance over time, and would be monitored by County staff. The project would be phased in response to market conditions. Private landowners would design, site, and construct buildings within the development area subject to the design review and approval process described in the Grapevine Specific Plan and Grapevine Special Plan. During this process, the project would be required to maintain an accurate, up-to-date statistical summary of all development that occurs within the project site. An annual report of the total amount and location of development would be provided to the County. The statistical summary and annual report would help ensure that the project would remain in compliance with the applicable planning area development maximums. The annual report would identify the project’s accumulated construction of

## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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dwelling units, commercial buildings, support structures, and other facilities compared with the project's maximum planning area development maximums.

Although buildout of the project may result in a different proportional mix of residential and non-residential development, the balanced buildout land use exchange mechanism would ensure that project-generated motor vehicle trips and the associated emissions would be relatively equalized. The analysis contained herein evaluates the development based on the established maximums of 12,000 dwelling units and a maximum of 5,100,000 square feet of commercial and industrial floor area. This represents a reasonable scenario of project development, and an alternative buildout scenario is anticipated to result in the same potential impacts under CEQA.

The project site is divided into 6 general planning areas (1, 2, 3, 4, 5, and 6), which is further broken down into 11 sub-planning areas (1, 2, 3, 4, 5A, 5B, 6A, 6B, 6C, 6D, and 6E) ranging from approximately 190 to 1,630 acres. The development area within each planning area ranges from approximately 170 to 900 acres, as approximately 3,230 acres of the total 8,010 acres would remain exclusively as agriculture. The portions of the site that are proposed to remain in exclusive agriculture/open space are primarily located along the southern edge of the California Aqueduct, along the southern portion of the project site at the foothills of the Tehachapi Mountains, and along Grapevine and Cattle Creeks.

The circulation network would be composed primarily of two- and four-lane arterials, collector streets, and local streets, with an anticipated six-lane arterial for the new interchange. Multipurpose trails are proposed along Grapevine Creek, Cattle Creek, the southern foothills, the open space adjacent to the California Aqueduct, and at other locations throughout the project site. Some of these trails would connect to on-street Class 1 and 2 bike lanes. Water and sewer service would be provided by the Tejon–Castac Water District.

Access to the first phases of the proposed Grapevine community would be from I-5 at the existing Grapevine Road and Laval Road interchanges. The existing Grapevine Road/I-5 interchange has limited capacity and would require reconstruction. During later phases of development, the existing Grapevine Road/I-5 interchange is proposed to be expanded and relocated to the north, but some functionality may be retained at the existing interchange location. To allow for relocation and replacement of the interchange, an existing Commercial Vehicle Enforcement Facility (CVEF) operated by the California Highway Patrol may be relocated to a parcel owned by Tejon Ranchcorp on the west side of the junction of I-5 and SR-99. Two reconstruction scenarios are proposed for the new Grapevine interchange in the event that the existing CVEF is not moved. The preferred scenario is for the interchange to be constructed immediately south of the existing CVEF location and for the CVEF to be relocated to the north, at the location mentioned above. Under both scenarios, the existing interchange

## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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(including any performance improvement features) may be used until capacity is reached at the existing Grapevine Road/I-5 interchange. Additional circulation system improvements would include two off-site bridges crossing the California Aqueduct, and potential construction of an off-site alternate truck route to the east of the project site connecting Edmonston Pumping Plant Road and Laval Road.

### **Project Construction**

For purposes of analysis, the report conservatively assumes that all development would be completed and the project would be built out by 2036. This compressed completion schedule is conservative in that it likely overstates the amount of construction activity (and thus construction-related emissions) that would occur annually, and it does not fully integrate legal mandates (e.g., more stringent building codes relating to energy and water use, that are likely to be adopted as a result of the 2015 enactment of Senate Bill (SB) 350).

Project development would be phased over approximately 20 years; construction is anticipated to start in 2016<sup>5</sup>, and the first full year of project buildout would be 2036. For the purposes of this air quality and GHG emissions analysis, it is assumed that construction would start with the development of Planning Area 6A,<sup>6</sup> which would occur from 2016 through 2018. Construction of Planning Area 2 would commence in 2019 following completion of Planning Area 6A. Planning Areas 1, 3, and 4 would follow in numerical order, and would occur from 2019 through 2031. Construction of Planning Areas 5A, 5B, 6B, 6C, 6D, and 6E would occur from 2032 through 2035. See Appendix A.2 for the land use assumptions used for the construction emissions analysis.

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<sup>5</sup> Project construction could potentially commence in 2017 or a later year. The analysis presented herein assumes a construction start date of 2016, which represents the earliest date at which construction would initiate. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant and GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years

<sup>6</sup> The sequencing of planning area construction and first year of planning area operation could potentially deviate from the schedule assumed herein. The schedule used for estimating construction years and operational buildout years is intended to represent a conservative scenario. Because development of the planning areas with the greatest amount of development (6A, 2, 1, 3, and 4) was assumed to occur during earlier phases of construction, and planning areas with less development would be constructed during later phases, it is not anticipated that maximum annual or combined total criteria air pollutant and GHG emissions would be substantially greater than the analyzed scenario.

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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### Project Operation

The proposed Specific Plan includes a mix of land uses, as follows: 1,234 acres of Village Mixed-Use, 2,683 square feet of Mixed-Use, 863 acres of Industrial, and 3,230 acres of Exclusive Agriculture, which are summarized below.

- *Village Mixed-Use (VMU)*. This designation would serve as the Village Core and would provide a variety of compatible land uses, including neighborhood-serving retail, service-oriented commercial, office, and higher-density residential uses (6–72 dwelling units per acre).
- *Mixed-Use (MU)*. This designation provides for a broader mix of land uses, including a variety of residential (0.2–40 dwelling units per acre), office, retail commercial, light industrial, warehouse, and other uses that are compatible with adjacent land uses.
- *Industrial (I)*. This designation provides for a variety of industrial park, research and development (R&D), manufacturing, warehouse, and other uses that are compatible with adjacent land uses.
- *Exclusive Agriculture (EA)*. This designation provides for a wide variety of agricultural uses, as well as nonagricultural uses and activities that are compatible with agricultural uses. Grazing and open space would be the predominant land uses.

See Figure 3, Proposed Zoning Map, for an illustration of the land use zoning classifications discussion above. Figure 4, Proposed Specific Plan Land Use Plan, presents a detailed map of the proposed land uses within the proposed zoning classifications. As presented in Table 1-3, the project would total 12,000 dwelling units and 5,100,000 square feet of commercial land uses, with an option of reducing commercial land uses and increasing dwelling units to 14,000 based on a traffic-related conversion metric included in the Specific Plan.

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

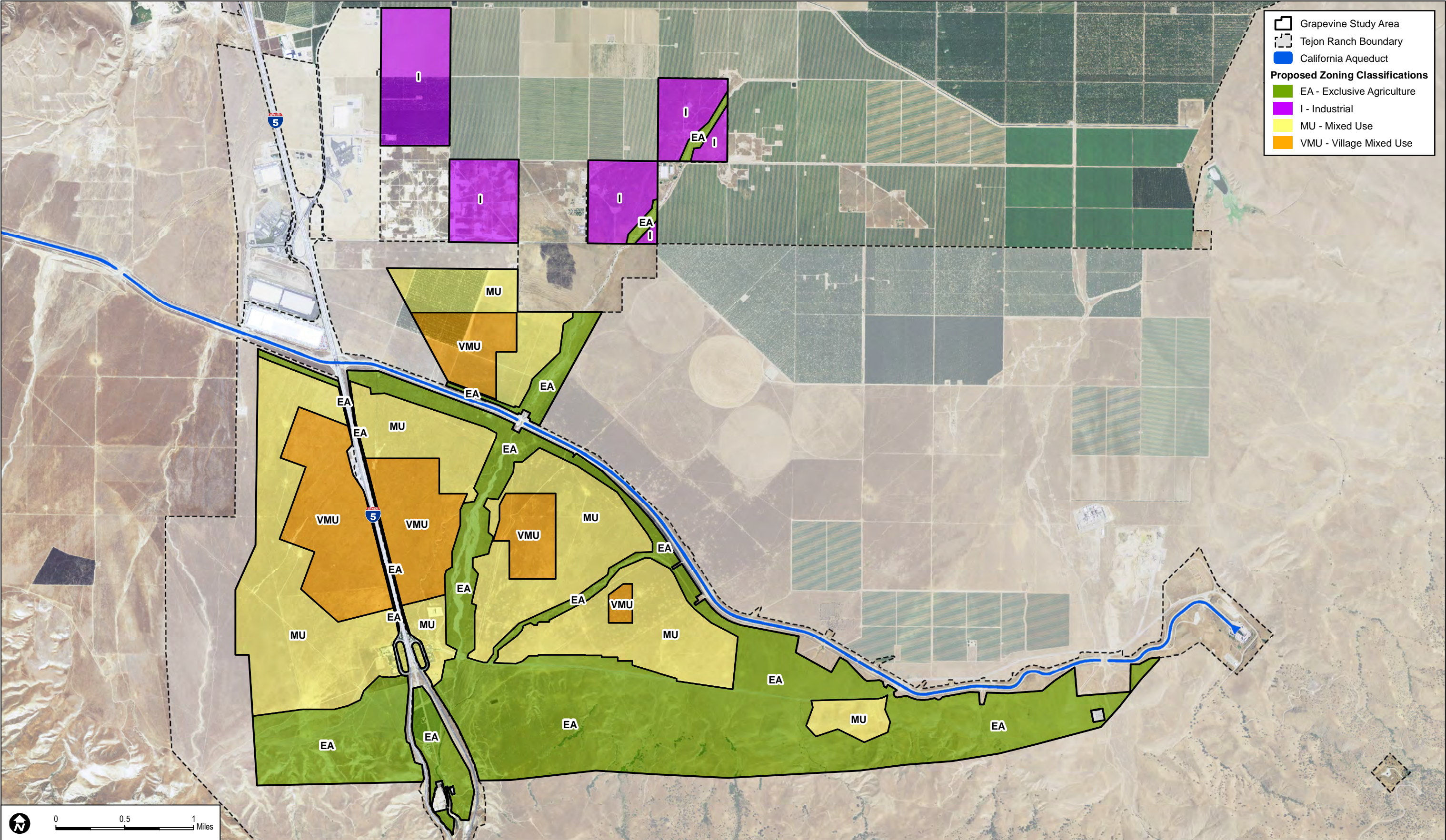
**Table 1-3  
Planning Area Land Use Breakdown**

PA	Development Area	Residential (Single Family)		Village Center Residential		Village Center Commercial		Freeway-Oriented Commercial		Office / Research and Development		Industrial/ Warehouse		Schools		Parks	Arterial and Collector Streets
	ac	Units	ac	Units	ac	SF	ac	SF	ac	SF	ac	SF	ac	School	ac	ac	ac
1	450	1,250	321	230	23	50,000	7	—	—	400,000	30	—	—	—	—	—	32
2	905	1,780	455	980	98	270,000	35	210,000	27	780,000	59	—	—	ES/MS, HS	30	58	61
3	686	1,180	302	730	73	170,000	22	540,000	68	650,000	50	—	—	ES	5	5	56
4	695	1,850	473	570	57	120,000	15	—	—	—	—	—	—	ES/MS, HS	30	58	61
5a	541	1,730	442	330	33	40,000	5	—	—	—	—	—	—	ES	5	5	51
5b	103	35	93	—	—	—	—	—	—	—	—	—	—	—	—	—	10
6a	511	585	149	750	75	150,000	20	—	—	270,000	21	1,400,000	109	ES	5	5	30
6b	322	—	—	—	—	—	—	—	—	—	—	50,000	322	—	—	—	0
6c	193	—	—	—	—	—	—	—	—	—	—	—	190	—	—	—	3
6d	177	—	—	—	—	—	—	—	—	—	—	—	173	—	—	—	4
6e	171	—	—	—	—	—	—	—	—	—	—	—	171	—	—	—	0
Total	4,754	8,410	2,235	3,590	359	800,000	104	750,000	95	2,100,000	160	1,450,000	965	—	75	131	308

Source: Ken Kay 2015

Notes: ac = acres; SF = square feet; PA = planning area; ES = elementary school; MS = middle school; HS = high school; — = not applicable or not proposed.





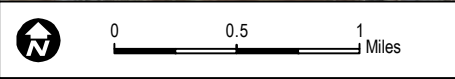
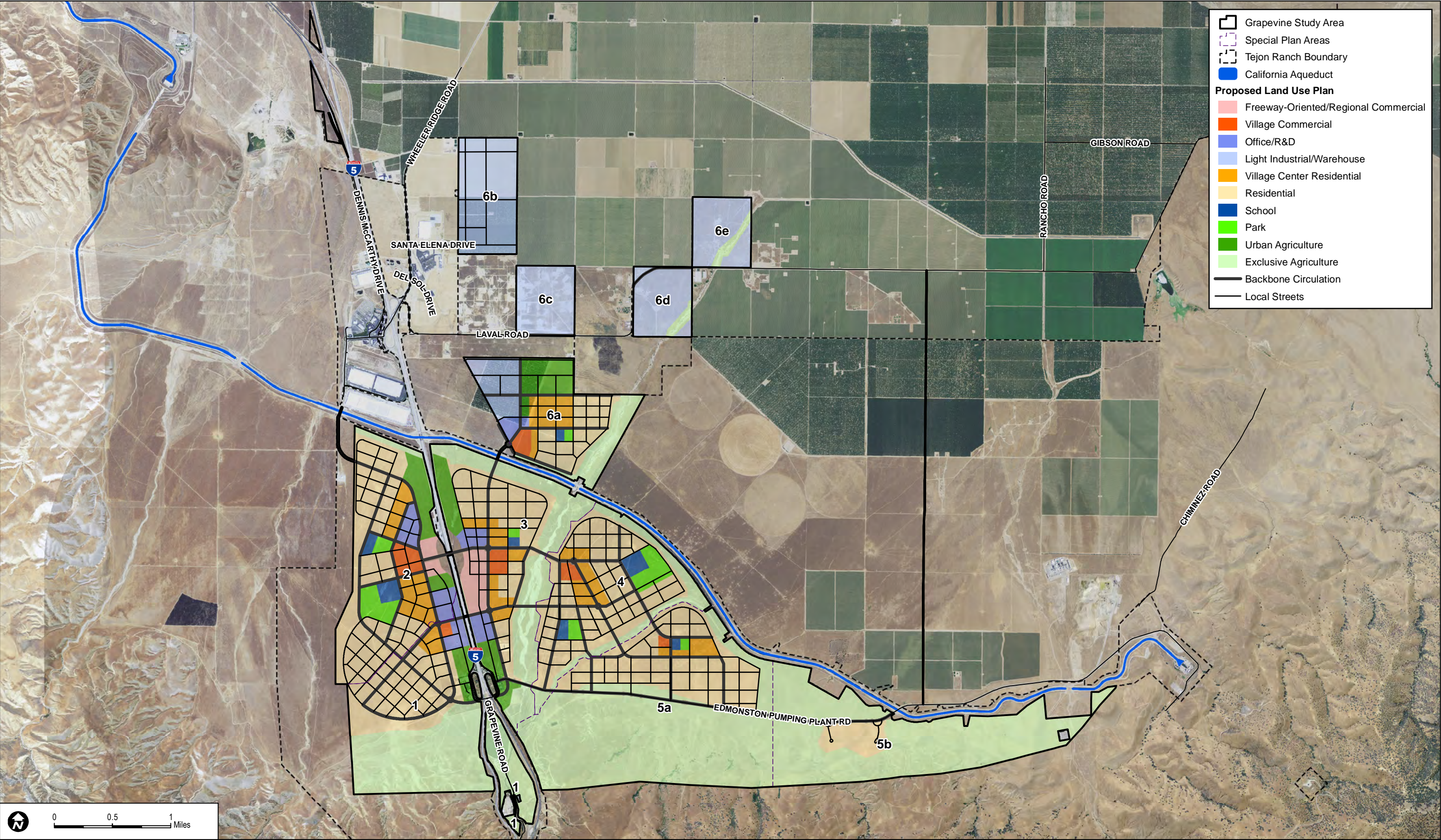
SOURCES: Ken Kay Associates 2014

**FIGURE 3**  
**Proposed Zoning Map**



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SOURCES: Ken Kay Associates 2015

**FIGURE 4**  
**Proposed Specific Plan Land Use Plan**



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# Air Quality and Greenhouse Gas Emissions Analysis

## Grapevine Specific and Community Plan Project

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### Transportation Improvements

The project would be primarily accessed from I-5, which bisects the project site. The project has a comprehensive, multi-modal circulation program to encourage bicycle and pedestrian uses, facilitate transit, and address vehicular traffic from the project as well as improve the local jobs-housing balance in relation to the employment uses in the adjacent TRCC. The project also includes formation and funding of a Transportation Management Association (TMA), which, among other functions, is responsible for implementing a Transportation Demand Management Plan to reduce commuter use of single-occupancy vehicle trips. I-5 improvements, as well as the project's other transportation and circulation program are described in greater detail in the Specific Plan, Special Plan, and Traffic Impact Analysis.

### 1.4.2 Smart Growth Community Design

#### Emission Reduction Project Components

Consistent with the Kern County General Plan, the Project includes the following "Smart Growth" features that reduce air pollutant and GHG emissions:

#### *Transportation*

To reduce air pollutant and GHG emissions from the project, the project includes design features intended to enhance transit orientation and encourage non-vehicular mobility to supplement ongoing statewide efforts to increase fuel efficiency standards, and promote electric and hybrid vehicles, and vehicular fuels from renewable resources.

The project includes several land use and transportation features that would influence travel within the project and along roadway facilities near the project and reduce air pollutant and GHG emissions. These include implementing Smart Growth Land Use and Transportation Planning strategies, a comprehensive bicycle and pedestrian network, transportation services, and a TMA. These features are detailed in the Transportation Impact Study Technical Report (Fehr & Peers 2015a) and are summarized below:

- **Transportation Planning.** Transportation planning was an integral part of the land use planning process to enhance the efficiency of multi-modal transportation within the project. The Grapevine Specific and Community Plan proposes a new community that provides a mix of complementary land uses to provide both jobs and services for future residents and workers in Grapevine. This includes K-12 schools, neighborhood-serving retail and services such as grocery stores, pharmacies, restaurants, gas stations, health care facilities, and banking and real estate services. The project also includes parks and a

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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comprehensive trail system to support local recreation. This complete community approach would allow future residents and workers to fulfill most of their daily needs within the project. This would reduce the need to travel outside the community. Furthermore, the conveniently located village centers within the project would place many of these complementary land uses within close proximity to each other. Locating these uses near each other shortens trip lengths increasing the likelihood of people to walk or bike to reach their destination. These mixed-use village centers also provide development densities that support mass transit use as an alternative to vehicle travel. These Smart Growth planning elements result in a reduced dependence on automobile travel and increased likelihood of walking, bicycling, and transit use, resulting in a more efficient and effective multi-modal transportation network that benefits the environment and public health.

- **Comprehensive Bicycle and Pedestrian Network.** A multi-modal transportation network is essential to support travel choices within the community and fully realize the benefits of the Smart Growth land use and transportation planning efforts. The circulation plan for the project includes a comprehensive bicycle and pedestrian network of complete streets and trails that support active transportation modes within the project.
- **Transportation Services.** The project includes transportation services to provide additional travel options for residents, workers, and visitors. As noted in the Grapevine Specific and Community Plan, the need for this service would evolve as Grapevine builds out. During early phases, transportation services are anticipated to be provided by Kern Regional Transit using a demand-based approach, and may be coordinated with the support of a local TMA (discussed in more detail below). The demand-based service may take the form of car-sharing services, vanpools, or ride-share matching through the TMA, on-demand transit service, or private transportation network services (e.g., Uber, Lyft, etc.). This would ensure that transportation services are provided in an efficient manner than meets the needs of its users. At build out, the project would have two transit hubs to provide convenient, centralized access for both local and regional transit service. Local service would provide a transit option for traveling within the Specific Plan area and the adjacent TRCC, while intercity service would connect the project to off-site destinations, such as Arvin, Bakersfield, Shafter, Frazier Park, and Tejon Mountain Village. This service in combination with the density and diversity of land use at the village centers and throughout the project would support the use of alternative transportation and transit services as an important mode of travel for future residents, workers, and visitors of Grapevine.
- **Transportation Management Association.** A TMA would be formed to facilitate the movement of people and goods within the project, the adjacent TRCC, and to support

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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regional transportation services described above. Specifically, the TMA provides the institutional framework to collect fees from project occupants, and use these fees to implement transportation programs that meet the evolving needs of the new Grapevine community and reduce traffic congestion by providing transportation alternatives to discourage the volume of single-occupancy private vehicles during peak hours. Transportation Demand Measures (TDMs) to be implemented by the TMA could include:

- Ride-matching/ride-sharing service
- Commute Trip Reduction Program that may include:
  - Vanpool service
  - Preferential carpool parking
  - End of trip facilities for bicyclists
  - Encourage flexible work schedules/telecommuting
  - Transportation coordinator
  - Marketing campaign to encourage alternative modes for commuting
- Subsidized or discounted transit passes for TMA members
- TMA-sponsored shuttle program(s), in collaboration with employers, to serve major employment centers

These TDM measures would encourage employees and residents of Grapevine to carpool, use transit, bike, and walk as alternatives to single-occupancy vehicles, reducing the amount of vehicle trips.

### ***Energy***

Title 24 of the California Code of Regulations (CCR) outlines California's energy efficiency standards for residential and nonresidential buildings based on a state mandate to reduce California's energy demand (24 CCR 6) (effective July 1, 2014). TRC has made a commitment to manage the project's carbon footprint, reduce energy demand, and promote renewable energy technologies. As part of project design, therefore, all development on the project site is required to exceed 2013 Title 24 energy requirements on a time-dependent valuation basis by at least 25%, as outlined in 24 CCR 6. A menu of the energy efficiency design elements, along with other design considerations and options, would be made available to builders, developers, and property owners as part of the internal design review process. Each developer, builder, or property owner must incorporate the design elements that make the most sense for their particular development project in order to meet the energy reduction requirement.

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### ***Water***

The water and wastewater plan for the project uses state-of-the-art treatment plant design and incorporates on-site recycling of water and treatment of solid wastes. A reclaimed water treatment facility on site would provide reclaimed water for the community irrigation systems as supplies become available.

### ***Solid Waste***

TRC is committed to reducing waste generated on site during construction, in addition to managing the waste that leaves the project site for the landfill. As part of this commitment, builders, developers, and property owners are required to use recycled building materials where practicable, and to recycle construction waste as appropriate, rather than dispose of waste into the landfill.

### **1.4.3 Voluntary Emissions Reduction Agreement**

A Voluntary Emissions Reduction Agreement (VERA) is available for projects where design elements and compliance with SJVAPCD rules and regulations may not be sufficient to reduce project-related air quality impacts to a less-than-significant level. A VERA is a contractual agreement between a project applicant and the SJVAPCD that facilitates the development, funding, and implementation of emission reduction projects to provide pound-for-pound mitigation of air emission increases to the extent agreed to by the parties to the agreement. The project applicant is responsible for providing funds for the SJVAPCD's Emission Reduction Incentive Program. Funding in accordance with the fee per ton of pollutant would be provided by the project applicant to the SJVAPCD prior to project implementation (or at appropriate milestones per the VERA) to establish an accounting mechanism for paying for emission reduction projects; however, the applicant is responsible only for the actual cost to execute the reduction and SJVAPCD administrative fees. The SJVAPCD then verifies that the appropriate emission reductions have been achieved to qualify as mitigation for a project's emission increases. For development projects subject to SJVAPCD Rule 9510, Indirect Source Review, the developer must also comply with applicable rule provisions, and emission reductions achieved through implementation of a VERA are credited toward satisfying these requirements. Per the VERA, to the extent that the emission reductions provided under the VERA equal or exceed emission reductions that would otherwise be achieved through compliance with Rule 9510, by entering into and meeting the obligations set forth in the VERA, the project is considered to be in compliance with Rule 9510 emission reduction requirements.

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The SJVAPCD has proven experience that implementation of a VERA is a feasible mitigation measure under the California Environmental Quality Act (CEQA), achieving emission reductions to reduce impacts to a less-than-significant level. The SJVAPCD entered into more than 20 VERAs from 2005 through June 2014, and has funded emission reduction projects that include electrification of stationary internal combustion engines (such as agricultural irrigation pumps); replacing older heavy-duty trucks with new, cleaner, more efficient heavy-duty trucks; and replacing old farm tractors. From July 1, 2013 through June 30, 2014, the SJVAPCD used Indirect Source Review and VERA fees to fund 920 emission reduction projects that achieved a reduction of 11 tons of reactive organic gas (ROG), 151 tons of oxides of nitrogen (NO<sub>x</sub>), and 14 tons of particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM<sub>10</sub>) (SJVAPCD 2014a). Furthermore, the SJVAPCD adopted Rule 9610 (State Implementation Plan Credit for Emission Reductions Generated through Incentive Programs) to obtain credit under the State Implementation Plan (SIP) for its incentive programs to reduce emissions from sources that are not otherwise reduced by federal, state, or SJVAPCD regulatory measures. On April 9, 2015, EPA finalized a limited approval and limited disapproval (for a minor administrative error) of Rule 9610 as a revision to the California SIP. Additional documentation regarding the effectiveness of the SJVAPCD's incentive programs can be found in *2015 Annual Demonstration Report SIP Credit for Emission Reductions Generated Through Incentive Programs* (SJVAPCD 2015a). Accordingly, the SJVAPCD has a strong motivation for the efficacy of its incentive programs funded by Indirect Source Review and VERAs.

TRC is committed to working with the SJVAPCD to develop and implement air quality control measures designed to address the impacts that development on the project site would have on air quality and GHG emissions. Part of this commitment includes implementation of a VERA between TRC and the SJVAPCD, designed to reduce emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> in the project site. TRC and the SJVAPCD Governing Board executed a VERA for the project on February 18, 2016. The approved VERA is provided as Appendix H. This agreement outlines the process by which the project site would mitigate emissions, including opportunities for removal or retrofitting of stationary, transportation, and/or mobile equipment sources of air pollutants. In addition, the agreement provides funding mechanisms and development contingencies based on actual emission reductions.

The VERA states that the developer (i.e., TRC) would mitigate the project's emissions from construction and operations by achieving surplus, quantifiable, and enforceable emission reductions. "Surplus" emission reductions are reductions that are not otherwise required by existing laws or regulations. For the purpose of the VERA, full mitigation means the emission reductions achieved by the mitigation measures equal or are greater than the sum of all NO<sub>x</sub>, ROG, and PM<sub>10</sub> emissions identified as estimated emissions in the VERA. Under the VERA, the



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developer may fully mitigate the entire project-related air quality impacts at one time or may fully mitigate each project phase (e.g., any subset of the total project, including tentative subdivision map and commercial site plan applications) at a time.

Stationary-source emissions would also be fully mitigated under this VERA. Stationary sources emissions are emissions from sources that are subject to SJVAPCD rule requirements, including those sources subject to permits to operate, portable registration, or permit exempt equipment registration. Stationary-source emissions include all construction emissions and operational emissions associated with stationary sources, except for emissions that are already required to be offset under the permitting process.

The Kern County guidance states that projects that choose to enter into a Voluntary Emission Reduction Program (i.e., VERA) with the SJVAPCD may discuss the program as a design feature. Nonetheless, the VERA is included herein as a mitigation measure.

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## 2 AIR QUALITY

### 2.1 Environmental Setting

#### 2.1.1 Pollutants and Effects

##### 2.1.1.1 *Criteria Air Pollutants*

Criteria air pollutants are defined as pollutants for which the federal and state governments have established ambient air quality standards, or criteria, for outdoor concentrations to protect public health. The federal and state standards have been set, with an adequate margin of safety, at levels above which concentrations could be harmful to human health and welfare. These standards are designed to protect the most sensitive persons from illness or discomfort. Pollutants of concern include ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), PM<sub>10</sub>, particulate matter with an aerodynamic diameter less than or equal to 2.5 microns (PM<sub>2.5</sub>), and lead. These pollutants, as well as toxic air contaminants (TACs), are discussed below.<sup>7</sup> In California, sulfates (SO<sub>4</sub>), vinyl chloride, hydrogen sulfide, and visibility-reducing particles are also regulated as criteria air pollutants.

**Ozone.** O<sub>3</sub> is a strong-smelling, pale blue, reactive toxic chemical gas consisting of three oxygen atoms. It is a secondary pollutant formed in the atmosphere by a photochemical process involving the Sun's energy and O<sub>3</sub> precursors, such as ROGs (also referred to as reactive organic compounds (ROCs) or volatile organic compounds (VOCs)) and NO<sub>x</sub>. The maximum effects of precursor emissions on O<sub>3</sub> concentrations usually occur several hours after they are emitted and many miles from the source. Meteorology and terrain play major roles in O<sub>3</sub> formation, and ideal conditions occur during summer and early autumn, on days with low wind speeds or stagnant air, warm temperatures, and cloudless skies. O<sub>3</sub> exists in the upper atmosphere ozone layer (stratospheric ozone) as well as at the Earth's surface in the troposphere (ozone). O<sub>3</sub> in the troposphere causes numerous adverse health effects; short-term exposures (lasting for a few hours) can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. This health problem is particularly acute in sensitive receptors such as the sick, the elderly, and young children.

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<sup>7</sup> The descriptions of health effects for each of the criteria air pollutants associated with project construction and operations are based on the U.S. Environmental Protection Agency's "Six Common Air Pollutants" (EPA 2012) and the CARB's *Glossary of Air Pollutant Terms* (CARB 2014a).

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**Nitrogen Dioxide.** NO<sub>2</sub> is a brownish, highly reactive gas that is present in all urban atmospheres. The major mechanism for the formation of NO<sub>2</sub> in the atmosphere is the oxidation of the primary air pollutant nitric oxide (NO), which is a colorless, odorless gas. NO<sub>x</sub> plays a major role, together with ROG<sub>s</sub>, in the atmospheric reactions that produce O<sub>3</sub>. NO<sub>x</sub> is formed from fuel combustion under high temperature or pressure. In addition, NO<sub>x</sub> is an important precursor to acid rain and may affect both terrestrial and aquatic ecosystems. The two major emission sources are transportation and stationary fuel combustion sources such as electric utility and industrial boilers. NO<sub>2</sub> can irritate the lungs, cause bronchitis and pneumonia, and lower resistance to respiratory infections.

**Carbon Monoxide.** CO is a colorless, odorless gas formed by the incomplete combustion of hydrocarbon, or fossil, fuels. CO is emitted almost exclusively from motor vehicles, power plants, refineries, industrial boilers, ships, aircraft, and trains. In urban areas such as the project location, automobile exhaust accounts for the majority of CO emissions. CO is a non-reactive air pollutant that dissipates relatively quickly; therefore, ambient CO concentrations generally follow the spatial and temporal distributions of vehicular traffic. CO concentrations are influenced by local meteorological conditions; primarily wind speed, topography, and atmospheric stability. CO from motor vehicle exhaust can become locally concentrated when surface-based temperature inversions are combined with calm atmospheric conditions, a typical situation at dusk in urban areas from November to February. The highest levels of CO typically occur during the colder months of the year, when inversion conditions are more frequent. In terms of adverse health effects, CO competes with oxygen, often replacing it in the blood, thus reducing the blood's ability to transport oxygen to vital organs. The results of excess CO exposure can include dizziness, fatigue, and impairment of central nervous system functions.

**Sulfur Dioxide.** SO<sub>2</sub> is a colorless, pungent gas formed primarily from incomplete combustion of sulfur-containing fossil fuels. The main sources of SO<sub>2</sub> are coal and oil used in power plants and industries; as such, the highest levels of SO<sub>2</sub> are generally found near large industrial complexes. SO<sub>2</sub> is also a precursor to the formation of atmospheric sulfate, particulate matter and contributes to potential atmospheric sulfuric acid formation that can precipitate downwind as acid rain. In recent years, SO<sub>2</sub> concentrations have been reduced by the increasingly stringent controls placed on stationary source emissions of SO<sub>2</sub> and limits on the sulfur content of fuels. SO<sub>2</sub> is an irritant gas that attacks the throat and lungs and can cause acute respiratory symptoms and diminished lung function in children. When combined with particulate matter, SO<sub>2</sub> can injure lung tissue and reduce visibility and the level of sunlight. SO<sub>2</sub> can also yellow plant leaves and erode iron and steel.

**Particulate Matter.** Particulate matter pollution consists of very small liquid and solid particles floating in the air, which can include smoke, soot, dust, salts, acids, and metals. Particulate

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matter can form when gases emitted from industries and motor vehicles undergo chemical reactions in the atmosphere.  $PM_{2.5}$  and  $PM_{10}$  represent fractions of particulate matter. Fine particulate matter ( $PM_{2.5}$ ) is roughly 1/28 the diameter of a human hair.  $PM_{2.5}$  results from fuel combustion (e.g., from motor vehicles and power generation and industrial facilities), residential fireplaces, and woodstoves. In addition,  $PM_{2.5}$  can be formed in the atmosphere from gases such as sulfur oxides ( $SO_x$ ),  $NO_x$ , and ROGs. Respirable particulate matter, or coarse particulate matter ( $PM_{10}$ ), is about 1/7 the thickness of a human hair. Major sources of  $PM_{10}$  include crushing or grinding operations; dust stirred up by vehicles traveling on roads; wood-burning stoves and fireplaces; dust from construction, landfills, and agriculture; wildfires and brush/waste burning; industrial sources; windblown dust from open lands; and atmospheric chemical and photochemical reactions.

$PM_{2.5}$  and  $PM_{10}$  pose a greater health risk than larger-size particles. When inhaled, these tiny particles can penetrate the human respiratory system's natural defenses and damage the respiratory tract.  $PM_{2.5}$  and  $PM_{10}$  can increase the number and severity of asthma attacks, cause or aggravate bronchitis and other lung diseases, and reduce the body's ability to fight infections. Very small particles of substances, such as lead, sulfates, and nitrates, can cause lung damage directly or be absorbed into the bloodstream, causing damage elsewhere in the body. Additionally, these substances can transport absorbed gases such as chlorides or ammonium into the lungs, also causing injury. Whereas  $PM_{10}$  tends to collect in the upper portion of the respiratory system,  $PM_{2.5}$  is so tiny that it can penetrate deeper into the lungs and damage lung tissue. Suspended particulates also damage and discolor surfaces on which they settle, as well as producing haze and reducing regional visibility.

People with influenza, people with chronic respiratory and cardiovascular diseases, and the elderly may suffer worsening illness and premature death as a result of breathing particulate matter. People with bronchitis can expect aggravated symptoms from breathing in particulate matter. Children may experience decline in lung function due to breathing in  $PM_{10}$  and  $PM_{2.5}$ . Other groups considered sensitive are smokers and people who cannot breathe well through their noses, as well as exercising athletes, because many breathe through their mouths.

**Lead.** Lead in the atmosphere occurs as particulate matter. Sources of lead include leaded gasoline; the manufacturing of batteries, paints, ink, ceramics, and ammunition; and secondary lead smelters. Prior to 1978, mobile emissions were the primary source of atmospheric lead. Between 1978 and 1987, the phaseout of leaded gasoline reduced the overall inventory of airborne lead by nearly 95%. With the phaseout of leaded gasoline, secondary lead smelters, battery recycling, and manufacturing facilities are becoming lead emission sources of greater concern.

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Prolonged exposure to atmospheric lead poses a serious threat to human health. Health effects associated with exposure to lead include gastrointestinal disturbances, anemia, kidney disease, and in severe cases, neuromuscular and neurological dysfunction. Of particular concern are low-level lead exposures during infancy and childhood. Such exposures are associated with decrements in neurobehavioral performance, including intelligence quotient performance, psychomotor performance, reaction time, and growth. Children are highly susceptible to the effects of lead.

**Reactive Organic Gases.** Hydrocarbons are organic gases that are formed from hydrogen and carbon and sometimes other elements. Hydrocarbons that contribute to formation of O<sub>3</sub> are referred to and regulated as ROGs. Combustion engine exhaust, oil refineries, and fossil-fueled power plants are sources of hydrocarbons. Other sources of hydrocarbons include evaporation from petroleum fuels, solvents, dry cleaning solutions, and paint.

The primary health effects of ROGs result from the formation of O<sub>3</sub> and its related health effects. High levels of ROGs in the atmosphere can interfere with oxygen intake by reducing the amount of available oxygen through displacement. Carcinogenic forms of hydrocarbons, such as benzene, are considered toxic air contaminants (TACs). There are no separate health standards for ROGs as a group.

### **2.1.1.2 Non-Criteria Pollutants**

**Toxic Air Contaminants.** A TAC is defined by California law as an air pollutant that may cause or contribute to an increase in mortality or an increase in serious illness, or which may pose a present or potential hazard to human health. Federal laws use the term hazardous air pollutants (HAPs) to refer to the same types of compounds that are referred to as TACs under state law. The state list of TACs identifies about 700 plus substances and the federal list of HAPs identifies 189 substances. TACs are generated by a number of sources, including stationary sources, such as dry cleaners, gas stations, combustion sources, and laboratories; mobile sources, such as automobiles; and area sources, such as landfills. Adverse health effects associated with exposure to TACs may include carcinogenic (i.e., cancer-causing) and noncarcinogenic effects. Noncarcinogenic effects typically affect one or more target organ systems and may be experienced on either short-term (acute) or long-term (chronic) exposure to a given TAC. Examples include certain aromatic and chlorinated hydrocarbons, certain metals, asbestos, and particulate matter including diesel particulate matter (DPM).

DPM is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is composed of two phases, gas and particle, both of which contribute to health risks. The California Air Resources Board (CARB) classified “particulate emissions from diesel-fueled engines” (i.e.,

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DPM) as a TAC in August 1998. DPM is emitted from a broad range of diesel engines: on-road diesel engines of trucks, buses, and cars and off-road diesel engines including locomotives, marine vessels, and heavy-duty construction equipment, among others. Approximately 70% of all airborne cancer risk in California is associated with DPM (CARB 2000). To reduce the cancer risk associated with diesel particulate matter, CARB adopted a diesel risk reduction plan in 2000.

**Odorous Compounds.** Odors are generally regarded as an annoyance rather than a health hazard. Manifestations of a person's reaction to odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting and headache). The ability to detect odors varies considerably among the population and overall is quite subjective. People may have different reactions to the same odor. An odor that is offensive to one person may be perfectly acceptable to another (e.g., coffee roaster). An unfamiliar odor is more easily detected and is more likely to cause complaints than a familiar one. Known as odor fatigue, a person can become desensitized to almost any odor and recognition may only occur with an alteration in the intensity. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors. Generally, increasing the distance between the receptor and the odor source will mitigate odor impacts. However, because offensive odors rarely cause any physical harm and no requirements for their control are included in state or national air quality regulations, the SJVAPCD has no rules or standards related to odor emissions, other than its nuisance rule. Any actions related to odors are based on citizen complaints to local government agencies including the SJVAPCD.

**Valley Fever.** Coccidioidomycosis, more commonly known as "Valley Fever," is an infection caused by inhalation of the spores of the *Coccidioides immitis* fungus, which grows in the soils of the southwestern United States. The fungus is very prevalent in the soils of California's San Joaquin Valley, particularly in Kern County. Kern County is considered a highly endemic county (i.e., more than 20 cases annually of Valley Fever per 100,000 people) based on the incidence rates reported in 2011 (California Department of Industrial Relations 2013). The ecologic factors that appear to be most conducive to survival and replication of the spores are high summer temperatures, mild winters, sparse rainfall, and alkaline, sandy soils.

The highest incidence rates within Kern County have occurred in the areas of Northeast Bakersfield, Lamont-Arvin, Taft, and Edwards Air Force Base. New residents to the San Joaquin Valley have usually never been exposed to Valley Fever, and as a result are particularly susceptible to the infection. Many longtime residents of the area have at some time been exposed to the fungus, become infected, and have recovered, and are thus immune.

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### 2.1.2 Climate and Topography

The primary factors that determine air quality are the locations of air pollutant sources and the amounts of pollutants emitted. Meteorological and topographical conditions, however, also are important. Factors such as wind speed and direction, air temperature gradients and sunlight, and precipitation and humidity interact with physical landscape features to determine the movement and dispersal of criteria air pollutants. These factors are described below.<sup>8</sup>

#### Topography

The project lies within the SJVAB, which consists of eight counties and is spread across 25,000 square miles of Central California. The SJVAB is bordered on the east by the Sierra Nevada (8,000 to 14,491 feet in elevation); on the west by the Coast Ranges (averaging 3,000 feet in elevation); and to the south by the Tehachapi Mountains (6,000 to 7,981 feet in elevation). The San Joaquin Valley comprises the southern half of California's Central Valley and is approximately 250 miles long and averages 35 miles wide, with a slight downward elevation gradient from Bakersfield in the southeast end (elevation 408 feet) to sea level at the northwest end where the San Joaquin Valley opens to the San Francisco Bay at the Carquinez Strait. At its northern end is the Sacramento Valley, which comprises the northern half of California's Central Valley. The region's topographic features restrict air movement through and out of the SJVAB. As a result, the SJVAB is highly susceptible to pollutant accumulation over time.

#### Climate

The San Joaquin Valley is in a Mediterranean Climate Zone, influenced by a subtropical high-pressure cell most of the year and characterized by warm, dry summers and cooler winters. Mediterranean climates are characterized by sparse rainfall, which occurs mainly in winter. Summertime maximum temperatures in the San Joaquin Valley often exceed 100 degrees Fahrenheit (°F).

The vertical dispersion of air pollutants in the San Joaquin Valley can be limited by the presence of persistent temperature inversions. Air temperatures usually decrease with an increase in altitude. A reversal of this atmospheric state, where the air temperature increases with height, is termed an inversion. A temperature inversion can act like a lid, restricting vertical mixing of air above and below an inversion because of differences in air density and thereby trapping air pollutants below the inversion. The subtropical high-pressure cell is strongest during spring,

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<sup>8</sup> Descriptions of climate and topography are based on the SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts* (SJVAPCD 2015d).



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summer and fall and produces subsiding air, which can result in temperature inversions. Most of the surrounding mountains are above the normal height of summer inversions (1,500–3,000 feet). Wintertime high pressure events can often last many weeks with surface temperatures often lowering into the thirties °F. During these events, fog can be present and inversions are extremely strong. These wintertime inversions can inhibit vertical mixing of pollutants to a few hundred feet.

### **Wind Patterns**

Wind speed and direction play an important role in dispersion and transport of air pollutants. Winds in the San Joaquin Valley most frequently blow from the northwesterly direction, especially in the summer. The region's topographic features restrict air movement and channel the air mass towards the southeastern end of the San Joaquin Valley. Marine air can flow into the SJVAB from the Sacramento–San Joaquin River Delta and over Altamont Pass and Pacheco Pass, where it can flow through the San Joaquin Valley, over the Tehachapi Pass, into the Mojave Desert Air Basin. The Coastal Range and the Sierra Nevada are barriers to air movement to the west and east, respectively. A secondary but significant summer wind pattern is from the southeasterly direction and can be associated with nighttime drainage winds, prefrontal conditions and summer monsoons. During winter, winds can be very weak, which minimizes the transport of pollutants and results in stagnation events.

Two significant diurnal wind cycles that occur frequently in the San Joaquin Valley are the sea breeze and mountain-valley upslope and drainage flows. The sea breeze can accentuate the northwest wind flow, especially on summer afternoons. Nighttime drainage flows can accentuate the southeast movement of air down the San Joaquin Valley. In the mountains during periods of weak synoptic scale winds, winds tend to be upslope during the day and downslope at night. Nighttime and drainage flows are pronounced during the winter when flow from the easterly direction is enhanced by nighttime cooling in the Sierra Nevada. Eddies can form in the valley wind flow and can re-circulate a polluted air mass for an extended period.

### **Temperature, Sunlight and Ozone Production**

Solar radiation and temperature are particularly important in the chemistry of O<sub>3</sub> formation. The SJVAB averages over 260 sunny days per year. Photochemical air pollution (primarily O<sub>3</sub>) results from the atmospheric ROG<sub>s</sub> and NO<sub>2</sub> under the influence of sunlight. O<sub>3</sub> concentrations are very dependent on the amount of solar radiation, especially during late spring, summer and early fall. O<sub>3</sub> levels typically peak in the afternoon. After the sun goes down, the chemical reaction between nitrous oxide and O<sub>3</sub> begins to dominate. This reaction tends to reduce O<sub>3</sub> concentrations in the metropolitan areas through the early morning hours. At sunrise, NO<sub>x</sub> tend

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to peak, partly due to low levels of O<sub>3</sub> at this time and also due to the morning commuter vehicle emissions of NO<sub>x</sub>.

Reaction rates generally increase with temperature, which results in greater O<sub>3</sub> production at higher temperatures. However, extremely hot temperatures can “lift” or “break” the inversion layer. Typically, if the inversion layer remains intact, O<sub>3</sub> levels peak in the late afternoon. If the inversion layer breaks and the resultant afternoon winds occur, O<sub>3</sub> levels peak in the early afternoon and decrease in the late afternoon as the contaminants are dispersed or transported out of the SJVAB. O<sub>3</sub> levels are low during winter periods when there is much less sunlight to drive the photochemical reaction.

### **Precipitation, Humidity, and Fog**

Precipitation and fog can result in the reduction or increase in some pollutant concentrations. For instance, O<sub>3</sub> needs sunlight for its formation, and clouds and fog can block the required solar radiation. In addition, wet fogs can cleanse the air during winter as moisture collects on particles and deposits them on the ground. Fog with less moisture content, however, can contribute to the formation of secondary ammonium nitrate particulate matter.

The winds and unstable air conditions experienced during the passage of winter storms result in periods of low pollutant concentrations. Between winter storms, high pressure and light winds allow cold, moist air to pool on the San Joaquin Valley floor, resulting in strong low-level temperature inversions and very stable air conditions, which can lead to Tule fog. Wintertime conditions favorable to fog formation are also conditions favorable to high concentrations of particulate matter.

### **Urban Heat Island Effect**

The “urban heat island” refers to the effect of urbanized areas on surface and air temperature compared to their rural surroundings. Buildings, roads, and other “hardscape” create an island of higher temperatures within the regional landscape. As described by the EPA, “[u]rban heat islands are caused by development and the changes in radiative and thermal properties of urban infrastructure as well as the impacts buildings can have on the local microclimate—for example tall buildings can slow the rate at which cities cool off at night. Heat islands are influenced by a city’s geographic location and by local weather patterns, and their intensity changes on a daily and seasonal basis.” (EPA 2008). The term is generally used to refer to community-wide effects, particularly for large metropolitan cities. The potential adverse effects of the urban heat island effect include increased energy consumption, elevated emissions of air pollutants and GHGs, compromised human health and comfort, and impaired water quality. Increased temperatures due

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to the urban heat island effect may also lead to increased energy consumption, which has implications for air quality and GHG emissions. In addition to energy-related increases in air emissions, elevated air temperatures increase the rate of ground-level ozone formation. Communities have adopted various strategies to deal with these environmental impacts, such as increasing vegetation and using more energy-efficient building materials. These strategies are often part of more general energy savings or “sustainability” practices and are not identified as “urban heat island effect” mitigation, but nevertheless they provide the benefits of reducing surface and atmospheric heat islands. Energy saving and sustainability measures are discussed in the Specific Plan and Special Plan.

## **2.2 Regulatory Setting**

### **2.2.1 Federal Regulations**

#### **2.2.1.1 *Criteria Pollutants***

The federal Clean Air Act, passed in 1970 and last amended in 1990, forms the basis for the national air pollution control effort. The EPA is responsible for implementing most aspects of the federal Clean Air Act, including setting National Ambient Air Quality Standards (NAAQS) for major air pollutants; approving state attainment plans; setting motor vehicle emission standards; issuing stationary source emission standards and permits; and establishing acid rain control measures, stratospheric O<sub>3</sub> protection measures, and enforcement provisions. NAAQS are established for criteria pollutants under the federal Clean Air Act, which are O<sub>3</sub>, CO, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and lead.

The NAAQS describe acceptable air quality conditions designed to protect the health and welfare of the citizens of the nation. The NAAQS (other than for O<sub>3</sub>, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and those based on annual averages or arithmetic mean) are not to be exceeded more than once per year. NAAQS for O<sub>3</sub>, NO<sub>2</sub>, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> are based on statistical calculations over 1- to 3-year periods, depending on the pollutant. The federal Clean Air Act requires the EPA to reassess the NAAQS at least every 5 years to determine whether adopted standards are adequate to protect public health based on current scientific evidence. Current NAAQS are depicted in Table 2-1.

States with areas that exceed the NAAQS must prepare a SIP that demonstrates how those areas will attain the standards within mandated time frames. If the EPA determines a SIP to be inadequate, it may prepare a Federal Implementation Plan for the nonattainment area and may impose additional control measures. Failure to submit an approvable SIP or to implement the

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plan within mandated timeframes can result in sanctions being applied to transportation funding and stationary air pollution sources in the air basin.

### 2.2.1.2 Hazardous Air Pollutants

The 1977 federal Clean Air Act Amendments required the EPA to identify National Emission Standards for Hazardous Air Pollutants (NESHAPs) to protect public health and welfare. HAPs include certain volatile organic chemicals, pesticides, herbicides, and radionuclides that present a tangible hazard, based on scientific studies of exposure to humans and other mammals. Under the 1990 federal Clean Air Act Amendments, which expanded the control program for HAPs, 189 substances and chemical families were identified as HAPs.

### 2.2.2 State Regulations

#### 2.2.2.1 Criteria Pollutants

The federal Clean Air Act delegates the regulation of air pollution control and the enforcement of the NAAQS to the states. In California, the task of air quality management and regulation has been legislatively granted to CARB, with subsidiary responsibilities assigned to air quality management districts and air pollution control districts at the regional and county levels. CARB, which became part of the California Environmental Protection Agency (CalEPA) in 1991, is responsible for ensuring implementation of the California Clean Air Act of 1988, responding to the federal Clean Air Act, and regulating emissions from motor vehicles and consumer products.

CARB has established California Ambient Air Quality Standards (CAAQS), which are generally more restrictive than the NAAQS. The CAAQS describe adverse conditions; that is, pollution levels must be below these standards before a basin can attain the standard. Air quality is considered “in attainment” if pollutant levels are continuously below the CAAQS and violate the standards no more than once each year. The CAAQS for O<sub>3</sub>, CO, SO<sub>2</sub> (1-hour and 24-hour), NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. The current CAAQS are presented in Table 2-1.

**Table 2-1  
Ambient Air Quality Standards**

Pollutant	Average Time	California Standards <sup>1</sup>	National Standards <sup>2</sup>	
		Concentration <sup>3</sup>	Primary <sup>3,4</sup>	Secondary <sup>3,5</sup>
O <sub>3</sub>	1 hour	0.09 ppm (180 µg/m <sup>3</sup> )	—	Same as Primary Standard <sup>6</sup>
	8 hours	0.070 ppm (137 µg/m <sup>3</sup> )	0.070 ppm (137 µg/m <sup>3</sup> ) <sup>6</sup>	

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**Table 2-1  
Ambient Air Quality Standards**

Pollutant	Average Time	California Standards <sup>1</sup>	National Standards <sup>2</sup>	
		Concentration <sup>3</sup>	Primary <sup>3,4</sup>	Secondary <sup>3,5</sup>
NO <sub>2</sub> <sup>7</sup>	1 hour	0.18 ppm (339 µg/m <sup>3</sup> )	0.100 ppm (188 µg/m <sup>3</sup> )	Same as Primary Standard
	Annual Arithmetic Mean	0.030 ppm (57 µg/m <sup>3</sup> )	0.053 ppm (100 µg/m <sup>3</sup> )	
CO	1 hour	20 ppm (23 mg/m <sup>3</sup> )	35 ppm (40 mg/m <sup>3</sup> )	None
	8 hours	9.0 ppm (10 mg/m <sup>3</sup> )	9 ppm (10 mg/m <sup>3</sup> )	
SO <sub>2</sub> <sup>8</sup>	1 hour	0.25 ppm (655 µg/m <sup>3</sup> )	0.075 ppm (196 µg/m <sup>3</sup> )	—
	3 hours	—	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	24 hours	0.04 ppm (105 µg/m <sup>3</sup> )	0.14 ppm (for certain areas) <sup>7</sup>	—
	Annual	—	0.030 ppm (for certain areas) <sup>7</sup>	—
PM <sub>10</sub> <sup>9</sup>	24 hours	50 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>	Same as Primary Standard
	Annual Arithmetic Mean	20 µg/m <sup>3</sup>	—	
PM <sub>2.5</sub> <sup>9</sup>	24 hours	No Separate State Standard	35 µg/m <sup>3</sup>	Same as Primary Standard
	Annual Arithmetic Mean	12 µg/m <sup>3</sup>	12.0 µg/m <sup>3</sup>	15.0 µg/m <sup>3</sup>
Lead <sup>10,11</sup>	30-day Average	1.5 µg/m <sup>3</sup>	—	—
	Calendar Quarter	—	1.5 µg/m <sup>3</sup> (for certain areas) <sup>11</sup>	Same as Primary Standard
	Rolling 3-Month Average	—	0.15 µg/m <sup>3</sup>	
Hydrogen sulfide	1-hour	0.03 ppm (42 µg/m <sup>3</sup> )	—	—
Vinyl chloride <sup>10</sup>	24-hour	0.01 ppm (26 µg/m <sup>3</sup> )	—	—
Sulfates	24-hour	25 µg/m <sup>3</sup>	—	—
Visibility reducing particles	8-hour (10:00 a.m. to 6:00 p.m. PST)	Insufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70%	—	—

Source: CARB 2015a.

Notes: ppm = parts per million by volume; µg/m<sup>3</sup> = micrograms per cubic meter; mg/m<sup>3</sup> = milligrams per cubic meter.

<sup>1</sup> California standards for O<sub>3</sub>, CO, SO<sub>2</sub> (1-hour and 24-hour), NO<sub>2</sub>, suspended particulate matter—PM<sub>10</sub>, PM<sub>2.5</sub>, and visibility-reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

<sup>2</sup> National standards (other than O<sub>3</sub>, NO<sub>2</sub>, SO<sub>2</sub>, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O<sub>3</sub> standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over 3 years, is equal to or less than the standard. For PM<sub>10</sub>, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 micrograms per cubic meter (µg/m<sup>3</sup>) is equal to or

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less than one. For PM<sub>2.5</sub>, the 24-hour standard is attained when 98% of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

- <sup>3</sup> Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
- <sup>4</sup> National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
- <sup>5</sup> National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
- <sup>6</sup> On October 1, 2015, the EPA Administrator signed the notice for the final rule to revise the primary and secondary NAAQS for O<sub>3</sub>. The EPA is revising the levels of both standards from 0.075 ppm to 0.070 ppm, and retaining their indicators (O<sub>3</sub>), forms (fourth-highest daily maximum, averaged across three consecutive years) and averaging times (eight hours). The EPA is in the process of submitting the rule for publication in the Federal Register. The final rule will be effective 60 days after the date of publication in the Federal Register. The lowered national 8-hour standards are reflected in the table.
- <sup>7</sup> To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 parts per billion (ppb). Note that the national 1-hour standard is in units of ppb. California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
- <sup>8</sup> On June 2, 2010, a new 1-hour SO<sub>2</sub> standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO<sub>2</sub> national standards (24-hour and annual) remain in effect until 1 year after an area is designated for the 2010 standard, except that in areas designated nonattainment of the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
- <sup>9</sup> On December 14, 2012, the national annual PM<sub>2.5</sub> primary standard was lowered from 15 µg/m<sup>3</sup> to 12.0 µg/m<sup>3</sup>. The existing national 24-hour PM<sub>2.5</sub> standards (primary and secondary) were retained at 35 µg/m<sup>3</sup>, as was the annual secondary standard of 15 µg/m<sup>3</sup>. The existing 24-hour PM<sub>10</sub> standards (primary and secondary) of 150 µg/m<sup>3</sup> also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
- <sup>10</sup> CARB has identified lead and vinyl chloride as TACs with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
- <sup>11</sup> The national standard for lead was revised on October 15, 2008, to a rolling 3-month average. The 1978 lead standard (1.5 µg/m<sup>3</sup> as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

### 2.2.2.2 Toxic Air Contaminants

The state Air Toxics Program was established in 1983 under Assembly Bill (AB) 1807 (Tanner). The California TAC list identifies more than 700 pollutants, of which carcinogenic and noncarcinogenic toxicity criteria have been established for a subset of these pollutants pursuant to the California Health and Safety Code. In accordance with AB 2728, the state list includes the (federal) HAPs.

The Air Toxics “Hot Spots” Information and Assessment Act of 1987 (AB 2588) seeks to identify and evaluate risk from air toxics sources; however, AB 2588 does not regulate air toxics emissions. Toxic air contaminant emissions from individual facilities are quantified and prioritized. “High-priority” facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, are required to communicate the results to the public in the form of notices and public meetings.

In 2000, CARB approved a comprehensive Diesel Risk Reduction Plan to reduce diesel emissions from both new and existing diesel-fueled vehicles and engines. The regulation is

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anticipated to result in an 80% decrease in statewide diesel health risk in 2020 as compared with the diesel risk in 2000. Additional regulations apply to new trucks and diesel fuel, including the On-Road Heavy Duty Diesel Vehicle (In-Use) Regulation, the On-Road Heavy Duty (New) Vehicle Program, the In-Use Off-Road Diesel Vehicle Regulation, and the New Off-Road Compression-Ignition (Diesel) Engines and Equipment program. All of these regulations and programs have timetables by which manufacturers must comply and existing operators must upgrade their diesel powered equipment. Several Airborne Toxic Control Measures (ATCMs) that reduce diesel emissions are described in greater detail below.

Despite these reduction efforts, CARB recommends that proximity to sources of DPM emissions be considered in the siting of new sensitive land uses. In April 2005, CARB published *Air Quality and Land Use Handbook: a Community Health Perspective*. This handbook is intended to give guidance to local governments in the siting of sensitive land uses near sources of air pollution. Recent studies have shown that public exposure to air pollution can be substantially elevated near freeways and certain other facilities such as ports, rail yards, and distribution centers. Specifically, the document focuses on risks from emissions of DPM, a known carcinogen, and establishes recommended siting distances of sensitive receptors. CARB notes that these recommendations are advisory and should not be interpreted as defined “buffer zones,” and that local agencies must balance other considerations, including transportation needs, the benefits of urban infill, community economic development priorities, and other quality of life issues. With careful evaluation of exposure, health risks, and affirmative steps to reduce risk where necessary, CARB’s position is that infill development, mixed use, higher density, transit-oriented development, and other concepts that benefit regional air quality can be compatible with protecting the health of individuals at the neighborhood level (CARB 2005).

***Stationary Compression-Ignition Engines (17 CCR 93115).*** As part of its diesel risk reduction program, CARB adopted an ATCM that applies to new and in-use stationary compression-ignition (i.e., diesel) engines. The ATCM was adopted in 2004 and revised in November 2010 with an effective date of May 19, 2011. After December 31, 2008, the ATCM requires that new emergency standby engines must comply with EPA emission standards applicable to a 2007-model-year off-road engine of the same horsepower rating. The ATCM further limits the particulate matter emissions from an emergency standby engine operated less than 50 hours per year for maintenance and testing to 0.15 gram per brake-horsepower-hour.

***Idling of Commercial Heavy Duty Trucks (13 CCR 2485).*** In July 2004, CARB adopted an ATCM to control emissions from idling trucks. The ATCM prohibits idling for more than 5 minutes for all commercial trucks with a gross vehicle weight rating over 10,000 pounds. The ATCM contains an exception that allows trucks to idle while queuing or involved in operational activities.



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***In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.).*** In July 2007, CARB adopted an ATCM for in-use off-road diesel vehicles. This regulation required that specific fleet average requirements are met for NO<sub>x</sub> emissions and for particulate matter emissions. Where average requirements cannot be met, best available control technology (BACT) requirements apply. The regulation also included several recordkeeping and reporting requirements. In response to AB 8 2X, the regulations were revised in July 2009 (effective December 3, 2009) to allow a partial postponement of the compliance schedule in 2011 and 2012 for existing fleets. On December 17, 2010, CARB adopted additional revisions to further delay the deadlines reflecting reductions in diesel emissions due to the poor economy and overestimates of diesel emissions in California. The revisions delayed the first compliance date until no earlier than January 1, 2014, for large fleets, with final compliance by January 1, 2023. The compliance dates for medium fleets would be delayed until an initial date of January 1, 2017, and final compliance date of January 1, 2023. The compliance dates for small fleets would be delayed until an initial date of January 1, 2019, and final compliance date of January 1, 2028. Correspondingly, the fleet average targets were made more stringent in future compliance years. The revisions would also accelerate the phase-out of equipment with older equipment added to existing large and medium fleets over time, requiring the addition of Tier 2 or higher engines starting on March 1, 2011, with some exceptions: Tier 2 or higher engines on January 1, 2013, without exception, and Tier 3 or higher engines on January 1, 2018 (January 1, 2023, for small fleets).

On October 28, 2011 (effective December 14, 2011), the CARB executive officer approved amendments to the regulation. The amendments included revisions to the applicability section and additions and revisions to the definition. The initial date for requiring the addition of Tier 2 or higher engines for large and medium fleets, with some exceptions, was revised to January 1, 2012. New provisions would allow removal of emission-control devices for safety or visibility purposes. The regulation was amended to combine the particulate matter and NO<sub>x</sub> fleet average targets under one, instead of two, sections. The amended fleet average targets are based on the fleet's NO<sub>x</sub> fleet average, and the previous section regarding particulate matter performance requirements was deleted completely. The BACT requirements, if a fleet cannot comply with the fleet average requirements, were restructured and clarified. Other amendments to the regulations included minor administrative changes to the regulatory text.

***In-Use On-Road Diesel-Fueled Vehicles (13 CCR 2025).*** On December 12, 2008, CARB adopted an ATCM to reduce NO<sub>x</sub> and particulate matter emissions from most in-use on-road diesel trucks and buses with a gross vehicle weight rating greater than 14,000 pounds. The original ATCM regulation required fleets of on-road trucks to limit their NO<sub>x</sub> and particulate matter emissions through a combination of exhaust retrofit equipment and new vehicles. The regulation limited particulate matter emissions for most fleets by 2011, and limited NO<sub>x</sub>

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emissions for most fleets by 2013. The regulation did not require any vehicle to be replaced before 2012 and never required all vehicles in a fleet be replaced. In December 2009, the CARB Governing Board directed staff to evaluate amendments that would provide additional flexibility for fleets adversely affected by the poor California economy. On December 17, 2010, CARB revised this ATCM to delay its implementation along with limited relaxation of its requirements. Starting on January 1, 2015, lighter trucks with a gross vehicle weight rating of 14,001 to 26,000 pounds with 20-year-old or older engines would need to be replaced with newer trucks (2010 model year emissions equivalent as defined in the regulation). Trucks with a gross vehicle weight rating greater than 26,000 pounds with 1995 model year or older engines must be replaced as of January 1, 2015. Trucks with 1996–2006 model year engines must install a Level 3 (85% control) diesel particulate filter starting on January 1, 2012, to January 1, 2014, depending on the model year, and then must be replaced after 8 years. Trucks with 2007–2009 model year engines have no requirements until 2023, at which time they must be replaced with 2010 model year emissions equivalent engines as defined in the regulation. Trucks with 2010 model year engines would meet the final compliance requirements. The ATCM provides a phase-in option under which a fleet operator would equip a percentage of trucks in the fleet with diesel particulate filters, starting at 30% as of January 1, 2012, with 100% by January 1, 2016. Under each option, delayed compliance is granted to fleet operators who have or will comply with requirements before the required deadlines.

On September 19, 2011 (effective December 14, 2011), the CARB executive officer approved amendments to the regulations, including revisions to the compliance schedule for vehicles with a gross vehicle weight rating of 26,000 pounds or less to clarify that *all* vehicles must be equipped with 2010 model year emissions equivalent engines by 2023. The amendments include revised and additional credits for fleets that have downsized; implement early particulate matter retrofits; incorporate hybrid vehicles, alternative-fueled vehicles, and vehicles with heavy-duty pilot ignition engines; and implement early addition of newer vehicles. The amendments included provisions for additional flexibility, such as for low-usage construction trucks, and revisions to previous exemptions, delays, and extensions. Other amendments to the regulations included minor administrative changes to the regulatory text, including recordkeeping and reporting requirements related to other revisions.

### **2.2.3 Local Regulations**

The SJVAPCD is the regional agency responsible for the regulation and enforcement of federal, state, and local air pollution control regulations in the SJVAB. The SJVAPCD jurisdiction includes all of Merced, San Joaquin, Stanislaus, Madera, Fresno, Kings, and Tulare Counties, and the San Joaquin Valley portion of Kern County.

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### **2.2.3.1 Air Quality Plans**

The SJVAPCD has prepared several air quality attainment plans to achieve the ozone and particulate matter standards, the most recent of which include the *2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan* (SJVAPCD 2014b), *2013 Plan for the Revoked 1-Hour Ozone Standard* (SJVAPCD 2013a), *2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation* (SJVAPCD 2007b), *2012 PM<sub>2.5</sub> Plan* (SJVAPCD 2012), and *2015 Plan for the 1997 PM<sub>2.5</sub> Standard* (SJVAPCD 2015b). The following sections summarize key elements of these and other recent air quality attainment plans.

#### **Ozone Attainment Plans**

##### ***Extreme 1-Hour Ozone Attainment Demonstration Plan***

The *Extreme 1-Hour Ozone Attainment Demonstration Plan*, adopted by the SJVAPCD Governing Board October 8, 2004, sets forth measures and emission-reduction strategies designed to attain the federal 1-hour ozone standard by November 15, 2010, as well as an emissions inventory, outreach, and rate of progress demonstration. This plan was approved by the EPA on March 8, 2010; however, the EPA's approval was subsequently withdrawn effective November 26, 2012, in response to a decision issued by the U.S. Court of Appeals for the Ninth Circuit (*Sierra Club v. EPA*, 671 F.3d 955) remanding EPA's approval of these SIP revisions. Concurrent with the EPA's final rule, CARB withdrew the 2004 plan. The SJVAPCD developed a new plan for the 1-hour ozone standard, the *2013 Plan for the Revoked 1-Hour Ozone Standard*, which it adopted in September 2013.

##### ***2007 8-Hour Ozone Plan***

The *2007 8-Hour Ozone Plan*, adopted by the Governing Board on April 30, 2007, sets forth measures and a "dual path" strategy to attain the federal 1997 8-hour ozone standard by 2023 for the SJVAB by reducing emissions of ozone and particulate matter precursors (SJVAPCD 2007a). The plan also includes provisions for improved pollution control technologies for mobile and stationary sources, as well as an increase in state and federal funding for incentive-based measures to reduce emissions. All local measures would be adopted by the SJVAPCD before 2012. This plan was approved by the EPA on April 30, 2012. On November 26, 2012, however, the EPA withdrew its determination that the plan satisfied the federal Clean Air Act requirements regarding emissions growth caused by growth in vehicle miles traveled. All other determinations in the EPA's March 1, 2012, rule approving the plan remain unchanged and in effect. The SJVAPCD is currently in the process of developing an ozone plan to address EPA's 2008 8-hour ozone standard, with attainment required by 2032.

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### ***2009 RACT SIP***

On April 16, 2009, the Governing Board adopted the *Reasonably Available Control Technology Demonstration for Ozone State Implementation Plans* (2009 RACT SIP) (SJVAPCD 2009a). In part, the 2009 RACT SIP satisfied the commitment by the SJVAPCD for a new RACT analysis for the 1-hour ozone plan (see discussion of the EPA withdrawal of approval in the *Extreme 1-Hour Ozone Attainment Demonstration Plan* summary above) and was intended to prevent all sanctions that could be imposed by EPA for failure to submit a required SIP revision for the 1-hour ozone standard. With respect to the 8-hour standard, the plan also assesses the SJVAPCD's rules based on the adjusted major source definition of 10 tons per year (due to the SJVAB's designation as an extreme ozone nonattainment area), evaluates SJVAPCD rules against new Control Techniques Guidelines promulgated since August 2006, and reviews additional rules and rule amendments that had been adopted by the Governing Board since August 17, 2006, for RACT consistency.

### ***2013 Plan for the Revoked 1-Hour Ozone Standard***

The SJVAPCD developed a plan for EPA's revoked 1-hour ozone standard after the EPA withdrew its approval of the 2004 *Extreme 1-Hour Ozone Attainment Demonstration Plan* as a result of litigation. As a result of the litigation, the EPA reinstated previously revoked requirements for 1-hour ozone attainment plans. The 2013 plan addresses those requirements, including a demonstration of implementation of Reasonably Available Control Measures and a demonstration of a rate of progress averaging 3% annual reductions of ROG or NO<sub>x</sub> emissions every 3 years. The *2013 Plan for the Revoked 1-Hour Ozone Standard* was approved by the Governing Board on September 19, 2013 (SJVAPCD 2013a). Based on implementation of the ongoing control measures, preliminary modeling indicates that the SJVAB will attain the 1-hour ozone standard by 2017, before the final attainment year of 2022 and without relying on long-term measures under the federal Clean Air Act Section 182(e)(5) ("black box reductions").

### ***2014 RACT SIP***

On June 19, 2014, the Governing Board adopted the *2014 Reasonably Available Control Technology Demonstration for the 8-Hour Ozone State Implementation Plan* (2014 RACT SIP) (SJVAPCD 2014b). This RACT SIP includes a demonstration that the SJVAPCD rules implement RACT. The plan reviews each of the NO<sub>x</sub> reduction rules and concludes that they satisfy requirements for stringency, applicability, and enforceability and meet or exceed RACT. The plan's analysis of further ROG reductions through modeling and technical analyses demonstrates that added ROG reductions will not advance SJVAB's ozone attainment. Each ROG (i.e., VOC) rule evaluated in the 2009 RACT SIP, however, has been subsequently

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approved by the EPA as meeting RACT within the last 2 years. The ozone attainment strategy, therefore, focuses on further NO<sub>x</sub> reductions.

### Particulate Matter Attainment Plans

#### *2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation*

On September 20, 2007, the Governing Board approved the *2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation* (SJVAPCD 2007b). After achieving compliance with the annual and 24-hour NAAQS for PM<sub>10</sub> during the period from 2003 to 2006,<sup>9</sup> the SJVAPCD prepared the *2007 PM<sub>10</sub> Maintenance Plan and Request for Redesignation*. The plan includes future emission estimates through 2020 and, based on modeling, projects that SJVAB will continue to attain the PM<sub>10</sub> NAAQS through 2020. The plan does not call for adoption of new control measures. Measures called for in the *2007 8-Hour Ozone Plan* and *2008 PM<sub>2.5</sub> Plan* (discussed below) will also produce PM<sub>10</sub> benefits; however, the plan does include a contingency plan if future PM<sub>10</sub> levels were to exceed the NAAQS. It also includes a request that the EPA redesignate the SJVAB to attainment status for the PM<sub>10</sub> NAAQS. On October 25, 2007, CARB approved the SJVAPCD's plan with modifications to the transportation conformity budgets. On September 25, 2008, the EPA redesignated the SJVAB to attainment for the PM<sub>10</sub> NAAQS and approved the PM<sub>10</sub> maintenance plan.

#### *2008 PM<sub>2.5</sub> Plan*

The SJVAPCD Governing Board adopted the *2008 PM<sub>2.5</sub> Plan* on April 30, 2008 (SJVAPCD 2008). This plan is designed to assist the SJVAB in attaining all PM<sub>2.5</sub> standards, including the 1997 federal standards, the 2006 federal standards, and the state standard, as soon as possible. On July 13, 2011, the EPA issued a proposed rule partially approving and disapproving the *2008 PM<sub>2.5</sub> Plan*. Subsequently, on November 9, 2011, the EPA issued a final rule approving most of the plan with an effective date of January 9, 2012. However, the EPA disapproved the plan's contingency measures because they would not provide sufficient emission reductions.

#### *2012 PM<sub>2.5</sub> Plan*

Approved by the Governing Board on December 20, 2012, the *2012 PM<sub>2.5</sub> Plan* addresses attainment of EPA's 24-hour PM<sub>2.5</sub> standard of 35 micrograms per cubic meter (µg/m<sup>3</sup>) established in 2006. In addition to reducing direct emissions of PM<sub>2.5</sub>, this plan focuses on

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<sup>9</sup> Attainment is achieved if the 3-year annual average PM<sub>10</sub> concentration is less than or equal to 50 µg/m<sup>3</sup> and the expected 24-hour exceedance days is less than or equal to 1.0.

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reducing emissions of NO<sub>x</sub>, which is a predominant pollutant in the formation of PM<sub>2.5</sub> in the SJVAB. The plan relies on a multilevel approach to reducing emissions through SJVAPCD efforts (industry, the general public, employers, and small businesses) and state/federal efforts (passenger vehicles, heavy-duty trucks, and off-road sources), as well as SJVAPCD and state/federal incentive programs to accelerate replacement of on- and off-road vehicles and equipment. Through compliance with this attainment plan, the SJVAB would achieve attainment of the federal PM<sub>2.5</sub> standard by the attainment deadline of 2019, with the majority of the SJVAB actually experiencing attainment well before the deadline. The EPA lowered the PM<sub>2.5</sub> standard again in 2012 and is in the process of completing attainment designations.

### ***2015 Plan for the 1997 PM<sub>2.5</sub> Standard***

The Governing Board adopted the *2015 Plan for the 1997 PM<sub>2.5</sub> Standard* on April 16, 2015 (SJVAPCD 2015b). This plan addresses the EPA's annual PM<sub>2.5</sub> standard of 15 micrograms per cubic meter (µg/m<sup>3</sup>) and 24-hour PM<sub>2.5</sub> standard of 65 µg/m<sup>3</sup> established in 1997. While nearly achieving the 1997 standards, the SJVAB experienced higher PM<sub>2.5</sub> levels in winter 2013–2014 due to the extreme drought, stagnation, strong inversions, and historically dry conditions; thus, the SJVAPCD was unable to meet the attainment date of December 31, 2015. Accordingly, this plan also contains a request for a one-time extension of the attainment deadline for the 24-hour standard to 2018 and the annual standard to 2020. The plan builds on past development and implementation of effective control strategies. Consistent with EPA regulations for PM<sub>2.5</sub> plans to achieve the 1997 standards, the plan contains Most Stringent Measures, Best Available Control Measures, additional enforceable commitments for further reductions in emissions, and ensures expeditious attainment of the 1997 standard.

### ***Senate Bill 656 Particulate Matter Control Measure Implementation Schedule***

Senate Bill (SB) 656 was enacted in 2003 and codified as California Health and Safety Code Section 39614. SB 656 seeks to reduce exposure to PM<sub>10</sub> and PM<sub>2.5</sub> and to make further progress toward attainment of the NAAQS and CAAQS for PM<sub>10</sub> and PM<sub>2.5</sub>. SB 656 required CARB, in consultation with local air districts, to develop and adopt lists of “the most readily available, feasible, and cost-effective” particulate matter control measures. Subsequently, the air districts were required to adopt implementation schedules for the relevant control measures in their district. In June 2005, the SJVAPCD adopted its SB 656 Particulate Matter Control Measure Implementation Schedule. The SJVAPCD analysis of the CARB list concluded that all but one of the measures that apply to SJVAPCD sources had been implemented or were in one of the SJVAPCD's attainment plans for adoption within the next 2 years. The remaining measure pertains to a future amendment of a rule for gasoline transfer into stationary storage containers, delivery vessels, and bulk plants.

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### **2.2.3.2    *Applicable Non-Stationary Source Regulations***

The SJVAPCD's primary means of implementing air quality plans is by adopting and enforcing rules and regulations. Stationary sources within the jurisdiction are regulated by the SJVAPCD's permit authority over such sources and through its review and planning activities. Unlike stationary source projects, which encompass very specific types of equipment, process parameters, throughputs, and controls, air emissions sources from land use development projects such as Grapevine are mainly mobile sources (traffic) and area sources (small dispersed stationary and other non-mobile sources), including exempt (i.e., no permit required) sources such as consumer products, landscaping equipment, furnaces, and water heaters. Mixed-use land development projects may include nonexempt sources including devices such as small to large boilers, stationary internal combustion engines, gas stations, or asphalt batch plants.

Notwithstanding nonexempt stationary sources, which would be permitted on a case-by-case basis, SJVAPCD Regulations VIII and IX generally apply to land use development projects and are described below:

#### **Regulation VIII – Fugitive PM<sub>10</sub> Prohibition**

- Rule 8021 Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities
- Rule 8031 Bulk Materials
- Rule 8041 Carryout and Trackout
- Rule 8051 Open Areas
- Rule 8061 Paved And Unpaved Roads
- Rule 8071 Unpaved Vehicle/Equipment Traffic Areas

Pursuant to Rule 8021 Section 6.3, the project would be required to develop, prepare, submit, obtain approval of, and implement a Dust Control Plan, which would reduce fugitive dust impacts to less than significant for all construction phases of the project.

#### **Regulation IX – Mobile and Indirect Sources**

- Rule 9110 General Conformity
- Rule 9120 Transportation Conformity
- Rule 9410 Employer Based Trip Reduction
- Rule 9510 Indirect Source Review (ISR)



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### ***Rule 9510 (Indirect Source Review)***

The ISR rule, which was adopted December 15, 2005, and went into effect March 1, 2006, requires developers of new residential, commercial, and some industrial projects to reduce NO<sub>x</sub> and PM<sub>10</sub> emissions generated by their projects. Pursuant to Rule 9510, the purpose of the ISR program is to reduce emissions of NO<sub>x</sub> and PM<sub>10</sub> from new land development projects. In general, development contributes to air pollution in the SJVAB increasing the number of vehicles and vehicle miles traveled. ISR applies to development projects that require discretionary approval from the Lead Agency. The ISR rule also applies to transportation and transit projects whose construction exhaust emissions would equal or exceed 2 tons per year of NO<sub>x</sub> or PM<sub>10</sub>. The ISR rule requires submittal of an Air Impact Assessment application no later than the date on which application is made for a final discretionary approval from the public agency. The Air Impact Assessment contains the information necessary to calculate both construction and operational emissions of a development project.

Section 6.0 of the ISR rule outlines general mitigation requirements for developments that include reduction in construction emissions of 20% of the total construction NO<sub>x</sub> emissions, and 45% of the total construction PM<sub>10</sub> exhaust emissions. The rule also requires the project to reduce operational NO<sub>x</sub> emissions by 33.3% and operational PM<sub>10</sub> emissions by 50%, as compared to the unmitigated baseline. Section 7.0 of the ISR rule includes fee schedules for construction or operational excess emissions of NO<sub>x</sub> or PM<sub>10</sub>—those emissions above the goals identified in Section 6.0 of the rule. Monies collected from this fee are used by the SJVAPCD to fund emission reduction projects in the SJVAB on behalf of the project

The project is subject to ISR because it meets or exceeds one or more of the following applicability thresholds:

- 2,000 square feet commercial; 25,000 square feet light industrial; 100,000 square feet heavy industrial
- 20,000 square feet medical office; 39,000 square feet general office; 9,000 square feet educational
- 10,000 square feet governmental; 20,000 square feet recreation space; 50 residential units
- 9,000 square feet of space not included in the list

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### ***Rule 9610 State Implementation Plan Credit for Emission Reductions Generated through Incentive Programs***

Rule 9610 provides an administrative mechanism for the SJVAPCD to receive credit towards SIP requirements for emission reductions achieved in the SJVAB through incentive programs administered by the SJVAPCD, United States Department of Agriculture Natural Resources Conservation Service, or CARB. On April 9, 2015, EPA finalized a limited approval and limited disapproval (for a minor administrative error) of Rule 9610 as a revision to the California SIP. Additional documentation regarding the effectiveness of the SJVAPCD's incentive programs can be found in *2015 Annual Demonstration Report SIP Credit for Emission Reductions Generated Through Incentive Programs* (SJVAPCD 2015a).

### **2.2.3.3 Applicable Stationary Source Regulations**

To the extent that the project would include stationary sources that would require an Authority to Construct and Permit to Operate issued by the SJVAPCD, the following rules would apply:

#### **Regulation II – Permits**

##### ***Rule 2010 (Permits Required)***

This rule requires, prior to construction, any newly proposed air-polluting facilities to first obtain an Authority to Construct from the air pollution control officer. Prior to operation of the new facility, the SJVAPCD also requires that any new facility obtain a Permit to Operate from the air pollution control officer. Permits to Operate must be posted and maintained on or near the source of the air pollution.

##### ***Rule 2201 (New and Modified Stationary Source Review)***

Rule 2201 establishes the SJVAPCD's authority to limit emissions at new and modified sources so that there is no net increase in emissions above the ambient air quality standards. Rule 2201 allows the SJVAPCD to use different mechanisms, such as emission offsets, to ensure that ambient air quality standards are met or maintained. The criteria pollutants regulated under New Source Review are ROG, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Under Rule 2201, BACT is required if the emissions of a regulated pollutant would exceed 2 pounds per day. In addition, emission offsets to mitigate an increase in emissions from a new or modified stationary source would be required if the facility's emissions exceed the values shown in Table 2-2. If an offset threshold for a new or modified stationary source is exceeded, then the applicant must provide offsets to reduce the project's emission increase in accordance with the procedures in Rule 2201 (SJVAPCD 2011) See also discussion of VERA in Section 1.4.3.)

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**Table 2-2  
Rule 2201 Emission Offset Thresholds**

Pollutant	Offset Threshold (pounds/year)
ROG	20,000
NO <sub>x</sub>	20,000
CO	200,000
SO <sub>x</sub>	54,750
PM <sub>10</sub>	29,200
PM <sub>2.5</sub>	200,000 <sup>a</sup>

Source: SJVAPCD 2011.

Note:

<sup>a</sup> PM<sub>2.5</sub> offsets are required only for sources that constitute new major sources or federal major modifications.

### ***Rule 2520 (Federally Mandated Operating Permits)***

Rule 2520 serves as the SJVAPCD's mechanism for issuing, renewing, revising, revoking, and terminating operating permits for sources of air contaminants in accordance with the requirements of Title 40, Part 70, of the Code of Federal Regulations (CFR). This rule defines the sources that require federally mandated operating permits, as well as the content of these permits. Federally mandated operating permits are required for all major sources of air pollutants, as well as other sources listed in Section 2.0 of the rule. Generally, the federally mandated operating permits include emission limitations and standards for federal criteria pollutants (ROG, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and lead), new source performance standards, and recordkeeping and reporting requirements. This rule requires that the SJVAPCD combine all federal and state applicable standards into one permit for each facility, and that the permit indicate where state standards exceed federal standards.

### ***Rule 2530 (Federally Enforceable Potential to Emit)***

The purpose of Rule 2530 is to restrict a stationary source's potential to emit so that a source may be exempt from the requirements of Rule 2520 (Federally Mandated Operating Permits). This rule applies to any stationary source that is a major source of regulated air pollutants or of hazardous air pollutants but with limitations would be exempt from Rule 2520. This exemption provides stationary sources in the SJVAPCD with a separate option to comply with air quality restrictions. Rule 2530 also includes recordkeeping and reporting requirements. Rule 2530 allows facilities to be excluded from the Title V program (see Rule 2520) by taking limits or keeping records to demonstrate that their emissions are below the applicable thresholds. This process is also referred to as a "synthetic minor."

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### ***Rule 2550 (Federally Mandated Preconstruction Review for Major Sources of Air Toxics)***

Rule 2550 provides an administrative mechanism for applying the requirements of 40 CFR 63.40–63.44 at major sources of hazardous air pollutants that have Authority to Construct permits for new construction or reconstruction. Rule 2550 requires that new or reconstructed sources use Toxic Best Available Control Technology, with some exceptions.

### **Regulation IV – Prohibitions**

#### ***Rule 4001 (New Source Performance Standards)***

Rule 4001 codifies the SJVAPCD's adoption and incorporation of the New Source Performance Standards as set forth in 40 CFR 60. New Source Performance Standards apply to a variety of different types of stationary sources, including asphalt plants. The regulation imposes emissions standards for certain pollutants and requires that specified emission control equipment and monitoring devices be installed at all new, modified, or reconstructed facilities to limit emissions. The regulation also includes test methods and procedures, as well as monitoring, notification, and recordkeeping requirements.

#### ***Rule 4002 (National Emission Standards for Hazardous Air Pollutants)***

Rule 4002 incorporates the NESHAPs as set forth in 40 CFR 61, and the NESHAPs for source categories as set forth in 40 CFR 63. 40 CFR 61 includes emission standards for several known toxic air pollutants, such as beryllium, mercury, and vinyl chloride. 40 CFR 63 regulates the NESHAP by source categories. Both regulations also include test methods and procedures, as well as monitoring, notification, and recordkeeping requirements.

#### ***Rule 4101 (Visible Emissions)***

Rule 4101 prohibits emissions of visible air contaminants from any potential source of air contaminants. The rule prohibits air contaminants, other than water vapor, that are a certain level of darkness or opacity from being discharged for a combined period of more than 3 minutes of any hour. This rule may also apply to exempt sources.

#### ***Rule 4102 (Nuisance)***

To protect the public health, Rule 4102 prohibits any person from discharging such quantities of air contaminants that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public. This rule may also apply to exempt sources.

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### ***Other Prohibitory Rules***

The SJVAPCD has adopted more than 70 prohibitory rules that apply to general and specific emission sources, such as boilers, internal combustion engines, gasoline dispensing facilities, graphic arts, and manufacturing of wood and metal products. Because the specific sources that may occur within the project site are not known at this time, it is uncertain which rules would apply. The applicability of the rules would be determined during the SJVAPCD permitting process and appropriate limits would be incorporated into the permits to ensure compliance with these rules. To the extent that the emissions from representative stationary sources are being analyzed, a listing of relevant rules are identified in Section 2.4.2.3 under the heading “Small Industrial Source Emissions.”

## **2.3 Regional and Local Air Quality Conditions**

### **2.3.1 Regional Attainment Status**

The ambient air quality standards shown in Table 2-3 are intended to protect the public health and welfare and specify the concentration of pollutants (with an adequate margin of safety) to which the public may be exposed without adverse health effects. The standards are designed to protect those segments of the public most susceptible to respiratory distress (known as sensitive receptors), including asthmatics, the very young, the elderly, people weak from other illness or disease, or persons engaged in strenuous outdoor work or exercise. Healthy adults can tolerate occasional exposure to air pollution levels somewhat above the ambient air quality standards before adverse health effects are observed.

Pursuant to the 1990 federal Clean Air Act Amendments, the EPA classifies air basins (or portions thereof) as “attainment” or “nonattainment” for each criteria air pollutant, based on whether the NAAQS have been achieved. Generally, if the recorded concentrations of a pollutant are lower than the standard, the area is classified as “attainment” for that pollutant. If an area exceeds the standard, the area is classified as “nonattainment” for that pollutant. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated as “unclassified” or “unclassifiable.” The designation of “unclassifiable/attainment” means that the area meets the standard or is expected to be meet the standard despite a lack of monitoring data. Areas that achieve the standards after a nonattainment designation are redesignated as maintenance areas and must have approved Maintenance Plans to ensure continued attainment of the standards. The California Clean Air Act, like its federal counterpart, called for the designation of areas as “attainment” or “nonattainment,” but based on CAAQS rather than the NAAQS. The project is located in Kern County within the SJVAB. Table 2-3 depicts the current attainment status of the project site with respect to the NAAQS and CAAQS.

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**Table 2-3  
San Joaquin Valley Air Basin (Kern County) Attainment Status**

Pollutant	Designation/Classification	
	<i>Federal Standards</i>	<i>State Standards</i>
Ozone (O <sub>3</sub> ) – 1-hour	No federal standard <sup>1</sup>	Nonattainment/severe
Ozone (O <sub>3</sub> ) – 8-hour	Nonattainment/extreme <sup>2</sup>	Nonattainment
Nitrogen dioxide (NO <sub>2</sub> )	Unclassifiable/attainment	Attainment
Carbon monoxide (CO)	Unclassifiable/attainment	Attainment
Sulfur dioxide (SO <sub>2</sub> )	Unclassifiable/attainment	Attainment
Respirable particulate matter (PM <sub>10</sub> )	Attainment <sup>3</sup>	Nonattainment
Fine particulate matter (PM <sub>2.5</sub> )	Nonattainment <sup>4</sup>	Nonattainment
Lead (Pb) <sup>5</sup>	Unclassifiable/attainment	Attainment
Sulfates (SO <sub>4</sub> )	No federal standard	Attainment
Hydrogen sulfide (H <sub>2</sub> S)	No federal standard	Unclassified
Vinyl chloride <sup>5</sup>	No federal standard	No designation
Visibility-reducing particles	No federal standard	Unclassified

Sources: SJVAPCD 2015c; EPA 40 CFR Part 81 (EPA 2015a); and CARB CCR Title 17 Sections 60200-60210 (CARB 2014b).

Notes:

Attainment = meets the standards; Attainment (maintenance) = achieve the standards after a nonattainment designation; Nonattainment = does not meet the standards; Unclassified or unclassifiable = insufficient data to classify; Unclassifiable/attainment = meets the standard or is expected to be meet the standard despite a lack of monitoring data.

<sup>1</sup> Effective June 15, 2005, the EPA revoked the federal 1-hour ozone standard, including associated designations and classifications. EPA had previously classified the SJVAB as extreme nonattainment for this standard. EPA approved the 2004 Extreme Ozone Attainment Demonstration Plan (SJVAPCD 2004) on March 8, 2010 (effective April 7, 2010). Many applicable requirements for extreme 1-hour ozone nonattainment areas continue to apply to the SJVAB.

<sup>2</sup> Though the San Joaquin Valley was initially classified as serious nonattainment for the 1997 8-hour ozone standard, EPA approved San Joaquin Valley reclassification to extreme nonattainment in the Federal Register on May 5, 2010 (effective June 4, 2010).

<sup>3</sup> On September 25, 2008, EPA re-designated the San Joaquin Valley to attainment for the PM<sub>10</sub> NAAQS and approved the PM<sub>10</sub> Maintenance Plan.

<sup>4</sup> The San Joaquin Valley is designated nonattainment for the 1997 PM<sub>2.5</sub> NAAQS. EPA designated the San Joaquin Valley as nonattainment for the 2006 PM<sub>2.5</sub> NAAQS on November 13, 2009 (effective December 14, 2009).

<sup>5</sup> CARB has identified lead and vinyl chloride as toxic air contaminants with no threshold level of exposure for adverse health effects determined.

In summary, the EPA has designated the SJVAB as a nonattainment area for the federal 8-hour O<sub>3</sub> standard, and CARB has designated the SJVAB as a nonattainment area for the state 1-hour and 8-hour O<sub>3</sub> standards. The SJVAB has been designated as a nonattainment area for the state 24-hour and annual PM<sub>10</sub> standards, a nonattainment area for the federal 24-hour and annual PM<sub>2.5</sub> standards, and as a nonattainment area for the state annual PM<sub>2.5</sub> standard. The SJVAB is designated as unclassified or attainment for all other criteria air pollutants.

## 2.3.2 Local Ambient Air Quality

Under authority and oversight from the EPA pursuant to 40 CFR Part 58, the SJVAPCD and CARB maintain ambient air quality monitoring stations throughout the SJVAB, with eight sites

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in Kern County<sup>10</sup>. Not all air pollutants are monitored at each station; thus, data from the closest representative station that monitors a specific pollutant are summarized. The closest ambient air quality monitoring stations to the project site are the Arvin–Di Giorgio, Bakersfield–Municipal Airport, Maricopa–Stanislaus, and Bakersfield–California Avenue stations.

- The Lebec monitoring station, located at 1277 Beartrap Road in Lebec, is the closest monitoring station to the project, located approximately 9 miles southwest of the project site at 3,500 feet elevation; however, as it monitors PM<sub>2.5</sub> only for non-regulatory purposes, the values from that station are not included.
- The Arvin–Di Giorgio station, located at 19405 Buena Vista Boulevard in Arvin, is approximately 21 miles north–northeast of the project site; it measures O<sub>3</sub>.
- The Bakersfield–Municipal Airport station, located at 2000 South Union Avenue in Bakersfield, is approximately 26 miles north–northwest of the project site; it measures O<sub>3</sub>, NO<sub>2</sub>, and CO.
- The Maricopa–Stanislaus station, located at 755 Stanislaus Street in Maricopa, is approximately 28 miles west–northwest of the project site; it measures O<sub>3</sub>.
- The Bakersfield–California Avenue station, located at 5558 California Avenue in Bakersfield, is approximately 29 miles north–northwest of the project site; it measures O<sub>3</sub>, NO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>.
- The Fresno–Garland monitoring station located at 3727 North First Street in Fresno, approximately 135 miles north–northwest of the project site, is the only station within the SJVAB that currently monitors SO<sub>2</sub>.

The most recent background ambient air quality data from 2012 to 2014 are presented in Table 2-4. Not all pollutants are monitored at each station, and in some years reported, there was not sufficient data available to determine the value. In Table 2-4, the symbol “–” indicates that the pollutant was not monitored at that particular station, and “ND” indicates that available data was insufficient to determine the value at that station for that year. The number of days exceeding the ambient air quality standards is shown in Table 2-5. If no exceedances from occurred for a particular pollutant during this period, that pollutant is not included in Table 2-5.

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<sup>10</sup> Arvin–DiGiorgio, Bakersfield (two sites), Edison, Lebec, Maricopa, Oildale, and Shafter.



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**Table 2-4  
Peak Background Concentrations in the Project Site for the Period of 2012–2014**

	Ambient Air Quality Standard	Arvin–Di Giorgio			Maricopa–Stanislaus			Bakersfield California Avenue			Bakersfield Municipal Airport		
		2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014
Ozone													
Maximum 1-hour concentration	0.09 ppm	0.122	0.109	0.109	0.097	0.089	0.090	0.102	0.107	0.102	0.120	0.109	0.108
Maximum 8-hour concentration	0.070 ppm (state)	0.101	0.095	0.092	0.093	0.084	0.084	0.096	0.099	0.093	0.108	0.103	0.095
	0.075 ppm (federal)	0.101	0.094	0.091	0.093	0.083	0.083	0.095	0.098	0.092	0.107	0.102	0.095
Nitrogen Dioxide													
Maximum 1-hour concentration	0.18 ppm (state) 0.100 ppm (federal)	–	–	–	–	–	–	0.064	0.055	0.060	0.065	0.065	0.064
Annual concentration	0.030 ppm (state) 0.053 ppm (federal)	–	–	–	–	–	–	0.015	ND	ND	ND	0.014	0.013
Carbon Monoxide													
Maximum 1-hour concentration	20 ppm (state) 35 ppm (federal)	–	–	–	–	–	–	–	–	–	1.3	1.8	1.9
Maximum 8-hour concentration	9.0 ppm (state) 9 ppm (federal)	–	–	–	–	–	–	–	–	–	0.9	1.2	1.2
Respirable Particulate Matter (PM <sub>10</sub> )													
Maximum 24-hour concentration (state method)	50 µg/m³	–	–	–	–	–	–	125.8	116.9	419.5	–	–	–

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**Table 2-4  
Peak Background Concentrations in the Project Site for the Period of 2012–2014**

	Ambient Air Quality Standard	Arvin–Di Giorgio			Maricopa–Stanislaus			Bakersfield California Avenue			Bakersfield Municipal Airport		
		2012	2013	2014	2012	2013	2014	2012	2013	2014	2012	2013	2014
Maximum 24-hour concentration (federal method)	150 µg/m <sup>3</sup>	–	–	–	–	–	–	99.6	120.7	430.1	–	–	–
Annual concentration (state method)	20 µg/m <sup>3</sup>	–	–	–	–	–	–	41.4	ND	ND	–	–	–
<i>Fine Particulate Matter (PM<sub>2.5</sub>)</i>													
Maximum 24-hour concentration (federal method)	35 µg/m <sup>3</sup>	–	–	–	–	–	–	86.5	111.7	101.9	–	–	–
Annual concentration (state method)	12 µg/m <sup>3</sup>	–	–	–	–	–	–	17.9	ND	18.6	–	–	–
Annual concentration (federal method)	12.0 µg/m <sup>3</sup>	–	–	–	–	–	–	13.0	19.9	18.5	–	–	–
<i>Sulfur Dioxide<sup>1</sup></i>													
Maximum 1-hour concentration	0.075 ppm (federal)	0.009	0.006	0.007	–	–	–	–	–	–	–	–	–
Maximum 24-hour concentration	0.14 ppm (federal)	0.002	0.003	0.003	–	–	–	–	–	–	–	–	–
Annual concentration	0.030 ppm (federal)	–	–	–	–	–	–	–	–	–	–	–	–

Source: CARB 2015b; EPA 2014 (1-hour and 8-hour CO, 1-hour and 24-hour SO<sub>2</sub>).

Notes: ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter; ND = insufficient data available to determine; – = data are not available (pollutant not monitored) from the listed monitoring station.

<sup>1</sup> SO<sub>2</sub> is monitoring within the San Joaquin Valley only at the Fresno–First Street (Fresno–Garland starting in 2012) monitoring station. Values are shown in the columns under the Arvin-Di Giorgio headings.

Arvin–Di Giorgio: 19405 Buena Vista Boulevard, Arvin, California 93203

Maricopa–Stanislaus: 755 Stanislaus Street, Maricopa, California 93352 Bakersfield California Avenue: 5558 California Avenue, Bakersfield, California 93309

Bakersfield Municipal Airport: 2000 South Union Avenue, Bakersfield, California 93307

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**Table 2-5**  
**Frequency of Air Quality Standard Violations**

Monitoring Site	Year	Number of Days Exceeding Standard				
		State 1-Hour O <sub>3</sub>	State 8-Hour O <sub>3</sub>	Federal 8-Hour O <sub>3</sub>	State 24-Hour PM <sub>10</sub> <sup>a</sup>	Federal 24-Hour PM <sub>2.5</sub> <sup>a</sup>
Arvin–Di Giorgio	2012	31	85	53		
	2013	14	68	34		
	2014	15	69	36		
Maricopa–Stanislaus	2012	1	63	24		
	2013	0	23	10		
	2014	0	25	8		
Bakersfield–Municipal Airport	2012	33	75	61		
	2013	6	56	23		
	2014	10	60	32		
Bakersfield–California Avenue	2012	9	83	56	89.4 (55)	24.4 (22)
	2013	3	47	22	ND (16)	50.4 (44)
	2014	3	39	20	ND (69)	39.3 (37)

Source: CARB 2015b.

Notes: ND = insufficient data available to determine.

<sup>a</sup> Measurements of PM<sub>10</sub> and PM<sub>2.5</sub> are usually collected every 6 days and 1 or 3 days, respectively. "Number of days exceeding the standards" is the mathematical estimates of the number of days concentrations would have been greater than the level of the standard had each day been monitored. The numbers in parentheses are the measured number of samples that exceeded the standard.

### Localized Project Site Air Quality Monitoring Station Data

Tejon Ranchcorp has established an air quality monitoring station at the project site. The air monitoring station is located just south of the Rose Well aqueduct and approximately 500 yards east of I-5. Data collection began in November 2013 and data are collected continuously and averaged over 15- and 60-minute periods. Monitors at the station measure the atmospheric concentrations of O<sub>3</sub>, NO<sub>2</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and the difference between PM<sub>10</sub> and PM<sub>2.5</sub>, the particulate matter coarse fraction (PMc). The station also includes a meteorological tower, which monitors 10-meter horizontal wind speed and direction, 10-meter wind direction standard deviation, ambient temperature at 2- and 10-meters, and solar radiation. PM<sub>10</sub> and PM<sub>2.5</sub> are monitored using two Met One BAM-1020 beta-attenuation mass monitors. These monitors are designated as equivalent methods for monitoring PM<sub>10</sub> and PM<sub>2.5</sub> by the EPA. NO<sub>2</sub> is monitored using a Teledyne Advanced Pollution Instrumentation Model T200 chemiluminescence analyzer, which is an EPA-designated reference method for NO<sub>2</sub> measurement. O<sub>3</sub> is measured using a Teledyne Advanced Pollution Instrumentation Model T400 UV absorption analyzer, which is designated by the EPA as an equivalent method for measuring O<sub>3</sub>. Tables 2-6, 2-7, and 2-8 present a summary of the

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monitoring data from this station for 2013, 2014, and 2015. See Appendix D for the Air Quality and Meteorological Monitoring Data Report (Ramboll Environ 2015a).

**Table 2-6  
Grapevine Monitoring Station Data – Year 2013**

Pollutant	Air Quality Standards			Year 2013			
<i>Averaging Time</i>	State	<i>Federal (Primary)</i>	<i>Federal (Secondary)</i>	<i>1<sup>st</sup> Highest Concentration</i>	<i>% State Standard</i>	<i>% Federal Primary Standard</i>	<i>% Federal Secondary Standard</i>
<i>Ozone (O<sub>3</sub>) (ppm)</i>							
1-Hour	0.09	—	—	0.063	70%	—	—
8-Hour	0.07	0.075	0.075	0.053	%76	71%	71%
<i>Particulate (PM<sub>2.5</sub>) (ug/m<sup>3</sup>)</i>							
24-Hour	—	35	35	108	—	309%	309%
Annual Arithmetic Mean	12	12	15	21	173%	173%	139%
<i>Particulate (PM<sub>10</sub>) (ug/m<sup>3</sup>)</i>							
24-Hour	50	150	150	105	209%	70%	70%
Annual Arithmetic Mean	20	—	—	41	206%	—	—
<i>Particulate (PM<sub>c</sub>) (ug/m<sup>3</sup>)</i>							
24-Hour	—	—	—	78.2	—	—	—
Annual Arithmetic Mean	—	—	—	21	—	—	—
<i>Nitrogen Dioxide (NO<sub>2</sub>) (ppm)</i>							
1-Hour	0.18	0.100	—	0.066	36%	66%	—
Annual Arithmetic Mean	0.03	0.053	0.053	0.020	67%	38%	38%
<i>Nitric Oxide (NO) (ppm)</i>							
1-Hour	—	—	—	0.087	—	—	—
Annual Arithmetic Mean	—	—	—	0.007	—	—	—
<i>Nitrogen Oxides (NO<sub>x</sub>) (ppm)</i>							
1-Hour	—	—	—	0.137	—	—	—
Annual Arithmetic Mean	—	—	—	0.027	—	—	—

Source: Ramboll Environ 2015a. See Appendix D.

Notes: ppm = parts per million; ug/m<sup>3</sup> = micrograms per cubic meter

**Table 2-7  
Grapevine Monitoring Station Data – Year 2014**

Pollutant	Air Quality Standards			Year 2014			
<i>Averaging Time</i>	State	<i>Federal (Primary)</i>	<i>Federal (Secondary)</i>	<i>1<sup>st</sup> Highest Concentration</i>	<i>% State Standard</i>	<i>% Federal Primary Standard</i>	<i>% Federal Secondary Standard</i>
<i>Ozone (O<sub>3</sub>) (ppm)</i>							
1-Hour	0.09	—	—	0.113	126%	—	—
8-Hour	0.07	0.075	0.075	0.100	142%	133%	133%

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

**Table 2-7  
Grapevine Monitoring Station Data – Year 2014**

Pollutant	Air Quality Standards			Year 2014			
Particulate (PM <sub>2.5</sub> ) (ug/m <sup>3</sup> )							
24-Hour	—	35	35	152	—	435%	435%
Annual Arithmetic Mean	12	12	15	15	124%	124%	99%
Particulate (PM <sub>10</sub> ) (ug/m <sup>3</sup> )							
24-Hour	50	150	150	415	829%	276%	276%
Annual Arithmetic Mean	20	—	—	43	215%	—	—
Particulate (PM <sub>c</sub> ) (ug/m <sup>3</sup> )							
24-Hour	—	—	—	340	—	—	—
Annual Arithmetic Mean	—	—	—	28	—	—	—
Nitrogen Dioxide (NO <sub>2</sub> ) (ppm)							
1-Hour	0.18	0.100	—	0.076	42%	76%	—
Annual Arithmetic Mean	0.03	0.053	0.053	0.012	40%	23%	23%
Nitric Oxide (NO) (ppm)							
1-Hour	—	—	—	0.060	—	—	—
Annual Arithmetic Mean	—	—	—	0.002	—	—	—
Nitrogen Oxides (NO <sub>x</sub> ) (ppm)							
1-Hour	—	—	—	0.112	—	—	—
Annual Arithmetic Mean	—	—	—	0.014	—	—	—

Source: Ramboll Environ 2015a. See Appendix D.

Notes: ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter

**Table 2-8  
Grapevine Monitoring Station Data – Year 2015**

Pollutant	Air Quality Standards			Year 2015			
<i>Averaging Time</i>	<i>State</i>	<i>Federal (Primary)</i>	<i>Federal (Secondary)</i>	<i>1<sup>st</sup> Highest Concentration</i>	<i>% State Standard</i>	<i>% Federal Primary Standard</i>	<i>% Federal Secondary Standard</i>
<i>Ozone (O<sub>3</sub>) (ppm)</i>							
1-Hour	0.09	—	—	0.116	129%	—	—
8-Hour	0.07	0.075	0.075	0.098	140%	130%	130%
<i>Particulate (PM<sub>2.5</sub>) (ug/m<sup>3</sup>)</i>							
24-Hour	—	35	35	73	—	208%	208%
Annual Arithmetic Mean	12	12	15	15	124%	124%	99%
<i>Particulate (PM<sub>10</sub>) (ug/m<sup>3</sup>)</i>							
24-Hour	50	150	150	91	182%	61%	61%
Annual Arithmetic Mean	20	—	—	32	158%	—	—
<i>Particulate (PM<sub>c</sub>) (ug/m<sup>3</sup>)</i>							
24-Hour	—	—	—	73	—	—	—

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

**Table 2-8**  
**Grapevine Monitoring Station Data – Year 2015**

Pollutant	Air Quality Standards			Year 2015			
Annual Arithmetic Mean	—	—	—	17	—	—	—
<i>Nitrogen Dioxide (NO<sub>2</sub>) (ppm)</i>							
1-Hour	0.18	0.100	—	0.066	37%	66%	—
Annual Arithmetic Mean	0.03	0.053	0.053	0.0098	33%	19%	19%
<i>Nitric Oxide (NO) (ppm)</i>							
1-Hour	—	—	—	0.058	—	—	—
Annual Arithmetic Mean	—	—	—	0.001	—	—	—
<i>Nitrogen Oxides (NO<sub>x</sub>) (ppm)</i>							
1-Hour	—	—	—	0.102	—	—	—
Annual Arithmetic Mean	—	—	—	0.011	—	—	—

Source: Ramboll Environ 2015a. See Appendix D.

Notes: ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter

### 2.3.3 Emissions Inventories

An inventory of the estimated stationary, area wide, mobile, and natural sources within the SJVAB is presented in Table 2-9. The inventory presents average annual tons per day for criteria air pollutants measured in 2012.

**Table 2-9**  
**San Joaquin Valley Air Basin Estimated Annual Average Daily Emissions (2012)**

Source	ROG (tons/day)	NO <sub>x</sub> (tons/day)	CO (tons/day)	SO <sub>x</sub> (tons/day)	PM <sub>10</sub> (tons/day)	PM <sub>2.5</sub> (tons/day)
<i>Stationary Sources</i>						
Fuel Combustion	3.60	29.17	23.76	4.30	5.53	5.31
Waste Disposal	20.98	0.29	0.50	0.12	0.15	0.11
Cleaning and Surface Coatings	20.31	—	0.01	—	0.10	0.10
Petroleum Production and Marketing	33.59	0.27	0.61	0.14	0.16	0.15
Industrial Processes	15.68	6.71	0.83	3.36	8.03	3.16
<i>Subtotal</i>	<i>94.16</i>	<i>36.44</i>	<i>25.70</i>	<i>7.92</i>	<i>13.97</i>	<i>8.82</i>
<i>Percent of Total SJVAB Without Natural Sources</i>	<i>26%</i>	<i>11%</i>	<i>3%</i>	<i>76%</i>	<i>5%</i>	<i>12%</i>
<i>Percent of Total SJVAB With Natural Sources</i>	<i>16%</i>	<i>11%</i>	<i>2%</i>	<i>64%</i>	<i>4%</i>	<i>8%</i>
<i>Areawide Sources</i>						
Solvent Evaporation	47.59	—	—	—	—	—
Miscellaneous Processes	128.58	13.25	186.76	1.27	250.24	53.99
<i>Subtotal</i>	<i>176.16</i>	<i>13.25</i>	<i>186.76</i>	<i>1.27</i>	<i>250.24</i>	<i>53.99</i>

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

**Table 2-9**  
**San Joaquin Valley Air Basin Estimated Annual Average Daily Emissions (2012)**

Source	ROG (tons/day)	NO <sub>x</sub> (tons/day)	CO (tons/day)	SO <sub>x</sub> (tons/day)	PM <sub>10</sub> (tons/day)	PM <sub>2.5</sub> (tons/day)
<i>Percent of Total SJVAB Without Natural Sources</i>	49%	4%	21%	12%	89%	71%
<i>Percent of Total SJVAB With Natural Sources</i>	29%	4%	14%	10%	78%	49%
<i>Mobile Sources</i>						
Mobile Sources – On-Road Motor Vehicles	48.51	177.87	437.65	0.67	10.77	6.73
Mobile Sources – Other Mobile Sources (Non-Vehicles)	39.02	97.60	252.45	0.53	6.61	6.09
<i>Subtotal</i>	<i>87.53</i>	<i>275.47</i>	<i>690.10</i>	<i>1.20</i>	<i>17.38</i>	<i>12.81</i>
<i>Percent of Total SJVAB Without Natural Sources</i>	24%	85%	76%	12%	6%	17%
<i>Percent of Total SJVAB With Natural Sources</i>	15%	84%	51%	10%	5%	12%
<i>Natural (Non-Anthropogenic) Sources</i>						
Natural Sources	242.01	1.67	442.69	1.98	40.51	34.33
<i>Subtotal</i>	<i>242.01</i>	<i>1.67</i>	<i>442.69</i>	<i>1.98</i>	<i>40.51</i>	<i>34.33</i>
<i>Percent of Total SJVAB With Natural Sources</i>	40%	1%	33%	16%	13%	31%
<i>Total</i>						
Combined Total Without Natural Sources	357.86	325.16	902.55	10.40	281.59	75.62
Combined Total With Natural Sources	599.87	326.83	1,345.24	12.38	322.1	109.95

Source: CARB 2015c

Note: The emissions inventory for the SJVAB and SJVAPCD jurisdictional boundaries are the same as they encompass the same geographical area.

As shown in Table 2-9, the average annual daily emissions for the SJVAB without natural sources is estimated to be approximately 358 tons per day (tons/day) of ROG, 325 tons/day of NO<sub>x</sub>, 903 tons/day of CO, 10 tons/day of SO<sub>x</sub>, 282 tons/day of PM<sub>10</sub>, and 76 tons/day of PM<sub>2.5</sub>. With natural sources, the average annual daily emissions for the SJVAB is estimated to be approximately 600 tons/day of ROG, 326 tons/day of NO<sub>x</sub>, 1,345 tons/day of CO, 12 tons/day of SO<sub>x</sub>, 322 tons/day of PM<sub>10</sub>, and 110 tons/day of PM<sub>2.5</sub>. Within the SJVAB and assuming the inclusion of natural sources, stationary sources represent the greatest emissions of SO<sub>x</sub>; areawide sources represent greatest emissions of PM<sub>10</sub> and PM<sub>2.5</sub>; mobile sources represent the greatest emissions of NO<sub>x</sub> and CO; and natural sources represent greatest emissions of ROG.



## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

An inventory of the estimated stationary, area wide, mobile, and natural sources within Kern County is presented in Table 2-10. As with Table 2-9, the inventory presents average annual tons per day for criteria air pollutants as measured in 2012.

**Table 2-10**  
**Kern County Estimated Annual Average Emissions (2012)**

Source	ROG (tons/day)	NO <sub>x</sub> (tons/day)	CO (tons/day)	SO <sub>x</sub> (tons/day)	PM <sub>10</sub> (tons/day)	PM <sub>2.5</sub> (tons/day)
<i>Stationary Sources</i>						
Fuel Combustion	2.04	11.73	11.37	2.26	3.86	3.76
Waste Disposal	11.07	0.09	0.11	0.01	0.02	0.01
Cleaning and Surface Coatings	3.22	—	0.01	—	0.01	0.01
Petroleum Production and Marketing	26.57	0.23	0.58	0.14	0.15	0.14
Industrial Processes	2.30	15.49	6.87	2.30	4.96	1.99
<i>Subtotal</i>	<i>45.19</i>	<i>27.54</i>	<i>18.94</i>	<i>4.70</i>	<i>9.00</i>	<i>5.91</i>
<i>Percent of Total Kern County Without Natural Sources</i>	<i>50%</i>	<i>26%</i>	<i>9%</i>	<i>88%</i>	<i>15%</i>	<i>30%</i>
<i>Percent of Total Kern County With Natural Sources</i>	<i>32%</i>	<i>25%</i>	<i>6%</i>	<i>80%</i>	<i>13%</i>	<i>20%</i>
<i>Areawide Sources</i>						
Solvent Evaporation	10.77	—	—	—	—	—
Miscellaneous Processes	12.54	1.74	10.31	0.04	43.23	7.94
<i>Subtotal</i>	<i>23.31</i>	<i>1.74</i>	<i>10.31</i>	<i>0.04</i>	<i>43.23</i>	<i>7.94</i>
<i>Percent of Total Kern County Without Natural Sources</i>	<i>26%</i>	<i>2%</i>	<i>5%</i>	<i>1%</i>	<i>73%</i>	<i>40%</i>
<i>Percent of Total Kern County With Natural Sources</i>	<i>17%</i>	<i>2%</i>	<i>3%</i>	<i>1%</i>	<i>61%</i>	<i>27%</i>
<i>Mobile Sources</i>						
Mobile Sources – On-Road Motor Vehicles	11.77	58.29	105.43	0.19	3.25	2.17
Mobile Sources – Other Mobile Sources (Non-Vehicles)	10.60	20.42	74.55	0.43	3.78	3.67
<i>Subtotal</i>	<i>22.37</i>	<i>78.72</i>	<i>179.98</i>	<i>0.62</i>	<i>7.04</i>	<i>5.85</i>
<i>Percent of Total Kern County Without Natural Sources</i>	<i>25%</i>	<i>73%</i>	<i>86%</i>	<i>12%</i>	<i>12%</i>	<i>30%</i>
<i>Percent of Total Kern County With Natural Sources</i>	<i>16%</i>	<i>73%</i>	<i>54%</i>	<i>10%</i>	<i>10%</i>	<i>20%</i>
<i>Natural (Non-Anthropogenic) Sources</i>						
Natural Sources	49.25	0.42	126.79	0.55	11.55	9.79
<i>Subtotal</i>	<i>49.25</i>	<i>0.42</i>	<i>126.79</i>	<i>0.55</i>	<i>11.55</i>	<i>9.79</i>
<i>Percent of Total Kern County With Natural Sources</i>	<i>35%</i>	<i>0%</i>	<i>38%</i>	<i>9%</i>	<i>16%</i>	<i>33%</i>

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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**Table 2-10**  
**Kern County Estimated Annual Average Emissions (2012)**

Source	ROG (tons/day)	NO <sub>x</sub> (tons/day)	CO (tons/day)	SO <sub>x</sub> (tons/day)	PM <sub>10</sub> (tons/day)	PM <sub>2.5</sub> (tons/day)
<i>Total</i>						
Combined Total Without Natural Sources	90.87	108.00	209.24	5.36	59.27	19.70
Combined Total With Natural Sources	140.12	108.42	336.03	5.91	70.82	29.49

Source: CARB 2015c

As shown in Table 2-10, the average annual daily emissions for Kern County is approximately 91 tons/day of ROG, 108 tons/day of NO<sub>x</sub>, 209 tons/day of CO, 5 tons/day of SO<sub>x</sub>, 59 tons/day of PM<sub>10</sub>, and 20 tons/day of PM<sub>2.5</sub>. With natural sources, the average annual daily emissions for Kern County is approximately 140 tons/day of ROG, 108 tons/day of NO<sub>x</sub>, 336 tons/day of CO, 6 tons/day of SO<sub>x</sub>, 71 tons/day of PM<sub>10</sub>, and 29 tons/day of PM<sub>2.5</sub>. Within the Kern County, and assuming the inclusion of natural sources, stationary sources represent the greatest emissions of SO<sub>x</sub>; areawide sources represent greatest emissions of PM<sub>10</sub>; mobile sources represent the greatest emissions of NO<sub>x</sub> and CO; and natural sources represent greatest emissions of ROG and PM<sub>2.5</sub>.

CARB developed the California Emissions Projection Analysis Model (CEPAM), which is a database that estimates population and vehicle trends. This tool, formerly called California's Emission Forecasting System, provides annual average daily criteria pollutant emissions measured in tons per day in 5-year increments starting in 2000 through 2035, with 2012 as the base year, since the most recent CEPAM Almanac was in 2013. It also provides data for human population and annual average daily vehicle miles traveled (VMT) for 2000 through 2035.

Emissions for ROG, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> for years 2000, 2005, 2010, 2012, 2015, 2020, 2025, 2030, and 2035 for the SJVAB portion of Kern County were gathered from the inventory and are provided in Table 2-11. The intent of this Table 2-11 is to present trends related to anthropogenic sources (i.e., stationary, areawide, and mobile sources); as such, natural (non-anthropogenic) sources are not presented. Table 2-11 also displays trends for the Kern County portion of the SJVAB, including average annual population and average VMT per day.

As shown, over the 35-year period—from 2000 to 2035—ROGs decreased 54%, NO<sub>x</sub> decreased 300%, CO decreased 142%, SO<sub>x</sub> decreased 508%, PM<sub>10</sub> decreased 42%, and PM<sub>2.5</sub> decreased 48%. In contrast to the general decrease in emissions from 2000 to 2035, annual population increased 62% and daily VMT increased 67%.

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

Looking at it from a narrower scope, between base year 2015 to 2035, ROGs are projected to decrease 2%, NO<sub>x</sub> to decrease 20%, CO to decrease 75%, PM<sub>10</sub> to decrease 6%, and PM<sub>2.5</sub> to decrease 4%; SO<sub>x</sub> is projected to remain stable. Conversely, growth trends would increase during this period: From 2015 to 2035, population is projected to increase 37% and VMT is projected to increase 36%. Over the years reported in Table 2-11, there was a general decrease in emissions despite the increase in population and VMT.

**Table 2-11**  
**Kern County - SJVAB Portion Almanac Annual Average Daily Projections**

Source or Parameter	2000	2005	2010	2012	2015	2020	2025	2030	2035
<i>Almanac Parameters</i>									
Kern County-SJVAB-SJVAPCD Population <sup>a</sup>	436,585	503,592	551,762	638,523	711,167	770,861	894,038	1,016,996	1,134,015
Kern County-SJVAB-SJVAPCD VMT/1,000 <sup>b</sup>	9,986	11,970	14,462	17,345	19,254	21,697	24,391	26,998	29,883
<i>ROG (tons/day)</i>									
Stationary Sources	61.65	50.11	46.94	43.97	43.45	42.43	42.26	42.31	42.39
Areawide Sources	28.18	26.62	25.53	21.80	22.06	22.90	23.80	24.11	24.37
On-Road Motor Vehicles	18.86	13.93	10.71	9.40	6.59	5.46	5.16	5.03	4.97
Other Mobile Sources (Non-Vehicles)	7.47	7.35	5.55	5.12	4.57	4.03	3.80	3.66	3.59
Mobile Sources (Combined) <sup>c</sup>	26.33	21.28	16.26	14.52	11.16	9.49	8.96	8.69	8.56
Total <sup>c</sup>	116.17	98.01	88.73	80.29	76.67	74.83	75.01	75.12	75.32
SJVAB	485.95	440.69	408.47	357.86	344.29	345.04	352.47	356.11	358.24
Percent of SJVAB	23.91%	22.24%	21.72%	22.44%	22.27%	21.69%	21.28%	21.09%	21.03%
<i>NO<sub>x</sub> (tons/day)</i>									
Stationary Sources	28.62	21.08	11.50	9.65	8.27	7.69	7.41	7.23	7.27
Areawide Sources	1.80	1.74	1.49	1.48	1.48	1.49	1.46	1.51	1.55
On-Road Motor Vehicles	88.53	87.57	55.98	48.59	37.67	24.86	18.41	18.30	19.07
Other Mobile Sources (Non-Vehicles)	18.90	19.78	12.99	12.58	11.92	10.22	8.64	7.43	6.60
Mobile Sources (Combined) <sup>c</sup>	107.43	107.35	68.97	61.17	49.59	35.08	27.04	25.73	25.67
Total <sup>c</sup>	137.85	130.17	81.96	72.30	59.34	44.25	35.91	34.47	34.49
SJVAB	567.44	528.75	363.12	325.16	272.25	212.15	172.59	158.97	152.76
Percent of SJVAB	24.29%	24.62%	22.57%	22.24%	21.80%	20.86%	20.81%	21.68%	22.58%
<i>CO (tons/day)</i>									
Stationary Sources	18.36	14.52	11.60	11.59	11.04	10.65	10.36	10.15	9.96

# Air Quality and Greenhouse Gas Emissions Analysis

## Grapevine Specific and Community Plan Project

**Table 2-11**  
**Kern County - SJVAB Portion Almanac Annual Average Daily Projections**

Source or Parameter	2000	2005	2010	2012	2015	2020	2025	2030	2035
Areawide Sources	15.26	15.63	9.15	8.95	8.72	8.52	8.32	8.12	7.92
On-Road Motor Vehicles	182.50	125.23	94.42	81.90	63.07	47.55	41.23	38.41	37.44
Other Mobile Sources (Non-Vehicles)	50.39	52.49	49.80	49.64	49.77	50.78	52.94	53.82	54.99
Mobile Sources (Combined) <sup>c</sup>	232.89	177.72	144.23	131.54	112.85	98.33	94.17	92.23	92.43
Total <sup>c</sup>	266.51	207.87	164.98	152.08	132.60	117.50	112.84	110.50	110.32
SJVAB	1,536.30	1,219.04	984.35	902.55	796.28	718.95	690.33	676.76	673.82
Percent of SJVAB	17.35%	17.05%	16.76%	16.85%	16.65%	16.34%	16.35%	16.33%	16.37%
<i>SO<sub>x</sub> (tons/day)</i>									
Stationary Sources	9.72	2.06	2.95	2.23	1.43	1.41	1.39	1.37	1.35
Areawide Sources	0.07	0.06	0.04	0.03	0.03	0.03	0.03	0.03	0.03
On-Road Motor Vehicles	0.60	0.71	0.15	0.16	0.17	0.19	0.20	0.21	0.23
Other Mobile Sources (Non-Vehicles)	0.32	0.32	0.12	0.12	0.13	0.14	0.14	0.14	0.15
Mobile Sources (Combined) <sup>c</sup>	0.91	1.03	0.27	0.28	0.30	0.32	0.34	0.36	0.38
Total <sup>c</sup>	10.70	3.14	3.26	2.54	1.76	1.77	1.76	1.76	1.76
SJVAB	26.68	15.33	11.91	10.4	9.57	10.03	10.36	10.68	11.04
Percent of SJVAB	40.10%	20.48%	27.37%	24.42%	18.39%	17.65%	16.99%	16.48%	15.94%
<i>PM<sub>10</sub> (tons/day)</i>									
Stationary Sources	4.82	5.04	4.75	4.96	4.82	4.84	4.88	4.96	5.07
Areawide Sources	46.80	37.82	35.31	34.97	34.51	33.80	33.06	32.28	31.40
On-Road Motor Vehicles	3.44	3.67	2.92	2.72	1.96	2.01	2.19	2.40	2.65
Other Mobile Sources (Non-Vehicles)	1.05	1.16	0.77	0.72	0.62	0.49	0.39	0.32	0.27
Mobile Sources (Combined) <sup>c</sup>	4.48	4.83	3.70	3.44	2.58	2.51	2.59	2.72	2.92
Total <sup>c</sup>	56.11	47.68	43.76	43.37	41.91	41.14	40.52	39.96	39.39
SJVAB	358.62	304.59	283.96	281.59	278.07	277.77	276.12	275.3	274.18
Percent of SJVAB	15.65%	15.65%	15.41%	15.40%	15.07%	14.81%	14.67%	14.52%	14.37%
<i>PM<sub>2.5</sub> (tons/day)</i>									
Stationary Sources	4.30	4.03	3.83	4.00	3.80	3.71	3.66	3.64	3.64

# Air Quality and Greenhouse Gas Emissions Analysis

## Grapevine Specific and Community Plan Project

**Table 2-11**  
**Kern County - SJVAB Portion Almanac Annual Average Daily Projections**

Source or Parameter	2000	2005	2010	2012	2015	2020	2025	2030	2035
Areawide Sources	9.02	7.73	6.62	6.54	6.49	6.42	6.35	6.28	6.20
On-Road Motor Vehicles	2.66	2.77	2.04	1.82	1.07	1.02	1.10	1.20	1.32
Other Mobile Sources (Non-Vehicles)	0.94	1.06	0.71	0.66	0.57	0.45	0.36	0.29	0.25
Mobile Sources (Combined) <sup>c</sup>	3.60	3.82	2.75	2.48	1.64	1.47	1.46	1.49	1.57
Total <sup>c</sup>	16.92	15.59	13.20	13.02	11.92	11.60	11.47	11.41	11.41
SJVAB	99.93	92.71	76.89	75.63	72.55	72.44	72.07	72.09	72.32
Percent of SJVAB	16.93%	16.82%	17.17%	17.22%	16.43%	16.01%	15.92%	15.83%	15.78%

Source: CARB 2015d

Notes: Natural (non-anthropogenic) sources are not presented to focus on trends related to anthropogenic sources (i.e., stationary, areawide, and mobile sources).

<sup>a</sup> Population data were derived from reports developed by the California Department of Finance, Demographic Research Unit. Split county fractions for 2000 were derived using census 2000 and 2010 data. The population data do not reflect any adjustment for the estimated census undercount.

<sup>b</sup> The estimates of daily VMT for 2000 through 2035 are found in CARB's motor vehicle emissions inventory model, EMFAC2011 (refer to [www.arb.ca.gov/msei/msei.htm](http://www.arb.ca.gov/msei/msei.htm)). For future calendar years, the VMT estimates in large urbanized areas are provided by Regional Transportation Planning Agencies as an output of their travel demand models. For recent years (2000–2005), the VMT is calculated as the product of vehicle population from Department of Motor Vehicles data and mileage accrual rates (annual miles traveled by type and age of vehicle) calculated from the Bureau of Automotive Repair database for the Smog Check program.

<sup>c</sup> Totals may not sum due to rounding.

Many factors could contribute to a decrease in emissions, despite an increase in population and VMT. Advances in vehicle efficiency and improvements to transportation efficiency would reduce emissions. Fuel efficiency standards for vehicles resulting in improved fuel economy, state-of-the-art emission control technologies, and alternative and new lower-carbon fuels would reduce fuel consumption and associated vehicular emissions. Regional transportation efficiency would increase by reducing vehicle hours traveled and increasing speed, thus, reducing congestion and associated vehicle emissions.

### 2.3.4 Sensitive Receptors

The SJVAPCD's *Guidance for Assessing and Mitigating Air Quality Impacts* (GAMAQI) defines sensitive receptors as those that are more susceptible to the effects of air pollution than the population at large (SJVAPCD 2015d). Sensitive receptor locations may include schools, parks and playgrounds, childcare centers, nursing homes, hospitals, and residential dwelling unit(s). The Kern County Zoning Ordinance (Section 19.98.060A.2) also identifies places of public assembly as sensitive receptors, although due to limited occupancy times for such facilities the health risk assessment methodologies applied to residences also address potential

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exposure scenarios for this public assembly use category. The closest existing off-site schools are approximately 4 to 5 miles from the project site; thus, they would not be considered sensitive receptors that would be affected by the project's construction or operation. No existing residential structures have been identified in the vicinity of the project (i.e., within 2,000 meters).

As the project builds out, residential units, schools, and a hospital would be constructed and inhabited. Residences, schools, and/or parks are proposed within Planning Areas 1, 2, 3, 4, 5A, 5B, and 6A. The approximate location of the proposed residences, schools, and parks on the project site, as zoned for these land uses, is presented in the land use plan. A 300,000 square-foot medical center is proposed to be located in Planning Area 2 within the area designated for office/research and development uses. At this time, the locations of childcare centers, retirement homes, or other sensitive receptors are not known.

### **2.3.5 Carbon Monoxide Hotspots**

Mobile-source impacts occur on two scales of motion. Regionally, project-related travel would add to regional trip generation and increase the vehicle-miles traveled within the local airshed in the vicinity of the project and the SJVAB. Locally, project traffic would be added to Kern County's roadway system. If such traffic occurs during periods of poor atmospheric ventilation, consists of a large number of vehicles "cold-started" and operating at pollution-inefficient speeds, and operates on roadways already crowded with non-project traffic, there is a potential for the formation of microscale CO "hotspots" in the area immediately around points of congested traffic.

Carbon monoxide transport is extremely limited and disperses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations near a congested roadway or intersection may reach unhealthy levels, affecting sensitive receptors such as residents, school children, hospital patients, and the elderly. Typically, high CO concentrations are associated with roadways or intersections operating at an unacceptable level of service (LOS). Projects contributing to adverse traffic impacts may result in the formation of CO hotspots.

Because of continued improvement in mobile emissions at a rate faster than the rate of vehicle growth and/or congestion, the potential for CO hotspots in the SJVAB and in the state is steadily decreasing (CARB 2004). Emissions and ambient concentrations of carbon monoxide have decreased greatly in the recent past largely due to the introduction of lower emitting motor vehicles and cleaner burning fuels. The last exceedance of either the state or national CO standard recorded at any of the SJVAB's monitoring stations was in 1991 (SJVAPCD 2015d). At present, all areas within the SJVAB have attained the federal CO standards and are attainment or unclassified for the state CO standards.

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The GAMAQI states that despite the progress and success in achieving CO standards, localized CO concentrations still warrant concern in the SJVAB and should still be assessed in environmental documents. The SJVAPCD guidance further explains that localized CO hotspots should be assessed for two reasons. First, state and federal laws require the SJVAB to attain and maintain ambient air quality standards. The SJVAPCD must ensure that increased motor vehicle use and congestion do not nullify the great strides that have been made with respect to ambient concentrations of CO. Secondly, the SJVAPCD must safeguard against localized high concentrations of CO that may expose nearby sensitive receptors that may not be recorded at a given monitoring sites. Because elevated CO concentrations are often localized, heavy traffic volumes and congestion can lead to high levels of CO, or CO “hotspots”, while concentrations at the closest air quality monitoring station may be below state and federal standards.

### 2.3.6 Existing Emission Sources on and Near Project Site

In April 2013, Environ (now Ramboll Environ US Corporation) conducted an analysis of air emission sources on and near the project site, including an evaluation based on the recommendations CARB’s *Air Quality and Land Use Handbook: A Community Perspective*. Consistent with the SJVAPCD “Health-Risk Reduction Strategy” (SJVAPCD 2013b), three types of sources in the project site would place risk-based constraints on locating new receptors that would be part of the project:

**Interstate 5 Corridor.** On-road mobile sources, in particular heavy-duty diesel trucks, emit criteria pollutants and TACs such as diesel particulate matter (DPM), which would pose a health risk to persons residing too close to the highway. Past modeling studies have estimated that the buffer (exclusion) zone should be as wide as 236 meters (774 feet) from the highway centerline (each side), depending on risk assessment methodology and criteria used. The I-5 corridor bisects the project site; thus, it must be considered a potential health risk to future residents, necessitating a buffer zone boundary.

A refined health risk assessment (HRA) was prepared to assess the potential health risk associated with freeway vehicle DPM) (see Sections 2.4.2.6 and 2.5.3.4, and Appendix F).

**Oil and Gas Wells.** Diesel-powered drilling rigs emit criteria pollutants, TACs, and DPM, which would pose a health risk to persons residing too close to a drilling site. Notably, after the environmental constraints report was released in 2013, the County completed its Environmental Impact Report (EIR) for updates to ordinances regulating oil and gas production, and has included setback distances and other measures to protect sensitive receptors from construction and operational TAC emissions. Pursuant to the proposed Specific Plan and Special Plan, the



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project is required to comply with these County TAC setback distances and mitigation requirements for oil and gas production activities near sensitive uses.

***Calpine Pastoria Energy Facility.*** This power plant uses natural gas combined cycle technology, and was required to use BACT to minimize emissions of ROG, NO<sub>x</sub>, and CO. The use of natural gas as fuel minimizes emissions of SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>, as well as TACs. Past modeling studies have estimated that the buffer zone should be at least 225 meters (738 feet) from the plant fence line (all sides). No sensitive uses such as residential development are proposed within 738 feet of the plant fence line, and the power plant's emissions would not create a potential health risk to future residents.

***Griffith Sand and Gravel Mine.*** Diesel-powered off-road mining equipment and heavy-duty trucks emit criteria pollutants, TACs, and DPM, which would pose a potential health risk to persons residing too close to the mine site. Fugitive dust from mining and milling operations also poses a risk. Past modeling studies have estimated that the buffer zone should be at least 1,500 meters (4,920 feet or 0.93 mile) from the mine fence line (all sides). This buffer zone is within the Pastoria Energy Facility and the Edmonston Pumping Plant buffer area closest to the project site. No sensitive uses such as residential development are proposed within this buffer area, and thus mining operations would not create a potential health risk to future residents.

## **2.4 Significance Criteria and Methodology**

### **2.4.1 Thresholds of Significance**

#### **2.4.1.1 Kern County**

The *Kern County CEQA Implementation Document* (Kern County 2004) and Kern County Environmental Checklist (Kern County 2012a) state that a project would have a significant environmental impact if it would:

- a. Conflict with or obstruct the implementation of the applicable air quality plan
- b. Violate any air quality standard as adopted in (c) i or (c) ii, or as established by EPA or air district or contribute substantially to an existing or projected air quality violation
- c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for O<sub>3</sub> precursors). Specifically, would implementation of the project exceed any of the following adopted thresholds:

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- i. Operational and Area Sources
  - ROGs<sup>11</sup>: 10 tons per year
  - NO<sub>x</sub>: 10 tons per year
  - PM<sub>10</sub>: 15 tons year
- ii. Stationary Sources – as determined by District Rules
  - Severe nonattainment: 25 tons per year
  - Extreme nonattainment: 10 tons per year
- d. Expose sensitive receptors to substantial pollutant concentrations
- e. Create objectionable odors affecting a substantial number of people.

The Kern County Planning Department developed guidelines to assist with the preparation of the air quality assessments for use as a technical document in EIRs in December 2006. The County's *Guidelines for Preparing Air Quality Assessments for Use in EIRs* (Kern County 2006) is intended to ensure that the assumptions and methodology used in the County's environmental documents are uniform from one project to the next to facilitate the comparison of air quality environmental effects. The County guidance states that the most recent air quality guidance documents from the SJVAPCD, such as the GAMAQI, must be used and referenced in the preparation of an air quality assessment and that the latest version of all models must be used for the appropriate application (Kern County 2006). It also notes that where the County's Planning Department guidelines require quantification and the SJVAPCD does not, for purposes of CEQA, the Planning Department guidelines must be followed.

The County-adopted thresholds of significance in the *Kern County CEQA Implementation Document* (Kern County 2004) indicated above were intended to promote consistency, efficiency, and predictability in the process of determining the significance of environmental effects. The County's *Guidelines for Preparing an Air Quality Assessment for Use in Environmental Impact Reports* (2006) includes the thresholds of significance adopted by the Board of Supervisors in 2004 for use in all evaluations and environmental documents prepared by County departments with duties affected by CEQA. County guidance states that projects that produce emissions that exceed the adopted thresholds shall be considered significant for a project level and/or cumulatively for impacts to air quality, where the thresholds are defined for purposes of determining cumulative effects as the baseline for "considerable." Projects located in the SJVAPCD will be subject to the

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<sup>11</sup> The *Kern County CEQA Implementation Document* (June 2004) states the equivalence of ROG and VOC. The SJVAPCD threshold is set for ROG.

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significance thresholds specified in that air district. At the time the County's guidance was developed, the current SJVAPCD guidance was the 2002 GAMAQI.

As presented in Section 2.4.1.2, the SJVAPCD has since updated its thresholds of significance to include CO, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> and to assess emissions associated with construction and operational permitted and non-permitted equipment and activities separately. Because the County-adopted thresholds were based on the 2002 GAMAQI and the County guidance states that the most recent SJVAPCD guidance documents must be used for the preparation of an air quality assessment, the emissions-based thresholds presented in the SJVAPCD's 2015 revised GAMAQI are used for the analysis of potential impacts associated with project-generated criteria air pollutant emissions.

The County has also adopted criteria for determining if a quantitative CO hotspot analysis would be required. The guidance states that a CO hotspot analysis using the CALINE4 model would be required for the following project conditions:

- LOS of an intersection or roadway is identified as LOS E or worse.
- Signalization and/or channelization is added to an intersection.
- Sensitive receptors such as residences, schools, and hospitals are located in the vicinity of the affected intersection or signalization.

If no such conditions exist, then the assessment must include that information and note the reasons the CO hotspot analysis was not required.

Additional specific instructions included in the County's guidelines that are applicable to the project analysis are discussed in Section 2.4.2 under the appropriate impact assessment.

### **2.4.1.2 SJVAPCD**

#### **Criteria Pollutants**

The GAMAQI has established emissions-based thresholds of significance for criteria pollutants (SJVAPCD 2015d), which are depicted in Table 2-12. As shown in Table 2-12, the SJVAPCD has established significance thresholds for construction emissions and operational permitted and non-permitted equipment and activities, and it recommends evaluating impact significance for these categories separately. These thresholds of significance are based on a calendar-year basis, although construction emissions are assessed on a rolling 12-month period.

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**Table 2-12**  
**SJVAPCD CEQA Significance Thresholds for Criteria Pollutants**

Pollutant	Construction Emissions (tons per year)	Operational Emissions (tons per year)	
		<i>Permitted Equipment and Activities</i>	<i>Non-Permitted Equipment and Activities</i>
ROG	10	10	10
NO <sub>x</sub>	10	10	10
CO	100	100	100
SO <sub>x</sub>	27	27	27
PM <sub>10</sub>	15	15	15
PM <sub>2.5</sub>	15	15	15

Source: SJVAPCD 2015d

Note:

In addition to the annual emissions mass thresholds described in Table 2-12 the SJVAPCD has also established screening criteria to determine whether a project would result in a CO hotspot at affected roadway intersections (SJVAPCD 2015d). If neither of the following criteria are met at any of the intersections affected by the project, the project would result in no potential to create a violation of the CO standard:

- A traffic study for the project indicates that the level of service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F.
- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at more or more intersections in the project vicinity.

### Ambient Air Quality Impacts

Appendix G of the CEQA Guidelines indicates that a project would have a significant air quality impact if it would violate any air quality standard or contribute substantially to an existing or projected air quality violation. The thresholds of significance for ambient air quality are based on the CAAQS and NAAQS, whereby a project would be considered to have a significant impact if its emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any CAAQS or NAAQS (SJVAPCD 2015d). As the initial assessment of ambient air quality impacts, air pollutant concentrations are determined through air quality dispersion modeling, added to the corresponding background level, and compared to the relevant CAAQS and/or NAAQS. If the air pollutant concentrations plus background levels, however, would exceed a CAAQS or NAAQS, the SJVAPCD recommends that specified significant impact levels (SILs) be applied to the

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modeled concentrations to assess whether a project's emissions would contribute substantially to an existing violation of the CAAQS or NAAQS (SJVAPCD 2014c).

### **Toxic Air Contaminants**

The SJVAPCD has established thresholds of significance for combined TAC emissions from the operations of both permitted and non-permitted sources (SJVAPCD 2015d). Projects that have the potential to expose the public to TACs in excess of the following thresholds would be considered to have a significant air quality impact:

- Probability of contracting cancer for the maximally exposed individual equals or exceeds 20 in 1 million people.<sup>12</sup>
- Hazard Index<sup>13</sup> for acute and chronic non-carcinogenic TACs equals or exceeds 1 for the maximally exposed individual.

### **Odors**

As described in the GAMAQI, due to the subjective nature of odor impacts, there are no quantitative thresholds to determine if potential odors would have a significant impact (SJVAPCD 2015d). Projects must be assessed for odor impacts on a case-by-case basis for the following two situations:

- Generators: Projects that would potentially generate odorous emissions proposed to locate near existing sensitive receptors or other land uses where people may congregate.
- Receivers: Residential or other sensitive receptor projects or other projects built for the intent of attracting people locating near existing odor sources.

The SJVAPCD has identified some common types of facilities that have been known to produce substantial odors, as well as screening distances between these odor sources and receptors. These are depicted in Table 2-13.

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<sup>12</sup> The cancer risk threshold was increased from 10 to 20 in 1 million with approval of APR 1906 (Framework for Performing Health Risk Assessments) on June 30, 2015.

<sup>13</sup> Non-cancer adverse health impact, both for acute (short-term) and chronic (long-term) health effects, is measured against a hazard index, which is defined as the ratio of the predicted incremental exposure concentration from the project to a published reference exposure level that could cause adverse health effects as established by the Office of Environmental Health Hazard Assessment (OEHHA). The ratio (referred to as the hazard quotient) of each noncarcinogenic substance that affects a certain organ system is added together to produce an overall hazard index for that organ system.

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**Table 2-13**  
**Screening Levels for Potential Odor Sources**

Type of Facility	Screening Distance (Miles)
Wastewater Treatment Facility	2
Sanitary Landfill	1
Transfer Station	1
Composting Facility	1
Petroleum Facility	2
Asphalt Batch Plant	1
Chemical Manufacturing	1
Fiberglass Manufacturing	1
Painting/Coating (i.e., auto body shop)	1
Food Processing Facility	1
Feed Lot/Dairy	1
Rendering Plant	1

Source: SJVAPCD 2015d

If the project would result in an odor source and sensitive receptors being located within these screening distances, additional analysis would be required. For projects involving new receptors locating near an existing odor source where there is currently no nearby development and for new odor sources locating near existing receptors, the SJVAPCD recommends the analysis be based on a review of odor complaints for similar facilities, with consideration also given to local meteorological conditions, particularly the intensity and direction of prevailing winds. Regarding the complaint record of the odor source facility (or similar facility), the facility would be considered to result in significant odors if there has been:

- More than one confirmed complaint per year averaged over a 3-year period
- Three unconfirmed complaints<sup>14</sup> per year averaged over a 3-year period

### **Cumulative**

#### ***Criteria Pollutants***

A project's emissions may be individually limited but cumulatively considerable when taken in combination with past, present, and future development within the SJVAB (SJVAPCD 2015d). If a project would result in a significant impact based on the SJVAPCD annual

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<sup>14</sup> An unconfirmed complaint means that either the odor/air contaminant release could not be detected or the source/facility cannot be determined (SJVAPCD 2015d).

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thresholds of significance for criteria pollutants, then the project would also be considered cumulatively significant. However, if the project emissions are below the annual significance thresholds for criteria pollutants, the impact may still be cumulatively significant. For instance, if the project results in criteria pollutant concentrations that exceed any of the federal health-based ambient air concentration standards or causes a worsening of areas already exceeding those standards, the project's impacts would be considered individually significant, as well as cumulatively significant. In addition, the combined emissions of the project and cumulative development located within the same area could potentially cause or worsen an exceedance of the concentration standards, whereby the project would have a cumulatively significant impact (SJVAPCD 2015d).

### ***Toxic Air Contaminants***

Since TAC impacts are localized and the SJVAPCD thresholds of significance for TACs have been established at an extremely conservative level, risks that equal or exceed the individual thresholds of significance are also considered cumulatively significant (SJVAPCD 2015d). No other cumulative risk thresholds would apply.

### ***Odors***

The SJVAPCD has not established cumulative significance thresholds regarding odor impacts.

## **2.4.2 Approach and Methodology**

### **2.4.2.1 Air Quality Plan Consistency**

#### **SJVAPCD**

The SJVAPCD has prepared plans to attain federal and state ambient air quality standards, as required under the federal and California CAAs, as detailed in Section 2.2.3.1. The SJVAPCD has established thresholds of significance for criteria pollutant emissions, which are based on SJVAPCD's New Source Review offset requirements for stationary sources. Pursuant to the GAMAQI, projects with emissions below the thresholds of significance for criteria pollutants would be determined to "not conflict [with] or obstruct implementation of the District's air quality plan" (SJVAPCD 2015d).



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## **Kern County**

As a component of the cumulative impact analysis, the County Air Quality Assessment guidance (Kern County 2006) states that the following should be included in the consistency determination for existing air quality plans:

- Discuss project in relation to Kern County Council of Governments (Kern COG) conformity and traffic analysis zones (TAZs).
- Quantify the emissions from similar projects in the Ozone Attainment Plan for the applicable basin. Discuss the Ozone Attainment Plan for the applicable air district, development, and relation to regional basin, Triennial Plan, and SIP.

## **Evaluation Methods and Calculation Assumptions**

Because the SJVAPCD and the County have different guidance on assessing a project's potential to conflict with an applicable air quality plan, the impact analysis includes an evaluation based on both criteria.

### **2.4.2.2 Construction Criteria Air Pollutant Emissions**

#### **SJVAPCD**

The SJVAPCD guidance states that the latest SJVAPCD-approved models should be used to conduct an air quality analysis. The current recommended model to estimate potential project-generated criteria air pollutant emissions from construction is the California Emissions Estimator Model (CalEEMod), Version 2013.2.2 (available online at [www.caleemod.com](http://www.caleemod.com)). CalEEMod is a statewide land use emissions computer model designed to provide a uniform platform for government agencies, land use planners, and environmental professionals to quantify potential criteria air pollutant emissions from a variety of land use projects.

In accordance with SJVAPCD procedures, the analysis contained in this report evaluates annual construction and operational emissions separately (see Section 2.4.2.3 for the operational emissions analysis methodology). Construction emissions are estimated for each construction year. Per the GAMAQI, the project construction evaluation should characterize emissions associated with the following:

- Construction-related emissions.
- Grading, excavating, road building, and other earth-moving activities.
- Travel by construction equipment, especially on unpaved surfaces.

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- Exhaust from construction equipment.
- Architectural coatings.
- Asphalt paving.
- Demolition and renovation of buildings (applicable to off-site transportation improvements).
- Off-road construction equipment.

When considering the impact of construction emissions on air quality, on-site and on-road (off-site) mobile source emissions should be assessed in the evaluation of construction-related emissions. In addition, the GAMAQI recommends that the Lead Agency consider the extent to which compliance with SJVAPCD Regulation VIII and Rule 9510 would reduce fugitive dust and construction exhaust emissions. The Lead Agency for this project is Kern County.

### **Kern County**

County guidance states that an air quality assessment should include estimates of short-term construction emissions in tons per year (Kern County 2006). The estimates must include site grading and building construction emissions, with comparison to the adopted County CEQA thresholds and the applicable air district (SJVAPCD for western Kern County) thresholds. Per the County's guidance, all assumptions should be clearly presented, including length of each construction phase, equipment that would be used during each phase, and the amount of soil disturbance, including any import or export of soil. The emission factors used to estimate emissions should be clearly documented, and the model output should be included in the report.

### **Evaluation Methods and Calculation Assumptions**

Construction activities associated with project components would occur in distinct phases over a 19-year period. It is assumed that construction would commence in 2016 and end in 2035, with operational emissions starting in 2016 and full buildout and operation occurring in 2036.

During each year, individual project components (i.e., commercial, residential, infrastructure) would be constructed. The project applicant for the project, prepared a detailed construction scenario that describes the project components (e.g., residential units, commercial buildings, schools) to be constructed in each planning area. According to the construction scenarios provided, construction would generally be broken down into six phases: a site preparation phase (clearing and grubbing), an excavation/grading phase, a trenching phase for utilities, a roadway/parking paving phase, a building construction phase for each land use category, and an architectural coating phase. An example of general land use assumptions used in CalEEMod to

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estimate construction emissions for each planning area is provided in Table 2-14<sup>15</sup>. Detailed construction modeling assumptions are provided in Appendices A.2 and B.

**Table 2-14**  
**General Construction Land Use Modeling Assumptions**

Proposed Land Use	CalEEMod Land Use	Unit Metric
Residential		
Residential	Single Family Housing	Dwelling units
Village Commercial Residential	Apartments Low Rise	Dwelling units
Commercial/Retail		
Village Center Commercial – Retail	Regional Shopping Center	Thousand square feet
Freeway-Oriented Commercial	Strip Mall	Thousand square feet
Office/R&D		
Office/Research and Development	General Office Building	Thousand square feet
Village Center Commercial – Office		
Industrial		
Light Industrial / Warehouse	Industrial Park	Thousand square feet
	User Defined Industrial	Thousand square feet
Educational		
Elementary School	Elementary School	Students
Middle School	Junior High School	Students
High School	High School	Students
Recreational and Open Space		
Parks	City Park	Acres
Streets and Other Paved Surfaces		
Arterial Streets, Collector Street, and Area Paved	Other Asphalt Surfaces	Acres

Note: See Appendices A.2 and B.

CalEEMod has been approved for use by the SJVAPCD to estimate construction emissions over time. Among other factors, CalEEMod generates emission estimates for construction equipment and vehicles, which are based on existing fuel and engine technologies at the time the current version of CalEEMod was released, as well as existing legal mandates for cleaner fuels and lower emission engine technologies that over time would result in lower emissions for comparable equipment and activities.

General construction equipment assumptions were based on the anticipated activities associated with each type of phase (e.g., earth-moving and rough grading activities during the grading phase) and the typical equipment used to perform those activities (e.g., graders, loaders, rollers,

<sup>15</sup> Land uses with potential stationary sources are anticipated to be included in the industrial land use category.

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and scrapers for grading). Although planning areas would involve different land uses, the activities for each construction phase (i.e., site preparation, grading, trenching, paving, building construction, architectural coating) are anticipated to be similar. An example of general construction equipment modeling assumptions is provided in Table 2-15. Detailed construction equipment modeling assumptions are provided in Appendix B.

**Table 2-15**  
**General Construction Equipment Assumptions**

Phase	Equipment	No. of Units	Daily Hours
Site Preparation	Graders	1	8
Grading	Graders	2	6
	Loaders	1	2
	Rollers	2	4
	Scrapers	3	8
Trenching—Sewer, Water, Storm Drain, Electric, Telephone	Other Construction Equipment	5	2
	Tractors/Loaders/Backhoes	5	2
	Trenchers	5	2
Paving—Streets and Parking Lots	Pavers	2	8
	Paving Equipment	1	8
	Other General Equipment	2	8
Building Construction—Residential	Cement and Mortar Mixer	1	8
	Other Construction Equipment	2	8
	Tractors/Loaders/Backhoes	2	8
Building Construction—Light Industrial	Cement and Mortar Mixer	1	8
	Other Construction Equipment	2	8
	Tractors/Loaders/Backhoes	2	8
Building Construction—Freeway Commercial	Cement and Mortar Mixer	1	8
	Other Construction Equipment	2	8
	Tractors/Loaders/Backhoes	2	8
Building Construction—Village Commercial	Cement and Mortar Mixer	1	8
	Other Construction Equipment	2	8
	Tractors/Loaders/Backhoes	2	8
Building Construction—Office/Research and Development	Cement and Mortar Mixer	1	8
	Other Construction Equipment	2	8
	Tractors/Loaders/Backhoes	2	8
Building Construction—Elementary and Middle Schools	Cement and Mortar Mixer	1	8
	Other Construction Equipment	2	8
	Tractors/Loaders/Backhoes	2	8
Building Construction—High School	Cement and Mortar Mixer	1	8
	Other Construction Equipment	2	8
	Tractors/Loaders/Backhoes	2	8

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**Table 2-15**  
**General Construction Equipment Assumptions**

Phase	Equipment	No. of Units	Daily Hours
Building Construction—Parks	Cement and Mortar Mixer	1	8
	Other Construction Equipment	2	8
	Tractors/Loaders/Backhoes	2	8
Architectural Coating	Air Compressors	6	6

Notes: See Appendix B.

Project construction assumptions, including phasing and equipment assumptions, were provided by the project applicant for construction of each Planning Area.

Where data were not available (e.g., architectural coating VOC content, off-road equipment load factors), default CalEEMod values are used. In addition, CalEEMod was used to estimate the number of haul trucks for soil import or export, vendor (material delivery) trips, and worker trips for the non-building construction phases. Changes to any standard default values or assumptions are reported in the CalEEMod output (see Appendix B).

### **2.4.2.3 Operational Criteria Air Pollutant Emissions**

#### **SJVAPCD**

In accordance with SJVAPCD guidance, annual construction and operational emissions are evaluated separately. Operational emissions were estimated at the buildout of each planning area (e.g., Planning Area 6A, Planning Area 2, until completion of Planning Area 6E), including the buildout of the preceding planning areas. Operational development years analyzed are presented in Appendix A.1.

As discussed in Section 2.4.2.2, CalEEMod is the SJVAPCD-recommended model to estimate potential criteria air pollutant emissions associated with operation of a project. Per the GAMAQI, the project's operational evaluation should characterize emissions associated with the following:

- Permitted equipment and activities (stationary source equipment and processes)
- Non-permitted equipment and activities
- Mobile sources (on-site and on-road)
- Non-permitted activities

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### Kern County

County guidance states that an air quality assessment should include estimates of long-term operational emissions in tons per year. Per the County's guidance, this report includes a summary of the unmitigated and mitigated emissions, with a comparison to Kern County CEQA thresholds in a table format within the impact analysis.

### Evaluation Methods and Calculation Assumptions

An example of general land use assumptions used in CalEEMod to estimate operational emissions from mobile, area, and energy sources for each planning area is provided in Table 2-16. Operational emissions estimation techniques and assumptions for stationary sources, including the water/wastewater treatment plant and small industrial sources, are presented separately (Table 2-21). Detailed operational modeling assumptions are provided in Appendices A.3 and C.

**Table 2-16**  
**General Operational Land Use Modeling Assumptions**

Proposed Land Use	CalEEMod Land Use	Unit Metric
<i>Residential</i>		
Residential	Single-Family Housing	Dwelling units
Village Commercial Residential	Apartments, Low Rise	Dwelling units
<i>Retail</i>		
Village Center Commercial—Retail Freeway-Oriented Commercial	Convenience Market with Gas Pumps	Thousand square feet
	Regional Shopping Center	Thousand square feet
	Supermarket	Thousand square feet
	Fast Food Restaurant with Drive-Through	Thousand square feet
	High Turnover (Sit-Down Restaurant)	Thousand square feet
<i>Commercial</i>		
Village Center Commercial—Office Office/Research and Development	Bank (with Drive-Through)	Thousand square feet
	General Office Building	Thousand square feet
	Government Office Building	Thousand square feet
	Medical Office Building	Thousand square feet
	Pharmacy/Drugstore without Drive-Through	Thousand square feet
	Research & Development	Thousand square feet
<i>Industrial</i>		
Light Industrial / Warehouse	General Heavy Industry	Thousand square feet
	General Light Industry	Thousand square feet
	Industrial Park	Thousand square feet
	Manufacturing	Thousand square feet
	Refrigerated Warehouse—No Rail	Thousand square feet

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**Table 2-16**  
**General Operational Land Use Modeling Assumptions**

Proposed Land Use	CalEEMod Land Use	Unit Metric
	Unrefrigerated Warehouse–No Rail	Thousand square feet
<i>Educational</i>		
Elementary School	Elementary School	Students
Middle School	Junior High School	Students
High School	High School	Students
Light Industrial / Warehouse	Junior College (2-year)	Square feet
<i>Recreational and Open Space</i>		
Parks	City Park	Acres
<i>Streets and Other Paved Surfaces</i>		
Arterial Streets, Collector Street, and Area Paved	Other Asphalt Surfaces	Acres

Note: See Appendices A.3 and C.

The project would generate operational air pollutants from mobile sources, area sources, energy (natural gas), and stationary sources. Each category is discussed below.<sup>16</sup>

### **Mobile Sources**

Mobile sources for the project would primarily be motor vehicles (automobiles, light-duty trucks, and heavy-duty trucks) traveling within and outside the project site. Motor vehicles may be fueled with gasoline, diesel, or alternative fuels.

Table 2-17 depicts total daily trip generation and daily VMT data for the project, which was estimated by the project's traffic consultant, Fehr & Peers.

**Table 2-17**  
**Project Daily Trip Generation and Vehicle Miles of Travel Summary**

VMT Type		Daily Estimated Trip Generation <sup>a</sup>		Daily Estimated Trip Length (Miles)	Daily VMT	
		% of Total	Project Trips		% of Total	VMT
Project: Internal-Internal (I-I) <sup>b</sup>	Trips that stay within project site (I-I Total)	58%	68,022	1.8	4.7%	122,320
Project: Internal-External (I-X) <sup>b</sup>	Project to TRCC & San Emidio	7%	15,704	3.0	1.8%	47,112

<sup>16</sup> The potential for the proposed transportation improvements to result in growth-inducing and/or secondary air quality impacts is not addressed within this report.



## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

	Project to Other External	14%	33,489	34.8	44.9%	1,164,924
	<i>I-X Total</i>	<i>21%</i>	<i>49,193</i>	<i>24.6</i>	<i>46.7%</i>	<i>1,212,036</i>
Project: External- Internal (X-I) <sup>b</sup>	TRCC & San Emidio to Project	6%	15,176	3.0	1.8%	45,528
	Other External to Project	14%	33,811	36.0	46.8%	1,215,806
	<i>X-I Total</i>	<i>21%</i>	<i>48,987</i>	<i>25.7</i>	<i>48.6%</i>	<i>1,261,334</i>
<b>Project Total (I-I, I-X, X-I)</b>		<b>100%</b>	<b>166,202</b>	<b>15.6</b>	<b>100%</b>	<b>2,595,690</b>

Source: Fehr & Peers 2015b

Notes:

<sup>a</sup> Estimated daily weekday trip generation based on Kern COG TDF model outputs.

<sup>b</sup> Internal-Internal (I-I) includes trips within the project site  
 Internal-External (I-X) includes trips from the project to TRCC and San Emidio, as well as trips from the project to other areas (e.g., Southern California, Bakersfield)  
 External-Internal (X-I) includes trips from TRCC and San Emidio to the project, as well as trips to the project from other areas (e.g., Southern California, Bakersfield)

The proposed project's relatively isolated location and full-service set of land uses, including retail, services, schools, and employment, to support the residents in the community makes it more likely that trips will remain within the project. Furthermore, the Tehachapi Mountains that rise immediately south of the project site may pose a barrier to travel between the project site and Los Angeles County (Fehr & Peers 2015a). The substantial internal trip capture associated with the project is depicted and accounted for in Table 2-17 above.

For the trips included in Table 2-17, the expected trip distribution for the project were determined using the 2040 Kern COG RTP/SCS TDF model and are depicted in Table 2-18 and summarized below (Fehr & Peers 2015a). The 2040 Kern COG RTP/SCS TDF model distributes trips using a gravity model, which distributes trips based on the relative attractiveness of origins and destinations. It accounts for the distance between origins and destinations (in travel time), the type of land use, and the amount of land use (size) in distributing trips.

**Table 2-18**  
**Trip Distribution Estimate – Cumulative Conditions**

Origin/Destination	Trip Distribution Estimate	
	<i>A.M. Peak Hour</i>	<i>P.M. Peak Hour</i>
Project/TRCC/San Emidio	73%	72%
North of Grapevine	19%	19%
West Bakersfield via I-5	2%	2%
North of Bakersfield via I-5	1%	1%
Bakersfield Metropolitan Area via SR 99	11%	11%
North of Bakersfield via SR 99	1%	1%

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**Table 2-18**  
**Trip Distribution Estimate – Cumulative Conditions**

Origin/Destination	Trip Distribution Estimate	
	<i>A.M. Peak Hour</i>	<i>P.M. Peak Hour</i>
Arvin-Lamont Area	3%	3%
Eastern Kern County via SR 58	1%	1%
South of Grapevine	8%	9%
Southern Kern County (Frazier Park/Tejon Mountain Village)	1%	1%
Antelope Valley Area (Lancaster/Palmdale/Centennial)	1%	1%
Santa Clarita Valley Area	1%	1%
Los Angeles Basin/Orange County/Inland Empire	5%	6%

Source: Fehr & Peers 2015a

The trip distribution for project trips traveling north of the project site shown in Table 2-18 is based on this gravity model from the Kern COG RTP/SCS TDF model. As shown, the Bakersfield metropolitan area is the most common origin/destination for project trips north of the project site, with some trips traveling to and from the nearby Arvin-Lamont area, and fewer trips traveling to and from locations beyond Bakersfield, Arvin, and Lamont.

Since the Kern COG TDF model ends at the Kern County-Los Angeles County line, the Kern COG TDF model is unable to track project trips once they leave Kern County. Therefore, Fehr & Peers used the Southern California Association of Governments (SCAG) TDF model to estimate the trip distribution of project trips in the SCAG region (Los Angeles County, Orange County, San Bernardino County, Riverside County, and Ventura County). The trip distribution for project trips traveling south of Grapevine shown in Table 2-18 takes into account the Kern COG TDF model's distribution of trips to areas of southern Kern County, such as Frazier Park and the future Tejon Mountain Village, as well as the SCAG TDF model's distribution of trips that travel across the Kern County-Los Angeles County line via I-5. Notably, since the analysis of the I-5 gateway includes all trips on I-5, including long-distance regional trips, the distribution of project trips traveling south of the project shown in Table 2-18 may be conservative in assuming more long distance trips to the Los Angeles Basin, Orange County, and the Inland Empire than may actually occur. CalEEMod was used to calculate the emissions resulting from on-road mobile sources associated with residents, workers, customers, and delivery vehicles visiting the proposed land use types. The emissions associated with on-road mobile sources include running and starting exhaust emissions, evaporative emissions, brake and tire wear, and fugitive dust from paved and unpaved roads. Default trip generation rates and trip lengths included in CalEEMod for each analyzed land use in the buildout scenario were adjusted to match the overall weekday trips (166,202 trips) and total weekday VMT data (2,595,690 miles) provided by Fehr & Peers and included in Table 2-17 above. In addition, CalEEMod default Saturday and

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

Sunday trip rates for the project were adjusted in proportion to the weekday trip rate adjustment. The CalEEMod default and adjusted trip rates and trip lengths are depicted below in Tables 2-19 and 2-20, respectively. These trip rates and average trip length were then applied to each phase of project development.

**Table 2-19**  
**CalEEMod Trip Rates – Default and Adjusted**

Land Use Type	Size Metric	CalEEMod Default Trip Rates			Adjusted Trip Rates		
		Weekday Trip Rate	Saturday Trip Rate	Sunday Trip Rate	Weekday Trip Rate	Saturday Trip Rate	Sunday Trip Rate
Apartments Low Rise	Dwelling Unit	6.59	7.16	6.07	5.41	5.89	4.99
Bank (with Drive-Through)	1,000 sq ft	148.15	86.32	31.9	8.98	5.23	1.94
City Park	Acre	1.59	1.59	1.59	1.54	1.54	1.54
Convenience Market with Gas Pumps	1,000 sq ft	845.6	1448.33	1182.08	34.76	59.54	48.59
Elementary School	Student	1.29	0	0	1.05	0	0
Fast Food Restaurant with Drive Thru	1,000 sq ft	496.12	722.03	542.72	34.76	50.58	38.02
General Heavy Industry	1,000 sq ft	1.5	1.5	1.5	2.9	0.55	0.2
General Light Industry	1,000 sq ft	6.97	1.32	0.68	2.9	0.55	0.28
General Office Building	1,000 sq ft	11.01	2.37	0.98	8.98	1.93	0.8
Government Office Building	1,000 sq ft	68.93	0	0	8.98	0	0
High School	Student	1.71	0.61	0.25	1.39	0.5	0.2
High Turnover (Sit Down Restaurant)	1,000 sq ft	127.15	158.37	131.84	34.76	43.29	36.04
Industrial Park	1,000 sq ft	6.96	2.49	0.73	5.56	1.99	0.59
Junior College (2 year)	1,000 sq ft	27.49	11.23	1.21	4.23	1.73	0.19
Junior High School	Student	1.62	0	0	1.32	0	0
Manufacturing	1,000 sq ft	3.82	1.49	0.62	2.9	1.13	0.47
Medical Office Building	1,000 sq ft	36.13	8.96	1.55	8.98	2.23	0.38
Other Asphalt Surfaces	Acre	0	0	0	0	0	0
Pharmacy/Drugstore w/o Drive Thru	1,000 sq ft	90.06	90.06	90.06	8.98	8.98	8.98
Refrigerated Warehouse-No Rail	1,000 sq ft	2.59	2.59	2.59	2.9	2.9	2.9
Regional Shopping Center	1,000 sq ft	42.94	49.97	25.24	34.76	40.45	20.43
Research & Development	1,000 sq ft	8.11	1.9	1.11	8.98	2.1	1.23
Single Family Housing	Dwelling Unit	9.57	10.08	8.77	7.75	8.16	7.1
Supermarket	1,000 sq ft	102.24	177.59	166.44	34.76	60.37	56.58
Unrefrigerated Warehouse-No Rail	1,000 sq ft	2.59	2.59	2.59	2.9	2.9	2.9

Source: CAPCOA 2013; Fehr & Peers 2015b (used to adjust the trip rates as presented in Table 2-17, Project Daily Trip Generation and Vehicle Miles of Travel Summary)

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**Table 2-20**  
**CalEEMod Trip Lengths – Default and Adjusted**

Land Use Type	CalEEMod Default Trip Lengths (Miles)			Adjusted Trip Lengths (Miles)		
<i>Residential Trip Type</i>	<i>H-W (Home-Work)</i>	<i>H-S (Home-Shop)</i>	<i>H-O (Home-Other)</i>	<i>H-W (Home-Work)</i>	<i>H-S (Home-Shop)</i>	<i>H-O (Home-Other)</i>
Apartments Low Rise	10.8	7.3	7.5	15.62	15.62	15.62
Single Family Housing	10.8	7.3	7.8	15.62	15.62	15.62
<i>Commercial Trip Type</i>	<i>C-C (Commercial-Customer)</i>	<i>C-W (Commercial-Work)</i>	<i>C-NW (Commercial-Non-Work)</i>	<i>C-C (Commercial-Customer)</i>	<i>C-W (Commercial-Work)</i>	<i>C-NW (Commercial-Non-Work)</i>
Bank (with Drive-Through)	7.3	9.5	7.3	15.62	15.62	15.62
City Park	7.3	9.5	7.3	15.62	15.62	15.62
Convenience Market with Gas Pumps	7.3	9.5	7.3	15.62	15.62	15.62
Elementary School	7.3	9.5	7.3	15.62	15.62	15.62
Fast Food Restaurant with Drive Thru	7.3	9.5	7.3	15.62	15.62	15.62
General Heavy Industry	7.3	9.5	7.3	15.62	15.62	15.62
General Light Industry	7.3	9.5	7.3	15.62	15.62	15.62
General Office Building	7.3	9.5	7.3	15.62	15.62	15.62
Government Office Building	7.3	9.5	7.3	15.62	15.62	15.62
High School	7.3	9.5	7.3	15.62	15.62	15.62
High Turnover (Sit Down Restaurant)	7.3	9.5	7.3	15.62	15.62	15.62
Industrial Park	7.3	9.5	7.3	15.62	15.62	15.62
Junior College (2 year)	7.3	9.5	7.3	15.62	15.62	15.62
Junior High School	7.3	9.5	7.3	15.62	15.62	15.62
Manufacturing	7.3	9.5	7.3	15.62	15.62	15.62
Medical Office Building	7.3	9.5	7.3	15.62	15.62	15.62
Other Asphalt Surfaces	7.3	9.5	7.3	15.62	15.62	15.62
Pharmacy/Drugstore w/o Drive Thru	7.3	9.5	7.3	15.62	15.62	15.62
Refrigerated Warehouse-No Rail	7.3	9.5	7.3	15.62	15.62	15.62
Regional Shopping Center	7.3	9.5	7.3	15.62	15.62	15.62
Research & Development	7.3	9.5	7.3	15.62	15.62	15.62
Supermarket	7.3	9.5	7.3	15.62	15.62	15.62
Unrefrigerated Warehouse-No Rail	7.3	9.5	7.3	15.62	15.62	15.62

Source: CAPCOA 2013; Fehr & Peers 2015b (used to adjust the trip lengths as presented in Table 2-17, Project Daily Trip Generation and Vehicle Miles of Travel Summary)

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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In addition to trip rates and trip lengths, the trip purpose is also a factor in the calculation of vehicle-generated emissions. In general, CalEEMod determines an overall average trip length for primary, diverted, and pass-by trip link types<sup>17</sup> where primary trips are 100% of the trip length, diverted trips are 25% of the primary trip length, and pass-by trips are 0.1 mile (CAPCOA 2013). For this project analysis, the CalEEMod default trip type percentages were adjusted so that the CalEEMod-generated VMT would mathematically match the overall weekday VMT data provided by Fehr & Peers for the project. This approach is consistent with the transportation modeling, which accounts for a full inventory of trip categories; that is, both primary and shorter trips are already assessed in the model (i.e., the modeled VMT estimates provided in the transportation impact study reflect primary trip, pass-by trips, and diverted trips). Finally, vehicle class (e.g., automobiles, trucks, buses, motorcycles) distribution and vehicle age were based on CalEEMod default values.

Mobile sources may also include off-road vehicles, such as loaders and forklifts. These vehicles could be associated with some of the industrial uses, such as warehouses; however, since the specific uses are not known at the time, estimation of potential emissions associated with off-road vehicles would be speculative and is not further assessed.

Fehr & Peers accounted for the mixed-use character of the project in the modeling as follows:

- Diversity of land uses
- Distance between complimentary land uses
- Density of land uses
- Destinations
- Demographics

In addition to these considerations, as described in Section 1.4.2 and the transportation impact study (Fehr & Peers 2015a), the project would include a comprehensive bicycle and pedestrian network, transportation services, and a TMA, which were not accounted for in the trip generation or VMT assumptions in the transportation impact study or the air quality and GHG quantitative analysis (see Section 3.5 for the GHG emissions impact analysis). Therefore, mobile source criteria pollutant and GHG emissions included in the impact analysis are conservative.

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<sup>17</sup> Trip link types further describe the characteristics of the trip attracted to each land use, whether it is a primary trip, a diverted link trip, or a pass-by trip. For example, a commercial customer pass-by trip could be a person going from home to shop on the way to work. In addition, a commercial customer diverted-link trip could be a person going from home to work, and making a diversion to shop (CAPCOA 2013).

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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### *Area Sources*

CalEEMod was also used to estimate operational emissions from area sources, including emissions from hearths, consumer product use, architectural coatings, and landscape maintenance equipment. Emissions associated with natural gas usage in space heating, water heating, and stoves are calculated in the building energy use module of CalEEMod, as described in the following paragraphs.

Consumer products are chemically formulated products used by household and institutional consumers, including detergents; cleaning compounds; polishes; floor finishes; cosmetics; personal care products; home, lawn, and garden products; disinfectants; sanitizers; aerosol paints; and automotive specialty products. Other paint products, furniture coatings, or architectural coatings are not considered consumer products (CAPCOA 2013). Consumer product ROG (i.e., VOC) emissions are estimated in CalEEMod based on the floor area of residential and nonresidential buildings and the default factor of pounds of VOC per building square foot per day.

ROG off-gassing emissions result from evaporation of solvents contained in surface coatings such as in paints and primers using during building maintenance. CalEEMod calculates the ROG evaporative emissions from application of residential and non-residential surface coatings based on the VOC emission factor, the building square footage, the assumed fraction of surface area, and the reapplication rate. The VOC emission factor is based on the VOC content of the surface coatings, and SJVAPCD Rule 4601 governs the VOC content for interior and exterior coatings. The model default reapplication rate of 10% of area per year is assumed. Consistent with CalEEMod defaults, it is assumed that the residential surface area for painting equals 2.7 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating. For non-residential land uses (e.g., commercial, retail, educational, industrial uses), it is assumed that the surface area for painting equals 2.0 times the floor square footage, with 75% assumed for interior coating and 25% assumed for exterior surface coating.

For parking and other asphalt surfaces, the architectural coating area is assumed to be 6% of the total square footage, consistent with the supporting CalEEMod studies provided as an appendix to the CalEEMod User's Guide (CAPCOA 2013). For the proposed park uses, the assumption of 6% of the total square footage to be painted is also assumed. ROG emissions associated with architectural coating would be substantially overestimated if the park land use were assumed to be a structure, since proposed parks within the planning area would vary from 5 acres (217,800 square feet) to 58 acres (2,526,480 square feet). Neither the CalEEMod User's Guide nor the SJVAPCD provides guidance for estimating coatings for parks or other open space recreational land uses. The assumption of 6% is determined to be appropriate based on the flat surface and non-structural similarities of a park and parking land uses.

## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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CalEEMod estimates emissions from woodstoves and hearths based on default emission factor values, the amount of wood burned by stoves and different hearth types, and the percentage of different hearths in various areas of California. Under SJVAPCD Rule 4901, wood-burning fireplaces and stoves would not be allowed at the project residences, and therefore only criteria air pollutant emissions associated with natural-gas-fired fireplaces were included.

Landscape maintenance includes fuel combustion emissions from equipment such as lawn mowers, rototillers, shredders/grinders, blowers, trimmers, chain saws, and hedge trimmers. The emissions associated from landscape equipment use are estimated based on CalEEMod default values for emission factors (grams per residential dwelling unit per day and grams per square foot of non-residential building space per day) and number of summer days (when landscape maintenance would generally be performed) and winter days. For the San Joaquin Valley, the average annual “summer” days are estimated to be greater than 330 days; however, it is assumed that non-residential (e.g., commercial land uses) landscaping equipment would likely only operate during the week (not weekends), so operational days were assumed to be 250 days per year in CalEEMod (CAPCOA 2013).

### ***Energy Sources***

As represented in CalEEMod, energy sources include emissions associated with building electricity and natural gas usage (non-hearth). Electricity use would contribute indirectly to criteria air pollutant emissions; however, the emissions from electricity use are only quantified for GHGs in CalEEMod, since criteria pollutant emissions occur at the site of the power plant, which is typically off site.

Criteria pollutant emissions associated with natural gas energy use, expressed in units of 1,000 British thermal units (Btu) per size metric for each land use subtype, were calculated based on EPA’s *Compilation of Air Pollutant Emission Factors* (AP-42) factors (EPA 2011). Energy source emissions were estimated using CalEEMod default values and project-specific data when available.

### ***Water/Wastewater Treatment Plant Emissions***

The project is anticipated to require an average potable water treatment capacity of 5.5 million gallons per day, with a maximum of 12.4 million gallons per day. The water treatment facility may consist of a single or multiple locations. Water treatment itself does not emit criteria air pollutants. In modern plants, chloramine is the disinfectant formed by the addition of ammonia into drinking water to form monochloramine and/or dichloramine. Unlike chlorine, chloramine has a longer half-life in the distribution system and still maintains effective protection against pathogens. Thus, there are no chemical processes that would generate quantifiable criteria



## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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pollutant emissions. The only anticipated source of emissions would be emergency generator(s). The rating of the generator for the water treatment plant is not known at this time, but it is expected to be rated on the order of 500 kilowatts (kW) (powered by a diesel engine rated at 706 horsepower). Per the CARB ATCM for stationary compression-ignition (diesel) engines, the engine for the generator set is assumed to comply with the Tier 3 diesel engine standards. Its emissions during maintenance and testing were estimated using Tier 3 standards and an estimated annual runtime of up to 50 hours in accordance with the ATCM.

Three wastewater treatment plants (WWTPs) are anticipated to serve the project. One WWTP would be an upgraded facility currently operated by Tejon–Castac Water District to serve the industrial uses in the northern portion of the project site. It would have a capacity of 0.4 million gallons per day average dry-weather flow. Two new WWTPs would be constructed to serve the residential and mixed uses in the southern portion of the project site. The Grapevine North WWTP would have a capacity of 1.4 million gallons per day average dry-weather flow, and the Grapevine South WWTP would have a capacity of 0.6 million gallons per day average dry-weather flow. The WWTPs would provide tertiary treated recycled water to meet Title 22 requirements for unrestricted reuse. The WWTPs are anticipated to result in ROG emissions from various stages of the treatment process (membrane bioreactor technology is proposed) and emergency generators. Sludge from the treatment processes would be aerobically digested at the Grapevine North WWTP, and the biosolids would be dewatered and dried, likely using active solar dryers similar to a greenhouse. No anaerobic digestion to generate methane gas is planned, and no other combustion sources are anticipated. ROG emissions were estimated using process-specific emission factors from the *SCAQMD Rule 1179 Emission Inventory Report for JEIP Participating Agencies* (CH2M-Hill 1993) and the anticipated average dry-weather flow for each facility. The emergency generators for the WWTPs are assumed to be rated approximately 500 kW (powered by a diesel engine rated at 706 horsepower). Emissions from the emergency generators were estimated based on Tier 3 standards and an estimated annual runtime of up to 50 hours in accordance with the ATCM for stationary compression-ignition (diesel) engines, the same as previously described for the WWTPs.

### ***Small Industrial Source Emissions***

The project may eventually result in various stationary sources associated with industrial facilities. Potential industrial facilities were evaluated based on allowable uses for light industrial land uses in consultation with the project applicant. It is not anticipated that the project would include large, heavy industrial facilities, but could include the types of uses common in the San Joaquin Valley that tend to be more compatible with mixed uses (e.g., residential and commercial uses). For the purposes of this assessment, it is assumed that the industrial sources would include a food processing plant (boilers), gas stations, green waste

## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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composting, an asphaltic concrete plant, a commercial bakery, three wastewater treatment plants, emergency generators, and a small- to medium-sized manufacturing facility.

A programmatic approach is used to estimate emissions from these types of sources where (1) the probable type, quantity or throughput, and size of each type of source is estimated based on anticipated land uses; (2) BACT is assumed for all new equipment consistent with applicable SJVAPCD rules; and (3) for pollutants for which BACT would not apply, other published emission factors (e.g., EPA AP-42, SJVAPCD) are applied. The following indicates applicable SJVAPCD rules, some of which would govern the emissions from these sources, with a brief description of the emission estimation methodology.

- Boilers at a cannery/food processing plant would likely be subject to SJVAPCD Rule 4306, Boilers, Steam Generators, and Process Heaters – Phase 3. Emissions are estimated per AP-42, Section 1.4, Natural Gas Combustion (EPA 1998), and the NO<sub>x</sub> and CO emission limits in Rule 4306. It is assumed that the food processing plant would operate seasonally for 4 months per year and use one steam boiler rated at 75 million Btu per hour.
- Gasoline dispensing facilities (gas stations) would be subject to SJVAPCD Rules 4621, Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants, and 4622, Gasoline Transfer into Motor Vehicle Fuel Tanks. Emissions are estimated using SJVAPCD emission factors and an assumed throughput of 132,000 gallons per month (1.58 million gallons per year). Based on statewide statistics for gas stations and population, it was estimated that the project would require eight gas stations typical of those found in mixed-use development.
- Green waste composting would be subject to SJVAPCD Rule 4566, Organic Material Composting Operations. Emissions were estimated using SJVAPCD or SCAQMD emission factors for green waste composting and the reduction in emissions resulting from compliance with Rule 4566. Based on the anticipated population of the project, it is assumed that a green waste composting facility would have an annual throughput of 4,000 wet tons per year.
- A hot-mix asphalt plant would be subject to SJVAPCD Rules 4101 (Visible Emissions), 4102 (Nuisance), 4201 (Particulate Matter Concentration), 4202 (Particulate Matter Emission Rate), and 4309 (Dryers, Dehydrators, and Ovens). Emissions are estimated per AP-42, Section 11.1, Hot Mix Asphalt Plants (EPA 2004a); Section 11.19.2, Crushed Stone Processing and Pulverized Mineral Processing (EPA 2004b); Section 11.12, Concrete Batching (EPA 2006); and the NO<sub>x</sub> and CO emission limits in Rule 4309. It is assumed that the asphalt plant would be a continuous type with an annual production of 200,000 tons per year. It is also assumed that grid electric power would be supplied for motors, pumps, and lighting (i.e., no generators).

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- A commercial bakery would be subject to SJVAPCD Rules 4693, Bakery Ovens; Rule 4309, Dryers, Dehydrators, and Ovens; and 4301, Fuel Burning Equipment. Emissions are estimated per AP-42, Section 1.4, Natural Gas Combustion (EPA 1998); Section 9.9.6, Bread Baking (EPA 1997); an assumed production of 50 tons of baked good per day; and compliance with Rule 4309 and BACT requirements.
- Commercial, institutional, and industrial facilities could include diesel emergency generators and/or backup firewater pump engines. At this time, the characteristics of such generators, including their rating, location, and associated land use, are not known. They are expected to be sized with a similar or smaller kilowatt rating to those discussed above at the water treatment plant and WWTPs (i.e., 500 kilowatts or less). In the event that a commercial, institutional, or industrial facility were to install an emergency generator or backup firewater pump engine, it would require an authority to construct from the SJVAPCD. During the permit review, the SJVAPCD will evaluate compliance with applicable rules. The evaluation would also include a review of health risk and ambient air quality impacts, at a minimum using screening criteria. In addition, such equipment must comply with the ATCM for stationary compression-ignition engines, including restrictions on hours of operation and air pollutant emission rates (see Section 2.2.2). If compliance is not demonstrated, the SJVAPCD cannot issue an authority to construct per Rule 2070. The emission estimation techniques, as well as the analyses in Sections 2.5.2.2 and 2.5.3.3, would be representative of those for additional emergency equipment.
- To simulate small- to medium-sized manufacturing, it was assumed that the industrial uses could include a wood furniture manufacturing facility as a surrogate. Emissions data for 2012 for existing wood furniture manufacturing facilities operating in California were obtained for the relevant Standard Industrial Classification codes from the CARB Facility Search Engine website (<http://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php>). These data were processed by removing one very large facility (based on its emissions) from the database and determining the 90th percentile level of emissions (i.e., to reduce the influence of high-emitting facilities on the results). Depending on the actual type of manufacturing, a facility could be subject to one or more of the SJVAPCD rules in Regulation IV. For example, Rule 4606, Wood Products and Flat Wood Paneling Products Coating Operations, would apply to a furniture manufacturing facility.

Emission factor data sources and operating assumptions for the representative stationary source categories that could be developed as part of the project are summarized in Table 2-21. These illustrative land uses were used to estimate stationary-source-related emissions and do not include uses that would be required to acquire emission reduction credits (i.e., offsets) under SJVAPCD Rule 2201 (New and Modified Stationary Source Review). The actual mix of

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stationary source uses would evolve over time (e.g., different kinds and/or intensity of manufacturing may occur), as will the scope of the SJVAPCD's permit program (including offset mandates specified in the permit program). The actual mix of future stationary sources could not result in emissions that exceed the project emission estimates included in this technical report and the VERA without additional CEQA review, and all stationary sources are required to comply with all applicable mitigation measures as well as SJVAPCD regulations.

**Table 2-21  
Grapevine Stationary Source Emission Estimation Techniques**

Stationary Source	Process Emissions Characteristics	Emission Factor References and Data Sources	Throughput Basis
Cannery/food processing	Natural gas fuel combustion	AP-42 Section 1.4; VCAPCD 2001; SJVAPCD 2015a	One boiler 75 MMBtu/hr at 70% load for 4 months
Gas stations	Fugitive ROGs and TACs	AP-42 Section 5.2; SCAQMD 2007; SJVAPCD 2014d	132,000 gallons/month (average retail station)
Green waste composting	Fugitive ROGs and NH <sub>3</sub>	SCAQMD 2015; SJVAPCD 2014d	4,000 wet tons/year, meets 19% BMP reduction
Asphaltic concrete plant	Natural gas fuel combustion, fugitive ROGs, PM <sub>10</sub> , PM <sub>2.5</sub> , and TACs	AP-42 Section 11.1; SJVAPCD 2014d	200,000 tons/year (continuous plant)
Commercial bakery (ovens and off-gassing)	Natural gas fuel combustion, fugitive ROGs	AP-42 Section 1.4 and 9.9.6; VCAPCD 2001; SJVAPCD 2014d	50 tons baked goods/day with 95% VOC control
Wastewater treatment plants	Fugitive ROGs and TACs	AP-42 Section 4.3; SJVAPCD 2013c	2.4 million gallons per day average; three WWTPs combined
WWTP emergency generators	Diesel ICE emissions	AP-42 Section 3.3; Tier 3 standards (40 CFR 1039 et seq.)	Engine powering one 500 kW generator (PM <sub>10</sub> as DPM)
Water treatment plant emergency generator	Diesel ICE emissions	AP-42 Section 3.3; Tier 3 standards (40 CFR 1039 et seq.)	Engine powering one 500 kW generator (PM <sub>10</sub> as DPM)
Furniture manufacturing	Process ROGs and TACs	AP-42 Section 4.2.2.5; SJVAPCD 2014d	90th percentile emissions from 129-facility sample

Source: Yorke 2015. See Appendix E.

Notes: NH<sub>3</sub> = ammonia; ICE = Internal Combustion Engine

### 2.4.2.4 Ambient Air Quality Impacts

The following discussion summarizes the ambient air quality impact analysis presented in the *Air Quality and Health Risk Assessment Modeling Analysis*, prepared for the project by Yorke Engineering LLC (2015).

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### **SJVAPCD**

Per the GAMAQI, this air quality modeling analysis assessed the ambient air quality impacts associated with the project to determine if project emissions are predicted to cause or contribute to a violation of an ambient air quality standard by exceeding any CAAQS or NAAQS. Dispersion modeling results are provided in Appendix E.

### **Kern County**

Per the County guidelines, the ambient air quality modeling analysis implemented the following selected elements for the project:

- AERMOD modeling of maximum 24-hour average concentration of primary PM<sub>10</sub> and PM<sub>2.5</sub> at the project boundary (baseline plus increment) with comparison to CAAQS and NAAQS.
- For western Kern County, the most recent version of SJVAPCD's GAMAQI (SJVAPCD 2015d) was used.

### **Evaluation Methods and Calculation Assumptions**

#### ***Construction Emissions***

Off-site concentrations were modeled using the EPA-approved AERMOD Version 15181 (described above) for the construction phase with the highest (worst-case) emissions, since, if the worst-case phase demonstrates compliance with the CAAQS and NAAQS, then it can be assumed that all other construction phases would also meet these air quality standards.

#### ***Operational Emissions***

The SJVAPCD requires the use of the AERMOD for air dispersion modeling. Therefore, EPA's AERMOD modeling software was used to assess ambient air quality impacts of project construction and operational emissions. Principal parameters of AERMOD are as follows:

- **Meteorological Data:** The SJVAPCD requires the use of AERMOD for air dispersion modeling. The latest 5-year meteorological data (2009-2013) for the Bakersfield station (Station ID 23155) from the SJVAPCD were downloaded and incorporated into the model.
- **Urban and Rural Options:** Urban areas typically have more surface roughness and structures and surfaces that absorb more sunlight—and thus more heat—relative to rural areas. According to SJVAPCD guidelines, the urban dispersion option is selected due to the future developed nature of the project site.

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- **Modeling Options:** The modeling included use of standard regulatory default options.
- **Terrain Characteristics:** The terrain in the vicinity of the modeled industrial site is generally flat with the base of the Tehachapi mountain range about 5 miles to the south. The elevation of the modeled (characteristic) industrial site is about 1,000 feet above sea level. Stationary sources were programmatically modeled as either point sources, volume sources, or in combination. Point source stack heights and volume source dimensions were estimated as typical for the type of source based on existing similar facilities elsewhere. Digital elevation model files were imported into AERMOD so that complex terrain features were evaluated as appropriate.
- **Modeling Grid:** A regularly spaced Cartesian receptor grid was evaluated to determine the impacts to ambient air. Characteristic 100-meter spacing was used for 2-kilometer receptor grid for the refined air dispersion modeling.
- **Discrete Receptors:** Since the project is in the preliminary planning phase, the air quality modeling evaluates the point of maximum impact, which is a location within the modeling grid where the model calculates the highest (worst-case) pollutant concentrations. The point of maximum impact may or may not be a habitable location; however, using it for the subsequent analysis is the most conservative approach since all other receptors within the modeling grid would have lower pollutant concentrations. While specific receptors, such as the nearest residence and nearest off-site workplace, were not evaluated, this approach was anticipated to disclose reasonably conservative estimates of impacts to future receptors.
- **Source Equipment Operating Scenarios:** Air dispersion modeling of operational activities was conducted using 100% rated loads at anticipated annual capacity factors based on the expected duty cycles and operating periods of the various devices (e.g., emergency generators, boilers) unless otherwise specified based on emissions inventory data.
- **Source Release Characterizations:** Modeling release parameters were developed for the construction and operational analyses. For modeling construction emissions impacts using AERMOD, it was estimated that approximately 33% of the total site area (586 acres) would have active construction activities in any of 3 years. This results in a site active area of 195.33 acres (8,508,720 square feet) in any given year. The construction activity was modeled as a thin volume source with a ratio of height to side length of 1.69%. For modeling operational emissions, modeling release parameters were developed based on the predominant emission-generating activity at the source. Table 2-22 shows modeled release characteristics for each operational and construction source.

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**Table 2-22**  
**Source Release Characteristics**

Emission Source	Representative Stationary Source Category	Source Release Characterization
<i>Stationary Sources</i>		
Cannery/food processing	External combustion (boiler)	Point source
Gas stations	Petroleum liquids	Area source
Green waste composting	Composting waste processing	Area source
Asphaltic concrete plant	Mineral processing	Area source
Commercial bakery	External combustion (oven)	Point source
Wastewater treatment plants	Evaporation loss sources	Area source
Wastewater treatment plant emergency generators	Internal combustion engine	Point source
Water treatment plant emergency generator	Internal combustion engine	Point source
Furniture manufacturing	Evaporation loss sources	Area source
<i>Construction Sources</i>		
Mobile Equipment/Truck Exhaust	—	Volume source
Fugitive Dust	—	Volume source

Source: Yorke 2015. See Appendix E.

### 2.4.2.5 Valley Fever Exposure

#### Local Guidance

As noted above, there are no specific thresholds for the evaluation of potential Valley Fever exposure.

#### Evaluation Methods and Calculation Assumptions

The Valley Fever fungal spores, *Coccidioides immitis*, live in the top 2 to 12 inches of soil in many parts of the state, including parts of Kern County. When fungal spores are present, any work activity that disturbs the soil, such as digging, grading, or other earth-moving operations, or vehicle operation on dirt roads, can cause the spores to become airborne, thereby increasing the risk of Valley Fever exposure (California Department of Industrial Relations 2013). All workers on sites where the fungus is present, and who are exposed to dusty conditions and wind-blown dusts, are at increased risk of becoming infected.

The fungal spores are too small to be seen by the naked eye, and there is no reliable way to test the soil for spores before working in a particular place (California Department of Public Health 2013). Accordingly, the Valley Fever analysis assumes the potential presence of the fungal spores within the project site. The potential for Valley Fever exposure as a result of the project is



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evaluated based on the anticipated earth-moving activities, and considers applicant-proposed measures and compliance with Rule 8021, Section 6.3, which requires development and implementation of a dust control plan to help control the release of the *Coccidioides immitis* fungus during construction activities.

### **2.4.2.6 Health Risk Assessments**

This report includes health risk assessments associated with construction emissions, stationary source and other operational emissions, and emissions from diesel vehicles traveling on I-5. All these risk assessments followed the methodologies prescribed in the California Environmental Protection Agency/Office of Environmental Health Hazard Assessment's (OEHHA's) *Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments* (OEHHA 2015), which was adopted in 2015 replacing the previous 2003 guidance manual, with appropriate adjustments in accordance with the SJVAPCD Risk Management Policy (SJVAPCD 2015e).

The Children's Environmental Health Protection Act of 1999 (Senate Bill 25), which requires explicit consideration of infants and children in assessing risks from air toxics, required revisions of the methods for both noncancer and cancer risk assessment and of the exposure assumptions in the 2003 OEHHA health risk assessment guidance manual. In response to SB 25, OEHHA released three technical support documents (TSDs) addressing reference exposure levels (RELs) (OEHHA 2008), cancer potency (OEHHA 2009), and exposure assessment and stochastic analysis (OEHHA 2012) and adopted the revised health risk assessment guidance manual (OEHHA 2015). The TSD for RELs and continuing work to reevaluate TACs to ensure adequate protection for infants and children has led to revisions of RELs for approximately 10 chemicals and chemical families. The basic methodology for evaluating acute and chronic health effects using the RELs otherwise remained the same as in the previous guidance manual. Moreover, RELs are designed to protect the most sensitive individuals in the population, including infants and children, by selecting appropriate toxicological data and including margins of safety. Accordingly, the evaluation methods are assumed to protect children as well as other sensitive subpopulations (groups of more highly susceptible individuals) from adverse health effects in the event of exposure (OEHHA 2008).

The cancer risk methodology described in exposure assessment and stochastic analysis TSD and the OEHHA guidance manual accounts for the higher sensitivity of infants and children by applying age-specific breathing rates and age-sensitivity factors. According to the TSD, "Accounting for effects of early-in life exposure requires accounting for both the increased potency of early in life exposure to carcinogens and the greater exposure on a per [kilogram] body weight that occurs early in life due to behavioral and physiological differences between infants and

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children, and adults” (OEHHA 2012). As compared to the previous guidance, which relied on a single breathing rate for all ages, the revised guidance also includes age-specific breathing rates that reflect the differences between those for infants, children, and adults. The health risk assessments in this report use the Hotspots Analysis and Reporting Program, Version 2 (HARP 2), which incorporates RELs and cancer potency factors, which are periodically updated, and health effects calculations based on the 2015 OEHHA guidance manual. Accordingly, these risk assessments evaluate and reflect conservative, health-protective methodologies to assess health impacts to adults as well as infants, children, and other sensitive subpopulations.

### **Construction and Operational Sources**

The following discussion summarizes the HRA analysis presented in the *Air Quality and Health Risk Assessment Modeling Analysis*, prepared for the project by Yorke Engineering (2015).

#### ***SJVAPCD***

The SJVAPCD recently updated its Risk Management Policy to address OEHHA’s revised HRA guidance manual (SJVAPCD 2015e). The SJVAPCD Risk Management Policy was used to prepare the health risk assessment.

#### ***Kern County***

Per County guidelines, the HRA involved the following selected elements for the project:

- The HRA was developed using HARP 2 (or equivalent OEHHA method) and analyzed the acute, chronic, and carcinogenic health risks of TACs that would be emitted by the project.
- For western Kern County, the most recent version of SJVAPCD’s GAMAQI (SJVAPCD 2015d) was used.

### ***Evaluation Methods and Calculation Assumptions***

#### **Air Dispersion Modeling**

Air dispersion modeling was performed using AERMOD to assess health impacts of project construction and operational emissions. The AERMOD parameter discussion included in Section 2.4.2.4 also applies to the HRA. In addition, for cancer or chronic noncancer risk assessments, the average cancer risk of all years modeled (based on available meteorological data) were used.

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### Construction TACs

For risk assessment purposes, PM<sub>10</sub> in diesel exhaust is considered DPM, originating mainly from off-road earth-moving and grading equipment operating at a defined location (area or volume source) for a given length of time at a given distance from sensitive receptors. Less-intensive, more-dispersed emissions result from on-road vehicle exhaust (e.g., heavy-duty diesel trucks). Project construction emissions were estimated using CalEEMod. For the construction HRA modeling, DPM from diesel-fueled off-road construction equipment was the only TAC evaluated.

### Operational TACs

As described in Section 2.4.2.4., air quality impacts associated with operational emissions from fixed (stationary) sources include those supporting commercial and industrial activities. Typical development-related sources of TACs include water/wastewater treatment facilities, gas stations, diesel emergency generators, and small stationary-source industrial equipment. Representative source categories that could be developed as part of the project were evaluated for operational health impacts.

**Water/Wastewater Treatment Facility Emissions.** The project is anticipated to include community-service land uses to support the proposed residential and commercial neighborhood development, including water and wastewater treatment facilities. It is assumed that the water treatment plant and each WWTP would have a diesel emergency generator. For estimating emergency generator emissions, the SJVAPCD spreadsheet tool “Diesel IC Engine” was used in conjunction with Tier 3 standards in accordance with the ATCM for stationary compression-ignition (diesel) engines. For risk estimation purposes, PM<sub>10</sub> is considered DPM. TAC emissions from the WWTP processes were modeled as area or volume sources based on the physical dimensions of the infrastructure.

**Gas Stations.** The project would include areas that are zoned for land uses that are associated with TACs, such as gas stations subject to SJVAPCD Rules 4621 (Bulk Gasoline Transfer) and 4622 (Gasoline Transfer to Vehicles). As discussed above, it is assumed that eight stations would be built. The conservative estimation of eight stations is based on statewide data and the assumption that each major planning area (Planning Areas 1, 2, 3, 4, and 6A) would include one station, and additional stations may be located near the I-5/Grapevine Road interchange and/or I-5 overpass. Health impacts associated with gasoline dispensing was evaluated using guidance found in the SJVAPCD’s *Draft Guidance for Air Dispersion Modeling* (SJVAPCD 2007c).

**Diesel Emergency Generators and Firewater Pumps.** The water treatment plant and each WWTP would be equipped with a diesel-powered emergency generator to provide power

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during power outages. In addition, some other commercial and industrial land uses may include diesel emergency generators and/or firewater pumps. Additional emergency generators and firewater pumps could be located at future major commercial and institutional uses at Planning Areas 6B, 6D, and 6E. For estimating emergency engine emissions, the SJVAPCD spreadsheet tool “Diesel IC Engine” was used in conjunction with Tier 3 standards in accordance with the ATCM for stationary compression-ignition (diesel) engines. For risk estimation purposes, PM<sub>10</sub> is considered DPM.

**Small Industrial Source Emissions.** As discussed in Section 2.4.2.3 under the heading Small Industrial Source Emissions, various industrial sources could be developed under the project. The same approach was generally used to estimate the TAC emissions from these sources; however, TAC factors from EPA, SJVAPCD, and other references were used to calculate these emissions.

### **Freeway Diesel Particulate Matter**

The following discussion summarizes the analysis presented in the *Diesel Particulate Matter Health Risk Assessment of Interstate-5 Freeway*, prepared for the project by Ramboll Environ (2015b).

In December 2015, the California Supreme Court decided that CEQA does not apply to the impacts of existing environmental conditions (e.g., emissions from I-5) on a project, unless the project exacerbates such impacts (62 Cal.4th 369). For informational purposes, and because the project would contribute increased traffic-related emissions on I-5, this report includes an analysis of the impacts of freeway-related emissions (and particularly the health-based “driver” of health risks, diesel particulate emissions) on the project’s inhabitants.

### **SJVAPCD**

The GAMAQI identifies two types of land use projects that have the potential to cause long-term public health risk impacts:

- Type A Projects: Land use projects that will place new toxic sources in the vicinity of existing receptors
- Type B Projects: Land use projects that will place new receptors in the vicinity of existing toxics sources

Type B projects include residential, commercial, and institutional developments proposed to be located in the vicinity of existing TAC sources such as freeways or high-traffic roads. The

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proposed development of residences and other sensitive receptor land uses near I-5 would be considered a Type B project.

For projects being impacted by existing sources, the GAMAQI recommends use of a screening tool contained in the CARB Handbook *Air Quality and Land Use Handbook: A Community Health Perspective* (CARB 2005). Recommendations provided by CARB are voluntary and do not constitute a requirement or mandate for either land use agencies or local air districts. Some examples of CARB's recommendations include avoiding siting sensitive receptors within 500 feet of a freeway, urban road with 100,000 vehicles per day, or rural roads with 50,000 vehicles per day; within 1,000 feet of a transport distribution center; and within 300 feet of any dry cleaning operation using perchloroethylene or 500 feet of a dry cleaning operation with two or more machines. According to CARB, California freeway studies show an approximately 70% decrease in particulate pollution levels at 500 feet, and lifetime cancer risk from exposure to DPM is expected to be lowered proportionately at that distance. Recommended buffer distances can be used to determine if a health risk screening and/or assessment should be performed to assess risk to potential sensitive receptors.

The GAMAQI also refers to the California Air Pollution Control Officers Association (CAPCOA) guidance document *Health Risk Assessments for Proposed Land Use Projects* (CAPCOA 2009). CAPCOA prepared the guidance to assist lead agencies in complying with CEQA requirements. This document is also referenced in the impact analysis.

### ***Kern County***

The County does not have guidance on performing a health risk assessment for freeway sources.

### ***Evaluation Methods and Calculation Assumptions***

The primary TAC associated with high-volume roadways such as I-5 is DPM. Diesel exhaust is a complex mixture of hundreds of constituents, and is identified by California as a known carcinogen. Under California regulatory guidelines, DPM is used as a surrogate measure of carcinogen exposure for the mixture of chemicals that make up diesel exhaust as a whole. A description of the model input parameters and detailed modeling assumptions for the I-5 HRA for the project are provided in Appendix F.

The impact analysis was based on the average daily traffic volume estimates and hourly variation in the traffic on several segments of I-5 that pass through the project site for the following four scenarios, as provided in the traffic study (Fehr & Peers 2015a):

- Existing/baseline conditions (calendar year 2015)

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- No project future conditions (calendar year 2040)
- Existing/baseline plus project (calendar year 2015)
- Future conditions plus project (calendar year 2040)

In these scenarios, existing/baseline reflects traffic volumes on I-5 under current (2015) with and without the effect of traffic generated by the project. Future conditions reflect traffic volumes on I-5 under 2040 with and without the effect of traffic generated by the project. DPM emission factors are calculated using the latest version of CARB's mobile source emissions inventory model, EMFAC2014. Exhaust PM<sub>10</sub> from diesel vehicles was used as a proxy for DPM.

In accordance with SJVAPCD's modeling guidance, the impact analysis used the latest version of AERMOD for dispersion modeling. The HRA evaluated segments of I-5 that run through the project site, including an additional 0.25 mile on either end of the project boundary. The DPM exhaust emissions generated by the freeway traffic were modeled in AERMOD as a series of line sources (adjacent volume sources), which is an accepted practice for modeling mobile sources in a dispersion model. The analysis used a freeway-following receptor grid that covers the project site for the AERMOD model run.

Exposure assessment is concerned with the quantity of a contaminant that people are exposed to during a specific time period, and the populations of interest (e.g., residential, worker, sensitive population). SJVAPCD Risk Management Policy requires use of a residential exposure period of 70 years and a worker exposure period of 40 years (SJVAPCD 2015e). For this risk analysis, all receptors were conservatively evaluated as residential. Exposure pathway is the route through which a contaminant enters the body. For air emissions, inhalation is usually the primary exposure pathway. Although some TACs can also enter the body through non-inhalation pathways such as dermal exposure; water ingestion; crop ingestion (direct deposition); and soil ingestion; and through secondary non-inhalation pathways such as ingestion of mother's milk; fish; dairy products; and all types of meat, eggs, and crop (root uptake) ingestion, multi-pathway factors have not been developed for DPM.

The latest version of approved values of cancer potency factors (or unit risk factors) for carcinogenic health effects, and reference exposure levels for acute and chronic non-carcinogenic health effects from the OEHHA website are used in the HRA.<sup>18</sup>

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<sup>18</sup> Available at [http://oehha.ca.gov/air/hot\\_spots/pdf/CPFs042909.pdf](http://oehha.ca.gov/air/hot_spots/pdf/CPFs042909.pdf) and <http://oehha.ca.gov/air/allrels.html>. Accessed July 2015.

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HARP 2 was used to conduct the HRA. HARP 2 is a software suite used to assist with the programmatic requirements of the Air Toxics “Hot Spots” Program (AB 2588). HARP 2 incorporates the requirements of the latest version of OEHHA Air Toxics Hot Spot Risk Assessment guidelines (OEHHA 2015). Based on its review of RELs and cancer potency factors to provide consideration of infants and children, OEHHA did not propose any revisions of the values for DPM. The cancer risk calculations in the revised OEHHA guidance manual include age-specific adjustments for infant and children. These include the following elements, which have also been adopted as part of SJVAPCD’s Risk Management Policy (SJVAPCD 2015e):

- **Age Group Bins:** Cancer risk is estimated separately for the following age group bins: third trimester to age 0, ages 0 to less than 2, ages 2 to less than 9, ages 2 to less than 16, ages 16 to less than 30, and ages 16 to 70. Total cancer risk associated with a particular population of interest and exposure period is estimated by summing up the estimated cancer risk from the appropriate age group bins.
- **Age Sensitivity Factors:** The following age sensitivity factors (multipliers) are applied while estimating the cancer risk: a 10-fold multiplier for infants (third trimester to 2 years old), a 3-fold multiplier for children (ages 2 to 16 years old), and a 1-fold multiplier for adults (ages 16 years and older).
- **Breathing Rates:** Breathing rates are used for cancer risk assessment. As per OEHHA’s methodology, HARP 2 uses a different breathing rate for each of the proposed age groups (third trimester to age 0, ages 0 to less than 2, ages 2 to less than 9, ages 2 to less than 16, ages 16 to less than 30, and ages 16 to 70). The 95th percentile breathing rate is used for all age groups up to 16 years old, and the 80th percentile breathing rate is used for ages 16 to 70.

### **2.4.2.7 Carbon Monoxide Hotspot Analysis**

#### **SJVAPCD**

As discussed in Section 2.4.1.2, the SJVAPCD established screening criteria to determine whether a project would result in a CO hotspot at affected roadway intersections.

#### **Kern County**

As discussed in Section 2.4.1.1, Kern County established screening criteria to determine whether a project would result in a CO hotspot at affected roadway intersections.



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### **Evaluation Methods and Calculation Assumptions**

The SJVAPCD and Kern County screening criteria were both applied to determine the potential for the project to result in a CO hotspot. The traffic impact analysis prepared for the project by Fehr & Peers (2015a) was used to perform the screening evaluation.

#### **2.4.2.8 Visibility Impacts**

##### **SJVAPCD**

The SJVAPCD has not developed specific guidance to assess potential visibility impacts in CEQA documents. A visibility analysis may be required under the federal Prevention of Significant Deterioration program, which the SJVAPCD incorporates as Rule 2410. The Prevention of Significant Deterioration program is a construction permitting program for new major stationary sources and major modifications to existing major stationary sources located in areas classified as attainment or in areas that are unclassifiable for any criteria air pollutant. The project is not anticipated to include stationary sources that would be subject to the Prevention of Significant Deterioration program; as such, the program's visibility analysis requirements would not be applicable to the project.

##### **Kern County**

The County guidance states that potential impacts to visibility should be evaluated for all industrial projects and any other projects, such as mining projects, that have components that could generate dust or emissions related to visibility.

### **Evaluation Methods and Calculation Assumptions**

Per the Kern County guidelines, a visibility analysis is not required since the project is not a large industrial stationary-source project or a mining project, and it would not have long-term operational components that could generate substantial dust or emissions plumes related to visibility. Compliance with Regulation VIII, including implementation of all feasible dust control measures specified in GAMAQI and incorporated into a dust control plan, would be sufficient mitigation to reduce air quality effects from construction-related PM<sub>10</sub> emissions to less-than-significant levels (SJVAPCD 2015d).

#### **2.4.2.9 Odors**

##### **SJVAPCD**

Please see Section 2.4.1.2 for a discussion of the SJVAPCD guidance for analyzing odor impacts.

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### **Kern County**

The County has not identified methods for assessing potential project-level odor impacts.

### **Evaluation Methods and Calculation Assumptions**

Evaluation of the project's potential to result in an odor impact is based on the SJVAPCD guidance. The qualitative analysis of the potential for the project to generate odors considers the reasonably anticipated, permitted land uses identified in the Grapevine Specific Plan. Development of the community is anticipated to include three wastewater treatment facilities. As such, an assessment of typical odorous compounds associated with the aerobic wastewater treatment processes is included in the impact analysis.

#### **2.4.2.10 Cumulative Impacts**

### **SJVAPCD**

As defined in the GAMAQI, cumulative impacts refers to two or more individual effects that, when considered together, are considerable or compound or increase other environmental impacts (SJVAPCD 2015d). Air pollution by nature is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development, and the SJVAPCD develops and implements plans for future attainment of ambient air quality standards. Based on these considerations, project-level thresholds of significance for criteria pollutants are relevant in the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. The potential for the project to result in a cumulatively considerable impact, per the SJVAPCD guidance and thresholds, is based on the project's potential to exceed the project-specific annual thresholds.

See Section 2.4.1.2 for a discussion of the SJVAPCD guidance for analyzing cumulative impacts.

### **Kern County**

The County Air Quality Assessment guidance (Kern County 2006) states that the cumulative impact assessment must include a discussion of localized impacts and discussion on consistency with existing air quality plans.

The localized impact evaluation typically includes estimation of operational emissions from combined projects identified within a 1-mile and 6-mile radius of the project boundaries. Although a list-type approach works well for some environmental issue areas, it may not be the most appropriate approach to analyze the project's cumulative air quality impacts, because the

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project would include a VERA for mobile and stationary sources not requiring permits with offsets, and would not result in a net increase in emissions of pollutants of primary concern. As such, the potential for the project to result in significant cumulative impacts was determined using other approaches in place of the 1-mile and 6-mile cumulative analysis.

As discussed in Section 2.4.2.1, the analysis of a project's consistency with existing air quality plans includes an assessment of consistency with the Kern COG RTP/SCS, and an assessment of the project's consistency and conformity with local plans and the SIP.

### **Evaluation Methods and Calculation Assumptions**

The cumulative impact assessment includes an evaluation based on the SJVAPCD guidance and the applicable recommendations in the County guidance.

## **2.5 Impact Analysis**

### **2.5.1 Conflict With or Obstruct the Implementation of the Applicable Air Quality Plan**

The SJVAPCD has prepared plans to attain federal and state ozone and particulate matter ambient air quality standards as required under the federal and California CAAs, as detailed in Section 2.2.3.1. The SJVAPCD has established thresholds of significance for criteria pollutant emissions and projects with emissions below the thresholds of significance for criteria pollutants would be determined to “not conflict or obstruct implementation of the District’s air quality plan” (SJVAPCD 2015d). In regards to air quality plan consistency under the Kern County guidance, it is recommended that a discussion be included relating growth under the project to the Kern COG Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and Traffic Analysis Zones (TAZs), as well as emissions from similar projects included in the Ozone Attainment Plan for the basin (Kern County 2006).

The Kern COG growth modeling for the RTP/SCS provides for future employment/dwelling unit factors that are supportive of planned development expansion in the Grapevine Specific Plan Area. The RTP/SCS modeling is updated every four years to reflect changing growth and modeling assumptions within the region. As growth occurs in specific TAZ geographic units throughout the region, the modeling and planning assumptions are evaluated and updated to reflect where regional growth is occurring and should be appropriately allocated (James 2015). The RTP/SCS modeling program is designed to accommodate a 20-year planning period, it is a very dynamic process that is designed to periodically allocate growth where it is actively occurring within the region through the four-year update process, which reflects changing economic trends and market needs occurring in specific areas of the region.

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As described in Section 2.5.2 which estimates construction and operational criteria pollutant emissions, the project would generate substantial ozone precursor and particulate matter emissions from construction and operational activities. However, the Grapevine Specific Plan and Special Plan's SCS designation as a "Planned Transit Priority Area" and a "Strategic Employment Center" provide for walkable, mixed-use land use and circulation patterns and the integration of transit and other sustainable development concepts to ensure that the proposed Grapevine Specific Plan will be consistent with the policies and programs of the 2014 RTP/SCS. Since the project is consistent with the 2014 RTP/SCS, and RTP/SCS projections are incorporated into the SIP, the project is also consistent with the SIP. In addition, the project has entered a VERA with the SJVAPCD, which—along with compliance with stationary source permitting rules implemented by SJVAPCD—will ensure that all project-related construction and operational emissions of NO<sub>x</sub>, ROG, and PM<sub>10</sub> (inclusive of PM<sub>2.5</sub>) within the SJVAB are fully offset (i.e., no net increase) and further confirms the project will not cause or contribute to any ambient air quality standard exceedances. The VERA requires emission reductions beyond those required by the applicable air quality plans and, as such, the project would be consistent with the policies of the applicable SJVAPCD air quality attainment plans.

Impacts associated with the project's potential to be in conflict with an applicable air quality management plan would be less than significant.

### **Mitigation Measures**

None required.

### **Level of Significance After Mitigation**

Impacts would be less than significant without mitigation.

## **2.5.2 Violate Any Air Quality Standard as Adopted in Kern County Environmental Checklist (c) i or (c) ii, or as Established by EPA or Air District or Contribute Substantially to an Existing or Projected Air Quality Violation**

### **2.5.2.1 Construction Impacts**

#### **Construction Criteria Air Pollutant Emissions**

Construction of project components would temporarily generate ROG, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> emissions that would result in short-term impacts on ambient air quality in the area. Emissions would originate from mobile and stationary construction equipment exhaust,

## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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employee vehicle exhaust, dust from clearing the land, exposed soil eroded by wind, and ROG emissions from architectural coatings and asphalt paving. Construction-related emissions would vary substantially depending on the level of activity, length of the construction period, specific construction operations, types of equipment, number of personnel, wind and precipitation conditions, and soil moisture content. On-site sources of criteria air pollutant emissions would include off-road equipment and fugitive dust, and off-site sources would include hauling and vendor trucks and worker vehicles. Compliance with SJVAPCD Regulation VIII, as required by law, would ensure that project-generated fugitive dust would be reduced to the extent feasible and that dust impacts would be less than significant. Fugitive dust (PM<sub>10</sub> and PM<sub>2.5</sub>) emissions are thus not included in the quantitative assessment below.

Table 2-23 presents a summary of annual unmitigated construction emissions of criteria air pollutants. Emissions from on-site and off-site sources were combined for this analysis.

A detailed depiction of the construction schedule—including information regarding phasing, equipment utilized during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Appendix A.2, Construction Assumptions and Emissions Tables, of this report. In addition, Appendix B provides CalEEMod output files for construction with a depiction of emissions by source.

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**Table 2-23**  
**Summary of Estimated Annual Unmitigated Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year) <sup>b</sup>	PM <sub>2.5</sub> Exhaust (tons/year) <sup>b</sup>
<i>Planning Area 6A</i>						
2016	12.40	34.72	34.19	0.06	1.62	1.50
2017	15.84	39.96	41.63	0.07	1.88	1.74
2018	14.90	29.93	36.15	0.07	1.36	1.26
<i>Planning Area 2</i>						
2019	12.31	23.38	26.46	0.05	1.09	1.01
2020	17.85	28.62	36.00	0.08	1.35	1.25
2021	17.84	27.62	39.00	0.09	1.29	1.20
2022	16.56	16.59	28.05	0.06	0.75	0.70
<i>Planning Area 1</i>						
2023	12.52	12.70	20.07	0.05	0.57	0.53
2024	17.59	9.16	18.47	0.05	0.41	0.38
<i>Planning Area 3</i>						
2025	11.11	12.42	22.41	0.05	0.53	0.49
2026	14.59	15.41	28.52	0.07	0.67	0.61
2027	14.35	13.26	26.42	0.07	0.56	0.52
<i>Planning Area 4</i>						
2028	7.94	9.34	14.57	0.03	0.41	0.38
2029	13.38	13.49	22.94	0.06	0.59	0.55
2030	13.30	7.47	22.16	0.06	0.24	0.24
2031	12.50	4.35	12.36	0.03	0.14	0.14
<i>Planning Areas 5A, 5B, 6B, 6C, 6D, 6E<sup>a</sup></i>						
2032	7.51	7.80	20.07	0.05	0.27	0.27
2033	12.91	11.07	31.53	0.09	0.38	0.38
2034	13.65	13.64	37.07	0.10	0.47	0.47
2035	14.19	9.47	31.92	0.09	0.31	0.31
Maximum Annual Emissions	17.85	39.96	41.63	0.10	1.88	1.74
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	Yes	Yes	No	No	No	No

Notes: See Appendix B for detailed results.

<sup>a</sup> 2032 includes concurrent construction of 6B and 5A. 2033 includes concurrent construction of 6B, 5A, and 6C. 2034 includes concurrent construction of 6B, 6D, 6E, and 6D. 2035 includes concurrent construction of 5A, 6D, 6E, and 5B.

<sup>b</sup> Only exhaust PM<sub>10</sub> and PM<sub>2.5</sub> are depicted since fugitive dust would be controlled to a less-than-significant level through compliance with SJVAPCD Regulation VIII.

As shown in Table 2-23, 17 of the 19 years assessed would exceed the SJVAPCD annual ROG threshold of 10 tons/year in the unmitigated scenario. These years include construction of Planning

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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Areas 6A, 2, 1, 3, and 4, and concurrent construction of one or more of Planning Areas 5A, 5B, 6B, 6C, 6D, and 6E in 2032 through 2035. The SJVAPCD annual NO<sub>x</sub> threshold of 10 tons/year would be exceeded in 14 of the 19 years assessed under the unmitigated scenario. Exceedances of the SJVAPCD NO<sub>x</sub> threshold would occur during construction of Planning Areas 6A, 2, 1, 3, and 4, and concurrent construction of one or more of Planning Areas 5A, 5B, 6B, 6C, 6D, and 6E in the unmitigated scenario. Construction of the project would not exceed the SJVAPCD annual thresholds for CO, SO<sub>x</sub>, PM<sub>10</sub>, or PM<sub>2.5</sub> in any year.

Because the project would exceed the SJVAPCD thresholds during construction, the project would result in a potentially significant impact related to the potential to violate any air quality standard or contribute substantially to an existing or projected air quality violation. As such, mitigation is required, as presented below.

### Mitigation Measures

MM-AQ-1 ensures that the project would comply with all applicable laws, rules, and regulations. MM-AQ-2 implements requirements under SJVAPCD Regulation VIII, as required by law, which would ensure that fugitive dust would be reduced to the extent feasible and that dust impacts would be less than significant. MM-AQ-3 requires use of off-road equipment with engines rated at 75 horsepower or greater, to meet tier standards; the required equipment tier varies based on the year of construction. MM-AQ-4 involves the implementation of the VERA. MM-AQ-1 through MM-AQ-4 are as follows:

- MM-AQ-1 Compliance with Applicable Laws and Regulations.** The project is required to comply with applicable state and federal air pollution control laws and regulations, and with applicable rules and regulations of the San Joaquin Valley Air Pollution Control District (SJVAPCD) during construction and operations.
- MM-AQ-2 Fugitive Dust.** Prior to issuance of grading or building permit, the project proponent shall submit the dust control plan to San Joaquin Valley Air Pollution Control District (SJVAPCD) for review and approval, and shall provide the plan to the County, to demonstrate compliance with SJVAPCD Regulation VIII (Fugitive PM<sub>10</sub> Prohibition). The plan shall address construction-related dust (including PM<sub>10</sub>) as required by SJVAPCD.
- MM-AQ-3 Construction Equipment.** For off-road equipment with engines rated at 75 horsepower or greater, no construction equipment will be used that is less than Tier 2 at the commencement of construction (2016), less than Tier 3 starting in construction year 5 (2020), less than Tier 4 Interim starting in construction year



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10 (2025), and Tier 4 Final starting in construction year 15 (2030). An exemption from these requirements may be granted by Kern County in the event that the applicant documents that (1) equipment with the required tier is not reasonably available (e.g., reasonability factors to be considered include those available within Kern County within the scheduled construction period), and (2) corresponding reductions in criteria pollutant emissions are achieved from other construction equipment.

**MM-AQ-4 Voluntary Emission Reduction Agreement.** The project proponent shall enter into and implement a Voluntary Emission Reduction Agreement (VERA) with the San Joaquin Valley Pollution Control District (SJVAPCD) to reduce emissions of reactive organic gases (ROGs), oxides of nitrogen (NO<sub>x</sub>), and particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM<sub>10</sub>) to achieve emission reductions for project construction- and operational-related emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> (inclusive of particulate matter with an aerodynamic diameter less than or equal to 2.5 microns (PM<sub>2.5</sub>)). Prior to recordation of a final tentative tract map, and prior to approval of a grading permit for a commercial site plan, the project proponent shall submit to the County documentation confirming compliance with the VERA.

### Level of Significance After Mitigation

Implementation of MM-AQ-1, Compliance with Applicable Regulations and Rules, would minimize criteria air pollutant emissions from various onsite and offsite emission sources. Idling restrictions on trucks and offroad equipment would minimize combustion pollutant emissions, including NO<sub>x</sub>, by prohibiting idling for more than 5 minutes except as permitted by CARB. Compliance with SJVAPCD architectural coating rules would minimize off-gassing emissions of ROGs (i.e., VOCs) by placing a limit on the VOC content (measured in grams per liter of VOC) allowed for different types of coatings (e.g., flat and non-flat paint). Applicable state and SJVAPCD Regulations and Rules the project would be required to comply with during construction, include, but not limited to:

- Idling of Commercial Heavy Duty Trucks (13 CCR 2485) – Heavy-duty construction trucks with a gross vehicle weight rating of 10,000 pounds or greater will be prohibited from idling for more than 5 minutes except as permitted by the CARB Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.

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- In-Use Off-Road Diesel-Fueled Fleets (13 CCR 2449 et seq.) – Off-road equipment will be prohibited from idling for more than 5 minutes except as permitted by the CARB Airborne Toxic Control Measure for In-Use Off-Road Diesel-Fueled Fleets.
- SJVAPCD Regulation IV – Prohibitions, including Rule 4101 (Visible Emissions), Rule 4102 (Nuisance), and Rule 4601 (Architectural Coatings).
- SJVAPCD Regulation VIII – Fugitive dust requirements, including Rule 8011 (General Requirements), Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities), Rule 8031 (Bulk Materials), Rule 8041 (Carryout and Trackout), Rule 8051 (Open Areas), Rule 8061 (Paved and Unpaved Roads), and Rule 8071 (Unpaved Vehicle/Equipment Traffic Areas).
- SJVAPCD Regulation IX – Mobile and Indirect Sources, including Rule 9510 (Indirect Source Review).

Implementation of MM-AQ-2, Fugitive Dust, minimizes  $PM_{10}$  (inclusive of  $PM_{2.5}$ ) emissions from grading and other earthmoving and construction activities by development of a plan to implement fugitive dust control measures during construction in compliance with the requirements of SJVAPCD Regulation VIII. Because  $PM_{10}$  and  $PM_{2.5}$  emissions associated with fugitive dust have not been quantified, no reduction in emissions of these pollutants has been attributed to MM-AQ-2.

Implementation of MM-AQ-3, Construction Equipment, reduces all air pollutants associated with most off-road diesel construction equipment—chiefly ROG,  $NO_x$ ,  $PM_{10}$ , and  $PM_{2.5}$ . The measure would restrict the model years, which are associated with engine tiers, of construction equipment or its engines according to prescribed milestone dates. The implementation of MM-AQ-3 is simulated using CalEEMod by specifying higher tier engines than those assumed in the default CalEEMod construction equipment fleets. The degree to which MM-AQ-3 would reduce unmitigated emissions is a function of the assumed in-use fleet in CalEEMod and the engine emission standards for the required engine tiers. Table 2-24 shows the EPA/CARB emission standards for new off-road compression-ignition (diesel) engines. Beginning in 1996, these engine emission standards started with the Tier 1 level. Subsequent emission standards with increasingly stringent emission levels were called Tier 2, Tier 3, and Tier 4. Based on agreements between EPA and the engine manufacturers, Tier 4 Interim was introduced to allow a phase-in of less well-controlled engines prior to implementation of the more stringent full Tier 4 standards. Table 2-24 also shows the percent reduction in emissions of non-methane

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hydrocarbons (NMHC) plus  $\text{NO}_x$ <sup>19</sup> and PM for a given tier compared to those for the next lower tier. This comparison suggests the degree to which MM-AQ-3 would reduce construction emissions. The mitigation measure would result in the potential introduction of more stringently controlled engines before either construction equipment or their engines would be replaced due to age or the compliance deadlines of the CARB ATCM for in-use off-road diesel-fueled fleets (see Section 2.2.2.2, Toxic Air Contaminants) would be achieved. While Table 2-24 indicates the reduction in emissions from tier to tier, the actual mitigation due to MM-AQ-3 would depend on the actual ages (tiers) of the engines in construction equipment being used at any particular time and the degree that compliance with the CARB ATCM has been achieved as of a particular deadline. Thus, the emission reduction due to MM-AQ-3 could be lower or higher than that shown in Table 2-24. That is, if the actual construction equipment fleet being used were relatively new compared to when a milestone in MM-AQ-3 becomes effective (e.g., a high percentage of the equipment already uses Tier 3 engines in 2020), the benefits would be lower than those shown in Table 2-24. Conversely, if the construction fleet were older (e.g., a high percentage of the equipment still uses Tier 2 or older engines in 2020), the benefits would be greater.

Implementation of MM-AQ-4, Voluntary Emission Reduction Agreement, would fully mitigate emissions of ROG,  $\text{NO}_x$ , and  $\text{PM}_{10}$  (inclusive of  $\text{PM}_{2.5}$ ). Accordingly, net construction emissions of these air pollutants would be reduced to zero. Emissions of  $\text{SO}_x$  and CO would not be mitigated; however, their emissions were found to be less than significant.

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<sup>19</sup> The emission standards for some tiers are set for total NMHC+ $\text{NO}_x$  emissions, while others have separate standards for NMHC and  $\text{NO}_x$  emissions. To keep the comparison the same for all tiers, all standards in Table 2-24 are expressed as NMHC+ $\text{NO}_x$ .

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**Table 2-24**  
**Comparison of Off-Road Diesel Engine Emission Standards**

Horsepower Range	Tier 1		Tier 2				Tier 3				Tier 4 Interim				Tier 4 Final			
	NMHC + NO <sub>x</sub>		PM		NMHC+NO <sub>x</sub>		PM		NMHC+NO <sub>x</sub>		PM		NMHC+NO <sub>x</sub>		PM		NMHC+NO <sub>x</sub>	
	g/hp-hr	g/hp-hr	g/hp-hr	% Reduction	g/hp-hr	% Reduction	g/hp-hr	% Reduction	g/hp-hr	% Reduction	g/hp-hr	% Reduction	g/hp-hr	% Reduction	g/hp-hr	% Reduction	g/hp-hr	% Reduction
<11	7.8	0.75	5.6	28%	0.60	20%	NS	ND	NS	ND	NS	ND	NS	ND	5.6	ND	0.30	ND
11≤hp<25	7.1	0.60	5.6	21%	0.60	0%	NS	ND	NS	ND	NS	ND	NS	ND	5.6	ND	0.30	ND
25≤hp<50	7.1	0.60	5.6	21%	0.45	25%	NS	ND	NS	ND	5.6	ND	0.22	ND	3.5	38%	0.02	91%
50≤hp<75	6.9	NS	5.6	19%	0.30	ND	NS	ND	NS	ND	3.5	ND	0.22	ND	3.5	0%	0.02	91%
75≤hp<100	6.9	NS	5.6	19%	0.30	ND	3.5	38%	0.30	0%	2.64	25%	0.015	95%	0.44	83%	0.015	0%
100≤hp<175	6.9	NS	4.9	29%	0.22	ND	3.0	39%	0.22	0%	2.64	12%	0.015	93%	0.44	83%	0.015	0%
175≤hp<300	7.9	0.40	4.9	38%	0.15	63%	3.0	39%	0.15	0%	1.64	45%	0.015	90%	0.44	73%	0.015	0%
300≤hp<600	7.9	0.40	4.8	39%	0.15	63%	3.0	38%	0.15	0%	1.64	45%	0.015	90%	0.44	73%	0.015	0%
600≤hp≤750	7.9	0.40	4.8	39%	0.15	63%	3.0	38%	0.15	0%	1.64	45%	0.015	90%	0.44	73%	0.015	0%
Mobile Machines >750 hp	7.9	0.40	4.8	39%	0.15	63%	NS	ND	NS	ND	2.9	ND	0.07	ND	2.74	6%	0.03	57%
750 hp< Generators ≤1200 hp	7.9	0.40	4.8	39%	0.15	63%	NS	ND	NS	ND	2.9	ND	0.07	ND	0.64	78%	0.02	71%
Generators >1200 hp	7.9	0.40	4.8	39%	0.15	63%	NS	ND	NS	ND	0.80	ND	0.07	ND	0.64	20%	0.02	71%

Source: 13 CCR Section 2423, 40 CFR Sections 89.112, 1039.101, and 1039.102.

Notes:

The emission standards shown are the more stringent of the EPA or CARB standards. Emission standards have been converted from grams per kilowatt-hour to grams per horsepower-hour.

% Reduction compares the standard of a given tier to the standards of the next lower tier.

hp – horsepower

NMHC – nonmethane hydrocarbons, NO<sub>x</sub> – oxides of nitrogen, PM – particulate matter

NS – no standards have been established.

ND – not determined because no standards have been established for one of the tiers.

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Estimated mitigated emissions incorporate MM-AQ-3, Construction Equipment, which requires use of off-road equipment with engines rated at 75 horsepower or greater, to meet tier standards; the required equipment tier varies based on the year of construction, as presented in Table 2-24. Mitigated emissions without incorporation of the VERA (MM-AQ-4) are summarized in Table 2-25. PM<sub>10</sub> and PM<sub>2.5</sub> emissions presented in represent only the total exhaust emissions associated with off-road equipment and on-road vehicle travel, and emissions from on-site and off-site sources were combined for this analysis.

**Table 2-25**  
**Summary of Estimated Annual Mitigated Construction Criteria Air Pollutant Emissions**  
**(Without VERA)**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year) <sup>b</sup>	PM <sub>2.5</sub> Exhaust (tons/year) <sup>b</sup>
<i>Planning Area 6A</i>						
2016	10.72	27.47	33.43	0.06	0.75	0.74
2017	13.98	33.63	41.54	0.07	0.94	0.93
2018	13.76	28.99	37.22	0.07	0.83	0.82
<i>Planning Area 2</i>						
2019	11.28	23.09	27.39	0.05	0.67	0.66
2020	16.68	30.81	37.72	0.08	0.93	0.92
2021	16.85	33.42	41.36	0.09	1.03	1.03
2022	16.10	23.01	29.87	0.06	0.73	0.73
<i>Planning Area 1</i>						
2023	11.88	11.38	21.90	0.05	0.53	0.52
2024	17.18	9.17	19.65	0.05	0.45	0.45
<i>Planning Area 3</i>						
2025	10.37	11.09	24.77	0.05	0.1	0.09
2026	13.68	14.07	31.31	0.07	0.13	0.12
2027	13.61	12.78	28.56	0.07	0.12	0.12
<i>Planning Area 4</i>						
2028	7.34	8.05	16.61	0.03	0.06	0.06
2029	12.55	12.17	25.60	0.06	0.1	0.1
2030	12.51	12.21	25.28	0.06	0.10	0.10
2031	12.09	6.66	13.79	0.03	0.06	0.06
<i>Planning Areas 5A, 5B, 6B, 6C, 6D, 6E<sup>a</sup></i>						
2032	6.46	3.27	23.66	0.05	0.09	0.09
2033	11.45	4.57	35.81	0.09	0.14	0.14
2034	11.79	5.52	43.16	0.10	0.15	0.15
2035	12.77	4.22	36.80	0.09	0.12	0.12

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**Table 2-25**  
**Summary of Estimated Annual Mitigated Construction Criteria Air Pollutant Emissions**  
**(Without VERA)**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year) <sup>b</sup>	PM <sub>2.5</sub> Exhaust (tons/year) <sup>b</sup>
Maximum Annual Emissions	17.18	33.63	43.16	0.10	1.03	1.03
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	No	No	No	No

Notes: See Appendix B for detailed results. Mitigated emissions account for implementation of MM-AQ-3 (Construction Equipment)

<sup>a</sup> 2032 includes concurrent construction of 6B and 5A. 2033 includes concurrent construction of 6B, 5A, and 6C. 2034 includes concurrent construction of 6B, 6D, 6E, and 6D. 2035 includes concurrent construction of 5A, 6D, 6E, and 5B.

<sup>b</sup> Only exhaust PM<sub>10</sub> and PM<sub>2.5</sub> are depicted since fugitive dust would be controlled to a less-than-significant level through compliance with SJVAPCD Regulation VIII.

<sup>c</sup> PM<sub>2.5</sub> emissions are a subset of PM<sub>10</sub> emissions. Accordingly, it is assumed that PM<sub>10</sub> emission reductions under a VERA would also cover PM<sub>2.5</sub> emissions (SJVAPCD 2016).

As shown in Table 2-25, 17 of the 19 years assessed would exceed the SJVAPCD annual ROG threshold of 10 tons/year in the mitigated scenario (without accounting for the VERA). These years include construction of Planning Areas 6A, 2, 1, 3, and 4, and concurrent construction of one or more of Planning Areas 5A, 5B, 6B, 6C, 6D, and 6E in 2032 through 2035. The SJVAPCD annual NO<sub>x</sub> threshold of 10 tons/year would be exceeded in 13 of the 19 years assessed under the mitigated scenario (without accounting for the VERA). Exceedances of the SJVAPCD NO<sub>x</sub> threshold would occur during construction of Planning Areas 6A, 2, 1, 3, and 4, and concurrent construction of one or more of Planning Areas 5A, 5B, 6B, 6C, 6D, and 6E in the mitigated scenario. Construction of the project would not exceed the SJVAPCD annual thresholds for CO, SO<sub>x</sub>, PM<sub>10</sub>, or PM<sub>2.5</sub> in any year.

As explained in Section 1.4.3, under MM-AQ-4 (VERA), the project proponent would mitigate the project's remaining emissions from construction by achieving quantifiable and enforceable emission reductions. Project-generated mitigated construction emissions with incorporation of the VERA (MM-AQ-4) are presented in Table 2-26.

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**Table 2-26**

### Estimated Annual Mitigated Construction Criteria Air Pollutant Emissions With VERA

	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year) <sup>b</sup>	PM <sub>2.5</sub> Exhaust (tons/year) <sup>b</sup>
Maximum Annual Emissions	17.18	33.63	43.16	0.10	1.03	1.03
VERA Reductions for Maximum Annual Emissions	(17.18)	(33.63)	0.00	0.00	(1.03)	(1.03) <sup>c</sup>
Net Annual Emissions With Incorporation of VERA Reductions	0.00	0.00	43.16	0.10	0.00	0.00
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix B for detailed results. Maximum Annual Emissions account for implementation of MM-AQ-3 (Construction Equipment)

<sup>a</sup> 2032 includes concurrent construction of 6B and 5A. 2033 includes concurrent construction of 6B, 5A, and 6C. 2034 includes concurrent construction of 6B, 6D, 6E, and 6D. 2035 includes concurrent construction of 5A, 6D, 6E, and 5B.

<sup>b</sup> Only exhaust PM<sub>10</sub> and PM<sub>2.5</sub> are depicted since fugitive dust would be controlled to a less-than-significant level through compliance with SJVAPCD Regulation VIII.

<sup>c</sup> PM<sub>2.5</sub> emissions are a subset of PM<sub>10</sub> emissions. Accordingly, it is assumed that PM<sub>10</sub> emission reductions under a VERA would also cover PM<sub>2.5</sub> emissions (SJVAPCD 2016).

Implementation of MM-AQ-1, MM-AQ-2, MM-AQ-3 and MM-AQ-4 would reduce impacts related to project-generated construction emissions to a level that is less than significant.

In regards to project-generated construction emissions, the project's impact related to the potential to violate any air quality standard as adopted in Kern County Environmental Checklist Air Quality (c) i, or as established by EPA or air district would be less than significant with mitigation.

### Transportation Improvements

In addition to construction of the project Planning Areas, the project would necessitate the relocation of the I-5 interchange, with interchange improvements to be made based on capacity as the project builds out, with all improvements to freeway ramps designed and constructed to meet Caltrans requirements. Notably, emissions associated with construction of the transportation improvements are included for disclosure. The alternative to be selected and the actual dates of construction are not known at this time; additional analysis would likely be required in the future once the preferred interchange alternative is selected and the engineering designs for each improvement are finalized. Table 2-27 presents total construction emissions for each transportation improvement and the total off-site emissions assuming the maximum emissions associated with the analyzed interchange alternatives for the earliest possible



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construction year. In all years analyzed, Interchange Alternative 3 Existing resulted in the greatest emissions of the three interchange alternatives assessed. As unmitigated and mitigated emissions were the same for all scenarios analyzed, one table is presented below to illustrate project-generated criteria air pollutant emissions.

**Table 2-27**  
**Summary of Estimated Annual Transportation Improvements**  
**Construction Criteria Air Pollutant Emissions**

Year / Improvement	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
2017 – Interchange Alternative 2 South	1.07	11.42	7.13	0.01	0.56	0.52
2017 – Interchange Alternative 3 Existing	1.32	15.05	11.60	0.03	0.55	0.51
2017 – Freeway Overpass	0.48	5.19	3.3	0.01	0.24	0.22
2017 – Weigh Station	0.27	2.31	2.18	0.00	0.13	0.12
<b>2017 Total<sup>a</sup></b>	<b>2.07</b>	<b>22.55</b>	<b>17.08</b>	<b>0.04</b>	<b>0.93</b>	<b>0.86</b>
2018 – Interchange Alternative 1 North	0.43	4.78	3.12	0.00	0.21	0.2
2018 – Interchange Alternative 2 South	0.63	4.32	3.94	0.00	0.21	0.19
2018 – Interchange Alternative 3 Existing	0.67	6.58	4.56	0.00	0.35	0.32
2018 – Weigh Station	0.28	2.49	2.48	0.00	0.13	0.12
<b>2018 Total<sup>a</sup></b>	<b>0.95</b>	<b>9.07</b>	<b>7.04</b>	<b>0.00</b>	<b>0.48</b>	<b>0.44</b>
2019 – Interchange Alternative 1 North	0.43	3.65	2.98	0.00	0.17	0.15
2019 – Interchange Alternative 3 Existing	0.55	2.71	2.84	0.00	0.13	0.12
2019 – Interchange Demolition	0.08	0.82	0.77	0.00	0.04	0.04
<b>2019 Total<sup>a</sup></b>	<b>0.63</b>	<b>3.53</b>	<b>3.61</b>	<b>0.00</b>	<b>0.21</b>	<b>0.19</b>
2020 – Interchange Alternative 3 Existing	0.08	0.22	0.30	0.00	0.01	0.01
2020 – Interchange Demolition	0.13	1.39	1.02	0.00	0.07	0.06
<b>2020 Total</b>	<b>0.21</b>	<b>1.61</b>	<b>1.32</b>	<b>0.00</b>	<b>0.08</b>	<b>0.07</b>
<b>Maximum Annual Emissions</b>	<b>2.07</b>	<b>22.55</b>	<b>17.08</b>	<b>0.04</b>	<b>0.93</b>	<b>0.86</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	No	Yes	No	No	No	No

Notes: See Appendix B for detailed results.

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<sup>a</sup> Annual total represents the maximum emissions of the interchange alternatives plus the emissions associated with other (non-interchange) off-site improvements. As such, the total emissions presented does not equal the sum of the transportation improvement-generated emissions in that year presented in the rows above.

Construction of transportation improvements in 2017 (earliest possible year of construction) would exceed the SJVAPCD NO<sub>x</sub> threshold, as shown in Table 2-27. It was assumed that construction of the interchange (Alternative 3), freeway overpass, and weigh station would occur concurrently in 2017. No other thresholds were exceeded in 2017. Transportation improvement construction would not exceed the SJVAPCD thresholds for ROG, NO<sub>x</sub>, CO, SO<sub>x</sub>, PM<sub>10</sub>, or PM<sub>2.5</sub>, in 2018, 2019, or 2020. The off-site transportation improvements are not anticipated to generate substantial operational emissions once construction is complete. Potential operational emissions may result with maintenance and repair of the roadways and associated infrastructure; however, these activities are not anticipated to be routine, daily activities. Potential emissions generated as a result of operation of the weigh station are not assessed in this report.

Construction of the transportation improvements would be required to comply with SJVAPCD Regulation VIII (Fugitive PM<sub>10</sub> Prohibition), which would control fugitive dust generated during earthmoving activities and onsite truck travel.

### Construction Ambient Air Quality Impact Assessment

Maximum daily emissions were used as the basis for determining the project's potential impact on ambient air quality. Project-generated daily emissions represent the maximum daily emissions associated with project construction within each year of construction that would occur (i.e., each year analyzed). As such, annual emissions do not equal maximum daily emissions multiplied by the number of construction days in a year. Summary tables of daily emissions associated with the construction of each Planning Area are included in Appendix A.2, and a breakdown of emissions by source is provided in Appendix B.

For the initial assessment (Step 1) of the ambient air quality impact analysis, the maximum background concentration for the project site for each pollutant and averaging period combination was added to the corresponding maximum ground level concentration (GLC) from project-related construction. The sum of these values was then compared to the corresponding ambient air quality standard. If the incremental increase in concentration from project-related sources did not cause an exceedance of an ambient air quality standard, then the analysis was complete for that source/receptor/pollutant combination. If the incremental increase in concentration from project-related sources caused an exceedance of an ambient air quality standard, then the analysis proceeded to Step 2. Step 2 was similar to a Step 1 with one major difference. For this step, the maximum GLC of each pollutant and averaging period combination were compared to its corresponding SIL. The SIL is used to evaluate whether the project's

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

construction emissions would *contribute* to a violation of an ambient air quality standard, where the background level is close to or exceeds an ambient air quality standard. If the maximum GLC did not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant combination, and no further analysis was required. Table 2-28 presents a summary of the two-step process taken to determine whether construction activities associated with the project would cause or contribute to ambient air quality impacts.

**Table 2-28**  
**Construction Ambient Air Quality Impact Assessment Results<sup>1</sup>**

STEP 1 – Ambient Air Quality Standard Basis			
Impact Parameter	State/Federal AAQS	Construction Planning Area 6A	
	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	Status
1-hour CO	22,900	2,438	PASS
	40,100	2,438	PASS
8-hour CO	10,300	2,206	PASS
	10,300	2,206	PASS
1-hour NO <sub>2</sub>	338	134	PASS
	188	135	PASS
Annual NO <sub>2</sub>	56	25	PASS
	100	24	PASS
24-hour PM <sub>10</sub>	50	123	Step 2
	150	108	PASS
Annual PM <sub>10</sub>	20	42	Step 2
24-hour PM <sub>2.5</sub>	35	92	Step 2
Annual PM <sub>2.5</sub>	12	16	Step 2
	12	17	Step 2
STEP 2 – SJVAPCD Significant Impact Level (SIL) Basis			
Impact Parameter	Class II SILs	Construction Planning Area 6A	
	$\mu\text{g}/\text{m}^3$	$\mu\text{g}/\text{m}^3$	Status
24-hour PM <sub>10</sub>	5	1.20	PASS
Annual PM <sub>10</sub>	1	0.20	PASS
24-hour PM <sub>2.5</sub>	5	0.78	PASS
Annual PM <sub>2.5</sub>	1	0.13	PASS

Source: Yorke 2015. See Appendix E.

Note:

<sup>1</sup> Step 1 - the AAQS basis compares the background concentrations plus project contribution to the state and federal AAQS to determine if there would be an exceedance of the respective standard. For PM<sub>10</sub> and PM<sub>2.5</sub>, background concentrations already exceed the applicable AAQS (except for the 24-hour federal PM<sub>10</sub> AAQS), so Step 2—the SIL basis—compares the project contributions to levels determined by the SJVAPCD to cause or contribute to ambient air quality exceedances and impacts.

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As demonstrated in Table 2-28, the project would result in construction activities that would generate ambient concentrations of criteria pollutant below the applicable thresholds. This impact would be less than significant.

### Mitigation Measures

None required.

### Level of Significance After Mitigation

The project's impact on ambient air quality during project construction would be less than significant without mitigation.

### 2.5.2.2 Operational Impacts

#### Operational Criteria Air Pollutant Emissions

The project would generate operational air pollutants from mobile sources, area sources (hearths, consumer product use, architectural coatings, and landscape maintenance equipment), energy (natural gas), and stationary sources.

Table 2-29 presents annual unmitigated operational emissions in the year 2036, which includes full buildout and associated operational emissions of the project. Full buildout includes Planning Area 6A, 2, 1, 3, 4, 6C, 6B, 6C, 6D, 6E, 5A, 5B.

**Table 2-29**  
**Operational Year 2036 Full Buildout**  
**Estimated Annual Unmitigated Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
Area	222.73	1.03	88.96	0.00	0.86	0.85
Energy	1.75	15.20	8.06	0.10	1.21	1.21
Mobile	121.77	541.34	1,597.63	7.03	361.33	107.41
<b>Total Annual Emissions</b>	<b>346.25</b>	<b>557.57</b>	<b>1,694.65</b>	<b>7.13</b>	<b>363.40</b>	<b>109.47</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes

Note: See Appendix C for detailed results.

Table 2-30 presents annual unmitigated operational emissions for each buildout year analyzed. Summary tables of annual emissions associated with operation of successive development phases are included in Appendix A.3, Operational Assumptions and Emissions Tables. In addition,

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Appendix C provides CalEEMod output files for operations with a breakdown of emissions by source.

**Table 2-30**  
**Summary of Estimated Annual Unmitigated Operational**  
**Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
2019	51.10	134.91	300.93	0.90	45.55	13.95
2023	140.91	250.79	783.83	2.78	140.72	42.50
2025	174.28	301.71	930.21	3.45	175.15	52.93
2028	246.48	462.06	1,421.94	5.29	269.26	81.19
2032	300.01	512.40	1,547.67	6.32	323.16	97.27
2034	300.52	512.40	1,547.67	6.32	323.16	97.27
2035	299.37	496.05	1,503.61	6.34	323.59	97.40
2036	346.25	557.57	1,694.65	7.13	363.40	109.47
Maximum Annual Emissions	346.25	557.57	1,694.65	7.13	363.40	109.47
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes

Note: See Appendices A.3 and C for detailed results.

As shown in Table 2-30, project-generated unmitigated operational emissions would exceed the SJVAPCD annual ROG, NO<sub>x</sub>, CO, and PM<sub>10</sub> thresholds during all phases of development. Project-generated unmitigated operational emissions of PM<sub>2.5</sub> would exceed the SJVAPCD annual PM<sub>2.5</sub> threshold during all phases of development, except for the first phase of operations (starting year 2019). Project operations would not exceed the SJVAPCD annual operational threshold for SO<sub>x</sub>.

Because the project would exceed that SJVAPCD thresholds during operation, the project would result in a potentially significant impact related to the potential to violate any air quality standard as adopted in the Kern County Environmental Checklist (c) i or as established by EPA or air district or contribute substantially to an existing or projected air quality violation. As such, mitigation is required, as presented below.

### Mitigation Measures

Implement **MM-AQ-1** (Compliance with Applicable Laws and Regulations).

Implement **MM-AQ-4** (Voluntary Emission Reduction Agreement).

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**MM-AQ-5 Operational Emission Reductions for Residential and Non-Residential Structures.** Prior to recordation of a final subdivision map, the project proponent shall provide the County with an Energy Plan documenting compliance with applicable energy conservation requirements of applicable Title 24 standards in the California Code of Regulations, including verification that the project will exceed the energy conservation requirements of currently applicable (2013) Title 24 standards by 25%. The Energy Plan shall also confirm that a menu of energy efficiency design elements, along with other design considerations and options, has been made available by the project proponent to builders, developers, and property owners as part of the internal design review process. Each developer, builder, or property owner shall incorporate the design elements required to comply with then-applicable Title 24 requirements, and select from the menu or implement other available technologies as may be needed to reduce energy consumption 25% below 2013 Title 24 requirements.

### **Level of Significance After Mitigation**

Implementation of MM-AQ-1, Compliance with Applicable Regulations and Rules, would minimize criteria air pollutant emissions from various emission sources associated with operation of the project including idling delivery trucks and some commercial and light industrial operations, architectural coatings used for building maintenance, residential and commercial water heaters and furnaces, commute vehicles for large employers, among others. Applicable state and SJVAPCD Regulations and Rules the project would be required to comply with during operation, include, but are not limited to:

- Idling of Commercial Heavy Duty Trucks (13 CCR 2485) – Heavy-duty construction trucks with a gross vehicle weight rating of 10,000 pounds or greater will be prohibited from idling for more than 5 minutes except as permitted by the CARB Toxic Control Measure to Limit Diesel-Fueled Commercial Motor Vehicle Idling.
- SJVAPCD Regulation IV – Prohibitions, including Rule 4101 (Visible Emissions), Rule 4102 (Nuisance), Rule 4201 (Particulate Matter Concentration), Rule 4202 (Particulate Matter Emission Rate), Rule 4301 (Fuel Burning Equipment), Rule 4306 (Boilers, Steam Generators, and Process Heaters), Rule 4601 (Architectural Coatings), Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters), Rule 4902 (Residential Water Heaters), and Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces).
- SJVAPCD Regulation VIII – Fugitive dust requirements, including Rule 8011 (General Requirements), Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities), Rule 8031 (Bulk Materials), Rule 8041 (Carryout and

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Trackout), Rule 8051 (Open Areas), Rule 8061 (Paved and Unpaved Roads), and Rule 8071 (Unpaved Vehicle/Equipment Traffic Areas).

- SJVAPCD Regulation IX – Mobile and Indirect Sources, including Rule 9410 (Employer Based Trip Reduction) and Rule 9510 (Indirect Source Review).

Emission reductions associated with compliance with these regulatory measures have not been quantified. To the extent that CalEEMod reflects the emission sources subject to these regulations, the operational emission estimates generally assume that compliance with these measures would be achieved. Thus, while compliance would minimize air pollutant emissions, implementation of MM-AQ-1 would not further reduce emissions.

Implementation of MM-AQ-4, Voluntary Emission Reduction Agreement, would fully mitigate emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> (inclusive of PM<sub>2.5</sub>). Accordingly, net operational emissions of these air pollutants would be reduced to zero. Emissions of SO<sub>x</sub> and CO would not be mitigated.

Implementation of MM-AQ-5, Operational Emission Reductions for Residential and Non-Residential Structures, would reduce emissions of all pollutants associated with combustion of natural gas in residential and nonresidential land uses and indirectly reduce emissions associated with generation of electricity from fossil fuels (e.g., power plants using gas turbines). The degree to which MM-AQ-4 would reduce these emissions is determined in CalEEMod, which calculates the reduction in energy (natural gas and electricity) consumption resulting from improvements in energy conservation beyond the requirements of Title 24. The reduction in energy consumption and associated emissions is not directly proportional to the extent that Title 24 requirements are exceeded; that is, the reduction is less than the 25% improvement above Title 24 requirements specified in MM-AQ-5. The degree of reduction for generation of electricity also reflects future requirements of the Renewal Portfolio Standard in that a higher percentage of renewable energy in the serving utilities energy mix would reduce the emissions per unit of electricity used (e.g., kilowatt-hour) and the corresponding emission reduction on a mass basis would be less.

Table 2-31 presents annual operational emissions in the year 2036, which includes full buildout and associated operational emissions of the project. Full buildout includes Planning Area 6A, 2, 1, 3, 4, 6C, 6B, 6C, 6D, 6E, 5A, 5B. Mitigated emissions account for reductions associated with MM-AQ-5 (Operational Emission Reductions for Residential and Non-Residential Structures).



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**Table 2-31**  
**Operational Year 2036 Full Buildout**  
**Estimated Annual Mitigated Operational Criteria Air Pollutant Emissions**  
**(Without VERA)**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
Area	222.73	1.03	88.96	0.00	0.86	0.85
Energy	1.41	12.19	6.42	0.08	0.97	0.97
Mobile	121.77	541.34	1,597.63	7.03	361.33	107.41
<b>Total Annual Emissions</b>	<b>345.91</b>	<b>554.56</b>	<b>1,693.01</b>	<b>7.11</b>	<b>363.16</b>	<b>109.23</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes

Notes: See Appendix C for detailed results.

Mitigated emissions account for incorporation of MM-AQ-5.

Table 2-32 presents annual mitigated operational emissions (without accounting for the VERA) for each buildout year analyzed. Summary tables of annual emissions associated with operation of successive development phases are included in Appendix A.3, Operational Assumptions and Emissions Tables. In addition, Appendix C provides CalEEMod output files for operations with a breakdown of emissions by source.

**Table 2-32**  
**Summary of Estimated Annual Mitigated Operational Criteria Air Pollutant Emissions**  
**(Without VERA)**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
2019	51.03	134.33	300.54	0.90	45.49	13.91
2023	140.77	249.54	783.07	2.77	140.62	42.40
2025	174.10	300.10	929.27	3.44	175.02	52.80
2028	246.25	460.04	1,420.78	5.29	269.11	81.04
2032	299.71	509.80	1,546.22	6.31	322.96	97.07
2034	300.22	509.80	1,546.22	6.31	322.96	97.07
2035	299.06	493.45	1,502.15	6.33	323.39	97.20
2036	345.91	554.56	1,693.01	7.11	363.16	109.23
<b>Maximum Annual Emissions</b>	<b>345.91</b>	<b>554.56</b>	<b>1,693.01</b>	<b>7.11</b>	<b>363.16</b>	<b>109.23</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes

Notes: See Appendices A.3 and C for detailed results.

Mitigated emissions account for incorporation of MM-AQ-5.

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As shown in Table 2-32 above, project-generated mitigated operational emissions would exceed the SJVAPCD annual ROG, NO<sub>x</sub>, CO, and PM<sub>10</sub> thresholds during all phases of development. Project-generated mitigated operational emissions of PM<sub>2.5</sub> would exceed the SJVAPCD annual PM<sub>2.5</sub> threshold during all phases of development, except for the first phase of operations (starting year 2019). Project operations would not exceed the SJVAPCD annual operational threshold for SO<sub>x</sub>.

As explained in Section 1.4.3, under MM-AQ-4 (VERA), the project proponent will mitigate the project's remaining emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> (inclusive of PM<sub>2.5</sub>) from operation by achieving quantifiable and enforceable emission reductions. Emissions of CO and SO<sub>x</sub>, however, would not be offset with incorporation of the VERA. Project-generated mitigated operational emissions with incorporation of the VERA (MM-AQ-4) are presented in Table 2-33.

**Table 2-33**  
**Estimated Annual Mitigated Operational Criteria Air Pollutant Emissions With VERA**

	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
Maximum Annual Emissions	345.91	554.56	1,693.01	7.11	363.16	109.23
VERA Reductions for Maximum Annual Emissions	(345.91)	(554.56)	0.00	0.00	(365.16)	(109.23) <sup>a</sup>
Net Annual Emissions With Incorporation of VERA Reductions	0.00	0.00	1,693.01	7.11	0.00	0.00
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	No	No	Yes	No	No	No

Notes: See Appendices A.3 and C for detailed results.

Mitigated emissions account for incorporation of MM-AQ-4 and MM-AQ-5.

<sup>a</sup> PM<sub>2.5</sub> emissions are a subset of PM<sub>10</sub> emissions. Accordingly, it is assumed that PM<sub>10</sub> emission reductions under a VERA would also cover PM<sub>2.5</sub> emissions (SJVAPCD 2016).

In regards to Kern County Environmental Checklist Air Quality criterion (b), the project's impact related to the potential to violate any air quality standard as adopted in (c) i or (c) ii, or as established by EPA or air district or contribute substantially to an existing or projected air quality violation would be potentially significant. Incorporation of the VERA would reduce project-generated net operational emissions of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> to zero, which would be a less than significant impact for these pollutants. Although VERA emission reduction strategies would reduce all project-generated emissions, the VERA would not specifically reduce CO emissions below the SJVAPCD threshold of 100 tons per year. Because project-generated operational CO emissions would exceed the SJVAPCD operational CO emissions threshold after

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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incorporation of mitigation, the project would result in a significant and unavoidable impact. However, the Kern County portion of the San Joaquin Valley Air Basin is in attainment of federal and state CO standards, and CO hotspot and stationary source impact modeling determined that the project would not contribute substantially to an existing or projected CO air quality violation.

### *Combined Construction and Operation Criteria Air Pollutants*

The SJVAPCD has identified separate thresholds for project-generated construction and operational emissions. If a project exceeds an adopted SJVAPCD threshold, the project would be required to implement feasible mitigation to reduce the project's impact. The required mitigation is identified based on the pollutant(s) that would exceed the threshold(s) and the activities that would generate the pollutant(s) in exceedance. Because emission sources are different for construction and operational activities, typical mitigation strategies reduce emissions associated with construction and operation are also different. As such, the combined total emissions of construction and operational emissions are not intended to be compared to a single threshold. Nonetheless, because the project would be built over approximately 20 years and portions of the project would be in operation during construction, the estimated maximum annual emissions associated with the project is included in Appendix A.3 for disclosure purposes only.

### **Stationary Source Emissions**

As described in Section 2.4.2.3, the project may eventually result in various stationary sources associated with industrial facilities. For the purposes of this assessment, it is assumed that the industrial sources would include a cannery/food processing plant (boilers), several gas stations, green waste composting, an asphaltic concrete plant, a commercial bakery, three wastewater treatment plants, emergency generators, and a manufacturing facility. Stationary source emissions are presented in Table 2-34.

**Table 2-34**  
**Estimated Annual Unmitigated Stationary Source Emissions**

Stationary Source	Process Emissions Characteristics	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
Cannery/food processing (boiler) <sup>1</sup>	Natural gas combustion	0.41	0.46	6.23	0.05	0.56	0.56
Gas stations (8)	Fugitive ROGs & TACs	8.04	—	—	—	—	—
Green waste composting	Fugitive ROGs & TACs	5.94	—	—	—	—	—

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**Table 2-34**  
**Estimated Annual Unmitigated Stationary Source Emissions**

Stationary Source	Process Emissions Characteristics	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
Asphaltic concrete plant (drum mix) <sup>1,3</sup>	Natural gas combustion, fugitive ROG, PM <sub>10</sub> , PM <sub>2.5</sub> , and TACs	3.23	1.23	7.31	0.34	1.43	1.32
Commercial bakery (oven & off-gassing) <sup>1</sup>	Natural gas combustion, fugitive ROGs	3.79	0.40	2.40	0.01	0.06	0.06
Wastewater treatment plant (WWTP) (3)	Fugitive ROGs & TACs	0.46	—	—	—	—	—
WWTP emergency generators (3) <sup>1</sup>	Diesel ICE emissions (Tier 3)	0.04	0.15	0.15	0.001	0.017	0.017
Water treatment plant emergency generator	Diesel ICE emissions (Tier 3)	0.01	0.05	0.05	0.000	0.006	0.006
General manufacturing A <sup>2</sup>	Process ROGs & TACs	1.65	—	—	—	0.05	0.05
General manufacturing B (volume) <sup>2</sup>	Process ROGs & TACs	1.65	—	—	—	0.05	0.05
<b>Stationary Source Totals</b>		<b>25.2</b>	<b>2.3</b>	<b>16.1</b>	<b>0.4</b>	<b>2.2</b>	<b>2.1</b>
<i>SJVAPCD Thresholds</i>		<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?		Yes	No	No	No	No	No

Sources: Dudek 2015; SJVAPCD 2013–2015

Notes: ICE = Internal Combustion Engine

For emissions budgeting purposes, it is assumed that there is one of each type of facility with the exception of the number of facilities noted in parenthesis.

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<sup>1</sup> Estimated PM<sub>2.5</sub> emissions assumed to be 99% of estimated PM<sub>10</sub> emissions (conservative assumption, SCAQMD 2006).

<sup>2</sup> General manufacturing is a surrogate for small manufacturing operations that would involve the use of coatings on products.

As shown in Table 2-34, annual emissions associated with stationary sources are estimated to be approximately 25 tons/year of ROG, 2 tons/year of NO<sub>x</sub>, 16 tons/year of CO, 0.4 ton/year of SO<sub>x</sub>, 2 tons/year of PM<sub>10</sub>, and 2 tons/year of PM<sub>2.5</sub>. Stationary sources would potentially exceed the SJVAPCD ROG threshold of 10 tons/year; stationary source emissions would not exceed the SJVAPCD thresholds for NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub>.

### Mitigation Measures

Implement **MM AQ-1** (Compliance with Applicable Laws and Regulations).

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Implement **MM AQ-4** (Voluntary Emission Reduction Agreement).

**MM-AQ-6 Stationary Sources.** Stationary sources of air pollutants are required to obtain applicable permits from the San Joaquin Valley Air Pollution Control District (SJVAPCD) rules and regulations, are required to obtain emission offsets required under applicable SJVAPCD permit rules, and are required to report quantities of reactive organic gases (ROGs), oxides of nitrogen (NO<sub>x</sub>), and particulate matter with an aerodynamic diameter less than or equal to 10 microns (PM<sub>10</sub>) (inclusive of particulate matter with an aerodynamic diameter less than or equal to 2.5 microns (PM<sub>2.5</sub>)) emissions to the project proponent for purposes of verifying compliance with the Voluntary Emission Reduction Agreement referenced in MM-AQ-4, above.

### Level of Significance After Mitigation

Implementation of MM-AQ-1, Compliance with Applicable Regulations and Rules, would minimize criteria air pollutant emissions from stationary sources. Operating permits issued by the SJVAPCD would reflect the specific requirements of individual stationary source rules and other operating requirements to minimize air pollutant emissions from stationary sources. Applicable SJVAPCD Regulations and Rules with which the project's stationary sources would be required to comply during operation, include, but not limited to:

- SJVAPCD Regulation II – Permits, including Rule 2010 (Permits Required), Rule 2070 Standards For Granting Applications, Rule 2201 (New and Modified Stationary Source Review), Rule 2520 (Federally Mandated Operating Permits), Rule 2530 (Federally Enforceable Potential to Emit), and Rule 2550 (Federally Mandated Preconstruction Review for Major Sources of Air Toxics).
- SJVAPCD Regulation IV – Prohibitions, including Rule 4001 (New Source Performance Standards), Rule 4002 (National Emission Standards for Hazardous Air Pollutants), Rule 4101 (Visible Emissions), Rule 4102 (Nuisance), Rule 4201 (Particulate Matter Concentration), Rule 4202 (Particulate Matter Emission Rate), Rule 4301 (Fuel Burning Equipment), Rule 4306 (Boilers, Steam Generators, and Process Heaters), Rule 4309 (Dryers, Dehydrators, and Ovens), Rule 4566 (Organic Material Composting Operations), Rule 4601 (Architectural Coatings), Rule 4606 (Wood Products and Flat Wood Paneling Products Coating Operations), Rule 4603 (Surface Coating of Metal Parts and Products, Plastic Parts and Products, and Pleasure Crafts), Rule 4621 (Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants), Rule 4622 (Gasoline Transfer into Motor Vehicle Fuel Tanks), Rule 4693 (Bakery Ovens),

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Rule 4901 (Wood Burning Fireplaces and Wood Burning Heaters), Rule 4902 (Residential Water Heaters), and Rule 4905 (Natural Gas-Fired, Fan-Type Central Furnaces).

- SJVAPCD Regulation VIII – Fugitive dust requirements, including Rule 8011 (General Requirements), Rule 8021 (Construction, Demolition, Excavation, Extraction, and Other Earthmoving Activities), Rule 8031 (Bulk Materials), Rule 8041 (Carryout and Trackout), Rule 8051 (Open Areas), Rule 8061 (Paved and Unpaved Roads), and Rule 8071 (Unpaved Vehicle/Equipment Traffic Areas).

Emission reductions associated with compliance with these regulatory measures have not been quantified. Compliance with the SJVAPCD stationary source rules was assumed when their emissions were calculated. For example, the food processing boiler would use a low-NO<sub>x</sub> burner and add-on controls, the gasoline stations would use Phase I and Phase II vapor recovery, and all stationary sources would implement BACT as required by SJVAPCD Rule 2201. Thus, while compliance would minimize air pollutant emissions, implementation of MM-AQ-1 would not further reduce emissions.

Implementation of MM-AQ-4, Voluntary Emission Reduction Agreement, would fully mitigate emissions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> (inclusive of PM<sub>2.5</sub>) associated with stationary sources to the extent they are not otherwise required to obtain offsets under SJVAPCD Rule 2201. Accordingly, net stationary source emissions of these air pollutants would be reduced to zero. Emissions of SO<sub>x</sub> and CO would not be mitigated; however, their emissions were found to be less than significant.

Implementation of MM-AQ-6, Stationary Sources, would ensure that stationary sources obtain the necessary SJVAPCD permits (see discussion of MM-AQ-1) and that the VERA is used to properly mitigate the ROG, NO<sub>x</sub>, and PM<sub>10</sub> (inclusive of PM<sub>2.5</sub>) emissions from stationary sources. However, no additional benefit has been attributed to MM-AQ-6.

Estimated annual mitigated stationary source emissions are presented in Table 2-35.

**Table 2-35**  
**Estimated Annual Mitigated Stationary Source Emissions With VERA**

	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
Maximum Annual Stationary Source Emissions	25.2	2.3	16.1	0.4	2.2	2.1
VERA Reductions for Maximum Annual Emissions	(25.2)	(2.3)	0.00	0.00	(2.2)	(2.1) <sup>a</sup>

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**Table 2-35**  
**Estimated Annual Mitigated Stationary Source Emissions With VERA**

	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
Net Annual Emissions With Incorporation of VERA Reductions	0.00	0.00	16.1	0.4	0.00	0.00
<i>SJVAPCD Thresholds</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	No	No	No	No	No	No

Sources: Dudek 2015; SJVAPCD 2013–2015

Notes:

Mitigated emissions account for incorporation of MM-AQ-4.

<sup>a</sup> PM<sub>2.5</sub> emissions are a subset of PM<sub>10</sub> emissions. Accordingly, it is assumed that PM<sub>10</sub> emission reductions under a VERA would also cover PM<sub>2.5</sub> emissions.

Under MM-AQ-4 (VERA), the project proponent will mitigate the project's emissions from operation by achieving quantifiable and enforceable emission reductions of ROG, NO<sub>x</sub>, and PM<sub>10</sub> (inclusive of PM<sub>2.5</sub>). As such, the project would result in less-than-significant impacts to air quality as a result of operation of project stationary sources.

The project's impact related to the potential to violate any air quality standard as adopted in Kern County Environmental Checklist Air Quality (c) i, or as established by EPA or air district or contribute substantially to an existing or projected air quality violation during operation of project stationary sources would be less than significant with implementation of mitigation.

### Operational Ambient Air Quality Impact Assessment

Per SJVAPCD guidance, estimated release parameters for each source type (i.e., point or volume sources), AERMOD output files were generated for each averaging period and source combination. For the initial assessment (Step 1) of the ambient air quality impact analysis, the maximum background concentration for the project site for each pollutant and averaging period combination was added to the corresponding maximum GLC from project-related sources. The sum of these values was then compared to the corresponding ambient air quality standard. If the incremental increase in concentration from project-related sources did not cause an exceedance of an ambient air quality standard, then the analysis was complete for that source/receptor/pollutant combination. If the incremental increase in concentration from project-related sources caused an exceedance of an ambient air quality standard, then the analysis proceeded to Step 2. For this step, the maximum GLC of each pollutant and averaging period combination was compared to its corresponding SIL. The SIL is used to evaluate whether the stationary source's emissions *contribute* to a violation of an ambient air quality standard, where the background level is close to or exceeds an ambient air quality standard. If the maximum GLC did not exceed the corresponding SIL, then the analysis was complete for that source/receptor/pollutant



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combination and no further analysis was required. Table 2-36, presents a summary of the two-step process taken to determine whether stationary sources associated with project land uses would cause or contribute to ambient air quality impacts.

**Table 2-36**  
**Stationary Source Ambient Air Quality Impact Assessment Results**

STEP 1 – Ambient Air Quality Standard Basis <sup>a</sup>											
Impact Parameter	State/Federal AAQS	Cannery/Food Processing		Asphaltic Concrete Plant		Commercial Bakery		Emergency Generator		General Manufacturing	
	μg/m <sup>3</sup>	μg/m <sup>3</sup>	Status	μg/m <sup>3</sup>	Status	μg/m <sup>3</sup>	Status	μg/m <sup>3</sup>	Status	μg/m <sup>3</sup>	Status
1-hour CO	22,900	2,424	PASS	2,447	PASS	2,429	PASS	2,473	PASS	—	—
	40,100	2,424	PASS	2,447	PASS	2,429	PASS	2,473	PASS	—	—
8-hour CO	10,300	2,193	PASS	2,214	PASS	2,198	PASS	2,299	PASS	—	—
	10,300	2,193	PASS	2,214	PASS	2,198	PASS	2,299	PASS	—	—
1-hour NO <sub>2</sub>	338	97	PASS	102	PASS	99	PASS	152	PASS	—	—
	188	99	PASS	104	PASS	101	PASS	154	PASS	—	—
Annual NO <sub>2</sub>	56	21	PASS	21	PASS	21	PASS	35	PASS	—	—
	100	19	PASS	20	PASS	19	PASS	33	PASS	—	—
24-hour PM <sub>10</sub>	50	123	Step 2	132	Step 2	122	Step 2	127	Step 2	124	Step 2
	150	108	PASS	117	PASS	107	PASS	112	PASS	109	PASS
Annual PM <sub>10</sub>	20	42	Step 2	44	Step 2	42	Step 2	43	Step 2	42	Step 2
24-hour PM <sub>2.5</sub>	35	92	Step 2	100	Step 2	91	Step 2	96	Step 2	93	Step 2
Annual PM <sub>2.5</sub>	12	16	Step 2	18	Step 2	16	Step 2	17	Step 2	16	Step 2
	12	17	Step 2	19	Step 2	17	Step 2	18	Step 2	17	Step 2
STEP 2 – SJVAPCD Significant Impact Level (SIL) Basis <sup>a</sup>											
Impact Parameter	Class II SILs	Cannery/Food Processing		Asphaltic Concrete Plant		Commercial Bakery		Emergency Generator		General Manufacturing	
	μg/m <sup>3</sup>	μg/m <sup>3</sup>	Status	μg/m <sup>3</sup>	Status	μg/m <sup>3</sup>	Status	μg/m <sup>3</sup>	Status	μg/m <sup>3</sup>	Status
24-hour PM <sub>10</sub>	5	1.10	PASS	4.89	PASS	0.40	PASS	4.78	PASS	1.42	PASS
Annual PM <sub>10</sub>	1	0.18	PASS	0.82	PASS	0.07	PASS	0.80	PASS	0.24	PASS
24-hour PM <sub>2.5</sub>	5	1.09	PASS	4.53	PASS	0.39	PASS	4.74	PASS	1.42	PASS
Annual PM <sub>2.5</sub>	1	0.18	PASS	0.76	PASS	0.07	PASS	0.79	PASS	0.24	PASS

Source: Yorke 2015. See Appendix E.

Notes:

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<sup>a</sup> Step 1 - the AAQS basis compares the background concentrations plus project contribution to the state and federal AAQS to determine if there would be an exceedance of the respective standard. For PM<sub>10</sub> and PM<sub>2.5</sub>, background concentrations already exceed the applicable AAQS (except for the 24-hour federal PM<sub>10</sub> AAQS), so Step 2—the SIL basis—compares the project contributions to levels determined by the SJVAPCD to cause or contribute to ambient air quality exceedance and impacts.

As demonstrated in Table 2-36, the project would result in the operation of stationary sources that would generate criteria pollutant emissions below the applicable thresholds for ambient air quality impacts. This impact would be less than significant.

### **Mitigation Measures**

None required.

### **Level of Significance After Mitigation**

Impacts would be less than significant without mitigation.

### ***Impact Summary***

In regards to project-generated construction emissions, the project's impact related to the potential to violate any air quality standard as adopted in Kern County Environmental Checklist Air Quality (c) i, or as established by EPA or air district or contribute substantially to an existing or projected air quality violation would be less than significant with mitigation (MM-AQ-1, MM-AQ-2, MM-AQ-3, and MM-AQ-4).

In regards to project-generated operational emissions, the project's impact related to the potential to violate any air quality standard as adopted in Kern County Environmental Checklist Air Quality (c) i, or as established by EPA or air district or contribute substantially to an existing or projected air quality violation would be less than significant with mitigation (MM-AQ-1, MM-AQ-4, MM-AQ-5, and MM-AQ-6) for ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. Because project-generated operational CO emissions would exceed the SJVAPCD operational CO emissions threshold after incorporation of mitigation, the project would result in a significant and unavoidable impact. However, the Kern County portion of the SJVAB is in attainment of federal and state CO standards, and CO hotspot and stationary source impact modeling determined that the project would not contribute substantially to an existing or projected CO air quality violation.

## **2.5.3 Expose Sensitive Receptors to Substantial Pollutant Concentrations**

### ***2.5.3.1 Valley Fever Exposure***

As previously discussed, the project would be required to comply with Rule 8021 Section 6.3, which requires applicants to develop, prepare, submit, obtain approval of, and implement a Dust

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Control Plan, which would reduce fugitive dust impacts to less than significant for all construction phases of the project, which would also control the release of the *Coccidioides immitis* fungus from construction activities. This requirement is included in MM-AQ-2 (Dust Control Plan). However, exposure to the *Coccidioides immitis* fungus would be potentially significant and MM-AQ-7 is provided to further reduce impacts associated with Valley Fever and to protect on-site construction workers and nearby receptors.

### Mitigation Measures

In addition to MM-AQ-2 (Fugitive Dust) described in Section 2.5.2.1 above, the following mitigation measures are required to reduce the potential for construction workers and inhabitants of the project to contract Valley Fever.

**MM-AQ-7 Valley Fever.** Prior to ground disturbance activities, the project proponent shall provide evidence to the Kern County Planning and Community Development Department that the project operator and/or construction manager has developed a “Valley Fever Training Handout”, training, and schedule of sessions for education to be provided to all construction personnel. All evidence of the training session materials, handout(s) and schedule shall be submitted to the Kern County Planning and Community Development Department within 24 hours of the first training session. Multiple training sessions may be conducted if different work crews will come to the site for different stages of construction; however, all construction personnel shall be provided training prior to beginning work. The evidence submitted to the Kern County Planning and Community Development Department regarding the “Valley Fever Training Handout” and Session(s) shall include the following:

- a. A sign-in sheet (to include the printed employee names, signature, and date) for all employees who attended the training session.
- b. Distribution of a written flier or brochure that includes educational information regarding the health effects of exposure to criteria pollutant emissions and Valley Fever.
- c. Training on methods that may help prevent Valley Fever infection.
- d. A demonstration to employees on how to use personal protective equipment, such as respiratory equipment (masks), to reduce exposure to pollutants and facilitate recognition of symptoms and earlier treatment of Valley Fever. Where respirators are required, the equipment shall be readily available and shall be provided to employees for use during work. Proof that the

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demonstration is included in the training shall be submitted to the county. This proof can be via printed training materials/agenda, DVD, digital media files, or photographs.

The project proponent also shall consult with the County Health Services Department to develop a Valley Fever Dust Management Plan that addresses the potential presence of the *Coccidioides* spore and mitigates for the potential for Coccidioidomycosis (Valley Fever). Prior to issuance of permits, the project operator shall submit the Plan to the County Services Health Department for review and approval. The Plan shall include a program to evaluate the potential for exposure to Valley Fever from construction activities and to identify appropriate safety procedures that shall be implemented, as needed, to minimize personnel and public exposure to potential *Coccidioides* spores. Measures in the Plan shall include the following:

- a. Provide High-Efficiency Particulate Air (HEPA) filters for heavy equipment equipped with factory enclosed cabs capable of accepting the filters. Require contractors utilizing applicable heavy equipment to furnish proof of worker training on proper use of applicable heavy equipment cabs, such as turning on air conditioning prior to using the equipment.
- b. Provide communication methods, such as two-way radios, for use in enclosed cabs.
- c. Require National Institute for Occupational Safety and Health (NIOSH)-approved half-face respirators equipped with minimum N-95 protection factor for use during worker collocation with surface disturbance activities, as required per the hazard assessment process.
- d. Cause employees to be medically evaluated, fit-tested, and properly trained on the use of the respirators, and implement a full respiratory protection program in accordance with the applicable California Occupational Safety and Health Administration Respiratory Protection Standard (8 CCR 5144).
- e. Provide separate, clean eating areas with hand-washing facilities.
- f. Install equipment inspection stations at each construction equipment access/egress point. Examine construction vehicles and equipment for excess soil material and clean, as necessary, before equipment is moved off-site.
- g. Train workers to recognize the symptoms of Valley Fever, and to promptly report suspected symptoms of work-related Valley Fever to a supervisor.

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- h. Work with a medical professional to develop a protocol to medically evaluate employees who develop symptoms of Valley Fever.
- i. Work with a medical professional, in consultation with the County Health Services Department, to develop an educational handout for on-site workers and surrounding residents within three miles of the project site, and include the following information on Valley Fever: what are the potential sources/causes, what are the common symptoms, what are the options or remedies available should someone be experiencing these symptoms, and where testing for exposure is available. Prior to construction permit issuance, this handout shall have been created by the project operator and reviewed by the project operator and reviewed by the County. No less than 30 days prior to any work commencing, this handout shall be mailed to all existing residences within three miles of the project boundaries.
- j. When possible, position workers upwind or crosswind when digging a trench or performing other soil-disturbing tasks.
- k. Prohibit smoking at the worksite outside of designated smoking areas; designated smoking areas will be equipped with handwashing facilities.
- l. Post warnings on-site and consider limiting access to visitors, especially those without adequate training and respiratory protection.
- m. Audit and enforce compliance with relevant California Occupational Safety and Health Administration health and safety standards on the jobsite.

### Level of Significance After Mitigation

Implementation of MM-AQ-2 and MM-AQ-7 would reduce impacts related to Valley Fever to a level that is less than significant.

### 2.5.3.2 Construction Health Risk Assessment

As discussed in Section 2.4.2.6, OEHHA approved the new *Air Toxics Hot Spots Program Risk Assessment Guidelines – Guidance Manual for Preparation of Health Risk Assessments* in March 2015. The SJVAPCD requires that all HRAs prepared for CEQA documents follow District policies in conjunction with the OEHHA guidance document. To implement the OEHHA guidance based on project information, the SJVAPCD has developed a 3-tiered approach where each successive tier is progressively more refined with fewer conservatisms applied.

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As a screening protocol, Tier 1 uses the most conservative modeling and exposure parameters resulting in the highest calculated risks for sensitive receptors, specifically residences with children. Tier 1 applies when site-specific information about a project and its location relative to actual or foreseen receptors is not known, such as in the case of preliminary plans (e.g., this project). Due to use of highly conservative “default” modeling parameters and 3-year multipathway lifetime risk calculations for construction, no additional data (i.e., source characteristics and receptor details) is required from the applicant.

Per 2015 SJVAPCD guidance, Tier 1 cancer and noncancer health risk calculations were performed using the HARP 2 Risk Assessment Standalone Tool (RAST, version 15197) given the GLC input file format generated with AERMOD and based on the annual emissions estimated with CalEEMod for construction of Planning Area 6A, which would generate the more intensive (worst case) construction activity. Table 2-37 summarizes the construction HRA analysis presented in the *Air Quality and Health Risk Assessment Modeling Analysis* (Yorke Engineering 2015).

**Table 2-37**  
**Tier 1 Screening Health Risk Assessment – Construction Planning Area 6A**

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP 2 Screening Results			
	<i>Risk</i>	<i>Per million</i>	<i>Threshold</i>	<i>Significance</i>
3-year Residential Maximum Individual Cancer Risk - Multipathway	9.7E-06	9.7	20	PASS
Residential Chronic Hazard Index	0.06	—	1	PASS
Residential Acute Hazard Index	0.00	—	1	PASS

Source: Yorke 2015. See Appendix E.

Note: Risk is expressed in scientific notation where E-06 is 1/1,000,000 (i.e., per million).

As depicted in Table 2-37, construction of Planning Area 6A would emit TACs that would result in maximum residential cancer risk, chronic hazard index, and acute hazard index all below the SJVAPCD thresholds of 20, 1, and 1, respectively.

Impacts associated with the project’s potential to expose sensitive receptors to substantial pollutant concentrations as a result of project-generated construction emissions would be less than significant.

### Mitigation Measures

None required.

### Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

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### 2.5.3.3 Stationary Source Health Risk Assessment

As discussed above for the Construction Health Risk Assessment, to implement the OEHHHA guidance based on project information, the SJVAPCD has developed a 3-tiered approach where each successive tier is progressively more refined with fewer conservatisms applied. Tier 1 applies when site-specific information about a project and its location relative to actual or foreseen receptors is not known, such as in the case of preliminary plans (e.g., this project). Due to use of highly conservative “default” modeling parameters and 70-year multi-pathway lifetime risk calculations, no additional data (i.e., source and receptor details) is required from the applicant.

Per 2015 SJVAPCD guidance, Tier 1 cancer and noncancer health risk calculations were performed using the HARP 2 Risk Assessment Standalone Tool (RAST, version 15197) given the GLC input file format, which was calculated using the annual average and hourly maximum emission rates in units of grams per second (g/s) times the annual and hourly source dilution factor ( $\chi/Q$ ) values predicted by AERMOD for the stationary point and volume sources as applicable at the maximum impact locations.

Table 2-38 summarizes the HRA analysis presented in the *Air Quality and Health Risk Assessment Modeling Analysis*, prepared for potential stationary source operations under the project (Yorke Engineering 2015). Sources modeled would be associated with a cannery/food processing use, gas stations, green waste composting, an asphaltic concrete plant, a commercial bakery, wastewater treatment plant, a 500-kW diesel emergency generator, and general manufacturing uses.

**Table 2-38**  
**Tier 1 Screening Health Risk Assessment**

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP 2 Screening Results			
	Risk	Per million	Threshold	Significance
<i>Cannery/Food Processing</i>				
70-year Residential Maximum Individual Cancer Risk - Multipathway	6.5E-08	0.1	20	PASS
Residential Chronic Hazard Index	0.02	—	1	PASS
Residential Acute Hazard Index	0.0005	—	1	PASS
<i>Auto Service Station</i>				
70-year Residential Maximum Individual Cancer Risk - Multipathway	6.5E-06	6.5	20	PASS
Residential Chronic Hazard Index	0.28	—	1	PASS
Residential Acute Hazard Index	0.16	—	1	PASS
<i>Green Waste Composting</i>				
70-year Residential Maximum Individual Cancer Risk - Multipathway	1.4E-06	1.4	20	PASS
Residential Chronic Hazard Index	0.85	—	1	PASS
Residential Acute Hazard Index	0.002	—	1	PASS
<i>Asphaltic Concrete Plant</i>				



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**Table 2-38**  
**Tier 1 Screening Health Risk Assessment**

Time and Age Weighted Toxic Air Contaminants Risks	AERMOD/HARP 2 Screening Results			
	<i>Risk</i>	<i>Per million</i>	<i>Threshold</i>	<i>Significance</i>
70-year Residential Maximum Individual Cancer Risk - Multipathway	9.3E-06	9.3	20	PASS
Residential Chronic Hazard Index	0.32	—	1	PASS
Residential Acute Hazard Index	0.20	—	1	PASS
<i>Commercial Bakery</i>				
70-year Residential Maximum Individual Cancer Risk - Multipathway	2.7E-07	0.3	20	PASS
Residential Chronic Hazard Index	0.03	—	1	PASS
Residential Acute Hazard Index	0.001	—	1	PASS
<i>Wastewater Treatment Plant</i>				
70-year Residential Maximum Individual Cancer Risk - Multipathway	4.7E-07	0.5	20	PASS
Residential Chronic Hazard Index	0.38	—	1	PASS
Residential Acute Hazard Index	0.01	—	1	PASS
<i>500-kW Diesel Emergency Generator</i>				
70-year Residential Maximum Individual Cancer Risk - Multipathway	4.5E-06	4.5	20	PASS
Residential Chronic Hazard Index	0.02	—	1	PASS
Residential Acute Hazard Index	0.00	—	1	PASS
<i>General Manufacturing A</i>				
70-year Residential Maximum Individual Cancer Risk - Multipathway	2.0E-07	0.2	20	PASS
Residential Chronic Hazard Index	0.52	—	1	PASS
Residential Acute Hazard Index	0.01	—	1	PASS
<i>General Manufacturing B</i>				
70-year Residential Maximum Individual Cancer Risk - Multipathway	3.4E-07	0.3	20	PASS
Residential Chronic Hazard Index	0.89	—	1	PASS
Residential Acute Hazard Index	0.02	—	1	PASS

Source: Yorke 2015. See Appendix E.

Note: Risk is expressed in scientific notation where E-06 is 1/1,000,000 (i.e., per million).

As depicted in Table 2-38, potential stationary sources associated with land uses under the project would emit TACs that would result in the maximum residential cancer risk, chronic hazard index, and acute hazard index all below the SJVAPCD thresholds of 20, 1, and 1, respectively.

Impacts associated with the project's potential to expose sensitive receptors to substantial pollutant concentrations as a result of project-generated stationary source emissions would be less than significant.

### Mitigation Measures

None required.

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## Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

### 2.5.3.4 Interstate 5 Health Risk Assessment

The following discussion summarizes the results presented in the *Diesel Particulate Matter Health Risk Assessment of Interstate-5 Freeway*, prepared for the project by Ramboll Environ (2015b). Table 2-39 provides a summary of estimated cancer risk associated with DPM exposure from I-5 at the maximum impacted residential and school receptors for all modeled scenarios. Notably, there are no residential receptors located within 800 feet of the edge of I-5.

**Table 2-39**  
**Summary of Health Risk Estimates at Maximum Impacted Receptors**

Health Endpoint	Receptor Type <sup>1,2</sup>	Project Scenario				SJVAPCD CEQA Threshold
		Existing No Project 2015	Future No Project 2040	Existing Plus Project 2040 <sup>3</sup>	Future Plus Project 2040	
Maximum Cancer Risk (in 1 million)	Resident	268	51	24	58	20
	School	13	2	1	3	20
Chronic Noncancer Hazard Index	Resident	0.054	0.010	0.005	0.012	1
	School	0.019	0.003	0.002	0.004	1

Source: Ramboll Environ 2015b.

**Notes:**

<sup>1</sup> Receptor types are designated based on the project's conceptual land use map.

<sup>2</sup> Exposure period varies based on receptor type.

<sup>3</sup> Traffic data were provided for calendar year 2015. Since the project would not be built out until 2040, emission factors for 2040 were used for these health risk estimates.

The Existing No Project 2015 and Future No Project 2040 scenarios were included in Table 2-39 for disclosure purposes, whereas the potential impact associated with the project scenarios (Existing Plus Project and Future Plus Project) are assessed below. Neither of the first two scenarios would occur without project implementation; that is, the I-5 traffic volumes would not include traffic generated by the project and no receptors would be located near I-5. The Existing Plus Project 2040 reflects the existing traffic volume with additional traffic generated by the project together with emission factors for diesel vehicles operating in 2040. The Future Plus Project 2040 scenario reflects the future traffic volume with growth in background traffic and additional traffic generated by the project together with emission factors for diesel vehicles operating in 2040. DPM emission factors will continue to decline due to regulatory programs for in-use diesel trucks and fleet turnover. Because the HRA assumes a 70-year lifetime exposure,

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choosing 2040 for the emission factors would simulate a mid-period, average condition over 70 years, even for the earliest inhabitants of the project starting in the mid- to late-2010s. As depicted in Table 2-39, the maximum chronic (noncancer) health index values at all modeled receptors resulting from the DPM emissions on I-5 would be less than the SJVAPCD's threshold of 1.

In regards to cancer risk, the maximum estimated health risk for schoolchildren under the project scenarios would both be well below the 20-in-1-million threshold. However, the maximum estimated residential cancer risk would be approximately 24 and 58 in 1 million for the Existing Plus Project and Future Plus Project scenarios, respectively, which would exceed the SJVAPCD cancer risk threshold of 20 in 1 million. Although this cancer risk would be potentially significant without mitigation, it should be noted that the risk analysis includes the use of conservative exposure assumptions that likely overestimate actual exposure and risk, including a 70-year residential exposure period. The OEHHHA guidance recommends the use of a lower residential exposure period of 30 years because people move periodically instead of living 70 years at the same location. As a result, reported cancer risks are upper-bound estimates, and actual risks would likely be lower than reported.

Mitigation measures to reduce potential exposure to freeway emissions include air filtration technology in buildings, other building design features, vegetative barriers, and setbacks. These measures can also be used in combination. For example, Fisk et al., conducted a study of the performance and costs of particulate air filtration technologies. This study showed that Minimum Efficiency Reporting Value 13 (MERV 13) filters provide an 80% or greater reduction of outdoor fine particulate matter (such as DPM) if the ventilation systems are operated with one air exchange per hour of outside air and four air exchanges of recirculated air (Fisk et al 2002). Vegetative barriers also provide some mitigation from freeway emissions. Studies have shown that vegetative landscaping can reduce particulate matter emissions by up to 55 to 80% at low wind speeds, with greater removal rates for smaller particles <0.1 micrometer ( $\mu\text{m}$ ) in diameter (Fujii et al. 2008).

### Mitigation Measures

Based on the current analysis, Mitigation Measure AQ-8 is required to reduce potential health risk associated with residences and other sensitive receptors (i.e., schoolchildren) potentially located near I-5.

**MM-AQ-8** To reduce the health effects from toxic air contaminant (TAC) emissions from Interstate 5 (I-5) on residential and other sensitive land uses on the project site to below the San Joaquin Valley Air Pollution Control District (SJVAPCD) significance threshold of 20 in 1 million, as part of the tentative tract map

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application for development of sensitive uses within 3,000 feet east of I-5, or within 4,400 feet west of I-5, the applicant shall describe the TAC exposure measures to be implemented to assure that sensitive receptors are not exposed to TAC emissions above the SJVAPCD's threshold by implementing one or more of the following measures: setbacks; vegetative barriers; Heating, Ventilation, and Air Conditioning (HVAC) system filtration technology; or other structural, technology, or design elements. The applicant may also update the health risk assessment (e.g., to take into account improvements in vehicular emissions and technology, and to take into account updated toxicological assessment methodology recommended by the SJVAPCD) as part of this tentative tract map submittal.

### **Level of Significance After Mitigation**

Impacts associated with the project's potential to expose sensitive receptors to substantial pollutant concentrations associated with residences and other sensitive receptors potentially located near I-5 and the related potential health risk would be less than significant with implementation of MM-AQ-8.

#### **2.5.3.5 Oil and Gas Setbacks**

Diesel-powered drilling rigs emit criteria pollutants and TACs, including DPM, which would pose a health risk to persons residing too close to a drilling site. Kern County completed a comprehensive EIR and updated its oil and gas production ordinances in 2015 to protect public health and safety, and the environment, with design standards (e.g., mandatory setback distances between oil wells and residences or other sensitive uses) as well as 88 mitigation measures. Pursuant to the proposed Specific Plan and Special Plan, the project is required to comply with these County TAC setback distances and mitigation requirements for oil and gas production activities near sensitive uses. Therefore, the project would not locate sensitive receptors within incompatible areas to existing oil and gas production activities. Impacts associated with to the project's potential to expose sensitive receptors to substantial pollutant concentrations associated with oil and gas production activities would be less than significant and no mitigation is required.

### **Mitigation Measures**

None required.

### **Level of Significance After Mitigation**

Impacts would be less than significant without mitigation.

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### **2.5.3.6 Carbon Monoxide Hotspot Analysis**

As discussed in Section 2.4.1, Thresholds of Significance and 2.4.2, Approach and Methodology, the SJVAPCD and Kern County have established criteria to determine if a project would potentially result in a CO hotspot.

If neither of the following SJVAPCD screening criteria are met at any of the intersections affected by the project, the project would result in no potential to create a violation of the CO standard (SJVAPCD 2015d):

- A traffic study for the project indicates that the level of service (LOS) on one or more streets or at one or more intersections in the project vicinity will be reduced to LOS E or F.
- A traffic study indicates that the project will substantially worsen an already existing LOS F on one or more streets or at more or more intersections in the project vicinity.

The County's guidance states that a CO hotspot analysis using the CALINE4 model would be required for the following project conditions:

- LOS of an intersection or roadway is identified as LOS E or worse.
- Signalization and/or channelization is added to an intersection.
- Sensitive receptors such as residences, schools, and hospitals are located in the vicinity of the affected intersection or signalization.

The Traffic Impact Study (TIS) was prepared for this project (Fehr & Peers 2015a), evaluated the LOS (i.e., increased congestion) impacts at the intersections affected by the project. Fehr & Peers evaluated three scenarios: Existing Conditions, Existing Plus Project Conditions, Cumulative Conditions. Only two intersections warrant a CO hot spot analysis based on projected LOS impacts to E or F: intersections of Street D / Street A (Existing Plus Project Conditions and Cumulative Conditions) and Street I / Street A (Existing Plus Project Conditions).

The potential impact of the project on local CO levels was assessed at these intersections with the Caltrans CL4 interface, based on the California LINE Source Dispersion Model (CALINE4), which allows microscale CO concentrations to be estimated along each roadway corridor or near intersections (Caltrans 1998a).

The modeling analysis was performed for worst-case wind angle, in which the model selects the wind angles that produce the highest CO concentrations at each of the receptors. The suburban land classification of 40 inches (100 centimeters) was used for the aerodynamic roughness coefficient, which determines the amount of local air turbulence that affects plume

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spreading. The at-grade option was used for certain roadway sections in the analysis; for at-grade sections, CALINE4 does not permit the plume to mix below ground level. The mixing zone, which is defined as the width of the roadway plus 10 feet (3 meters) on either side, was estimated for each roadway assuming each lane would be 12 feet wide. The calculations assume a mixing height of 3,280 feet (1,000 meters), a flat topographical condition between the source and the receptor (link height of 0 meters), and a meteorological condition of little to almost no wind (3.3 feet (1 meter) per second), consistent with Caltrans guidance (Caltrans 1998b). A temperature of 38° F was assumed.<sup>20</sup>

The emission factor represents the weighted average emission rate of the local Kern County vehicle fleet expressed in grams per mile per vehicle. Consistent with the traffic report, emission factors for 2015, representing the existing traffic condition, and factors for 2040, representing the long-term 2040 traffic conditions, were predicted by EMFAC2014 and were used in the CALINE4 model. Emission factors were based on a 5-mile-per-hour (mph) average speed<sup>21</sup> for all of the intersections. The unmitigated hourly traffic volume anticipated to travel on each link, in units of vehicles per hour, was based on the traffic report. Since project-generated traffic would have a project-specific impact for all of the intersections in the p.m. peak hours, vehicle counts for the p.m. hours were used. Modeling assumptions are outlined in Appendix G.

Four receptor locations at each intersection were modeled to determine CO ambient concentrations. A receptor was assumed on the sidewalk at each corner of the modeled intersections, for a total of four receptors adjacent to the intersection, to represent the possibility of extended outdoor exposure. CO concentrations were modeled at these locations to assess the maximum potential CO exposure that could occur in 2015 and 2040. A receptor height of 1.8 meters (5.9 feet) was used in accordance with Caltrans recommendations for all receptor locations (Caltrans 1998b).

The maximum 1-hour CO background concentration of 1.3 ppm, as measured in 2012 at the 2000 South Union Avenue monitoring station in Bakersfield (EPA 2015b), was assumed in the CALINE4 model. The model provides predicted concentrations in parts per million at each of the

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<sup>20</sup> December is usually the coldest month of the year in Bakersfield, with an average minimum temperature of 38°F (Western Region Climate Center 2015). Assuming a 5° correction factor for p.m. traffic conditions, average evening temperature would be approximately 43°F (Caltrans 1997). However, as these meteorological readings are for Bakersfield, and as CO concentrations generally increase with a decrease in temperature, a temperature of 38°F (3.3°C) was conservatively used to determine the CO concentrations in CALINE4.

<sup>21</sup> The lowest speed in which CO running exhaust emission data was available for all vehicle classes in the EMFAC2014 web-based model was 5 mph, which was conservatively assumed for both approach and departure segments.

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receptor locations. To estimate an 8-hour average CO concentration, a persistence factor of 0.6, as is recommended for rural and suburban locations, was applied to the output values.

Table 2-40 shows the results of the CALINE4 dispersion modeling. Model input and output data are contained in Appendix G.

**Table 2-40**  
**CALINE4 Predicted Carbon Monoxide Concentrations**

Intersection	Maximum Modeled Project Conditions (ppm)	
	1-hour	8-hour <sup>a</sup>
Street D / Street A (Existing Plus Project Conditions 2015)	2.1	1.3
Street D / Street A (Cumulative Conditions 2040)	1.7	1.0
Street I / Street A (Existing Plus Project Conditions 2015)	1.8	1.1

Source: Caltrans 1998a (CALINE4).

Notes: ppm = parts per million

<sup>a</sup> 8-hour concentrations were obtained by multiplying the 1-hour concentration by a factor of 0.6, as referenced in Caltrans 1997, Table B.15.

As shown in Table 2-40, maximum CO concentrations predicted for the 1-hour averaging period would be 2.1 ppm, which is below the state 1-hour CO standard of 20 ppm (see Table 2-1 for state standards). Maximum predicted 8-hour CO concentrations of 1.3 ppm would be below the state CO standard of 9.0 ppm. Neither the 1-hour nor 8-hour state standard would be equaled or exceeded at any of the intersections studied. Accordingly, impacts would be less than significant.

Impacts associated with the project's potential to expose sensitive receptors to substantial pollutant concentrations associated with potential CO hotspots would be less than significant.

### Mitigation Measures

None required.

### Level of Significance After Mitigation

Impacts would be less than significant without mitigation.

#### 2.5.3.7 Visibility Impacts

As discussed in Section 2.4.1, Thresholds of Significance and 2.4.2, Approach and Methodology, Kern County has established criteria to determine if a project would potentially result in a visibility impact; however, the SJVAPCD has not established guidance to address visibility in CEQA documents. Per the Kern County guidelines, a visibility analysis is not required since the project is not a large industrial stationary source project or a mining project, and it would not



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have long-term operational components that could generate dust or emissions plumes related to visibility. Compliance with Regulation VIII, including implementation of all feasible dust control measures specified in GAMAQI and incorporated into a dust control plan, is sufficient mitigation to reduce air quality effects from construction-related PM<sub>10</sub> emissions to a less-than-significant level (SJVAPCD 2015d).

The project's potential to expose sensitive receptors to substantial pollutant concentrations associated with potential visibility impacts would be less than significant and no mitigation is required.

### **Mitigation Measures**

None required.

### **Level of Significance After Mitigation**

Impacts would be less than significant without mitigation.

### ***Impact Summary***

The project's impact related to the potential to expose sensitive receptors to substantial pollutant concentrations would be less than significant without mitigation in regards to construction health risk, stationary source health risk, oil and gas health risk, CO hotspots, and visibility.

The project's impact related to the potential to expose sensitive receptors to substantial pollutant concentrations would be less than significant with mitigation in regards to Valley Fever (MM-AQ-2 and MM-AQ-7) and the I-5 health risk (MM-AQ-8).

### **2.5.4 Create Objectionable Odors Affecting a Substantial Number of People**

Types of land uses that typically pose potential odor problems include agriculture, wastewater treatment plants, food processing and rendering facilities, chemical plants, composting facilities, landfills, waste transfer stations, and dairies. In addition, the occurrence and severity of odor impacts depend on numerous factors, including the nature, frequency, and intensity of the source; wind speed and direction; and the presence of sensitive receptors. Although offensive odors rarely cause any physical harm, they can still be very unpleasant, leading to considerable distress and often generating citizen complaints to local governments and regulatory agencies.

The project includes land uses with sources that have the potential to generate substantial odors, including green waste composting, food processing, asphaltic concrete plants, and wastewater treatment. The specific location of these potential sources or proximity to receptors is unknown at this time. MM-AQ-9, requiring the implementation of an Odor Complaint Management Plan,

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would be required for uses that could cause a significant odor impact. In addition, as specific permits are requested for potential odor-generating land uses, Kern County and SJVAPCD may further evaluate odor emissions from such uses to determine if additional environmental review is warranted at that time. However, since the project could locate land uses with sources that have the potential to generate substantial odors in close proximity to receptors, as well as locate sensitive receptors in an area with existing ambient odors (including agriculture, oil and gas operations, and confined animal feeding operations), this impact is considered potentially significant.

### **Mitigation Measures**

**MM-AQ-9** As part of the special use permit process for facilities with the potential to generate noxious odors, such as green waste composting, food processing, asphaltic concrete plants, and wastewater treatment, shall be required to develop and implement an Odor Complaint Management Plan. The Odor Complaint Management Plan shall include the following:

- a. Name and telephone number of contact person(s) at the facility responsible for logging in and responding to odor complaints
- b. Policy and procedure describing the actions to be taken when an odor complaint is received, including the training provided to the staff on how to respond
- c. Description of potential odor sources at the facility
- d. Description of potential methods for reducing odors, including minimizing idling of delivery and service trucks and buses, process changes, facility modifications, and/or feasible add-on air pollution control equipment and
- e. Contingency measures to curtail emissions in the event of a public nuisance complaint.

### **Level of Significance After Mitigation**

Implementation of mitigation measure MM-AQ-9 would reduce impacts related to odor generating facilities to be developed under the project; however, the project would locate new sensitive receptors in an area with existing ambient odors. As such, impacts related to the project's potential to expose a substantial number of people to objectionable odors would be significant and unavoidable.

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### **2.5.5 Result in a Cumulatively Considerable Net Increase of Any Criteria Pollutant for which the Project Region is Nonattainment Under an Applicable Federal or State Ambient Air Quality Standard (including Releasing Emissions which Exceed Quantitative thresholds for O<sub>3</sub> precursors)**

Cumulative air quality impacts are the effect of long-term emissions of the project plus any existing emissions at the same location, as well as the effect of long-term emissions of reasonably foreseeable similar projects, on the projected regional air quality or localized air pollution in the County.

As discussed in Section 2.4.2.10, Approach and Methodology – Cumulative Impacts, the potential for the project to result in a cumulatively considerable impact, per the SJVAPCD guidance and thresholds, is based on the project’s potential to exceed the project-specific annual thresholds. As evaluated in Section 2.5.2.1, Construction Impacts, and Section 2.5.2.2, Operational Impacts, the project would exceed the annual SJVAPCD thresholds for ROG, NO<sub>x</sub>, CO, PM<sub>10</sub>, and PM<sub>2.5</sub> during construction and/or operation. However, as detailed in Section 1.4.3, Voluntary Emissions Reduction Agreement, TRC will mitigate the project’s ROG, NO<sub>x</sub>, and PM<sub>10</sub> (inclusive of PM<sub>2.5</sub>) emissions from construction and operation, including stationary source emissions, by achieving surplus, quantifiable and enforceable emission reductions; therefore, the project would not result in project-specific impacts for these pollutants. Since the VERA would not reduce CO, project-generated operational CO emissions would exceed the SJVAPCD operational CO emissions threshold after incorporation of mitigation, which would be a significant and unavoidable project-level and cumulative impact. However, the Kern County portion of the SJVAB is in attainment of federal and state CO standards, and CO hotspot and stationary source impact modeling determined that the project would not contribute substantially to an existing or projected CO air quality violation.

With implementation of the VERA, the project would not result in significant project-specific impacts or a cumulatively considerable contribution to air quality impacts of ROG, NO<sub>x</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> per the SJVAPCD guidance. However, because of scientific uncertainty regarding the relationship between the mitigation measures that can be used to satisfy the VERA obligations, and because other future projects within the SJVAB are not required to fully offset air emissions, the County practice is to conclude that cumulative emissions of these nonattainment pollutants will continue to be significant and unavoidable.

The project’s proposed development is consistent with the development projected in the Kern COG RTP/SCS. However, the mixed-use land use nature of the project, integration of transit and pedestrian friendly environments, and other sustainable development concepts would ensure that

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the project would be consistent with the policies and programs of the 2014 RTP/SCS, as described in the Land Use Technical Report (James 2015). Additionally, the mixed-use land use nature of the project, integration of transit and pedestrian friendly environments, and other sustainable development concepts ensure that the project would be consistent with the policies and programs of the 2014 RTP/SCS. In addition, MM-AQ-4 (VERA) requires emission reductions beyond those required by the applicable air quality plans. As such, the project would be consistent with the policies of the applicable SJVAPCD air quality attainment plans.

Based on these considerations, the project's potential to result in a cumulatively considerable net increase of any criteria pollutant for which the project region is nonattainment under an applicable federal or state ambient air quality standard would be potentially significant.

### **Mitigation Measures**

Implement **MM-AQ-1** through **MM-AQ-9**.

### **Level of Significance After Mitigation**

Impacts would be significant and unavoidable.

# Air Quality and Greenhouse Gas Emissions Analysis

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### 3 GREENHOUSE GAS EMISSIONS

#### 3.1 Environmental Setting

##### 3.1.1 The Greenhouse Effect

Climate change refers to any significant change in measures of climate, such as temperature, precipitation, or wind, lasting for an extended period (decades or longer). Gases that trap heat in the atmosphere are often called GHGs. The greenhouse effect traps heat in the troposphere through a threefold process: short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit it into space and back toward the Earth. This “trapping” of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect.

The greenhouse effect is a natural process that contributes to regulating the Earth’s temperature. Without it, the temperature of the Earth would be about 0°F (−18°C) instead of its current 57°F (14°C). Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect.

##### 3.1.2 Greenhouse Gases

Principal GHGs include carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), ozone (O<sub>3</sub>), and water vapor (H<sub>2</sub>O). Some GHGs, such as CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O, can occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO<sub>2</sub> and CH<sub>4</sub> are emitted in the greatest quantities from human activities. Man-made GHGs, which have a much greater heat-absorption potential than CO<sub>2</sub>, include fluorinated gases, such as hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulfur hexafluoride (SF<sub>6</sub>), and nitrogen trifluoride (NF<sub>3</sub>), which are associated with certain industrial products and processes (CAT 2006). A summary of the most common GHGs and their sources is included below.<sup>22</sup>

#### Carbon Dioxide

Natural sources of CO<sub>2</sub> include respiration of bacteria, plants, animals, and fungus, evaporation from oceans, volcanic out gassing, and decomposition of dead organic matter. Human activities that generate CO<sub>2</sub> are from the combustion of coal, oil, natural gas, and wood.

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<sup>22</sup> The descriptions of GHGs are summarized from the GAMAQI (SJVAPCD 2015d).

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### **Methane**

CH<sub>4</sub> is a flammable gas and is the main component of natural gas. CH<sub>4</sub> is generated mostly from the anaerobic digestion of organic material and resultant off-gassing from sources including natural decay of organic matter, agricultural practices (such as from cows and decomposition of manure), and landfills.

### **Nitrous Oxide**

N<sub>2</sub>O is produced by microbial processes in soil and water, including those reactions that occur in fertilizer containing nitrogen. Industrial processes (such as in nitric acid production, nylon production, and fossil fuel-fired power plants), vehicle emissions, and the use of N<sub>2</sub>O as a propellant (such as in rockets, racecars, aerosol sprays) also result in atmospheric N<sub>2</sub>O.

### **Fluorinated Gases**

Fluorinated gases are synthetic, powerful GHGs that are emitted from a variety of industrial processes. Several prevalent fluorinated gases include:

- Hydrofluorocarbons: HFCs are synthetic chemicals that are used as a substitute for CFCs for automobile air conditioners and refrigerants.
- Perfluorocarbons: The two main sources of PFCs are primary aluminum production and semiconductor manufacturing. Since PFCs have stable molecular structures and do not break down through the chemical processes in the lower atmosphere, these chemicals have long lifetimes, ranging between 10,000 and 50,000 years.
- Sulfur Hexafluoride: SF<sub>6</sub> is used for insulation in electric power transmission and distribution equipment, in semiconductor manufacturing, the magnesium industry, and as a tracer gas for leak detection.
- Nitrogen trifluoride: NF<sub>3</sub> is used in the manufacture of a variety of electronics, including semiconductors and flat panel displays.

### **Black Carbon**

Black carbon is a component of fine particulate matter, which has been identified as a leading environmental risk factor for premature death. It is produced from the incomplete combustion of fossil fuels and biomass burning, particularly from older diesel engines and forest fires. Black carbon warms the atmosphere by absorbing solar radiation, influences cloud formation, and darkens the surface of snow and ice, which accelerates heat absorption and melting. Black carbon is a short-lived species that varies spatially, which makes it difficult to quantify the global

## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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warming potential. Diesel particulate matter emissions are a major source of black carbon and are also TACs that have been regulated and controlled in California for several decades in order to protect public health. In relation to declining diesel particulate matter from CARB's regulations pertaining to diesel engines, diesel fuels, and burning activities, the CARB estimates that annual black carbon emissions in California have reduced by 70% between 1990 and 2010, with 95% control expected by 2020 (CARB 2014c).

### **Water Vapor**

The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

### **Ozone**

The primary source of water vapor is evaporation from the ocean, with additional vapor generated by sublimation (change from solid to gas) from ice and snow, evaporation from other water bodies, and transpiration from plant leaves. Water vapor is the most important, abundant, and variable GHG in the atmosphere and maintains a climate necessary for life.

### **Aerosols**

Aerosols are suspensions of particulate matter in a gas emitted into the air through burning biomass (plant material) and fossil fuels. Aerosols can warm the atmosphere by absorbing and emitting heat and can cool the atmosphere by reflecting light.

### **Chlorofluorocarbons**

CFCs are synthetic chemicals that have been used as cleaning solvents, refrigerants, and aerosol propellants. CFCs are chemically unreactive in the lower atmosphere (troposphere) and the production of CFCs was prohibited in 1987 due to the chemical destruction of stratospheric ozone.

#### **3.1.3 Global Warming Potential**

The effect each GHG has on climate change is measured as a combination of the mass of its emissions and the potential of a gas or aerosol to trap heat in the atmosphere, known as its global warming potential (GWP). The GWP varies between GHGs; for example, the GWP of CH<sub>4</sub> is 21, and the GWP of N<sub>2</sub>O is 310. Total GHG emissions are expressed as a function of how much

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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warming would be caused by the same mass of CO<sub>2</sub>. Thus, GHG gas emissions are typically measured in terms of pounds, tons, or metric tons (MT) of CO<sub>2</sub> equivalent (CO<sub>2</sub>E).

The CO<sub>2</sub>E for a gas is derived by multiplying the mass of the gas by the associated GWP, such that  $MT \text{ of } CO_2E = (MT \text{ of a GHG}) \times (GWP \text{ of the GHG})$ . CalEEMod assumes that the GWP for CH<sub>4</sub> is 21, which means that emissions of 1 MT of CH<sub>4</sub> are equivalent to emissions of 21 MT of CO<sub>2</sub>, and the GWP for N<sub>2</sub>O is 310, based on the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report. The IPCC has released subsequent Assessment Reports with updated GWPs, and CARB reporting and other statewide documents are beginning to transition to the use of the GWPs in the IPCC Fourth Assessment Report. Furthermore, the use of the different GWPs would not substantially change the overall project GHG emissions, which are primarily CO<sub>2</sub>. As such, it is appropriate to use the hardwired GWP values in CalEEMod from the IPCC Second Assessment Report.

### 3.2 Regulatory Setting

#### 3.2.1 Federal Regulations

***Massachusetts v. EPA.*** On April 2, 2007, in *Massachusetts v. EPA*, the U.S. Supreme Court directed the EPA administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA administrator is required to follow the language of Section 202(a) of the CAA. On December 7, 2009, the administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the CAA:

- The administrator found that elevated concentrations of GHGs—CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, HFCs, PFCs, and SF<sub>6</sub>—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the “endangerment finding.”

The administrator further found the combined emissions of GHGs—CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the “cause or contribute finding.”

In the context of this case, these two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the CAA.



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***Energy Independence and Security Act.*** On December 19, 2007, President George W. Bush signed the Energy Independence and Security Act of 2007. Among other key measures, the act would do the following, which would aid in the reduction of national GHG emissions:

- Increase the supply of alternative fuel sources by setting a mandatory Renewable Fuel Standard requiring fuel producers to use at least 36 billion gallons of biofuel in 2022.
- Set a target of 35 miles per gallon (mpg) for the combined fleet of cars and light trucks by model year 2020 and direct National Highway Traffic Safety Administration (NHTSA) to establish a fuel economy program for medium- and heavy-duty trucks and create a separate fuel economy standard for work trucks.
- Prescribe or revise standards affecting regional efficiency for heating and cooling products and procedures for new or amended standards, energy conservation, energy efficiency labeling for consumer electronic products, residential boiler efficiency, electric motor efficiency, and home appliances.

***EPA Mandatory Greenhouse Gas Reporting Rule.*** On September 22, 2009, EPA issued a final rule to require reporting of GHG emissions from all sectors of the United States economy (74 FR 56260–56519). Fossil fuel and industrial GHG suppliers, motor vehicle and engine manufacturers, and facilities that emit 25,000 MT CO<sub>2</sub>E or more per year are required to report GHG emissions data to EPA annually. The first annual reports for the largest emitting facilities, covering calendar year 2010, were submitted to EPA in 2011. Additionally, reporting of emissions is required for owners of SF<sub>6</sub>- and PFC-insulated equipment when the total nameplate capacity of these insulating gases is above 17,280 pounds. This new program covers approximately 85% of the nation's GHG emissions and applies to roughly 10,000 facilities. EPA's new reporting system was intended to provide a better understanding of GHG sources and guide development of the policies and programs to reduce emissions. The data also allow the reporters to track their own emissions, compare them to similar facilities, and aid in identifying cost-effective methods to reduce emissions in the future (EPA 2010). The reporting rule has been amended numerous times, most recently on October 22, 2015. Buildout of the project, including potential stationary sources, would not be expected to trigger federal GHG reporting according to the rule.

***EPA and NHTSA Joint Final Rules for Vehicle Standards.*** On April 1, 2010, the EPA and NHTSA announced a joint final rule to establish a national program consisting of new standards for light-duty vehicles model years 2012 through 2016. The joint rule is intended to reduce GHG emissions and improve fuel economy. The EPA approved the first-ever national GHG emissions standards under the federal Clean Air Act, and NHTSA approved Corporate Average Fuel

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Economy (CAFE) standards under the Energy Policy and Conservation Act (75 FR 25324–25728). The final rule became effective on July 6, 2010 (75 FR 25324–25728).

The EPA’s GHG standards require new passenger cars, light-duty trucks, and medium-duty passenger vehicles to meet an estimated combined average emissions level of 250 grams of CO<sub>2</sub> per mile in model year 2016, equivalent to 35.5 mpg if the automotive industry were to meet this CO<sub>2</sub> level through fuel economy improvements alone. The CAFE standards for passenger cars and light trucks will be phased in between 2012 and 2016. The final standards equivalent would be 37.8 mpg for passenger cars and 28.8 mpg for light trucks, resulting in an estimated combined average of 34.1 mpg. The rules will simultaneously reduce GHG emissions, improve energy security, increase fuel savings, and provide clarity and predictability for manufacturers.

In 2011, the EPA and NHTSA approved the first-ever program to reduce GHG emissions and increase fuel efficiency for medium- and heavy-duty vehicles (76 FR 57106–57513). Effective November 14, 2011, the CO<sub>2</sub> emissions and fuel efficiency standards of this regulation apply to the following car types with the model years 2014 to 2018: combination tractors (i.e., semi-trucks), heavy-duty pickup trucks and vans, and vocational vehicles including transit and school buses. This regulation covers vehicles with a gross vehicle weight rating of 8,500 pounds or greater; medium-duty passenger vehicles are covered by the previous regulation for passenger cars and light-duty trucks. In addition, the EPA has adopted standards to control hydrofluorocarbons leakage from air conditioning systems in combination tractors and heavy-duty pickup trucks and vans, as well as CH<sub>4</sub> and N<sub>2</sub>O standards for heavy-duty engines, pickup trucks, and vans.

In August 2012, the EPA and NHTSA approved a second round of GHG and CAFE standards for model years 2017 and beyond (77 FR 62624–63200). These standards will reduce motor vehicle GHG emissions to 163 grams of CO<sub>2</sub> per mile, which is equivalent to 54.5 mpg if this level was achieved solely through improvements in fuel efficiency, for cars and light-duty trucks by model year 2025. A portion of these improvements, however, will likely be made through reductions in air conditioning leakage and through use of alternative refrigerants, which would not contribute to fuel economy. The regulations also include targeted incentives to encourage early adoption and introduction into the marketplace of advanced technologies to dramatically improve vehicle performance, including the following:

- Incentives for electric vehicles, plug-in hybrid electric vehicles, and fuel-cell vehicles
- Incentives for hybrid technologies for large pickup trucks and for other technologies that achieve high fuel economy levels on large pickup trucks
- Incentives for natural gas vehicles

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- Credits for technologies with potential to achieve real-world GHG reductions and fuel economy improvements that are not captured by the standard test procedures

***Clean Power Plan and New Source Performance Standards for Electric Generating Units.*** On October 23, 2015, EPA published a final rule (effective December 22, 2015) establishing Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units (80 FR 64510–64660), also known as the Clean Power Plan. These guidelines prescribe how states must develop plans to reduce GHG emissions from existing fossil-fuel-fired electric generating units. The guidelines establish CO<sub>2</sub> emission performance rates representing the best system of emission reduction for two subcategories of existing fossil-fuel-fired electric generating units: (1) fossil-fuel-fired electric utility steam-generating units and (2) stationary combustion turbines. The rule includes state-specific CO<sub>2</sub> goals reflecting the CO<sub>2</sub> emission performance rates and guidelines for the development, submittal, and implementation of state plans that establish emission standards or other measures to implement the CO<sub>2</sub> emission performance rates. Initial plan compliance with state emission goals begins in 2022 with full compliance with final goals required in 2030. The goals are established by state in units of pounds of CO<sub>2</sub> per net megawatt-hour (MWh) or total short tons of CO<sub>2</sub>. For California, the goals for 2030 are 828 pounds of CO<sub>2</sub> per net megawatt-hour or 96.8 million short tons of CO<sub>2</sub>. CARB anticipates that the state's plan will rely heavily on existing programs such as the cap-and-trade program, Renewable Portfolio Standard, energy efficiency standards, and Mandatory GHG Reporting Regulation (for compliance determinations) (CARB 2015e).

Concurrently, EPA published a final rule (effective October 23, 2015) establishing Standards of Performance for Greenhouse Gas Emissions from New, Modified, and Reconstructed Stationary Sources: Electric Utility Generating Units (80 FR 64661–65120). The rule prescribes CO<sub>2</sub> emission standards for newly constructed, modified, and reconstructed affected fossil fuel-fired electric utility generating units. Separate standards of performance were set for fossil fuel-fired electric utility steam-generating units and fossil fuel-fired stationary combustion turbines. The standards apply to new units commencing construction after January 8, 2014, or existing units commencing modification or reconstruction after June 18, 2014. The rule applies only to units with a base load rating greater than 250 million Btu of fossil fuel per hour and serving a generator or generators capable of selling greater than 25 MW of electricity to a utility power distribution system.

### 3.2.2 State Regulations

**Title 24.** Title 24 of the California Code of Regulations was established in 1978, and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes energy efficiency standards for

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residential and non-residential buildings constructed in the State of California in order to reduce energy demand and consumption. Part 6 is updated periodically to incorporate and consider new energy efficiency technologies and methodologies. The most recent amendments, referred to as the 2013 standards, will become effective on July 1, 2014. Building constructed in accordance with the 2013 standards will use 25% less energy for lighting, heating, cooling, ventilation, and water heating than the 2008 standards. Additionally, the standards will save 200 million gallons of water per year and avoid 170,500 tons of GHG emissions per year (CEC 2012).

Title 24 also includes Part 11, known as California's Green Building Standards (CALGreen). The CALGreen standards took effect in January 2011, and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings, as well as schools and hospitals. The mandatory standards require:

- 20% mandatory reduction in indoor water use.
- 50% of construction and demolition waste must be diverted from landfills.
- Mandatory inspections of energy systems to ensure optimal working efficiency.
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring and particle boards.

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15% improvement in energy requirements; stricter water conservation; 65% diversion of construction and demolition waste; 10% recycled content in building materials; 20% permeable paving; 20% cement reduction; and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30% improvement in energy requirements; stricter water conservation; 75% diversion of construction and demolition waste; 15% recycled content in building materials; 30% permeable paving; 30% cement reduction; and cool/solar-reflective roofs.

***Assembly Bill 939 and Assembly Bill 341.*** In 1989, AB 939, known as the Integrated Waste Management Act (Public Resources Code Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25% by 1995 and 50% by the year 2000.

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AB 341 (Chapter 476, Statutes of 2011 (Chesbro)) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75% of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle conducted several stakeholder workshops and in May 2012 published a discussion document titled California's New Goal: 75 Percent Recycling, which identifies concepts that CalRecycle believes would assist the state in reaching the 75% goal by 2020.

Increasing the amount of commercial solid waste that is recycled, reused, or composted will reduce GHG emissions primarily by 1) reducing the energy requirements associated with the extraction, harvest, and processing of raw materials and 2) using recyclable materials that require less energy than raw materials to manufacture finished products (CalRecycle 2012). Increased diversion of organic materials (green and food waste) will also reduce GHG emissions (CO<sub>2</sub> and CH<sub>4</sub>) resulting from decomposition in landfills by redirecting this material to processes that use the solid waste material to produce vehicle fuels, heat, electricity, or compost.

**Assembly Bill 1493.** In response to the transportation sector accounting for more than half of California's CO<sub>2</sub> emissions, AB 1493 (Pavley) was enacted on July 22, 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22% in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30%. Before these regulations could go into effect, the EPA had to grant California a waiver under the federal Clean Air Act, which ordinarily preempts state regulation of motor vehicle emission standards. The waiver was granted by Lisa Jackson, the EPA administrator, on June 30, 2009. On March 29, 2010, the CARB executive officer approved revisions to the motor vehicle GHG standards to harmonize the state program with the national program for 2012–2016 model years (see EPA and NHTSA Joint Final Rules for Vehicle Standards). The revised regulations became effective April 1, 2010.

**Executive Order S-3-05.** In June 2005, Governor Schwarzenegger established California's GHG emission reduction targets in Executive Order S-3-05. The executive order established the following goals: GHG emissions should be reduced to 2000 levels by 2010, GHG emissions should be reduced to 1990 levels by 2020, and GHG emissions should be reduced to 80% below 1990 levels by 2050. The CalEPA secretary is required to coordinate efforts of various agencies to collectively and efficiently reduce GHGs. The Climate Action Team (CAT) is responsible for

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implementing global warming emission reduction programs. Representatives from several state agencies compose the CAT. Under the executive order, the CalEPA secretary is directed to report biannually on progress made toward meeting the GHG targets and the impacts to California due to global warming, including impacts to water supply, public health, agriculture, the coastline, and forestry. The CAT fulfilled its initial report requirements through the 2006 *Climate Action Team Report to Governor Schwarzenegger and the Legislature* (CAT 2006).

The 2009 *Climate Action Team Biennial Report* (CAT 2010a), published in April 2010, expands on the policy outlined in the 2006 assessment. The 2009 report provides new information and scientific findings regarding the development of new climate and sea level projections using new information and tools that have recently become available. It also evaluates climate change within the context of broader social changes, such as land use changes and demographics. The 2009 report also identifies the need for additional research in several different aspects that affect climate change in order to support effective climate change strategies. The aspects of climate change determined to require future research include vehicle and fuel technologies, land use and smart growth, electricity and natural gas, energy efficiency, renewable energy and reduced carbon energy sources, low GHG technologies for other sectors, carbon sequestration, terrestrial sequestration, geologic sequestration, economic impacts and considerations, social science, and environmental justice.

The 2010 *Climate Action Team Report to Governor Schwarzenegger and the California Legislature* (CAT 2010b) reviews past Climate Action Milestones including voluntary reporting programs, GHG standards for passenger vehicles, the Low Carbon Fuel Standard, a statewide renewable energy standard, and the cap-and-trade program. Additionally, the 2010 report includes a cataloguing of recent research and ongoing projects; mitigation and adaptation strategies identified by sector (e.g., agriculture, biodiversity, electricity, and natural gas); actions that can be taken at the regional, national, and international levels to mitigate the adverse effects of climate change; and today's outlook on future conditions.

**Assembly Bill 32.** In furtherance of the goals established in Executive Order S-3-05, the legislature enacted AB 32 (Núñez and Pavley), the California Global Warming Solutions Act of 2006, which Governor Schwarzenegger signed on September 27, 2006. The GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020.

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB is also responsible for adopting regulations requiring the reporting and verification of statewide GHG emissions to monitor and enforce compliance with the established standards. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately

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responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

The first action under AB 32 resulted in the adoption of a report listing early-action GHG emission reduction measures on June 21, 2007. The early actions include three specific GHG control rules. On October 25, 2007, CARB approved an additional six early-action GHG reduction measures under AB 32. The three original early-action regulations meeting the narrow legal definition of “discrete early action GHG reduction measures” consist of the following:

- A low-carbon fuel standard to reduce the “carbon intensity” of California fuels
- Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of “do-it-yourself” automotive refrigerants
- Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies

The additional six early-action regulations, which were also considered “discrete early action GHG reduction measures,” consist of the following:

- Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology
- Reduction of auxiliary engine emissions of docked ships by requiring port electrification
- Reduction of PFC emissions from the semiconductor industry
- Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products)
- Requirements that all tune-up, smog check, and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency
- Restriction on the use of SF<sub>6</sub> from non-electricity sectors if viable alternatives are available

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 million metric tons (MMT) of CO<sub>2</sub>E. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for the large facilities that account for 94% of GHG emissions from industrial and commercial stationary sources in California. About 800 separate sources fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen

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plants, cement plants, cogeneration facilities, and other industrial sources that emit CO<sub>2</sub> in excess of specified thresholds.

On December 11, 2008, CARB approved the *Climate Change Scoping Plan: A Framework for Change* (Scoping Plan) (CARB 2008) to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and CAT early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program.

The key elements of the Scoping Plan include the following:

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
- Achieving a statewide renewable energy mix of 33%
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low Carbon Fuel Standard
- Creating targeted fees, including a public goods charge on water use, fees on high GWP gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation

An update to the Scoping Plan was adopted in May 2014 (CARB 2014c). Based on updated information, the Scoping Plan Update revises the 2020 emissions target to 431 MMT CO<sub>2</sub>E (based on updated GWPs for GHGs) and also builds upon the initial Scoping Plan with new strategies and recommendations. The Scoping Plan Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The Scoping Plan Update defines CARB's climate change priorities for the next 5 years and sets the groundwork to reach California's long-term climate goals set forth in Executive Orders S-3-05 and B-16-2012. Executive Order B-16-2012 directed state entities under the governor's direction and control to support and facilitate development and



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distribution of zero-emission vehicles (ZEVs). The Governor's executive order sets a long-term target of reaching 1.5 million ZEVs on California's roadways by 2025. On a statewide basis, the executive order also establishes a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050.

The Scoping Plan Update highlights California's progress toward meeting the 2020 GHG emission reduction goals defined in the initial Scoping Plan. These efforts were pursued to achieve the near-term 2020 goal, and have created a framework for ongoing climate action that can be built upon to maintain and continue economic sector-specific reductions beyond 2020, as required by AB 32. The Scoping Plan Update identified nine key focus areas, including energy, transportation, agriculture, water, waste management, and natural and working lands, along with short-lived climate pollutants, green buildings, and the cap-and-trade program. The update also recommends that a statewide mid-term target and mid-term and long-term sector targets be established toward meeting the 2050 goal established by Executive Order S-3-05 to reduce California's GHG emissions to 80% below 1990 levels, although no specific recommendations are made.

***Senate Bill 1368.*** In September 2006, Governor Schwarzenegger signed SB 1368, which requires the California Energy Commission (CEC) to develop and adopt regulations for GHG emission performance standards for the long-term procurement of electricity by local publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC). This effort will help protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low as or lower than new combined-cycle natural gas plants by requiring imported electricity to meet GHG performance standards in California and by requiring that the standards be developed and adopted in a public process.

***Executive Order S-1-07.*** Issued on January 18, 2007, Executive Order S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO<sub>2</sub>E grams per unit of fuel energy sold in California. The target of the Low Carbon Fuel Standard is to reduce the carbon intensity of California passenger vehicle fuels by at least 10% by 2020. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009. The regulation is expected to increase the production of biofuels, including those from alternative sources, such as algae, wood, and agricultural waste. In addition, the Low Carbon Fuel Standard would drive the availability of plug-in hybrid, battery electric, and fuel-cell power motor vehicles. The Low Carbon Fuel Standard is anticipated to lead to the replacement of 20% of the fuel used in motor vehicles with alternative fuels by 2020.

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*Senate Bill 97.* In August 2007, the California State Legislature enacted SB 97 (Dutton), which directs the Governor's Office of Planning and Research (OPR) to develop guidelines under the CEQA for the mitigation of GHG emissions. The OPR was to develop proposed guidelines by July 1, 2009, and the Natural Resources Agency was directed to adopt the guidelines by January 1, 2010.

On June 19, 2008, OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents (OPR 2008). The advisory indicated that a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities, should be identified and estimated. The advisory further recommended that the Lead Agency determine significance of the impacts and impose all mitigation measures necessary to reduce GHG emissions to a level that is less than significant.

The Natural Resources Agency adopted the CEQA Guidelines amendments on December 30, 2009, and transmitted them to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative Law completed its review and filed the amendments with the secretary of state. The amendments became effective on March 18, 2010. The amended guidelines establish several new CEQA requirements concerning the analysis of GHGs, including the following:

- Requiring a Lead Agency to “make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate, or estimate the amount of greenhouse gas emissions resulting from a project” (Section 15064(a))
- Providing a Lead Agency with the discretion to determine whether to use quantitative or qualitative analysis or performance standards to determine the significance of GHG emissions resulting from a particular project (Section 15064.4(a))
- Requiring a Lead Agency to consider the following factors when assessing the significant impacts from GHG emissions on the environment:
  - The extent to which the project may increase or reduce GHG emissions as compared to the existing environmental setting
  - Whether the project emissions exceed a threshold of significance that the Lead Agency determines applies to the project
  - The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions. (Section 15064.4(b))

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- Allowing lead agencies to consider feasible means of mitigating the significant effects of GHG emissions, including reductions in emissions through the implementation of project features or off-site measures, including offsets that are not otherwise required (Section 15126.4(c)).

The amended guidelines also establish two new guidance questions regarding GHG emissions in the environmental checklist set forth in CEQA Guidelines Appendix G:

- Would the project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The adopted amendments do not establish a GHG emission threshold, instead allowing a Lead Agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts. The Natural Resources Agency also acknowledges that a Lead Agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions (CNRA 2009a).

**Senate Bill 375.** In August 2008, the legislature passed, and on September 30, 2008, Governor Schwarzenegger signed, SB 375 (Steinberg), which addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. Regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035, as determined by CARB, are required to consider the emission reductions associated with vehicle emission standards (see SB 1493), the composition of fuels (see Executive Order S-1-07), and other CARB-approved measures to reduce GHG emissions. Regional metropolitan planning organizations will be responsible for preparing a Sustainable Communities Strategy within their Regional Transportation Plan. The goal of the SCS is to establish a development plan for the region, which, after considering transportation measures and policies, will achieve, if feasible, the GHG reduction targets. If an SCS is unable to achieve the GHG reduction target, a metropolitan planning organization must prepare an alternative planning strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies. SB 375 provides incentives for streamlining CEQA requirements by substantially reducing the requirements for "transit priority projects," as specified in SB 375, and eliminating the analysis of the impacts of certain residential projects on global warming and the growth-inducing impacts of those projects when the projects are consistent with the SCS or alternative planning strategy.

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On September 23, 2010, CARB adopted the SB 375 targets for the regional Metropolitan Planning Organizations. The targets for Kern COG, the designated Metropolitan Planning Organization for the project site, are a 5% reduction in emissions per capita by 2020 and a 10% reduction by 2035. See additional discussion of the Kern COG plan under Local Regulations.

**Executive Order S-13-08.** Governor Schwarzenegger issued Executive Order S-13-08 on November 14, 2008. The executive order is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. It directs state agencies to take specified actions to assess and plan for such impacts. It directs the California Natural Resources Agency, in cooperation with the California Department of Water Resources, CEC, California's coastal management agencies, and the Ocean Protection Council, to request that the National Academy of Sciences prepare a Sea Level Rise Assessment Report by December 1, 2010. The Ocean Protection Council, California Department of Water Resources, and CEC, in cooperation with other state agencies, are required to conduct a public workshop to gather information relevant to the Sea Level Rise Assessment Report. The Business, Transportation, and Housing Agency was ordered to assess within 90 days of issuance of the executive order the vulnerability of the state's transportation systems to sea-level rise. The Governor's Office of Planning and Research and the California Natural Resources Agency are required to provide land use planning guidance related to sea-level rise and other climate change impacts. The order also requires the other state agencies to develop adaptation strategies by June 9, 2009, to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. A discussion draft adaptation strategies report was released in August 2009, and the final *2009 California Climate Adaptation Strategy* report was issued in December 2009 (CNRA 2009b). To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: public health, ocean and coastal resources, water supply and flood protection, agriculture, forestry, biodiversity and habitat, and transportation and energy infrastructure. The report then recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

Section 3.3.2, Potential Effects of Climate Change, summarizes current and future climate change impacts and risks for various resource areas, including biodiversity and habitat, as assessed in the *2009 California Climate Adaptation Strategy*.

**Senate Bill XI 2.** On April 12, 2011, Governor Jerry Brown signed SB XI 2 in the First Extraordinary Session, which expands the Renewable Portfolio Standard by establishing a goal of 20% of the total electricity sold to retail customers in California per year by December 31, 2013, and 33% by December 31, 2020. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste

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conversion, landfill gas, ocean wave, ocean thermal, or tidal current. A renewable electrical generation facility under this bill would also meet other specified requirements with respect to its location. In addition to the retail sellers covered by SB 107, SB X1 2 adds local publicly owned electric utilities to the Renewable Portfolio Standard. By January 1, 2012, the CPUC is required to establish the quantity of electricity products from eligible renewable energy resources to be procured by retail sellers in order to achieve targets of 20% by December 31, 2013; 25% by December 31, 2016; and 33% by December 31, 2020. The statute also requires that the governing boards for local publicly owned electric utilities establish the same targets and that the governing boards be responsible for ensuring compliance with these targets. The CPUC will be responsible for enforcement of the Renewable Portfolio Standard for retail sellers, while the CEC and CARB will enforce the requirements for local publicly owned electric utilities.

***Advanced Clean Cars Program.*** In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB 2011). To improve air quality, CARB will propose new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that in 2025 cars will emit 75% less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34% in 2025. The ZEV program will act as the focused technology of the Advanced Clean Cars program by requiring manufacturers to produce increasing numbers of ZEVs and plug-in hybrid electric vehicles in the 2018 to 2025 model years. The Clean Fuels Outlet regulation will ensure that fuels such as electricity and hydrogen are available to meet the fueling needs of the new advanced technology vehicles as they come to the market.

***Executive Order B-16-12.*** Governor Brown issued Executive Order S-16-12 on March 23, 2012. The Executive Order requires that state entities under the governor's direction and control support and facilitate the rapid commercialization of ZEVs. It orders CARB, the CEC, the CPUC, and other relevant agencies work with the Plug-in Electric Vehicle Collaborative and the California Fuel Cell Partnership to establish benchmarks to help achieve the following by 2015:

- The state's major metropolitan areas will be able to accommodate ZEVs, each with infrastructure plans and streamlined permitting
- The state's manufacturing sector will be expanding ZEV and component manufacturing
- The private sector's investment in ZEV infrastructure will be growing

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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- The state's academic and research institutions will be contributing to ZEV research, innovation and education.

CARB, the CEC, and CPUC, are also directed to establish benchmarks to help achieve the following goals by 2020:

- The state's ZEV infrastructure will be able to support up to one million vehicles
- The costs of ZEV will be competitive with conventional combustion vehicles
- ZEVs will be accessible to mainstream consumers
- There will be widespread use of ZEVs for public transportation and freight transport
- Transportation sector GHG emissions will be falling as a result of the switch to ZEVs
- Electric vehicle charging will be integrated into the electricity grid
- The private sector's role in the supply chain for ZEV component development and manufacturing will be expanding.

Benchmarks are also to be established to help achieve the following goals by 2025:

- Over 1.5 million ZEVs will be on California roads and their market share will be expanding
- Californians will have easy access to ZEV infrastructure
- The ZEV industry will be a strong and sustainable part of California's economy
- California's clean, efficient vehicles will annually displace at least 1.5 billion gallons of petroleum fuels.

On a statewide basis, the Executive Order establishes a target reduction of GHG emissions from the transportation sector equaling 80% less than 1990 levels by 2050.

***Executive Order B-18-12.*** Governor Brown issued Executive Order S-18-12 on April 25, 2012. The Executive Order directs state agencies, departments, and other entities under the governor's executive authority take actions to reduce entity-wide GHG emissions by at least 10% by 2015 and 20% by 2020, as measured against a 2010 baseline. To accomplish these goals with respect to construction of new buildings or major renovations, the Executive Order further orders state agencies to implement the following measures:

- All new state buildings and major renovations beginning design after 2025 will be constructed as Zero Net Energy facilities with an interim target for 50% of new facilities beginning design after 2020 to be Zero Net Energy.

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- Any proposed new or major renovation of state buildings larger than 10,000 square feet use clean, on-site power generation, such as solar photovoltaic, solar thermal and wind power generation, and clean back-up power supplies, if economically feasible.
- New or major renovated state buildings and build-to-suit leases larger than 10,000 square feet obtain LEED “Silver” certification or higher.
- New buildings incorporate building commissioning to facilitate improved and efficient building operation.
- State agencies identify and pursue opportunities to provide electric vehicle charging stations, and accommodate future charging infrastructure demand, at employee parking facilities in new buildings.

The Executive Order also established goals for existing state buildings for reducing grid-based energy purchases and water use.

**Senate Bill 605.** On September 21, 2014, Governor Jerry Brown signed SB 605, which requires CARB to complete a comprehensive strategy to reduce emissions of short-lived climate pollutants in the state no later than January 1, 2016. As defined in the statute, short-lived climate pollutant means “an agent that has a relatively short lifetime in the atmosphere, from a few days to a few decades, and a warming influence on the climate that is more potent than that of carbon dioxide.” SB 605, however, does not prescribe specific compounds as short-lived climate pollutants or add to the list of GHGs regulated under AB 32. In developing the strategy, the CARB must complete an inventory of sources and emissions of short-lived climate pollutants in the state based on available data, identify research needs to address any data gaps, identify existing and potential new control measures to reduce emissions, and prioritize the development of new measures for short-lived climate pollutants that offer cobenefits by improving water quality or reducing other air pollutants that impact community health and benefit disadvantaged communities. The draft strategy released by CARB in September 2015 focuses on methane, black carbon, and fluorinated gases, particularly hydrofluorocarbons, as important short-lived climate pollutants. The draft strategy recognizes emission reduction efforts implemented under AB 32 (e.g., refrigerant management programs) and other regulatory programs (e.g., in-use diesel engines, solid waste diversion) along with additional measures to be developed.

**Executive Order B-30-15.** On April 29, 2015, Governor Jerry Brown issued an executive order that identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. Executive Order B-30-15 set an interim target goal of reducing GHG emissions to 40% below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing GHG emissions to 80% below 1990 levels by 2050,

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as set forth in Executive Order S-3-05. To facilitate achievement of this goal, Executive Order B-30-15 calls for an update to CARB's Scoping Plan to express the 2030 target in terms of MMT of CO<sub>2</sub>E. The executive order also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry will be required to prepare GHG reduction plans by September 2015, followed by a report on actions taken in relation to these plans in June 2016. The executive order does not require local agencies to take any action to meet the new interim GHG reduction threshold. It is important to note that Executive Order B-30-15 was not adopted by a public agency through a public review process that requires analysis pursuant to CEQA Guidelines Section 15064.4 and that it has not been subsequently validated by a statute as an official GHG reduction target of the State of California. The executive order itself states it is "not intended to, and does not, create any rights or benefits, substantive or procedural, enforceable at law or in equity, against the State of California, its agencies, departments, entities, officers, employees, or any other person."

**Senate Bill 350.** Governor Jerry Brown signed SB 350 on October 7, 2015, which expands the Renewable Portfolio Standard by establishing a goal of 50% of the total electricity sold to retail customers in California per year by December 31, 2030. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses upon which an energy efficiency program is focused) of retail customers through energy conservation and efficiency. The bill also requires the CPUC, in consultation with the CEC, to establish efficiency targets for electrical and gas corporations consistent with this goal. SB 350 also provides for the transformation of the California Independent System Operator into a regional organization to promote the development of regional electricity transmission markets in the western states and to improve the access of consumers served by the California Independent System Operator to those markets, pursuant to a specified process.

**California Air Pollution Control Officers Association.** CAPCOA is the association of air pollution control officers representing all 35 air quality agencies throughout California. CAPCOA is not a regulatory body, but it has been an active organization in providing guidance in addressing the CEQA significance of GHG emissions and climate change as well as other air quality issues. The GHG analysis set forth in this report has been informed, in part, by the expertise and methodologies described in the following documents published by CAPCOA: (1) *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act* (CAPCOA 2008) and (2) *Quantifying Greenhouse Gas Mitigation Measures: A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures* (CAPCOA 2010).



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### 3.2.3 Local Regulations

#### Kern Council of Governments

##### *2014 Regional Transportation Plan/Sustainable Communities Strategy*

The Kern COG 2014 RTP includes an SCS component in accordance with SB 375, the Sustainable Communities and Climate Protection Act of 2008. The Kern COG board of directors adopted its first SCS on June 19, 2014, and made a determination that, if implemented, the SCS would achieve the per capita passenger vehicle GHG emissions targets established by the board of directors. The 2020 target is a 5% per capita reduction and the 2035 target is a 10% per capita reduction from the 2005 base year. Kern COG submitted its adopted SCS and GHG determination to CARB for review on June 4, 2015. On July 24, 2015, CARB accepted the determination that the Kern COG 2014 SCS, if implemented, would achieve the region's per capita GHG emission reduction targets for 2020 and 2035.

The SCS strives to reduce air emissions from passenger vehicle and light-duty truck travel by better coordinating transportation expenditures with forecasted development patterns and, if feasible, help meet CARB GHG targets for the region. As explained in the Kern COG 2014 RTP EIR, the key purpose of SB 375<sup>23</sup> and the Kern COG SCS is to reduce per capita emissions originating from passenger vehicles and light-duty trucks. Accordingly, the 2014 RTP:

- Describes sources of emissions in the Kern region, 2020 and 2035 emission reduction targets established by CARB for the San Joaquin Valley, and modeling techniques used to estimate and forecast emissions
- Identifies statewide strategies to reduce transportation-related emissions and their anticipated effect within the Kern region
- Identifies regional strategies that complement the SCS by reducing emissions in other sectors (e.g., energy consumption)
- Quantifies the effect of policies and programs in the RTP that reduce transportation-related emissions in the region and
- Compares the emissions reductions anticipated with implementation of the SCS with the regional targets (Kern COG 2014b).

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<sup>23</sup> SB 375 requires CARB to develop regional GHG emission reduction targets for passenger vehicles. CARB is to establish targets for the automobile and light-duty truck sector for 2020 and 2035 for each region covered by one of the state's 18 metropolitan planning organizations. Regional metropolitan planning organizations are responsible for preparing an SCS within their RTP.

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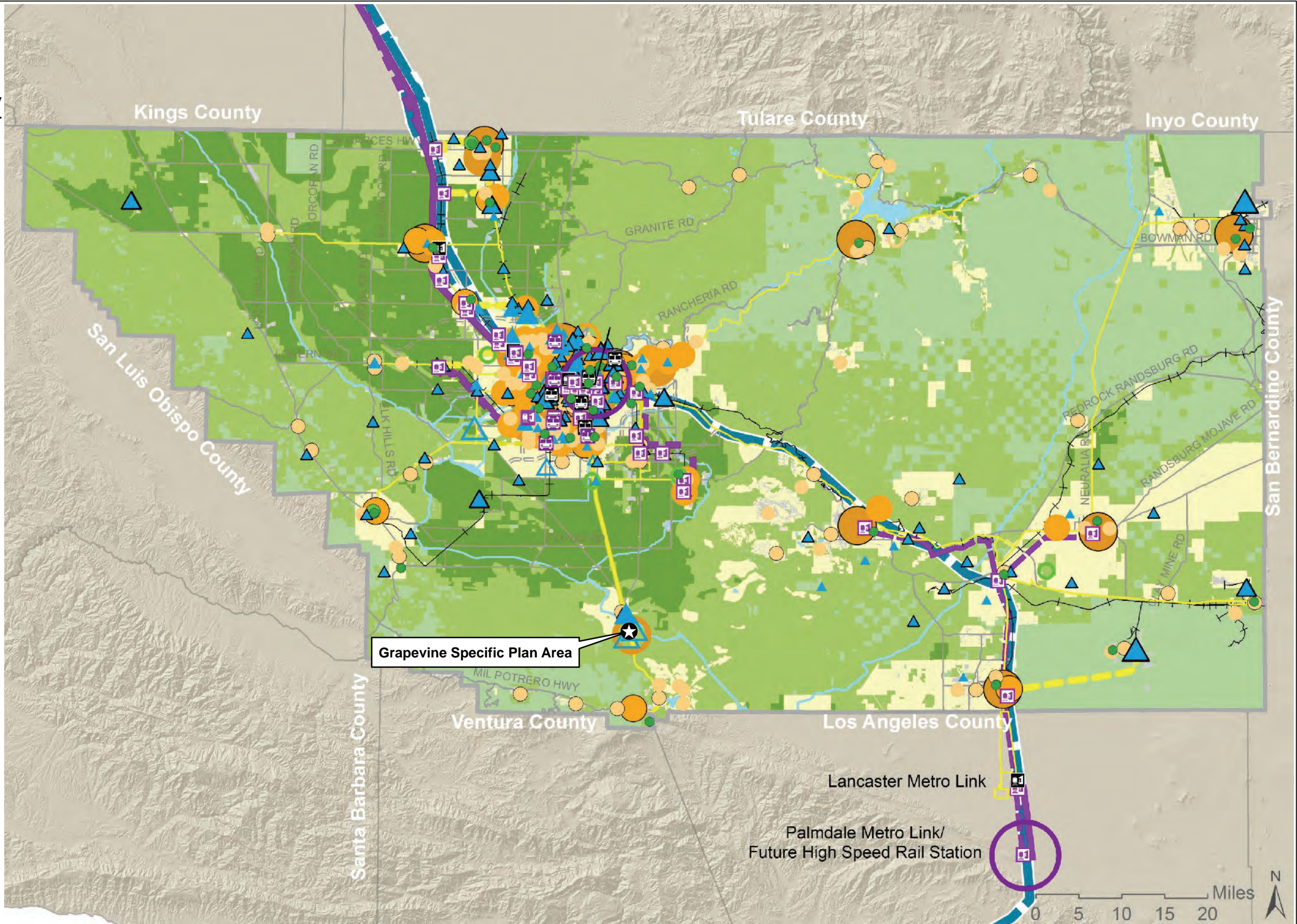
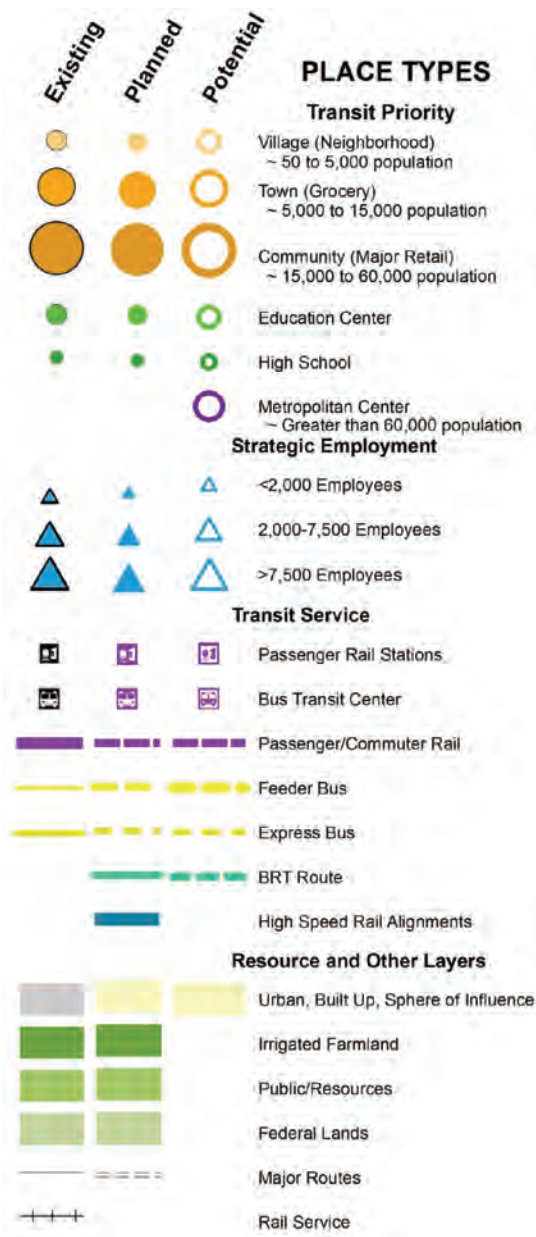
The GHG emission targets for lowering emissions in the San Joaquin Valley, as set by CARB and approved by the Kern COG board of directors, call for a 5% reduction in per capita emissions from passenger vehicles and light trucks by 2020 and a 10% reduction by 2035 through land use and transportation planning. Based on the analysis of strategies included in the SCS, CO<sub>2</sub> emissions are anticipated to be 14.1% lower than 2005 levels by 2020 and 16.6% lower by 2035, exceeding the targets established by CARB in 2010 (Kern COG 2014a). The Kern COG 2014 RTP EIR also evaluated and proposed GHG emissions and vehicle trip reduction strategies related to transportation demand management, transportation system management, road projects, land use, pricing, and goods movement. Figure 5, Sustainable Communities Strategy Transit Priority & Strategic Employment Center Map, presents existing, planned, and potential transit priority areas, strategic employment areas, and transit services.

### **SJVAPCD**

The SJVAPCD does not regulate GHG emissions directly through its permitting responsibilities for stationary sources. Thus, there are no SJVAPCD rules or regulations related to GHGs. The SJVAPCD, however, effects reductions of GHGs from new and modified stationary sources when acting as a Lead Agency for CEQA. The SJVAPCD implements its GHG policies and reviews whether new or modified stationary sources will implement best performance standards (BPS).



**DISCLAIMER:**  
These maps are for conceptual purposes only.  
The RTP/SCS is updated every 4 years.  
Local General Plans can be updated quarterly.  
For more detailed information on the latest planning assumptions, please refer to the locally latest adopted General Plan for each community.  
Local General Plan updates will be incorporated into the next 4-year RTP/SCS.



SOURCE: Kern County Council of Governments 2014, Regional Transportation Plan, Chapter 4, Sustainable Communities Strategy

**FIGURE 5**  
**Sustainable Communities Strategy Transit Priority & Strategic Employment Centers Map**



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In 2009, the SJVAPCD developed an internal policy and guidance for local land use agencies to use in evaluating GHG impacts under CEQA. In the *Final Staff Report – Addressing GHG Emissions Impacts under the California Environmental Quality Act* (SJVAPCD 2009c), the SJVAPCD reviewed potential GHG significance thresholds and approaches suggested by or adopted by the following entities, ranging from quantification of a project’s GHG impacts without a recommended significance threshold to a zero threshold to specific significance thresholds for different kinds of projects (e.g., residential, mixed use, industrial, plans).<sup>24</sup>

- CARB – “Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act”
- Office of Planning and Research – “Technical Advisory – CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review” and “Preliminary Draft CEQA Guideline Amendments for Greenhouse Gas Emissions and Public Workshop Announcement”
- California Air Pollution Control Officers Association (CAPCOA) – *CEQA & Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*
- Association of Environmental Professionals (AEP) – “Alternative Approaches to Analyzing Greenhouse Gas Emissions and Global Climate Change in CEQA Documents”
- South Coast Air Quality Management District (SCAQMD) – “Draft Guidance Document – Interim CEQA Greenhouse Gas (GHG) Significance Threshold”
- Bay Area Air Quality Management District (BAAQMD) – Draft revisions to *California Environmental Quality Act Air Quality Guidelines*
- Sacramento Metropolitan Air Quality Management District (SMAQMD) – “Addressing Climate Change in CEQA Documents”

The following discussion summarizes the SJVAPCD’s conclusions about various categories of GHG significance thresholds.

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<sup>24</sup> These documents encompassed the primary approaches for establishing significance thresholds in the period prior to the March 18, 2010 effective date of revisions of the CEQA Guidelines in accordance with SB 97. Additional guidance regarding assessment of GHG impacts were provided in the revised CEQA Guidelines and accompanying *Final Statement of Reasons for Regulatory Action - Amendments to the State CEQA Guidelines Addressing Analysis and Mitigation of Greenhouse Gas Emissions Pursuant to SB97* (CNRA 2009a). In addition, the California appellate courts and the Supreme Court have more recently considered CEQA cases and, in some cases, issued published decisions that provide additional direction regarding the appropriateness of certain GHG assessment methodologies and significance thresholds.

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***Zero Threshold*** – The SJVAPCD concluded that “Although a zero threshold is appealing in its simplicity; execution of a zero threshold would be difficult or impossible” (SJVAPCD 2009c). Furthermore, the SJVAPCD found that projects that could not reduce their emissions to zero would require preparation of an EIR and adoption of a statement of overriding consideration by the Lead Agency. Potentially, projects could choose to relocate to a region with a less stringent threshold, so-called “leakage” that would still result in GHG emissions outside the SJVAPCD. Finally, the SJVAPCD noted that CARB concluded that zero thresholds are not mandated because some level of GHG emissions is still consistent with climate stabilization and other regulatory programs will result in GHG reductions. For these reasons, the SJVAPCD did not support a zero threshold. Accordingly, a zero threshold was not selected as an appropriate GHG/climate change threshold for this assessment.

***Non-zero Quantitative Thresholds*** – As indicated previously, the SJVAPCD reviewed numerous quantitative thresholds adopted or proposed by other air districts and organizations, including “mass of GHG emissions generated per unit of activity, GHG emissions per capita per unit basis, and percent reduction compared to Business-as-Usual” (SJVAPCD 2009c). While a tiered approach was evaluated, with the final tier incorporating a quantitative threshold, the SJVAPCD concluded that “... without supporting scientific information, establishment of tier trigger levels could be argued to be arbitrary, and District staff does not believe the available science supports establishing a bright-line threshold, above which emissions are significant and below which they are not (SJVAPCD 2009c).

More specifically, the SJVAPCD concluded that inadequate evidence exists to support a specific quantitative level (e.g., an amount of MT CO<sub>2</sub>E per year that would be emitted due to a project) representing a significant impact. Specifically, the *Final Staff Report* states:

District staff has reviewed the relevant scientific information and concludes that the existing science is inadequate to support quantification of the extent to which project specific GHG emissions would impact global climatic features such as average air temperature, average annual rainfall, or average annual snow pack. Thus, District staff concludes that it is not feasible to scientifically establish a numerical threshold that supports a determination that GHG emissions from a specific project, of any size, would or would have a significant impact on global climate change. In other words, the District was not able to determine a specific quantitative level of GHG emission increase, above which the project would have a significant impact on the environment, and below which would have an insignificant impact. District staff further concludes that impacts of project specific emissions on global climatic change are cumulative in nature, and the significance thereof should be examined in that context. This is readily

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understood when one considers that global climatic change is the result of the sum total of GHG emissions, both man made [sic] and natural that occurred in the past; that is occurring now; and will occur in the future (SJVAPCD 2009c).

Accordingly, a bright-line numerical threshold was not selected as an appropriate GHG/climate change threshold for this assessment.

**Best Performance Standards** – The SJVAPCD evaluated performance-based standards, which would state “in quantifiable terms the level and extent of the attribute necessary to reach a goal or objective (SJVAPCD). The SJVAPCD considered a project achieving the performance-based standard or mitigating GHG emissions to an equivalent emission reduction level would be considered to have a less-than-significant cumulative impact on climate change. In conclusion, the SJVAPCD found that the state’s GHG emission reduction target would be accomplished by achieving a 29% reduction from business-as-usual (BAU) and that this achieving this reduction would be a “de facto” performance-based standard for GHG emission reductions.

On December 17, 2009, the SJVAPCD Governing Board adopted *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (SJVAPCD 2009b). The guidance recommends the following hierarchy for evaluating a project’s impact with respect to its GHG emissions:

- Projects complying with an approved GHG emission reduction plan or GHG mitigation program, which avoids or substantially reduces GHG emissions within the geographic area in which the project is located would be determined to have a less than significant individual and cumulative impact for GHG emissions. Such plans or programs must be specified in law or approved by the Lead Agency with jurisdiction over the affected resource and supported by a CEQA compliant environmental review document adopted by the Lead Agency. Projects complying with an approved GHG emission reduction plan or GHG mitigation program would not be required to implement Best Performance Standards (BPS).
- Projects implementing BPS would not require quantification of project specific GHG emissions.<sup>25</sup> Consistent with the state CEQA Guidelines, such projects would be determined to have a less than significant individual and cumulative impact for GHG emissions.
- Projects not implementing BPS would require quantification of project specific GHG emissions and demonstration that project specific GHG emissions would be reduced or mitigated by at least 29%, compared to BAU, including GHG emission reductions

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<sup>25</sup> The guidance recommends, “Projects requiring preparation of an Environmental Impact Report for any other reason would require quantification of project specific GHG emissions.” This assessment for the project does include quantification of the project’s construction and operational GHG emissions.

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achieved since the 2002–2004 baseline period. Projects achieving at least a 29% GHG emission reduction compared to BAU would be determined to have a less than significant individual and cumulative impact for GHG (SJVAPCD 2009b).

- For development projects, BPS would include project design elements, land use decisions, and technologies that reduce GHG emissions. While the SJVAPCD has adopted BPS for several types of stationary sources (e.g., boilers), it has not developed BPS for land development projects. Projects implementing any combination of BPS, and/or demonstrating a total 29% reduction in GHG emissions from BAU, would be determined to have a less than significant individual and cumulative impact on global climate change (SJVAPCD 2015d).

### Kern County

Kern County has not adopted a GHG reduction plan or climate action plan as of this writing.

## 3.3 Climate Change Conditions and Inventories

### 3.3.1 Contributions to Greenhouse Gas Emissions

#### Global Inventory

Anthropogenic GHG emissions worldwide in 2012 totaled approximately 44,816 MMT CO<sub>2</sub>E (CAIT 2015). Six countries—China, the United States, the Russian Federation, India, Japan, and Brazil—and the European community accounted for approximately 65% of the total global emissions, approximately 29,300 MMT CO<sub>2</sub>E (CAIT 2015). Table 3-1 presents the top GHG-emissions-producing countries.

**Table 3-1**  
**Six Top GHG Producer Countries and the European Community**

Emitting Countries	GHG Emissions (MMT CO <sub>2</sub> E) <sup>a</sup>
China	10,975.5
United States	6,235.1
European Union	4,399.2
India	3,013.8
Russian Federation	2,322.2
Japan	1,344.6
Brazil	1,012.6
Total	29,302.9

Source: CAIT 2015

Notes: Total may not sum due to rounding.

<sup>a</sup> Excludes land-use change and forestry (LULUCF)



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### National and State Inventories

In 2013, the United States produced 6,673.0 MMT of CO<sub>2</sub>E (EPA 2015c). The primary GHG emitted by human activities in the United States was CO<sub>2</sub>, representing approximately 82.5% of total GHG emissions. The largest source of CO<sub>2</sub>, and of overall GHG emissions, was fossil-fuel combustion, which accounted for approximately 77% of total national GHG emissions (EPA 2015c).

According to the 2013 GHG inventory data compiled by CARB for the California Greenhouse Gas Inventory for 2000–2013, California emitted 459 MMT CO<sub>2</sub>E of GHGs, including emissions resulting from out-of-state electrical generation (CARB 2015f). The primary contributors to GHG emissions in California are transportation, industry, electric power production from both in-state and out-of-state sources, agriculture, and other sources, which include commercial and residential activities. These primary contributors to California's GHG emissions and their relative contributions in 2013 are presented in Table 3-2; California's emissions are approximately 1% of global emissions.

**Table 3-2**  
**Greenhouse Gas Sources in California (2013)**

Source Category	Annual GHG Emissions (MMT CO <sub>2</sub> E)	Percent of Total <sup>a</sup>
Transportation	169.02	37%
Industrial Uses	92.68	20%
Electricity Generation <sup>b</sup>	90.45	20%
Residential and Commercial uses	43.54	9%
Agriculture	36.21	8%
High Global Warming Potential Substances	18.5	4%
Recycling and Waste	8.87	2%
Total	459.28	100%

Source: CARB 2015f

Notes:

<sup>a</sup> Percentage of total has been rounded.

<sup>b</sup> Includes emissions associated with imported electricity, which account for 39.99 MMT CO<sub>2</sub>E annually.

### Local Inventories

On May 3, 2011, the Kern County Board of Supervisors signed a memorandum of understanding with the SJVAPCD to develop a communitywide GHG emissions inventory for the County. The *Kern County Communitywide GHG Emission Inventory 2005 Baseline Year – 2020 Forecast* was finalized in May 2012. As indicated in the report title, the inventory assumed 2005 as the base year and 2020 as the forecast year.

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The GHG emissions inventories were estimated for nine primary sectors (electricity production and consumption, residential/commercial/industrial combustion, transportation, fossil fuels industry, industrial processes, waste management, agriculture, forestry and land use, and other sources). The 2005 base year GHG emissions inventory was estimated at 27.0 MMT CO<sub>2</sub>E, of which the fossil fuel industry represented 40%, followed by the electricity consumption sector at 22%. The 2020 forecasted GHG emissions inventory was estimated to be 27.3 MMT CO<sub>2</sub>E, of which the electricity consumption sector represents 31%, followed by the fossil fuel industry sector at 26%.

The 2005 baseline GHG emissions inventory is presented in Table 3-3.

**Table 3-3**  
**Kern Countywide GHG Inventory – Base Year (2005)**

Sector	Annual GHG Emissions (MMT CO <sub>2</sub> E)	Percent of Total
<i>Emissions Generated</i>		
Electricity consumption <sup>a</sup>	6,039,114	22%
Residential/commercial/industrial combustion	1,281,498	5%
Transportation	4,569,913	17%
Fossil fuels industry	10,928,153	40%
Industrial processes	1,852,124	7%
Waste management	120,494	<1%
Agriculture	2,024,470	7%
Forestry and land use	11,028	<1%
Other sources	218,823	1%
<b>Total<sup>b</sup></b>	<b>27,045,617</b>	
<i>Sequestration</i>		
Agriculture	412,957	13%
Forestry and land use	2,073,706	67%
Other sources	586,909	19%
<b>Total sequestration</b>	<b>3,073,572</b>	

Source: Kern County 2012b

Notes:

<sup>a</sup> Electricity production, which was estimated to generate 13,002,127 MT CO<sub>2</sub>E, was not included.

<sup>b</sup> Does not include the subtraction of sequestering sectors.

The 2020 forecast GHG emissions inventory is presented in Table 3-4.

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**Table 3-4**  
**Kern Countywide GHG Inventory – Forecast Year (2020)**

Sector	Annual GHG Emissions (MMT CO <sub>2</sub> E)	Percent of Total
<i>Emissions Generated</i>		
Electricity consumption <sup>a</sup>	8,572,261	31%
Residential/commercial/industrial combustion	1,689,414	6%
Transportation	4,823,756	18%
Fossil fuels industry	7,002,009	26%
Industrial processes	2,348,754	9%
Waste management	146,788	1%
Agriculture	2,652,616	10%
Forestry and land use	14,669	<1%
Other sources	22,442	<1%
<b>Total<sup>b</sup></b>	<b>27,272,709</b>	
<i>Sequestration</i>		
Agriculture	386,575	12%
Forestry and land use	2,073,706	63%
Other sources	833,092	25%
<b>Total sequestration</b>	<b>3,293,373</b>	

Source: Kern County 2012b

Notes:

<sup>a</sup> Electricity production, which was estimated to generate 18,455,958 MT CO<sub>2</sub>E, was not included.

<sup>b</sup> Does not include the subtraction of sequestering sectors.

### 3.3.2 Potential Effects of Climate Change

Globally, climate change has the potential to affect numerous environmental resources through uncertain impacts related to future air temperatures and precipitation patterns. The 2014 *Intergovernmental Panel on Climate Change Synthesis Report* indicated that warming of the climate system is unequivocal, and since the 1950s, many of the observed changes are unprecedented over decades to millennia. Signs that global climate change has occurred include warming of the atmosphere and ocean, diminished amounts of snow and ice have, and rising sea levels (IPCC 2014).

In California, climate change impacts have the potential to affect sea level rise, agriculture, snowpack and water supply, forestry, wildfire risk, public health, and electricity demand and supply (CCCC 2006). The primary effect of global climate change has been a 0.2°C rise in average global tropospheric temperature per decade, determined from meteorological measurements worldwide between 1990 and 2005. Scientific modeling predicts that continued emissions of GHGs at or above current rates would induce more extreme climate changes during the twenty-first century than were observed during the twentieth century. A warming of about

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0.2°C (0.36°F) per decade is projected, and there are identifiable signs that global warming could be taking place.

Although climate change is driven by global atmospheric conditions, climate change impacts are felt locally. A scientific consensus confirms that climate change is already affecting California. The average temperatures in California have increased, leading to more extreme hot days and fewer cold nights; shifts in the water cycle have been observed, with less winter precipitation falling as snow, and both snowmelt and rainwater running off earlier in the year; sea levels have risen; and wildland fires are becoming more frequent and intense due to dry seasons that start earlier and end later (CAT 2010a).

An increase in annual average temperature is a reasonably foreseeable effect of climate change. Observed changes over the last several decades across the western United States reveal clear signals of climate change. Statewide average temperatures increased by about 1.7°F from 1895 to 2011, and warming has been greatest in the Sierra Nevada (CCCC 2012). By 2050, California is projected to warm by approximately 2.7°F above 2000 averages, a threefold increase in the rate of warming over the last century. By 2100, average temperatures could increase by 4.1 to 8.6°F, depending on emissions levels. Springtime warming—a critical influence on snowmelt—will be particularly pronounced. Summer temperatures will rise more than winter temperatures, and the increases will be greater in inland California, compared to the coast. Heat waves will be more frequent, hotter, and longer. There will be fewer extremely cold nights (CCCC 2012). A decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California and much of the Plan Area's water supply, by 30% to as much as 90% is predicted over the next 100 years (CAT 2006).

Model projections for precipitation over California continue to show the Mediterranean pattern of wet winters and dry summers with seasonal, year-to-year, and decade-to-decade variability. For the first time, however, several of the improved climate models shift toward drier conditions by the mid-to-late 21st century in Central and, most notably, Southern California. By late-century, all projections show drying, and half of them suggest 30-year average precipitation will decline by more than 10% below the historical average (CCCC 2012).

Wildfire risk in California will increase as a result of climate change. Earlier snowmelt, higher temperatures and longer dry periods over a longer fire season will directly increase wildfire risk. Indirectly, wildfire risk will also be influenced by potential climate-related changes in vegetation and ignition potential from lightning. However, human activities will continue to be the biggest factor in ignition risk. It is estimated that the long-term increase in fire occurrence associated with a higher emissions scenario is substantial, with increases in the number of large fires statewide

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ranging from 58% to 128% above historical levels by 2085. Under the same emissions scenario, estimated burned area will increase by 57% to 169%, depending on location (CCCC 2012).

Reduction in the suitability of agricultural lands in the Plan Area for traditional crop types may occur. While effects may occur, adaptation could allow farmers and ranchers to minimize potential negative effects on agricultural outcomes through adjusting timing of plantings or harvesting and changing crop types. Because the specific effects of climate change in the Plan Area are uncertain, it would be speculative to predict which crop types and agricultural operations would be substantially affected.

Public health-related effects of increased temperatures and prolonged temperature extremes, including heat stroke, heat exhaustion, and exacerbation of existing medical conditions, could be particular problems for the elderly, infants, and those who lack access to air conditioning or cooled spaces (CNRA 2009b)

A summary of current and future climate change impacts to resource areas in California, as discussed in the *2009 California Climate Adaptation Strategy* (CNRA 2009b), is provided below.

**Biodiversity and Habitat.** The state's extensive biodiversity stems from its varied climate and assorted landscapes, which have resulted in numerous habitats where species have evolved and adapted over time. The preservation of California's unique biological heritage is of ever-increasing importance given the forecasted impacts associated with climate change.

Temperature-sensitive terrestrial plant and animal species must adapt to warmer temperatures within their existing ranges and/or shift their geographical range in response to climate changes. These shifts may occur towards higher latitudes, higher elevations, cooler coastal environments, or local microclimatic refuges, depending upon interactions with precipitation, topography and soils, and species behavioral and life history characteristics. The amount of additional warming expected in California in the future may exceed the tolerance of some species, particularly endemic ones. Where relocation access is blocked off by natural landscape features or human development, species will need corridors to establish habitat connectivity or face a growing risk of extinction. Similar stresses and barriers apply to aquatic species, but their migratory limitations may be greater. Changes in precipitation patterns will alter stream flow and severely affect fish populations during their life cycle. Low-flow conditions and higher stream flow temperatures are particularly threatening to coldwater fish.

The problem of invasive species is likely to become even more challenging in the future, as invasive species are typically more competitive than native species especially in damaged/degraded environments. Species migration/movement and invasions, along with

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changes in behavior of climate-sensitive species, will alter species interactions and community dynamics; these changes may have negative effects on critical ecosystem services.

Human activities across the state have reduced the ecological integrity of many areas as well as the levels of biodiversity. Climate change will act synergistically with existing stressors to have an even greater impact on already stressed ecosystems. Longer fire season trends over the last three decades and increased numbers of large, intense wildfires are projected to continue, increasing the risk of vegetation and habitat conversion, spread of invasive species and losses in biodiversity, and ecosystem goods and services. The preservation of healthy, resilient ecosystems with a rich plant and animal biodiversity is critical to the health, safety, and welfare of human populations. Human development has already reduced, degraded, and fragmented natural communities. This alone threatens the survival of individual species and some rare ecosystems.

**Water Management.** Higher temperatures, changes in precipitation patterns, and sea-level rise all combine to exacerbate California's existing water supply challenges. Expected population growth alone would make it more difficult to meet growing water demands. With climate change, the state's water crisis will worsen, overall increasing the risk of water shortages and flooding. To summarize the changing risks that California's water supply will face from climate change, the likelihood of occurrence of the projected consequences was qualitatively assessed. The resulting risk profile for California's water supply can be characterized as follows:

Higher temperatures will melt the Sierra snowpack earlier and drive the snowline higher, resulting in less snowpack to supply water to California users. In addition, a growing proportion of winter precipitation will fall as rain instead of as snow. Snow accumulation on April 1 will be significantly reduced, and snowmelt will run off earlier, leaving less water stored for the dry months. Storms and snowmelt may coincide and produce higher winter runoff from the landward side, while accelerating sea-level rise will produce higher storm surges during coastal storms. Together, they increase the probability of levee failures in the Sacramento-San Joaquin Delta.

Intense rainfall events, periodically ones with larger than historical runoff, will continue to affect California with more frequent and/or more extensive flooding. Streams may experience longer low-flow conditions with higher temperatures and higher concentrations of contaminants. By mid-century, most climate simulations used by the 2009 CAT report project marginally to considerably drier conditions in California. Water supplies originating from outside of the state (e.g., the Colorado River Basin and the Klamath River Basin) are also decreasing. Droughts are likely to become more frequent and persistent in the 21st century. Higher temperatures—especially in the summer and over a longer growing season—increase evapotranspiration rates from plants, soils and open water surfaces, including water reservoirs. Non-irrigated agriculture and landscaped areas, as well as natural systems will suffer moisture deficits if natural water

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supplies are limited, and irrigation will need to be increased if crop losses are to be avoided. Even with conservation and efficiency measures, urban water use is expected to increase.

**Agriculture.** California has been the most productive agricultural state in the United States for more than 50 years. The diversity and size of California's agricultural sector creates unique opportunities and challenges with regard to climate change. Climate change alters both average and extreme temperatures and precipitation patterns, which in turn influence crop yields, pest and weed ranges and introduction, and the length of the growing season. Extreme events, such as heat waves, floods, and droughts, may be among the most challenging impacts of climate change for agriculture since they can lead to large losses in crop yields and livestock productivity. To summarize, the changing risks that California's agricultural sector may be facing from climate change, the likelihood of occurrence of the projected consequences was qualitatively assessed. The emerging risk profile for the agricultural sector can be characterized as follows:

Climate change is likely to alter precipitation amounts and patterns; average as well as maximums and minimum temperatures, resulting in growing season lengthening and chilling hours reductions; and pest and weed ranges. The resulting critical changes in water availability, temperatures, sea-level rise and extreme events will all affect crop and livestock productivity, which in turn, will have a direct impact on domestic and international food supply.

Extreme events may be among the greatest challenges, as they can lead to large losses of crops, impose stress on livestock, and be most difficult to manage. Perennial crops such as grapes, fruits, and nuts will experience varying risks, with moderate warming potentially benefiting some crops such as table grapes and almonds, but mostly negatively affecting other perennial crops, such as cherries. Yields of some annual crops such as cotton, maize, sunflower, and wheat are expected to slightly decrease by mid-century, while rice and tomato yields should remain more or less unchanged. By the end of the century, there is a growing risk of declining yields of all examined crops except alfalfa; that risk is significantly higher under the higher emissions scenario. Livestock is particularly at risk from heat extremes, which can lead to increased risk of mortality, lower productivity, and lower reproductive success.

Disruptions in temperature and precipitation patterns can disrupt the link between agriculture and biodiversity. Hydrologic changes will decrease agricultural water supply reliability and thus diminish food security. Hydrologic changes will increase both threat and risk of crop and soil damaging flood on agricultural lands.

**Forestry.** The changing risks faced by California's forestry sector have been qualitatively assessed and the projected consequences for California's forests and woodlands are characterized as detailed in the following paragraphs.

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The most significant climate change risk facing California is associated with an increase in wildfire activity. Warmer weather, reduced snowpack and earlier snowmelt can be expected to increase fuel hazards and ignition risks. It can also increase plant moisture stress and insect populations, both of which affect forest health and reduce forest resilience to wildfires. An increase in wildfire intensity and extent will increase public safety risks, property damage, fire suppression and emergency response costs to government, watershed and water quality impacts, vegetation conversions and habitat fragmentation.

Climate change may dramatically change forested and range landscapes, resulting in expansions of some forest and woodland types, contraction of others, and conversions to brush and grassland habitats. These changes will affect biodiversity and may affect habitat availability, quality and connectivity. It may also affect economic uses, such as timber harvest, though net interactions of growth, wildfire, lumber markets and other effects are hard to predict. Temperature rise may enhance and expand insect populations, resulting in increased mortality, which would affect timber resources and reduce habitat quality for some species. It also increases fuel hazards and the likelihood for more intense, stand replacing fires that affect timber resources, fragment habitats, threaten life and property and damage watersheds. Climate change may result in increased establishment of non-native species, particularly in rangelands where invasive species are already a problem. These species may be able to exploit temperature or precipitation changes, or to quickly occupy areas denuded by fire, insect mortality or other climate change effects on the vegetation.

**Public Health.** It is also possible that climate change could cause significant public health risks. Climate change is expected to lead to increases in the frequency, intensity, and duration of extreme heat events and heat waves in California, which is likely to increase the risk of mortality and morbidity due to heat-related illness and exacerbation of existing chronic health conditions.

Changes in precipitation patterns affect public health primarily through potential for altered water supplies, and extreme events such as floods, droughts, and wildfires. These extreme events are likely to increase, thereby exposing the population to the risk of direct injury and/or mortality, respiratory illness associated with wildfires, property loss, displacement, and associated emotional distress. The direct risk of injury and fatalities from a combination of wildfires, higher temperatures, and longer dry seasons will contribute to an increase in poor air quality and related respiratory illnesses.

**Urban Heat Island Effect.** The “urban heat island” effect describes the phenomenon of a region, a city or an area within a city being significantly warmer than its surroundings. This effect is described in greater detail in Section 2.1.2.



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### **3.4 Significance Criteria and Methodology**

#### **3.4.1 Thresholds of Significance**

##### **3.4.1.1 Kern County**

The *Kern County CEQA Implementation Document* (Kern County 2004) and Kern County Environmental Checklist (Kern County 2012a) state that a project would have a significant environmental impact if it would:

- Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Kern County has not developed a quantitative threshold of significance for GHG emissions, and instead uses the GHG thresholds recommended by the SJVAPCD as discussed in Section 3.4.1.2.

##### **3.4.1.2 SJVAPCD**

Notwithstanding the state CEQA Guidelines, local land use agencies sought additional technical assistance from expert air quality agencies in how to complete the suggested quantitative analysis of the significance of GHG emissions for land use projects being considered under CEQA. The SJVAPCD adopted *Guidance for Valley Land-Use Agencies in Addressing GHG Emission Impacts for New Projects under CEQA* (SJVAPCD 2009b).

As discussed in Section 3.2.3 Local Regulations, the SJVAPCD developed an internal policy and guidance as outlined in the *Final Staff Report – Addressing GHG Emissions Impacts under the California Environmental Quality Act* (SJVAPCD 2009c).

Consistent with the SJVAPCD guidance, this assessment would find that the impact on climate change due to the project would be less than significant if it can be demonstrated that the project would result in 29% lower emissions than those under a BAU scenario.

The BAU analysis will be used to assess the project's potential to generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.

Projects demonstrating a total 29% reduction in GHG emissions from BAU would be determined to have a less than significant individual and cumulative impact on global climate change (SJVAPCD 2015d).

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### 3.4.1.3 State of California

To inform the evaluation of the project's GHG impacts, additional CEQA-related guidance prepared by California agencies was reviewed.

The California Office of Planning and Research's Technical Advisory titled *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review* states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the Lead Agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2008). Furthermore, the advisory document states that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact,' individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice."

Section 15064.4 of the CEQA Guidelines, "Determining the Significance of Impacts from Greenhouse Gas Emissions," states the following:

- A. The determination of the significance of greenhouse gas emissions calls for a careful judgment by the Lead Agency consistent with the provisions in section 15064. A Lead Agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project. A Lead Agency shall have discretion to determine, in the context of a particular project, whether to:
  - i. Use a model or methodology to quantify greenhouse gas emissions resulting from a project, and which model or methodology to use. The Lead Agency has discretion to select the model or methodology it considers most appropriate provided it supports its decision with substantial evidence. The Lead Agency should explain the limitations of the particular model or methodology selected for use; and/or
  - ii. Rely on a qualitative analysis or performance based standards.
- B. A Lead Agency should consider the following factors, among others, when assessing the significance of impacts from greenhouse gas emissions on the environment:
  - i. The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

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- ii. Whether the project emissions exceed a threshold of significance that the Lead Agency determines applies to the project.
- iii. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such requirements must be adopted by the relevant public agency through a public review process and must reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project (14 CCR 15064.4).

Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of GHGs. There are currently no established thresholds for assessing whether the GHG emissions of a project would be considered a cumulatively considerable contribution to global climate change; however, all reasonable efforts should be made to minimize a project's contribution to global climate change.

While the project would result in emissions of GHGs during construction and operation, no guidance exists to indicate what level of GHG emissions would be considered substantial enough to result in a significant adverse impact on global climate. However, it is generally believed that an individual project is of insufficient magnitude by itself to influence climate change or result in a substantial contribution to the global GHG inventory as scientific uncertainty regarding the significance a project's individual and cumulative effects on global climate change remains.

Thus, GHG impacts are recognized as exclusively cumulative impacts; there are no non-cumulative GHG emission impacts from a climate change perspective (CAPCOA 2008). This approach is consistent with that recommended by the CNRA, which noted in its public notice for the proposed CEQA amendments that the evidence before it indicates that in most cases, the impact of GHG emissions should be considered in the context of a cumulative impact, rather than a project-level impact (CNRA 2009c). Similarly, the *Final Statement of Reasons for Regulatory Action on the CEQA Amendments* confirm that an EIR or other environmental document must analyze the incremental contribution of a project to GHG levels and determine whether those emissions are cumulatively considerable (CNRA 2009a). Accordingly, further discussion of the project's GHG emissions and their impact on global climate are addressed below.

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### **3.4.2 Approach and Methodology**

#### **3.4.2.1 Construction Greenhouse Gas Emissions**

Consistent with current SJVAPCD guidance (SJVAPCD 2015d), CalEEMod was used to estimate potential project-generated GHG emissions during construction. All details for criteria air pollutants discussed in Section 2.4.2.2 are also applicable for the estimation of construction-related GHG emissions.

Construction of the project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles.

#### **Evaluation Methods and Calculation Assumptions**

See Section 2.4.2.2 for a discussion of construction emissions calculation methodology and assumptions.

#### **3.4.2.2 Operational Greenhouse Gas Emissions**

CalEEMod was used to estimate potential project-generated operational GHG emissions under both the project and BAU scenarios. Emissions modeling was conducted consistent with the SJVAPCD guidance for estimating annual operational emissions. All details for criteria air pollutants discussed in Section 2.4.2.3 are also applicable for the estimation of operational-related GHG emissions.

Operation of the project would result in GHG emissions from vehicular traffic, area sources (landscaping maintenance), electrical generation, natural gas consumption, water supply and wastewater treatment, and solid waste.

#### **Evaluation Methods and Calculation Assumptions**

The project would generate operational GHG emissions from vehicular sources, area sources (natural gas combustion and landscape maintenance), electrical generation (including electrical generation associated with water supply and wastewater treatment), and solid waste. Each category is discussed below with respect to the project. For additional details, see Section 2.4.2.3, Approach and Methodology – Operational Criteria Air Pollutant Emissions, for a discussion of operational emission calculation methodology and assumptions, specifically for mobile, area, and energy (natural gas) sources.

As discussed in Section 1.3.1, existing land uses on the project site consist of approximately 144 acres of highway-oriented commercial services, including restaurants, motels, and gas

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stations in the vicinity of the Grapevine Road interchange, as well as ranching, agricultural, and oil and gas production uses on the remainder of the project site. Existing General Plan land use designations include State and Federal Land, Specific Plan Required, General Commercial, Intensive Agriculture, Extensive Agriculture, and Mineral Extraction, as presented in Table 1-1 in Section 1.3.2 (Kern County 2009). Table 1-1 also presents existing zoning classifications, which include Exclusive Agriculture, General Commercial, and Floodplain-Primary (Kern County 2009). Although the project site currently includes operation of various land uses and the project site's land uses designations and zoning would permit future development, it was conservatively assumed that no operational emissions are associated with existing conditions or would be associated with future development permitted under current land use designations and zoning.

The project would be required to comply with applicable federal, state and local rules and regulations to further reduce long-term operational emissions. A wide range of regulatory measures have been enacted through legislation or promulgation of regulations (see Section 3.2.2) that would assist with the reduction of GHG emissions associated with the project, both directly and indirectly. Some measures were promulgated prior to or independently of AB 32, and others were identified in CARB's 2008 Climate Change Scoping Plan and promulgated subsequent to approval of the Scoping Plan. Individual GHG emissions source analysis methodologies, as well as regulations applicable to the source, are described below.

### ***Mobile Sources***

The project is a mixed-use development intended to provide jobs and services such that more vehicle trips would remain internal to the project site over time. As a result, GHG emissions would be reduced relative to a project consisting solely of residential land uses requiring supporting jobs and services outside the project boundary. CAPCOA has developed methodologies for quantifying GHG emission reductions associated with numerous mitigation measures (CAPCOA 2010). Several of the measures are related to land use and transportation planning aimed to reduce vehicle trips and/or trip lengths, enhance walking and bicycling as alternative modes of transportation, enhance availability of transit, and incorporate other approaches. The traffic impact analysis (Fehr & Peers 2015a), and particularly the Kern COG RTP/SCS travel model, already accounts for many of these reductions. For example, the mixed-use nature of the project would provide jobs, schools, and retail uses within the project boundary to reduce trips to external locations elsewhere in Kern or Los Angeles County.

As discussed in Section 2.4.2.3, Operational Criteria Air Pollutant Emissions, default trip generation rates and trip lengths included in CalEEMod for each analyzed land use in the buildout scenario were adjusted to match the overall weekday trips (166,202 trips) and total

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weekday VMT data (2,595,690 miles) provided by Fehr & Peers. In addition, CalEEMod default Saturday and Sunday trip rates for the project were adjusted in proportion to the weekday trip rate adjustment. In addition to trip rates and trip lengths, the trip purpose is also a factor in the calculation of vehicle-generated emissions. CalEEMod determines an overall average trip length for primary, diverted, and pass-by trip link types where primary trips are 100% of the trip length, diverted trips are 25% of the primary trip length, and pass-by trips are 0.1 miles (CAPCOA 2013). For this project analysis, the CalEEMod default trip type percentages were adjusted so that the CalEEMod-generated VMT would mathematically match the overall weekday VMT data provided by Fehr & Peers for the project. This approach is consistent with the transportation modeling, which accounts for a full inventory of trip categories; that is, both primary and shorter trips are already assessed in the model (i.e., the modeled VMT estimates provided in the transportation impact study reflect primary trip, pass-by trips, and diverted trips). Please see the discussion of mobile source emission calculations in Section 2.4.2.3, Operational Criteria Air Pollutant Emissions, including Table 2-17 and Table 2-18 for additional details.

Regulatory measures related to mobile sources include the following:

*AB 1493 (Pavley) and Related Federal Standards.* AB 1493 required that CARB establish GHG emission standards for automobiles, light-duty trucks, and other vehicles determined by CARB to be vehicles whose primary use is noncommercial personal transportation in the state. In addition, the NHTSA and EPA have established corporate fuel economy standards and GHG emission standards, respectively, for automobiles, and light-, medium-, and heavy-duty vehicles. Implementation of these standards and fleet turnover (replacement of older vehicles with newer ones) will gradually reduce emissions from the project's motor vehicles. The effectiveness of fuel economy improvements and the GHG emission standards over time was evaluated by using the CalEEMod emission factors for motor vehicles. No additional benefit resulting from project design elements is assumed.

*Low Carbon Fuel Standard.* The Low Carbon Fuel Standard calls for a 10% reduction in the "carbon intensity" of motor vehicle fuels by 2020. The effectiveness of the Low Carbon Fuel Standard over time was evaluated by using the CalEEMod emission factors for motor vehicles. No additional benefit resulting from project design elements is assumed.

*Cap-and-Trade Program for Electricity, Stationary Sources, and Fuels.* The SJVAPCD approved Policy APR-2025 (CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation) to evaluate whether projects subject to the cap-and-trade regulation would comply with plans for reducing GHG emissions supported by an environmental review compliant with CEQA requirements and whether compliance with this plan would adequately mitigate GHG emissions for CEQA purposes under the SJVAPCD thresholds. SJVAPCD

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concluded that the cap-and-trade regulation is such a plan and that compliance would result in a project having a less-than-significant impact for GHG emissions that are subject to the cap-and-trade regulations. The first phase of the cap-and-trade regulation included electricity generated in and imported into California, large combustion sources (i.e., generally those emitting more than 25,000 MT CO<sub>2</sub>E per year), and certain industrial sectors. The second phase added providers of transportation fuels (and thus transportation-related GHG emissions) and other combustion fuels (e.g., natural gas, propane) to the cap-and-trade program. The regulation requires that emissions generated by these facilities and combustion of fuels be reduced over time under a declining “cap.” Accordingly, the SJVAPCD found that “GHG emission increases caused by fuel use (other than jet fuels [which are not regulated under the cap-and-trade regulation] are determined to have a less than significance impact on global climate change under CEQA.” Furthermore, any growth in GHG emissions from covered entities subject to the cap-and-trade regulation must be accounted for and reduced to maintain the mandatory reductions under the relevant caps. Thus, the SJVAPCD found that “[I]t is reasonable to conclude that implementation of the Cap-and-Trade program will and must fully mitigate project-specific GHG emissions for emissions that are covered by the Cap-and-Trade regulation.”

Emissions associated with transportation fuels and energy (electricity and natural gas) are the largest portions of project GHG emissions associated with the project, and these sectors are now subject to the cap-and-trade regulation; therefore, these sources of GHG emissions are considered less than significant under the applicable SJVAPCD CEQA threshold for GHG. For informational purposes, however, this assessment includes the evaluation of whether the project would reduce GHG emissions by at least 29% below BAU as directed in the SJVAPCD guidance for evaluation of GHG emissions by lead agencies.

### *Area Sources*

CalEEMod was used to estimate operational GHG emissions from area sources, including emissions from hearths and landscape maintenance equipment. Consumer product use and architectural coatings result in ROG emissions, which are analyzed in air quality analysis only, and little to no GHG emissions.

Under SJVAPCD Rule 4901, wood-burning fireplaces and stoves would not be allowed at the project residences and hence only GHG emissions associated with natural-gas-fired fireplaces were included, and are calculated within CalEEMod using emission factors from the California Climate Action Registry. Compliance with Rule 4901 (as amended September 18, 2014) is assumed.

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### *Energy Sources*

The Grapevine Design and Sustainability Guide includes a goal to create energy incentive programs and incorporates a requirement that all development on the project site exceed 2013 Title 24 energy requirements on a time-dependent valuation basis by at least 25%, as outlined in 24 CCR 6 (Tejon Ranchcorp 2015). For the project analysis, the project would exceed 2013 Title 24 standards by 25%. Future improvements in energy efficiency through amendments to Title 24 would likely result in even lower project emissions in future years; however, the timing and effectiveness of those amendments are unknown. As such, a 25% exceedance of 2013 Title 24 standards was assumed for all operational years, including project buildout.

CalEEMod default values for energy consumption for each land use were applied for the project analysis. For non-residential buildings, CalEEMod energy intensity values (electricity or natural gas usage per square foot per year) assumptions were based on the California Commercial End Use Survey database. The energy use from residential land uses is calculated in CalEEMod based on the Residential Appliance Saturation Study. Emissions are calculated by multiplying the energy use by the utility carbon intensity (pounds of GHGs per kilowatt-hour for electricity or 1,000 Btu for natural gas) for CO<sub>2</sub> and other GHGs.

Regulatory measures related to energy sources include the following:

*Title 14.* Title 24 serves to enhance and regulate California's building standards. The most recent amendments, referred to as the 2013 standards, became effective on July 1, 2014. Buildings constructed in accordance with the 2013 standards use 25% less energy for lighting, heating, cooling, ventilation, and water heating than those constructed in accordance with the 2008 standards. For the project emissions scenario, the default Title 24 energy usage factors in CalEEMod (based on 2008 standards) were reduced by 25% to reflect the benefits of compliance with the 2013 standards.

*SB X1 2 and SB 350.* SB X1 2 established a target of 33% from renewable energy sources for all electricity providers in California by 2020. SB 350 calls for further development of renewable energy, with a target of 50% by 2030. The default energy intensity factors (CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O mass emissions per kilowatt hour) for Pacific Gas & Electric (PG&E) is based on the value for PG&E's energy mix in 2008. A future energy intensity factor for project development after 2020 is based on an adjustment of the default energy intensity factor for CO<sub>2</sub> to reflect a power mix using 33% renewable energy, which is assumed to generate no GHG emissions; the default energy intensity factors for CH<sub>4</sub> and N<sub>2</sub>O were used to simplify the calculations and because these GHGs are not substantial contributors to the overall GHG emissions from electrical usage. Similarly, the energy intensity factor for project development after 2030 was based on an



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adjustment of the default energy intensity factor for CO<sub>2</sub> to reflect a power mix using 50% renewable energy. These energy intensity factors were input into CalEEMod based on the assumed year of development operations.

### ***Stationary Sources***

GHG emissions were also separately estimated for a cannery/food processing (boiler), green waste composting, an asphaltic concrete plant, a commercial bakery (oven and off-gassing), three wastewater treatment plants, three wastewater treatment plant emergency generators, and a water treatment plant emergency generator.

Cap-and-Trade for stationary sources and fuels would apply to stationary sources developed under the project. As described above, the SJVAPCD approved Policy APR-2025 (CEQA Determinations of Significance for Projects Subject to ARB's GHG Cap-and-Trade Regulation) to evaluate whether projects subject to the cap-and-trade regulation would comply with plans for reducing GHG emissions supported by an environmental review compliant with CEQA requirements, and that compliance with this plan would adequately mitigate GHG emissions for CEQA purposes under the SJVAPCD thresholds. SJVAPCD concluded that the cap-and-trade regulation is such a plan, and that compliance would result in a project having a less than significant impact for GHG emissions that are subject to the cap-and-trade regulations. The cap-and-trade regulation applies to providers of electricity generated or imported into California, large industrial facilities emitting more than 25,000 MT CO<sub>2</sub>E per year, and other specific facilities, as well as to distributors of transportation fuels, natural gas, and other fuels. The regulation requires that emissions generated by these facilities and combustion of fuels be reduced over time. Accordingly, the SJVAPCD found that "GHG emission increases caused by fuel use (other than jet fuels [which are not regulated under the cap-and-trade regulation]) are determined to have a less than significance impact on global climate change under CEQA" (SJVAPCD 2014e).

A preliminary estimate of GHG emissions from stationary fuel combustion is included in this assessment. This estimate indicates that none of the stationary facilities evaluated would result in combustion emissions equal to or greater than 25,000 MT CO<sub>2</sub>E per year, and none would otherwise be subject to the cap-and-trade program (i.e., specific sector types designated in the cap-and-trade regulation). Thus, the GHG emissions from these facilities would be regulated through the distributor (e.g., PG&E for natural gas), and emissions associated with transportation fuels would be regulated through their suppliers. Although it could be concluded that the substantial portion of the GHG emissions associated with the project would be subject to the cap-and-trade regulation, and, therefore, considered less than significant under SJVAPCD thresholds, for informational purposes this assessment includes those emissions as part of the evaluation of

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whether the project would reduce GHG emissions by at least 29% below BAU, as directed in the SJVAPCD guidance for evaluation of GHG emissions by lead agencies.

### ***Water and Wastewater***

The project's water efficiency standards meet or are more stringent than current regulations. As discussed below, the project includes use of recycled water and incorporation of water efficiency strategies, and would support the statewide goal of increased recycled water usage by 0.2 million acre-feet per year by 2020, as mandated by the State Water Resources Control Board.

The project is designed to be water-efficient, and would use tertiary-treated recycled water to the maximum extent feasible to reduce potable water demands. An *Evaluation of Potable, Non-Potable and Recycled Water Demands* report was prepared for the project by Erler & Kalinowski Inc. (EKI). The specific water efficiency requirements summarized in Table 3-5 were incorporated into the project and are the basis for the water demand estimates presented in the project's water demand assessment. In all cases, the project's water efficiency standards meet or are more stringent than current regulations (EKI 2015).

**Table 3-5  
Water Efficiency Assumptions**

Statute or Regulation	Citation	Description	Applicability to Project
Executive Order (EO) B-29-15	EO B-29-15	<ul style="list-style-type: none"> <li>EO B-29-15 was issued on April 1, 2015, with the goal of achieving a statewide reduction in potable urban water usage of 25% relative to water use in 2013.</li> </ul>	<ul style="list-style-type: none"> <li>Certain EO directives are applicable to the project.</li> <li>Project meets or exceeds all applicable regulations.</li> </ul>
California Green Building Standards (CALGreen) Code	CCR Title 24, Part 11	<ul style="list-style-type: none"> <li>Cal Green Code (which Kern County adopts by reference) includes water efficiency requirements for new residential and CII structures.</li> </ul>	<ul style="list-style-type: none"> <li>Applicable to the planning, design, construction, use, and occupancy of newly constructed residential and CII buildings.</li> <li>Project meets or exceeds all applicable water efficiency regulations.</li> </ul>
Model Water Efficient Landscape Ordinance (MWELO) July 9, 2015 Final.	CCR Title 23, Division 2, Chapter 2.7	<ul style="list-style-type: none"> <li>Establishes an outdoor water budget for new and renovated landscaped areas that are 500 square feet or larger.</li> </ul>	<ul style="list-style-type: none"> <li>Applicable to all landscaping within the project.</li> <li>Project meets or exceeds all applicable regulations.</li> </ul>
CALGreen Code as Adopted by the Building Standards Commission	CCR Title 24, Part 11 Emergency Building Standard DSA-SS EF-02/15	<ul style="list-style-type: none"> <li>The Building Standards Commission, which regulates construction of public schools and community colleges in California, approved a modified version of the MWELO.</li> </ul>	<ul style="list-style-type: none"> <li>Applicable to public schools and community colleges within the project site.</li> <li>Project meets or exceeds all applicable regulations.</li> </ul>

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**Table 3-5  
Water Efficiency Assumptions**

Statute or Regulation	Citation	Description	Applicability to Project
Kern County Code of Ordinances – Landscaping Requirements and Water Efficient Landscaping	Title 19, Chapter 19.86, Sections 19.86.050 and 19.86.060	<ul style="list-style-type: none"> <li>Requires that a minimum of 5% of the total developed lot area shall be landscaped.</li> </ul>	<ul style="list-style-type: none"> <li>Applicable to landscaping for CII land uses within the project.</li> <li>Project meets or exceeds the standards in these regulations</li> </ul>
California Water Code	Division 6, Part 2.10, Sections 10910–10915	<ul style="list-style-type: none"> <li>Requires development of a project-specific Water Supply Assessment.</li> </ul>	<ul style="list-style-type: none"> <li>Applicable to the project. Project complies with this regulation</li> </ul>

Source: EKI 2015

GHG emissions associated with water supply, treatment, and distribution<sup>26</sup> and wastewater are classified as indirect emissions. GHG emissions were calculated based on the indoor and outdoor water use, electricity intensities, and utility intensity factors for the GHGs. Wastewater treatment also results in GHG emissions associated with the treatment system. All indoor water use was anticipated to require wastewater treatment; therefore, the electricity associated with wastewater treatment and associated emissions were estimated only for indoor potable water.

GHG emissions associated with project-consumed water and project-generated wastewater were calculated using the water demand estimated for each planning area as provided in the project's water demand report (EKI 2015); electricity intensity factors for water supply, treatment, and distribution and wastewater treatment provided in CalEEMod for Kern County (CAPCOA 2013); and GHG intensity factors that were adjusted using the CalEEMod default values and the Renewable Portfolio Standard targets. GHG intensity factors were estimated for 2019 and 2020 to 2029 based on an adjustment of the default energy intensity factor for CO<sub>2</sub> to reflect a power mix using 33% renewable energy, and 2030 and after based on an adjustment of the default energy intensity factor for CO<sub>2</sub> to reflect a power mix using 50% renewable energy (see energy source emissions calculations discussion of SB X1 2 and SB 350).

The *Evaluation of Potable, Non-Potable and Recycled Water Demands* report provided water demand by land use for indoor water use and outdoor water use for each planning area; total water demand also included treatment system losses and distribution system losses. The report

<sup>26</sup> Supplying water is bringing the water from its primary source such as the ground, river, or snowpack to the treatment plant. Distributing the water is bringing the water from the treatment plant to the end users (CAPCOA 2013).

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

also estimated recycled water produced for each planning area (EKI 2015). For the project analysis, all indoor water use was assumed to be potable water. Outdoor water use for each planning area was assumed to include all recycled water produced, with the remaining outdoor water needs met using nonpotable water. A summary of the electricity intensity factors for the project's water usage is presented in Table 3-6.

**Table 3-6**  
**Water Use Electricity Intensity Factors**

Process	Electricity Intensity Factor (kWh per million gallons)			
	Potable Water – Indoor	Potable Water – Outdoor	Recycled Water – Outdoor	Treatment & Distribution Loses
Supply	2,117	2,117	—	2,117
Treatment	111	111	—	—
Distribution	1,272	1,272	1,272	—
Wastewater Treatment	1,911	—	—	—
Total	5,411	3,500	1,272	2,117

Source: CAPCOA 2013

Notes: kWh = kilowatt hour

The estimated total indoor potable water, outdoor potable water, recycled water, and treatment and distribution losses for each planning area was multiplied by the respective electricity intensity factor to estimate the total electricity usage associated with water and wastewater. Emissions of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O were then estimated based on the electricity usage and the respective GHG intensity factor. Total CO<sub>2</sub>E emissions were calculated based on the global warming potential for each GHG.

As shown in Table 3-5, the project is required to comply with numerous water efficiency statutes and regulations, which have also been incorporated into the project's Water Supply Assessment. The project's water supply and use requirements have been incorporated into the GHG estimates.

### ***Solid Waste***

Indirect GHG emissions associated with disposal of solid waste in landfills was also calculated in CalEEMod. GHG emissions were estimated in CalEEMod based on the tons per year of solid waste per land use, and the landfill gas collection efficiency (percentage of no gas capture, capture gas flare, and capture gas energy recovery). Default values in CalEEMod were assumed to estimate project-generated solid waste GHG emissions.

The project would be required to comply with statewide and local solid waste diversion requirements. For the project, compliance with the 75% diversion rate by 2020 consistent with

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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AB 341 (25% increase from the solid waste diversion requirements of AB 939, Integrated Waste Management Act) has been included in the GHG assessment.

### **3.4.2.3 Business-As-Usual Operational Greenhouse Gas Emissions**

Assumptions used to estimate GHG emissions associated with the project under the BAU scenario are presented below. Operational year 2036, representing full buildout of the project, was used for the BAU analysis.

**Mobile Sources.** Default CO<sub>2</sub> vehicle emission factors that reflect Pavley and the Low Carbon Fuel Standard requirements that were not in effect as of the Scoping Plan's adoption in 2008 were replaced with emission factors that do not include the reductions associated with Pavley and the Low Carbon Fuel Standard, as provided in the CalEEMod User's Guide (CAPCOA 2013).

**Area Sources.** Compliant natural gas fireplaces, but not wood burning fireplaces, were included in the project (same as project assumptions).

**Energy Sources.** Default energy intensity factors (CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O mass emissions per kilowatt-hour) for PG&E were used, which are based on the value for PG&E's energy mix in 2008. Historical energy usage factors were assumed in CalEEMod. This adjustment incorporates the Title 24 2005 standards, which were in effect when CARB developed its Scoping Plan 2020 No Action Taken predictions (CAPCOA 2013) and were used for the BAU scenario.

**Stationary Sources.** The same assumptions were applied to the BAU scenario as for the project.

**Water and Wastewater.** The same reductions were applied to the BAU scenario as for the project. Although the project does comply with numerous new regulatory requirements relating to water conservation that were not in effect at the time the 2008 Scoping Plan was adopted, the project also has a finite water supply and it uses this water supply, including its recycled water supply.

**Solid Waste.** Institute Recycling and Composting Services – a 50% diversion rate is included, consistent with AB 939, Integrated Waste Management Act<sup>27</sup> since the 75% diversion rate was not in effect for BAU purposes as of the 2008 adoption of the Scoping Plan.

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<sup>27</sup> Included in CalEEMod as a mitigation measure, although the reduction associated with solid waste diversion reflects compliance with statewide goals.

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

As explained under the project operational GHG emissions methodology, the project site currently includes operation of various land uses and the project site's land uses designations and zoning would permit future development. However, it was conservatively assumed that no operational emissions are associated with existing conditions or would be associated with future development permitted under current land use designations and zoning for the BAU scenario, consistent with approach for estimating project-generated GHG emissions.

### 3.5 Impact Analysis

#### 3.5.1 Generate Greenhouse Gas Emissions, Either Directly or Indirectly, that May Have a Significant Impact on the Environment

##### 3.5.1.1 *Compliance with Regulatory Programs that Would Reduce Greenhouse Gases*

The project would result in GHG emissions during construction and operation. As described in Section 3.2, numerous rules, regulations, and other regulatory programs have been adopted to reduce GHG emissions in California. Table 3-7 presents applicable regulatory measures that would reduce project-generated GHG emissions by emission source and category. This list, however, is not intended to provide a comprehensive listing of all regulations that could directly or indirectly result in GHG emission reductions. Some measures were not necessarily adopted with the intent of reducing GHG emissions but could nonetheless result in reductions; other measures were adopted to reduce GHG emissions but it is not certain at this time whether the actual uses would be subject to such regulations or they may have limited applicability. Overall, Table 3-7 summarizes each source category of air pollutants (i.e., area, energy, mobile, solid waste, water supply/wastewater, stationary, and construction source categories), whether individual sources in the category emits GHGs, and how the specified regulatory measures would apply to the project.

**Table 3-7**  
**Applicable Regulatory Measures by Emission Source**

Emission Source/Category	Applicable Regulatory Measures
<i>Area</i>	
Hearths	• Per SJVAPCD Rule 4901, wood-burning fireplaces and stoves would not be allowed at the project residences.
Consumer products	• Not applicable (results in ROG emissions)
Architectural coatings	• Not applicable (results in ROG emissions); however, Title 24 CALGreen standards require low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards.
Landscape maintenance equipment	• Cap-and-trade regulation of transportation fuels (e.g., gasoline)

# Air Quality and Greenhouse Gas Emissions Analysis

## Grapevine Specific and Community Plan Project

**Table 3-7**  
**Applicable Regulatory Measures by Emission Source**

Emission Source/Category	Applicable Regulatory Measures
<i>Energy</i>	
Electricity consumption	<ul style="list-style-type: none"> <li>• Cap-and-trade regulation for electricity providers</li> <li>• Title 24 (Part 6)</li> <li>• Energy efficient/major appliances</li> <li>• Renewables Portfolio Standard: <ul style="list-style-type: none"> <li>○ SB X1 2: 33% from renewable energy sources for all electricity providers in California by 2020</li> <li>○ SB 350: 50% from renewable energy sources for all electricity providers in California by 2030</li> </ul> </li> </ul>
Natural gas consumption	<ul style="list-style-type: none"> <li>• Cap-and-trade regulation for fuels</li> <li>• Title 24 (Part 6)</li> <li>• Energy efficient/major appliances</li> </ul>
<i>Mobile</i>	
Motor vehicle trips and fuel consumption	<ul style="list-style-type: none"> <li>• Cap-and-trade regulation of transportation fuels.</li> <li>• AB 1493 (Pavley) and related federal standards (higher fuel efficiency regulatory standard for cars and light-duty vehicles)</li> <li>• Low Carbon Fuel Standard</li> <li>• Advanced Clean Car program</li> <li>• SB 375 and Kern COG RTP/SCS</li> </ul>
<i>Solid Waste</i>	
Solid waste generation and recycling	<ul style="list-style-type: none"> <li>• AB 341, 75% diversion rate requirement by 2020 by source-reduction, recycling, or composting</li> <li>• Title 24 CALGreen standards, including 50% of construction and demolition waste must be diverted from landfills.</li> </ul>
<i>Water Supply and Wastewater</i>	
Water consumed and wastewater produced	<ul style="list-style-type: none"> <li>• Executive Order B-29-15</li> <li>• Title 24 CALGreen standards, including Part 11 20% mandatory reduction in indoor water use</li> <li>• Model Water Efficient Landscape Ordinance (MWELO)</li> <li>• CALGreen Code as Adopted by the Building Standards Commission</li> <li>• Kern County Code of Ordinances – Landscaping Requirements and Water Efficient Landscaping, and California Water Code.</li> <li>• State Water Resources Control Board statewide goal of increased recycled water usage by 0.2 million acre-feet per year by 2020</li> </ul>
Electricity usage associated with water and wastewater supply, treatment, and distribution	<ul style="list-style-type: none"> <li>• Cap-and-trade regulation for electricity providers</li> <li>• RPS. See SB X1 2 and SB 350 under Energy – Electricity.</li> </ul>
<i>Stationary</i>	
Stationary source equipment and processes	<ul style="list-style-type: none"> <li>• Cap-and-trade regulation of fuels.</li> <li>• Renewables Portfolio Standard. See SB X1 2 and SB 350 under Energy – Electricity.</li> </ul>
<i>Construction</i>	

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

**Table 3-7**  
**Applicable Regulatory Measures by Emission Source**

Emission Source/Category	Applicable Regulatory Measures
Equipment operation (off-road equipment)	• Cap-and-trade regulation of transportation fuels
Worker, vendor, and truck vehicle trips (on-road vehicles)	• Cap-and-trade regulation of transportation fuels

### 3.5.1.2 Construction Greenhouse Gas Emissions

Construction of the project would result in GHG emissions primarily associated with use of off-road construction equipment, on-road hauling and vendor (material delivery) trucks, and worker vehicles. GHG emissions associated with temporary construction activities were quantified using CalEEMod. A detailed depiction of the construction schedule—including information regarding phasing, equipment used during each phase, haul trucks, vendor trucks, and worker vehicles—is included in Appendix A-1, Construction Assumptions and Emissions Tables, of this report.

Table 3-8 presents annual construction emissions for each year of the project through the year 2035 when the project construction would be complete. Construction-related emissions presented in Table 3-8 include emissions from on-site and off-site sources. On-site sources of GHG emissions include off-road equipment, and off-site sources include hauling and vendor trucks and worker vehicles. Emissions from on-site and off-site sources are combined for the purposes of this analysis; a breakdown of emissions by source is provided in Appendix B. As unmitigated and mitigations GHG emissions were the same for all scenarios analyzed, one table is presented below to illustrate project-generated GHG emissions.

**Table 3-8**  
**Summary of Estimated Annual Construction Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
2016	4,820.93	0.68	0.00	4,835.21
2017	6,180.84	0.84	0.00	6,198.51
2018	5,700.58	0.70	0.00	5,715.26
2019	4,230.61	0.65	0.00	4,244.26
2020	5,901.48	0.88	0.00	5,919.94
2021	6,563.27	0.98	0.00	6,583.86
2022	4,935.61	0.65	0.00	4,949.17
2023	3,495.05	0.58	0.00	3,507.18
2024	3,417.43	0.43	0.00	3,426.49
2025	4,118.84	0.64	0.00	4,132.24



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**Table 3-8**  
**Summary of Estimated Annual Construction Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
2026	5,306.11	0.79	0.00	5,322.70
2027	4,978.77	0.66	0.00	4,992.67
2028	2,660.90	0.50	0.00	2,611.38
2029	4,235.70	0.72	0.00	4,250.88
2030	4,543.30	0.14	0.00	4,546.21
2031	2,504.27	0.07	0.00	2,505.76
2032	4,333.17	0.14	0.00	4,336.13
2033	6,426.20	0.21	0.00	6,440.58
2034	7,927.42	0.26	0.00	7,932.88
2035	5,326.38	0.15	0.00	5,329.67
<b>Total</b>	<b>97,606.86</b>	<b>10.67</b>	<b>0.00</b>	<b>97,780.98</b>

Note: See Appendix B for detailed results.

As shown in Table 3-8, the project would generate a total of approximately 97,781 MT CO<sub>2</sub>E during construction of the project over 20 years.

Table 3-9 presents total construction emissions for each transportation improvement and the total emissions assuming the maximum emissions associated with the analyzed interchange alternatives. As unmitigated and mitigations GHG emissions were the same for all scenarios analyzed, one table is presented below to illustrate project-generated GHG emissions.

**Table 3-9**  
**Summary of Estimated Transportation Improvements Construction Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT)	CH <sub>4</sub> (MT)	N <sub>2</sub> O (MT)	CO <sub>2</sub> E (MT)
<i>Interchange Alternatives</i>				
Alternative 1 North	519.97	0.13	0.00	522.72
Alternative 2 South	1,109.38	0.28	0.00	1,115.25
Alternative 3 Existing Interchange	3,719.47	0.53	0.00	3,730.65
<i>Maximum Interchange Emissions</i>	<i>3,719.47</i>	<i>0.53</i>	<i>0.00</i>	<i>3,730.65</i>
<i>Non-Interchange Transportation Improvements</i>				
Freeway Overpass	574.66	0.13	0.00	577.39
Interchange Demolition	247.73	0.07	0.00	249.12
Weigh Station	709.63	0.66	0.00	712.23
<b>Maximum Total Emissions</b>	<b>5,251.49</b>	<b>1.39</b>	<b>0.00</b>	<b>5,269.39</b>

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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Note: See Appendix B for detailed results.

As shown in Table 3-9, the construction of the proposed off-site transportation improvements are anticipated to generate a total of approximately 5,270 MT CO<sub>2</sub>E during construction assuming worst-case intersection construction.

Although the SJVAPCD and Kern County have not adopted guidance that would apply to project-generated construction emissions, for the purposes of this analysis, it was assumed that construction emissions were annualized over a 20-year construction period and then included with the operational emissions. Annualized emissions (also referred to as amortized emissions) reflects the average of the total GHG emissions on an annual basis.

Estimated maximum project-generated construction emissions of approximately 103,050 MT CO<sub>2</sub>E annualized over 20 years would be approximately 5,153 MT CO<sub>2</sub>E per year, which includes the worse-case transportation improvement alternative. Because there is no separate GHG threshold for construction, the evaluation of significance is discussed in the operational emissions analysis below.

### **3.5.1.3 Operational Greenhouse Gas Emissions**

Operation of the project would result in GHG emissions from vehicular traffic, area sources (landscaping maintenance), electrical generation, natural gas consumption, water supply and wastewater treatment, and solid waste. The operational GHG impact analysis presented below reflects project transportation strategies incorporated in the transportation impact study (Fehr & Peers 2015a), which include a comprehensive bicycle and pedestrian network, transportation services, and a TMA. These strategies were not accounted for in the trip generation or VMT assumptions in the transportation impact study or the GHG quantitative analysis. Therefore, mobile source GHG emissions included in the impact analysis are conservative. CalEEMod has not yet been updated to include new legal mandates, such as the recently adopted renewable portfolio standard in SB 350 or the drought-related measures such as restrictions on certain types of landscaping practices that are included as mandatory elements of the project as described in the Water Supply Assessment for the project. However, CalEEMod defaults were adjusted to reflect the 50% renewable portfolio standard for project operations after the year 2030 and water reduction measures were accounted for in the modeling as well.

Table 3-10 presents annual operational emissions in the year 2036, which includes full buildout and associated operational emissions of the project in addition to the annualized construction emissions. Full buildout includes Planning Area 6A, 2, 1, 3, 4, 6C, 6B, 6C, 6D, 6E, 5A, and 5B.

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

**Table 3-10**  
**Operational Year 2036 Buildout**  
**Estimated Annual Unmitigated Operational Plus Construction Project**  
**Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
Area	5,344.31	0.24	0.10	5,378.87
Energy	40,481.84	2.13	0.69	40,740.60
Mobile	507,290.06	8.73	0.00	507,473.36
Water Supply and Wastewater	3,852.31	0.17	0.04	3,867.14
Solid Waste	4,566.76	269.89	0.00	10,234.41
Stationary	–	–	–	12,300
Annualized Construction	–	–	–	5,153
<b>Total</b>	<b>561,535.28</b>	<b>281.16</b>	<b>0.83</b>	<b>585,147.38</b>

Notes: See Appendix C for detailed results.

Table 3-11 presents annual unmitigated operational and annualized construction emissions for each assessed year of the project through the year 2036 when the project would reach full buildout.

**Table 3-11**  
**Summary of Estimated Annual Unmitigated Operational Plus Construction Project**  
**Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
2019	80,215.97	43.38	0.14	98,668.85
2023	229,566.73	138.69	0.33	250,056.26
2025	283,218.94	163.29	0.43	304,233.40
2028	427,831.47	208.94	0.55	449,843.51
2032	499,991.38	249.46	0.71	522,903.03
2034	499,991.73	249.46	0.71	522,903.39
2035	498,965.96	249.69	0.71	521,893.06
2036	561,535.28	281.16	0.83	585,147.38

Notes: See Appendix C for detailed results. Annualized construction GHG emissions of 5,153 MT/yr added to the CO<sub>2</sub>E column.

As shown in Table 3-11, estimated annual unmitigated project-generated GHG emissions in 2036 would be approximately 585,147 MT CO<sub>2</sub>E/year as a result of project operations and annualized construction.

# Air Quality and Greenhouse Gas Emissions Analysis

## Grapevine Specific and Community Plan Project

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### Mitigation Measures

**MM-GHG-1 Compliance with Applicable Regulations and Rules.** The project would be required to comply with state and SJVAPCD Regulations and Rules including, but not limited to:

**a. Quantified GHG Reductions (Evaluated in CalEEMod):**

- Pavley Motor Vehicle Standards (AB 1493)
- Low Carbon Fuel Standard (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 7, Section 95480 et seq.)
- Title 24 (part 6 [Energy Code] and part 11 [CALGreen Code]) of the California Code of Regulations
- Renewable Portfolio Standard (SB X1 2 and SB 350)
- Wood Burning Fireplaces and Wood Burning Heaters (SJVAPCD Rule 4901)
- Solid Waste Diversion (AB 341) and statewide reduction in potable urban water usage of 25% relative to water use in 2013 (Executive Order B-29-15)
- Model Water Efficient Landscape Ordinance (MWELO) (California Code of Regulations, Title 23, Division 2, Chapter 2.7)
- Kern County Code of Ordinances – Landscaping Requirements and Water Efficient Landscaping (Kern County Code of Ordinances, Title 19, Chapter 19.86, Sections 19.86.050 and 19.86.060)
- California Water Code (California Code of Regulations, Division 6, Part 2.10, Sections 10910–10915)

**b. Additional GHG Reductions**

- EPA and NHTSA GHG and CAFE standards for passenger cars, light-duty trucks, and medium-duty passenger vehicles (75 FR 25324–25728 and 77 FR 62624–63200) and for medium- and heavy-duty vehicles (76 FR 57106–57513)
- Cap-and-Trade Program for Electricity, Stationary Sources, and Fuels (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 5, Section 95801 et seq.)

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- Advanced Clean Cars Program (California Code of Regulations, Title 13, Division 3, Chapter 1, Articles 1, 2, 6 (parts); Chapter 2, Articles 1, 2.1, 2.3, 2.4 (parts); Chapter 4.4 (parts); Chapter 8 (parts).
- Under Inflated Vehicle Tires (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 8, Section 95550 et seq.)
- Heavy-Duty Vehicle Greenhouse Gas Emission Reduction Regulation (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 1, Section 95300 et seq.)
- Management of High Global Warming Potential Refrigerants for Stationary Sources (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5.1, Section 95380 et seq.)
- Small Containers of Automotive Refrigerant (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 10, Article 4, Subarticle 5, Section 95360 et seq.)
- High-Global Warming Potential Greenhouse Gases in Consumer Products (California Code of Regulations, Title 17, Division 3, Chapter 1, Subchapter 8.5, Article 2)
- CALGreen Code as Adopted by the Building Standards Commission (California Code of Regulations, Title 24, Part 11 Emergency Building Standard DSA-SS EF-02/15)

**MM-GHG-2 Operational Emission Reductions for Residential and Non-Residential Structures.** Prior to recordation of a final subdivision map, the Project Proponent shall provide the County with an Energy Plan documenting compliance with applicable energy conservation requirements of applicable Title 24 standards in the California Code of Regulations, including verification that the Project will exceed the energy conservation requirements of currently applicable (2013) Title 24 standards by 25%. The Energy Plan shall also confirm that a menu of energy efficiency design elements, along with other design considerations and options, has been made available by the Project Proponent to builders, developers, and property owners as part of the internal design review process. Each developer, builder, or property owner shall incorporate the design elements required to comply with then-applicable Title 24 requirements, and select from the menu or implement other available technologies as may be needed to reduce energy consumption 25% below 2013 Title 24 requirements.

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

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**MM-GHG-3 Greenhouse Gas Emissions Reduction Measures.** The following greenhouse gas emissions reduction measures shall be implemented:

- Encourage project design that incorporates an efficient land use pattern with residential densities clustered around several commercial cores to promote walkability.
- Require service fleet vehicles to be powered with alternative fuel technology where feasible, as determined by the individual project applicants.
- Implement an on-site shuttle-bus transit system to connect residents to jobs, schools, and shopping within the community.
- Reserve at least two locations with adequate pedestrian, bicycle, and parking facilities for off-site transit connection service.
- Provide bus stops for bus service at a density and proximity to residences and businesses sufficient to encourage reduction in individual vehicle trips.
- Ensure that all residents can readily access transit by creating paths, access ways, or other land use planning techniques to reduce walking distances between homes, employment, commercial and transit stops, and provide transit access within 1/2 mile of most homes.
- Provide multiple travel options for residents, workers, and visitors through a comprehensive multi-modal network including, but not limited to, transit, paths, trails, and connections integrated into the overall circulation network.
- Ensure that higher density residential, commercial and offices and other high-demand uses are located near, and provide connection to, transit hubs.
- Locate two transit hubs in the village centers on both sides of Interstate 5 (I-5) that would be accessible by local and regional transit routes and community multi-modal paths and trails.
- Establish a Transit Management Association to promote, manage, and monitor transit and mobility services and infrastructure.
- Promote alternative fuels for transit system, if available.
- Encourage use of best feasible alternative fuel technology to be used in homeowners association, refuse fleet, and other community service vehicles.
- Provide a framework for a community-wide parking plan that is based on parking demand and need.

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- Provide preferential parking for carpool, shared, electric, and hydrogen vehicles.
- Require builders to install broadband infrastructure or other communication technologies that encourage telecommuting and working from home.
- Integrate traffic calming measures into the community-wide circulation network to promote reduced speeds and encourage pedestrian and bicycle trips.
- Provide sidewalks and crosswalks at all streets (along with general pedestrian connectivity throughout project) to encourage pedestrian traffic and offer an alternative to vehicle trips.
- Construct a multi-purpose internal trail system that includes off-road bikeways within the street right-of-way (paseos) and within a greenway system.
- Incorporate natural gas or propane hookups, electrical outlets on patios, and prohibit wood-burning fireplaces.
- Equip a minimum of 70% of public and community pools and spas with active solar water heating systems where heating is necessary or desired.
- Provide all single-family homebuyers with the option to include a photovoltaic array system as a home design feature.
- Implement energy-efficient design practices such as high-performance glazing, Energy Star compliant systems and appliances, radiant heat roof barriers, insulation on all pipes, programmable thermostats, solar access, and sealed ducts.
- Prohibit use of chlorofluorocarbon refrigerants in commercial buildings.
- Ensure recycling of construction debris and waste through administration by an on-site recycling coordinator and presence of recycling/separation areas.
- Establish and operate a community waste recycling program including education and outreach, recycled waste pickup and drop-off services.
- Implement a water wise program that includes all feasible measures to reduce indoor water use and associated energy use (e.g., for interior fixtures, require tankless water heaters and low-flow plumbing and fixtures).
- Implement landscape standards that include irrigation standards to maximize efficiency and decrease water use and waste. Prepare and distribute landscape

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design guidelines to minimize the use of exterior water by requiring each homeowner to select from landscape materials that are within the Maximum Applied Water Allowance budget that will be assigned to each lot or home.

- Use recycled water from on-site wastewater treatment plant(s) as a permanent source of water for landscaped common areas and other authorized uses.
- Use recycled water for irrigation of 50% of commercial landscape areas.
- Use native species and drought tolerant species for a minimum of 75% of the ornamental plant palette in non-turf areas for all commercial, industrial, common and public areas, and residential front-yard landscaping to minimize water demand.
- Minimize turf areas and encourage alternative ground covers (20% maximum turf in landscaped commercial areas and 45% maximum turf in residential front yard landscaping).
- Design irrigation systems to conform to the hydrozones of the landscape design plan and optimize water efficiency by matching plant type, utilizing drip or subsurface irrigation wherever possible, and applying water at agronomic rates.
- Require “smart” controllers, such as weather-based irrigation controllers or other self-adjusting irrigation controllers, for all irrigation systems that will accommodate all aspects of the landscape and irrigation design plans.

### Level of Significance After Mitigation

Implementation of MM-GHG-1 would minimize GHG emissions associated with project operations. The emission reductions associated with the measures listed in MM-GHG-1a have been quantified in CalEEMod. For example, CalEEMod uses default motor vehicle emission factors that reflect compliance with the Pavley motor vehicle standards and the Low Carbon Fuel Standard. Adjustments were made to the CO<sub>2</sub> emission factors for generation of electricity to reflect the requirements of SB X1 2 and SB 350, which require increasing levels of renewable energy in utility energy supplies; accordingly, the CO<sub>2</sub> emission factors and GHG emissions would decrease with each deadline in these statutes. In accordance with SJVAPCD Rule 4901, no wood burning fireplaces would be installed at project residences; all heating would be performed with natural gas burning devices, which would result in substantially lower GHG emissions. Water-related measures in MM-GHG-1 were accounted for in CalEEMod ... The measures listed in MM-GHG-1b would also minimize the project’s operational emissions. The potential emission reductions, however, have not been quantified. In part, the extent to which



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some measures would apply to the project is unknown (e.g., whether high-GWP refrigerants be used by project businesses). In addition, the current emission modeling tools (e.g., CalEEMod) do not reflect some measures, such as the EPA/NHTSA standards and the Advanced Clean Cars Program.

Implementation of MM-GHG-2, Operational Emission Reductions for Residential and Non-Residential Structures, would reduce GHG emissions associated with combustion of natural gas in residential and nonresidential land uses and indirectly reduce emissions associated with generation of electricity from fossil fuels (e.g., power plants using gas turbines). The degree to which MM-GHG-2 would reduce these emissions is determined in CalEEMod, which calculates the reduction in energy (natural gas and electricity) consumption resulting from improvements in energy conservation beyond the requirements of Title 24. The reduction in energy consumption and associated emissions is not directly proportional to the extent that Title 24 requirements are exceeded; that is, the reduction is less than the 25% improvement above Title 24 requirements specified in MM-GHG-2. The degree of reduction for generation of electricity also reflects future requirements of the Renewal Portfolio Standard in that a higher percentage of renewable energy in the serving utilities energy mix would reduce the GHG emissions per unit of electricity used (e.g., kilowatt-hour) and the corresponding GHG emission reduction on a mass basis would be less.

Implementation of MM-GHG-3 would reduce GHG emissions from various sources including mobile, energy, water, and solid waste.

Table 3-12 presents annual mitigated operational emissions in the year 2036, which includes full buildout and associated operational emissions of the project in addition to the annualized construction emissions. Full buildout includes Planning Area 6A, 2, 1, 3, 4, 6C, 6B, 6C, 6D, 6E, 5A, and 5B. Mitigated emissions account for reductions associated with MM-GHG-2 (Operational Emission Reductions for Residential and Non-Residential Structures).

**Table 3-12**  
**Operational Year 2036 Buildout**  
**Estimated Annual Mitigated Operational Plus Construction Project**  
**Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
Area	5,344.31	0.24	0.10	5,378.87
Energy	36,236.27	2.00	0.61	36,468.76
Mobile	507,290.06	8.73	0.00	507,473.36
Water Supply and Wastewater	1,435.05	0.11	0.02	1,444.55

## Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project

**Table 3-12**  
**Operational Year 2036 Buildout**  
**Estimated Annual Mitigated Operational Plus Construction Project**  
**Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
Solid Waste	1,141.69	67.47	0.00	2,558.60
Stationary	–	–	–	12,300
Annualized Construction	–	–	–	5,153
Total	551,447.38	78.55	0.73	570,777.14

Notes: See Appendix C for detailed results.  
Mitigated emissions account for incorporation of MM-GHG-2.

Table 3-13 presents annual mitigated operational and annualized construction emissions for each assessed year of the project through the year 2036 when the project would reach full buildout.

**Table 3-13**  
**Summary of Estimated Annual Mitigated Operational Plus Construction Project**  
**Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
2019	78,598.32	12.36	0.12	96,394.89
2023	225,276.40	38.55	0.30	243,622.22
2025	277,886.86	45.43	0.38	296,411.71
2028	390,929.15	59.11	0.49	439,787.76
2032	491,186.17	70.05	0.63	510,306.02
2034	491,186.32	70.05	0.63	510,306.17
2035	490,138.43	69.75	0.64	509,261.79
2036	551,447.38	78.55	0.73	570,777.14

Notes: See Appendix C for detailed results. Annualized construction GHG emissions of 5,153 MT/yr added to the CO<sub>2</sub>E column.

Based on these considerations, the project would generate GHG emissions, either directly or indirectly, that would have a potentially significant impact on the environment.

### **3.5.1.4 Business-As-Usual Operational Greenhouse Gas Emissions**

The estimated operational GHG emissions plus annualized construction under the BAU in 2036 is shown in Table 3-14.

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**Table 3-14**  
**Operational Year 2036 Buildout Business-As-Usual Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
Area	5,344.31	0.24	0.10	5,378.87
Energy	67,157.70	2.41	0.84	67,469.78
Mobile	615,877.84	8.73	0.00	616,061.14
Water Supply and Wastewater	1,435.05	0.11	0.02	1,444.55
Solid Waste	2,283.38	134.94	0.00	5,117.21
Stationary	—	—	—	12,300
Annualized Construction	—	—	—	5,153
<b>Total</b>	<b>692,098.28</b>	<b>146.43</b>	<b>0.96</b>	<b>712,924.55</b>

Note: See Appendix C for detailed results.

Table 3-15 summarizes GHG emissions by source and the percent reduction of project emissions as compared to the BAU.

**Table 3-15**  
**Comparison of Estimated Annual Operational  
Business-As-Usual and Project Greenhouse Gas Emissions**

Emission Source	Business-As-Usual CO <sub>2</sub> E (MT/year)	Mitigated Project CO <sub>2</sub> E (MT/year)	Project Percent Reduction From Business-As-Usual
Area	5,378.87	5,378.87	0%
Energy	67,469.78	34,468.76	49%
Mobile	616,061.14	507,473.36	18%
Water Supply and Wastewater	1,444.55	1,444.55	0%
Solid Waste	5,117.21	2,558.60	50%
Stationary	12,300	12,300	0%
Annualized Construction	5,153	5,153	0%
<b>Total</b>	<b>712,924.55</b>	<b>570,777.14</b>	<b>20%</b>

Note: See Appendix C for detailed results.

Mitigated project emissions account for reductions associated with MM-GHG-2.

As shown in Table 3-14, estimated annual operational and annualized construction GHG emissions generated under the BAU scenario in 2036 would be approximately 712,925 MT CO<sub>2</sub>E/year. Estimated annual operational project-generated emissions assuming GHG-reduction measures would be approximately 570,777 MT CO<sub>2</sub>E/year. The project would result in a reduction of 142,147 MT CO<sub>2</sub>E/year, which is an approximately 20% reduction from BAU.

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As discussed in Section 3.4.1, Thresholds of Significance – SJVAPCD, under the SJVAPCD’s guidance for determining significance of project-generated GHG emissions under CEQA, a project would not result in a significant impact if it would result in a 29% reduction from BAU. The project would result in a 20% reduction from BAU, which is less than the 29% reduction from BAU established as the SJVAPCD’s threshold of significance. As noted in Section 3.4.2.2, however, this comparison has been included for informational purposes only since the majority of project-related GHG emissions would be associated with combustion of fuels (such as for stationary sources and heating, on-road vehicles, and construction equipment), which would be subject to elements of the cap-and-trade regulation for fuels, and with electricity, which would be subject to elements of the cap-and-trade regulation for electricity providers. In accordance with SJVAPCD policy, the project’s GHG emissions are nearly all covered under the cap-and-trade regulation.

The County has jurisdictional authority to implement some applicable regulatory measures, as presented in Table 3-7, which would reduce project-generated GHG emissions. County-implemented measures include, but are not limited to, implementation of Title 24 energy efficiency building standards and compliance with the County Code of Ordinances related to water efficient landscaping requirements. Design requirements that the County has the jurisdiction to enforce would be a condition on the building permits. These requirements include, but are not limited to, installation of energy efficient major appliances and water-conserving plumbing fixtures and compliance with the County’s recycling guide. These requirements are also GHG emissions reduction measures that would ensure emission reductions are executed through County enforcement. The County, however, does not have jurisdictional authority to implement applicable regulatory measures that are statewide regulations, programs, or mandates, such as cap-and-trade and RPS. As discussed in Section 3.5.4, the project would be consistent with the Kern COG SCS policies, which would reduce mobile source GHG emissions. Because mobile source emissions, which are the primary source of the project’s emissions, are primarily regulated by the state rather than local agencies, emission reductions from this source category are largely outside of the County’s jurisdiction.

### **3.5.2 Conflict with an Applicable Plan, Policy, or Regulation Adopted for the Purpose of Reducing the Emissions of Greenhouse Gases**

#### **3.5.2.1 Kern COG RTP/SCS**

Under the SJVAPCD’s CEQA thresholds for GHG, a project would not have a significant GHG impact if it is consistent with an applicable plan to reduce GHG emissions, and a CEQA-compliant analysis was completed for the GHG reduction plan. Kern COG’s RTP/SCS is an applicable plan adopted for the purpose of reducing GHGs from the land use and transportation

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sectors in Kern County, and was adopted after completion of a programmatic Environmental Impact Report (PEIR). CARB approved the RTP/SCS in 2015. The project could result in a significant impact due to a conflict with an applicable plan, policy or regulation if it would be inconsistent with the adopted Kern COG RTP/SCS. Therefore, the project could have a potential conflict with the RTP/SCS if it were to be found inconsistent based on a qualitative assessment of the project's consistency with Kern COG's SCS policies.<sup>28</sup>

The proposed Grapevine Specific Plan is consistent with the 2014 RTP/SCS. The proposed SCS document includes a Map of Forecasted Development Patterns – Kern Region 2035.

The SCS Transit Priority and Strategic Employment Place Types Map in the SCS designates the Grapevine Specific Plan Area as both a Planned Strategic Employment Center and a Planned Transit Priority Center. Such Transit Priority Centers are intended by the SCS to be developed for urbanized uses around which future transit, vanpooling services, and other smart growth and transportation practices can be implemented to accommodate future population and economic growth to meet the GHG reduction targets established for the region under SB 375.

The 2014 RTP/SCS presents a range of transit, transportation demand management road projects, pricing, and land use strategies that the Kern COG, transit agencies, local governments, and the SJVAPCD can implement consistent with the SCS (Table 4-8, Proposed Greenhouse Gas Emissions and Vehicle Trips Reduction Strategies, of the 2014 RTP/SCS) (Kern COG 2014a). Of particular importance is a land use strategy to be implemented by local governments to locate housing “closer to employment/shopping areas” (Kern COG 2014a). This strategy is specifically acknowledged for use in outlying communities near jobs, which is consistent with Tejon Ranchcorp's objective of providing Grapevine housing proximate to the TRCC (Kern COG 2014a).

Initial stages of the project do not require any significant roadway improvements that are not already identified as necessary in the RTP. Ultimately, it is anticipated that a second Grapevine I-5 interchange would be developed slightly north of the existing interchange to primarily serve traffic to and from Bakersfield and other northern locations. This would enhance traffic safety and accommodate full project buildout. Additionally, the community includes a series of walkable mixed-use villages and mobility improvements, such as a trail system and a transit connection in the Village Mixed-Use area, to provide access for alternative transportation modes, including pedestrian and bike access that compliments the project's proposed series of compact village land use pattern.

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<sup>28</sup> The following discussion is taken from the *Grapevine Specific and Community Plan Land Use and Planning Technical Report*, prepared by Ted James, AICP, for the Grapevine Project (James 2015).

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The Grapevine Specific Plan circulation and infrastructure design considered topographical concerns, traffic flow, and capacity constraints at the Grapevine Road interchange and relevant roadway segments, along with considerations related to drainage and erosion control. The project's design reflects a close coordination between land use and the provision of necessary transportation systems. These and related project improvements are consistent with the RTP's goals and policies (e.g., coordinating planning efforts to provide for non-automobile mobility, and incorporate transit planning with land use planning). Many other policies in the RTP are not applicable to the Grapevine Specific Plan and are directed at specific sub-regions of the County (e.g., the Eastern Sierra), urbanized areas of the County (e.g., infill development and inter-city transit), or other inter-governmental planning and cooperation efforts (e.g., working with Caltrans and other relevant entities on environmental studies, opposition to higher axle load limits for the trucking industry on general purpose roadways). The project site's SCS designation as a "Planned Transit Priority Area" and a "Strategic Employment Center" to provide for walkable, mixed-use land use and circulation patterns and the integration of transit and other sustainable development concepts into future site development. The Grapevine Specific Plan has been designed to be consistent with these SCS land use designations and policies.

### **3.5.2.2 Scoping Plan Greenhouse Gas Emission Reduction Strategies**

As discussed in Section 3.2.2, State Regulations, the Scoping Plan recommends strategies for implementation at the statewide level to meet the goals of AB 32, and establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. Table 3-16 highlights measures that have been, or will be developed, under the Scoping Plan and the project's consistency with Scoping Plan measures. However, CARB has adopted several statewide regulations to implement the strategies proposed in the Scoping Plan. To the extent these regulations are applicable to the project, its inhabitants, or uses, the project would comply with these regulations.

**Table 3-16**  
**Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Project Consistency
<i>Transportation Sector</i>		
Advanced Clean Cars	T-1	The project's residents and employees would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Low Carbon Fuel Standard	T-2	Motor vehicles driven by the project's residents and employees would use compliant fuels.
Regional Transportation-Related GHG Targets	T-3	The project includes design features intended to enhance transit orientation and encourage non-vehicular mobility to supplement

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**Table 3-16**  
**Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Project Consistency
		ongoing statewide efforts to increase fuel efficiency standards, promote electric and hybrid vehicles, and promote vehicular fuels from renewable resources. The project includes several land use and transportation features that would influence travel within the project and along roadway facilities near the project and reduce GHG emissions. These include implementing Smart Growth Land Use and Transportation Planning strategies, a comprehensive bicycle and pedestrian network, transportation services, and a TMA, which includes various TDMs.
Vehicle Efficiency Measures 1. Tire Pressure 2. Fuel Efficiency Tire Program 3. Low Friction Oil 4. Solar Reflective Automotive Paint and Window Glazing	T-4	Motor vehicles driven by the project's residents and employees would maintain proper tire pressure when their vehicles are serviced.  The project's residents and employees would replace tires in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.  Motor vehicles driven by the project's residents and employees would use low friction oils when their vehicles are serviced.  The project's residents and employees would purchase vehicles in compliance with CARB vehicle standards that are in effect at the time of vehicle purchase.
Ship Electrification at Ports (Shore Power)	T-5	Not applicable.
Goods Movement Efficiency Measures 1. Port Drayage Trucks 2. Transport Refrigeration Units Cold Storage Prohibition 3. Cargo Handling Equipment, Anti-Idling, Hybrid, Electrification 4. Goods Movement Systemwide Efficiency Improvements 5. Commercial Harbor Craft Maintenance and Design Efficiency 6. Clean Ships 7. Vessel Speed Reduction	T-6	Transport Refrigeration Units and heavy-duty trucks potentially associated with the project's industrial and retail land uses would be in compliance with CARB standards that are in effect at the time of purchase.  Measures related to ports and marine vessels are not applicable.
Heavy-Duty Vehicle GHG Emission Reduction 1. Tractor-Trailer GHG Regulation 2. Heavy Duty Greenhouse Gas Standards for New Vehicle and Engines (Phase I)	T-7	Heavy-duty trucks associated with the project's industrial and retail land uses would be in compliance with CARB standards that are in effect at the time of purchase.
Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive Project	T-8	The project would not conflict with the Medium- and Heavy-Duty Vehicle Hybridization Voucher Incentive Project.
High-Speed Rail	T-9	Not applicable.
<i>Electricity and Natural Gas Sector</i>		

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**Table 3-16**  
**Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Project Consistency
Energy Efficiency Measures (Electricity)	E-1	The project will comply with energy efficiency standards for electrical appliances and other devices at the time of building construction. In addition, all development on the project site is required to exceed 2013 Title 24 energy requirements on a time-dependent valuation basis by at least 25%, as outlined in 24 CCR 6. A menu of the energy efficiency design elements, along with other design considerations and options, would be made available to builders, developers, and property owners as part of the internal design review process. Each developer, builder, or property owner must incorporate the design elements that make the most sense for their particular development project in order to meet the energy reduction requirement.
Energy Efficiency (Natural Gas)	CR-1	The project will comply with energy efficiency standards for natural gas appliances and other devices at the time of building construction. In addition, all development on the project site is required to exceed 2013 Title 24 energy requirements on a time-dependent valuation basis by at least 25%, as outlined in 24 CCR 6. A menu of the energy efficiency design elements, along with other design considerations and options, would be made available to builders, developers, and property owners as part of the internal design review process. Each developer, builder, or property owner must incorporate the design elements that make the most sense for their particular development project in order to meet the energy reduction requirement.
Solar Water Heating (California Solar Initiative Thermal Program)	CR-2	Grapevine incorporates active solar energy systems and promotes renewable energy technologies, including solar hot water systems.
Combined Heat and Power	E-2	Not applicable.
Renewable Portfolios Standard (33% by 2020)	E-3	The electricity used by the project will benefit from reduced GHG emissions resulting from increased use of renewable energy sources.
Senate Bill 1 Million Solar Roofs (California Solar Initiative, New Solar Home Partnership, Public Utility Programs) and earlier solar programs	E-4	<p>The project community vision includes a commitment to incorporating active solar energy systems, such as photovoltaic installations and solar hot water systems, to provide an efficient and renewable source of energy that minimizes the need for conventional heating mechanisms and supplemental energy sources. The project incorporates and promotes renewable energy technologies:</p> <ul style="list-style-type: none"> <li>• Connection to local renewable power sources and utility providers</li> <li>• Community amenity buildings equipped with active solar energy systems.</li> <li>• Active solar dryers installed for the water reclamation plant.</li> <li>• Homeowners' Association-owned community-serving structures to incorporate individual wind generators where</li> </ul>



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**Table 3-16**  
**Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Project Consistency
		feasible and safe.
<i>Water Sector</i>		
Water Use Efficiency	W-1	<p>A Water Wise Program will be implemented within the project that includes all feasible measures that would reduce water and energy use (e.g., for interior fixtures, require tank-less water heaters and low flow plumbing) and would establish a Maximum Applied Water Allowance budget for each lot or home.</p> <p>As part of the project's Landscape Design Guidelines, to improve water efficiency, drought-tolerant landscaping would be planned and designed for the intended function of a project and use. The Landscape Design Guidelines will address multiple components of a water-efficient landscape including irrigation systems, grading design, and soil management. To minimize the use of exterior water, landscaping agriculture in the community would emphasize resources conscious methods and management techniques. In regards to plant materials, trees and other lower plantings would be primarily native and or drought-tolerant species that are regionally and locally appropriate and do not pose a threat to native species (e.g. non-invasive). Turf areas would be minimized, and alternative ground covers would be strongly encouraged.</p> <p>For optimum water efficiency, the irrigation system would be designed to match plant type, utilize drip or subsurface irrigation wherever possible, apply water at agronomic rates, and conform to the requirements of the Grapevine Special Plan. In addition, irrigation system design would conform to the hydrozones of the landscape design plan. "Smart" controllers, such as weather-based irrigation controllers or other self-adjusting irrigation controllers, would be required for all irrigation systems and must be able to accommodate all aspects of the landscape and irrigation design plans.</p>
Water Recycling	W-2	<p>The water and wastewater plan for the project uses state-of-the-art treatment plant design and incorporates on-site recycling of water and treatment of solid wastes. A reclaimed water treatment facility on site would provide reclaimed water for the community irrigation systems as supplies become available. Use of recycled water from on-site wastewater treatment plant(s) would serve as a permanent source of water for landscaped common areas and other authorized uses; 100% of reclaimed water would be made available for use on landscaping and 50% of commercial landscape areas would use recycled water.</p>
Water System Energy Efficiency	W-3	<p>The project's water and wastewater plan incorporates on-site recycling of water to provide reclaimed water for the community</p>

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**Table 3-16**  
**Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Project Consistency
		irrigation system, which reduces the need to transport, treat, and distribute potable water to meet outdoor water demand. This results in an efficient water system and a reduction in GHG emissions that would otherwise be generated by using potable water in place of recycled water.
Reuse Urban Runoff	W-4	The project's Water Wise Program includes all feasible measures that would reduce water; as such, reuse of urban runoff would be considered if feasible. The project would also be designed to reduce runoff through turf and mulch, and grading and irrigation design standards. The project would be designed in respect to Low Impact Development goals, which includes groundwater recharge and the associated benefits of improved water quality through the filtering of stormwater runoff through soils and vegetation.
Renewable Energy Production	W-5	The project promotes renewable energy technologies and commits to incorporation of renewable energy production as feasible. See discussion under Measure E-4.
<i>Green Buildings</i>		
1. State Green Building Initiative: Leading the Way with State Buildings (Greening New and Existing State Buildings)	GB-1	The project would be required to be constructed in compliance with state or local green building standards in effect at the time of building construction.
2. Green Building Standards Code (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	The project's buildings would meet green building standards that are in effect at the time of design and construction.
3. Beyond Code: Voluntary Programs at the Local Level (Greening New Public Schools, Residential and Commercial Buildings)	GB-1	The project would be required to be constructed in compliance with local green building standards in effect at the time of building construction.
4. Greening Existing Buildings (Greening Existing Homes and Commercial Buildings)	GB-1	Applicable for existing buildings only. Not applicable for the project except as future standards may become applicable to existing buildings.
<i>Industry Sector</i>		
Energy Efficiency and Co-Benefits Audits for Large Industrial Sources	I-1	Not applicable based on anticipated industrial uses.
Oil and Gas Extraction GHG Emission Reduction	I-2	Potential future oil and gas operations within the project site would be subject to County rules and requirements. Compliance with County regulations would ensure that emissions are reduced to the extent feasible.
GHG Emissions Reduction from Natural Gas Transmission and Distribution	I-3	Not applicable.
Refinery Flare Recovery Process Improvements	I-4	Not applicable.
Work with the local air districts to evaluate amendments to their existing leak detection	I-5	Not applicable based on anticipated industrial uses.

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**Table 3-16**  
**Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies**

Scoping Plan Measure	Measure Number	Project Consistency
and repair rules for industrial facilities to include methane leaks.		
<i>Recycling and Waste Management Sector</i>		
Landfill Methane Control Measure	RW-1	Applicable for certain municipal solid waste landfills. Not applicable for the project.
Increasing the Efficiency of Landfill Methane Capture	RW-2	Applicable for certain municipal solid waste landfills. Not applicable for the project.
Mandatory Commercial Recycling	RW-3	During both construction and operation of the project, the project would comply with all state regulations related to solid waste generation, storage, and disposal, including the California Integrated Waste Management Act as amended. During construction, all wastes would be recycled to the maximum extent possible.
Increase Production and Markets for Compost and Other Organics	RW-3	Applicable only if a green waste composting facility is implemented. If a green waste composting facility is implemented, it would be required to comply with applicable requirements related to composting and other organics.
Anaerobic/Aerobic Digestion	RW-3	Not applicable.
Extended Producer Responsibility	RW-3	Not applicable (applicable to product designer and producers).
Environmentally Preferable Purchasing	RW-3	Not applicable (applicable to product designer and producers).
<i>Forests Sector</i>		
Sustainable Forest Target	F-1	Not applicable.
<i>High GWP Gases Sector</i>		
Motor Vehicle Air Conditioning Systems: Reduction of Refrigerant Emissions from Non-professional Servicing	H-1	The project's residents and employees would be prohibited from performing air conditioning repairs and required to use professional servicing.
SF <sub>6</sub> Limits in Non-utility and Non-semiconductor Applications	H-2	Not applicable.
Reduction of Perfluorocarbons in Semiconductor Manufacturing	H-3	Not applicable.
Limit High GWP Use in Consumer Products	H-4	The project's residents and employees would use consumer products that would comply with the regulations that are in effect at the time of manufacture.
Air Conditioning Refrigerant Leak Test During Vehicle Smog Check	H-5	Motor vehicles driven by the project's residents and employees would comply with the leak test requirements during smog checks.
Stationary Equipment Refrigerant Management Program – Refrigerant Tracking/Reporting/Repair Program	H-6	If the project's industrial land uses include cold storage refrigeration systems that include more than 50 pounds of high-GWP refrigerant, the tenant of that land use would be required to conduct periodic leak inspections, promptly repair leaks, and keep service records on site; additionally, the tenant would register the refrigeration system and submit annual refrigerant use reports.

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**Table 3-16**

### Project Consistency with Scoping Plan Greenhouse Gas Emission Reduction Strategies

Scoping Plan Measure	Measure Number	Project Consistency
Stationary Equipment Refrigerant Management Program – Specifications for Commercial and Industrial Refrigeration	H-6	If the project's industrial land uses include refrigeration, then the proposed stationary equipment would meet the specifications outlined in Measure H-6, to the extent applicable and feasible.
SF <sub>6</sub> Leak Reduction Gas Insulated Switchgear	H-6	Not applicable.
<i>Agriculture Sector</i>		
Methane Capture at Large Dairies	A-1	Not applicable.

Source: CARB 2010.

Based on the analysis in Table 3-16, the project would be consistent with the applicable strategies and measures in the Scoping Plan.

In regards to consistency with Executive Order B-30-15 (goal of reducing GHG emissions to 40% below 1990 levels by 2030) and Executive Order S-3-05 (goal of reducing GHG emissions to 80% below 1990 levels by 2050), there are no established protocols or thresholds of significance for that future year analysis. However, CARB forecasts that compliance with the current Scoping Plan puts the state on a trajectory of meeting these long-term GHG goals, although the specific path to compliance is unknown (CARB 2014c). As discussed above, the project is consistent with the GHG emission reduction measures in the Scoping Plan and would not conflict with the state's trajectory toward future GHG reductions. In addition, since the specific path to compliance for the state in regards to the long-term goals will likely require development of technology or other changes that are not currently known or available, specific additional mitigation measures for the project would be speculative and cannot be identified at this time. Furthermore, the project is consistent with the Kern COG RTP/SCS (see Section 3.5.2.1), which establishes targets for passenger vehicle GHG emissions for 2020 and 2035 as approved by CARB in 2015. The project's consistency would assist in meeting the County's contribution to GHG emission reduction targets in California. With respect to future GHG targets under the executive orders, CARB has also made clear its legal interpretation that it has the requisite authority to adopt whatever regulations are necessary, beyond the AB 32 horizon year of 2020, to meet Executive Order S-3-05's 80% reduction target in 2050; this legal interpretation by an expert agency provides evidence that future regulations will be adopted to continue the state on its trajectory toward meeting these future GHG targets.

As such, the project would not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs and no mitigation is required. This impact would be less than significant.

## **Air Quality and Greenhouse Gas Emissions Analysis Grapevine Specific and Community Plan Project**

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### **Mitigation Measures**

None required.

### **Level of Significance After Mitigation**

Impacts would be less than significant without mitigation.

### **3.5.3 Cumulative Impact**

As described in Section 3.4.1.1, global climate change is a cumulative impact, and there are currently no established thresholds for assessing whether the GHG emissions of a project would be considered a cumulatively considerable contribution to global climate change. While the project would not result in a 29% reduction from BAU, this comparison was included for informational purposes since many sources of GHGs associated with the project would be subject to the cap-and-trade and other state-implemented regulations that indirectly affect the project's emissions. However, many measures incorporated in the analysis are regional or statewide in nature and do not provide a mechanism that guarantees GHG emission reductions on a cumulative basis. In addition, Kern County does not have the jurisdictional authority to control the various cumulative sources of GHGs in the County, or the GHG emissions from sources around the globe, which all contribute to climate change. Although many other agencies with the necessary jurisdiction are currently taking action to reduce GHG emissions, the County cannot assure that these measures would ultimately be implemented or sufficient to address climate change. Therefore, GHG emissions would be considered cumulatively significant and unavoidable.

### **Mitigation Measures**

Implement **MM-GHG-1** through **MM-GHG-3**.

### **Level of Significance After Mitigation**

Impacts would be significant and unavoidable.

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### **4 REPORT PREPARERS**

#### **Dudek**

Jennifer Reed, Air Quality Services Manager  
David Deckman, Air Quality Specialist  
Matthew Morales, Air Quality Specialist

#### **Yorke Engineering**

Greg Wolffe, Principal  
Bradford Boyes, Senior Engineer  
Eric Chan, Senior Environmental Engineer

#### **Ramboll Environ**

Eric Lu, Principal  
Varalakshmi Jayaram, Senior Associate

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APPENDIX A

*Detailed Assumptions and  
Estimated Emissions Tables*



## APPENDIX A

### Detailed Assumptions and Estimated Emissions Tables

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#### A.1 PROJECT DESCRIPTION TABLES

##### Assumed Development Schedule

Project development would be phased over approximately 20 years. The anticipated construction and operation schedule is summarized in Table A.1-1.

**Table A.1-1**  
**Project Anticipated Construction and Operation Schedule**

Planning Area	Construction		Operation
	<i>Start Date</i>	<i>End Date</i>	<i>Buildout Year</i>
6A	1/1/2016	12/31/2018	2019
2	1/1/2019	12/31/2022	2023
1	1/1/2023	12/31/2024	2025
3	1/1/2025	12/31/2027	2028
4	1/1/2028	12/31/2031	2032
6B	1/1/2032	12/31/2034	2035
5A	1/1/2032	12/31/2035	2036
6C	1/1/2033	12/31/2033	2034
6D	1/1/2034	12/31/2035	2036
6E	1/1/2034	12/31/2035	2036
5B	1/1/2035	12/31/2035	2036

Note: See Appendix A for details.

As shown in Table A.1-1, project construction is anticipated to start in 2016, and the first full year of project buildout would be 2036. Notably, project construction could potentially commence in 2017 or a later year. However, this analysis assumes a construction start date of 2016, which represents the earliest date at which construction would initiate. Assuming the earliest start date for construction represents the worst-case scenario for criteria air pollutant and GHG emissions because equipment and vehicle emission factors for later years would be slightly less due to more stringent standards for in-use off-road equipment and heavy-duty trucks, as well as fleet turnover replacing older equipment and vehicles in later years. In addition, the sequencing of planning area construction and first year of planning area operation could potentially deviate from the schedule assumed herein. The schedule used for estimating construction years and operational buildout years is intended to represent a conservative scenario. Because development of the planning areas with the greatest amount of development (6A, 2, 1, 3, and 4) was assumed to occur during earlier phases of construction, and planning areas with less development would be constructed during later phases, it is not anticipated that maximum annual or combined total criteria air pollutant and GHG emissions would be substantially greater than the analyzed scenario.

## APPENDIX A (Continued)

### Planning Area Land Use Details

Planning Area 1 would consist of a mix of land uses, including residential, commercial, office and R&D, urban agriculture, and roadway improvements. Table A.1-2 presents the land uses proposed for Planning Area 1.

**Table A.1-2**  
**Planning Area 1 Proposed Land Uses**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
Residential (SF)	1,250	Dwelling Unit	321
Village Center Residential (MF)	230	Dwelling Unit	23
Village Center Commercial	50	1,000 square feet	7
Office/R&D	400	1,000 square feet	30
Arterial Streets	12	Acre	12
Collector Streets	20	Acre	20
Urban Agriculture	36	Acre	36

Note: See Appendix A.

Planning Area 2 would consist of a mix of land uses, including residential, commercial, office and R&D, academic uses (including an elementary school, middle school, and high school), park facilities, urban agriculture, and roadway improvements. Table A.1-3 presents the land uses proposed for Planning Area 2.

**Table A.1-3**  
**Planning Area 2 Proposed Land Uses**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
Residential (SF)	1,780	Dwelling Unit	455
Village Center Residential (MF)	980	Dwelling Unit	98
Village Center Commercial	270	1,000 square feet	35
Freeway-Oriented Commercial	210	1,000 square feet	27
Office/R&D	780	1,000 square feet	59
Elementary School	994	Student	5
Middle School	1,500	Student	5
High School	840	Student	20
Parks	58	Acre	58
Arterial Streets	24	Acre	24
Collector Streets	37	Acre	37
Urban Agriculture	82	Acre	82

Note: See Appendix A.

## APPENDIX A (Continued)

Planning Area 3 would consist of a mix of land uses, including residential, commercial, office and R&D, an elementary school, park facilities, urban agriculture, and roadway improvements. Table A.1-4 presents the land uses proposed for Planning Area 3.

**Table A.1-4  
Planning Area 3 Proposed Land Uses**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
Residential (SF)	1,180	Dwelling Unit	302
Village Center Residential (MF)	730	Dwelling Unit	73
Village Center Commercial	170	1,000 square feet	22
Freeway-Oriented Commercial	540	1,000 square feet	68
Office/R&D	650	1,000 square feet	50
Elementary School	994	Student	5
Parks	5	Acre	5
Arterial Streets	48	Acre	48
Collector Streets	8	Acre	8
Urban Agriculture	106	Acre	106

Note: See Appendix A.

Planning Area 4 would consist of a mix of land uses, including residential, commercial, office and R&D, academic uses (including an elementary school, middle school and high school), park facilities, and roadway improvements. Table A.1-5 presents the land uses proposed for Planning Area 4.

**Table A.1-5  
Planning Area 4 Proposed Land Uses**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
Residential (SF)	1,850	Dwelling Unit	473
Village Center Residential (MF)	570	Dwelling Unit	57
Village Center Commercial	120	1,000 square feet	15
Elementary School	994	Student	5
Middle School	1,500	Student	5
High School	840	Student	20
Parks	58	Acre	58
Arterial Streets	21	Acre	21
Collector Streets	40	Acre	40

Note: See Appendix A.

Planning Area 5A would consist of a mix of land uses, including residential, commercial, an elementary school, park facilities, and roadway improvements. Table A.1-6 presents the land uses proposed for Planning Area 5A.

## APPENDIX A (Continued)

**Table A.1-6  
Planning Area 5A Proposed Land Uses**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
Residential (SF)	1,730	Dwelling Unit	442
Village Center Residential (MF)	330	Dwelling Unit	33
Village Center Commercial	40	1,000 square feet	5
Elementary School	994	Student	5
Parks	5	Acre	5
Arterial Streets	5	Acre	5
Collector Streets	46	Acre	46

Note: See Appendix A.

Planning Area 5B would include primarily residential development and roadway improvements. Table A.1-7 presents the land uses proposed for Planning Area 5B.

**Table A.1-7  
Planning Area 5B Proposed Land Uses**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
Residential (SF)	35	Dwelling Unit	93
Collector Streets	10	Acre	10

Note: See Appendix A.

Planning Area 6A would consist of a mix of land uses, including residential, commercial, office and R&D, light industrial and warehouse uses, an elementary school, park facilities, urban agriculture, and roadway improvements. Table A.1-8 presents the land uses proposed for Planning Area 6A.

**Table A.1-8  
Planning Area 6A Proposed Land Uses**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
Residential (SF)	585	Dwelling Unit	149
Village Center Residential (MF)	750	Dwelling Unit	75
Village Center Commercial	150	1,000 square feet	20
Office/R&D	270	1,000 square feet	21
Light Industrial/Warehouse	1,400	1,000 square feet	109
Elementary School	994	Student	5
Parks	5	Acre	5
Arterial Streets	2	Acre	2
Collector Streets	28	Acre	28
Urban Agriculture	98	Acre	98

Note: See Appendix A.



## APPENDIX A (Continued)

Planning Area 6B would include primarily light industrial and warehouse uses, and roadway improvements. Table A.1-9 presents the light industrial uses for Planning Area 6B.

**Table A.1-9**  
**Planning Area 6B Proposed Land Uses**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
Light Industrial/Warehouse	50	1,000 square feet	322
Roadway Improvements	18	Acre	18

Note: See Appendix A

Planning Area 6C would include primarily light industrial and warehouse uses and roadway improvements. Table A.1-10 presents the light industrial uses for Planning Area 6C.

**Table A.1-10**  
**Planning Area 6C Proposed Land Uses**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
Light Industrial/Warehouse	190	Acre	190
Collector Streets	3	Acre	3

Note: See Appendix A

Planning Area 6D would include primarily light industrial and warehouse uses, and roadway improvements. Table A.1-11 presents the light industrial uses for Planning Area 6D.

**Table A.1-11**  
**Planning Area 6D Proposed Land Uses**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
Light Industrial/Warehouse	173	Acre	173
Collector Streets	4	Acre	4

Note: See Appendix A

Planning Area 6E would include primarily light industrial and warehouse uses. Table A.1-12 presents the light industrial uses for Planning Area 6E.

**Table A.1-12**  
**Planning Area 6E Proposed Land Uses**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
Light Industrial/Warehouse	171	Acre	171
Roadway Improvements	4	Acre	4

Note: See Appendix A

## APPENDIX A (Continued)

### A.2 CONSTRUCTION ASSUMPTIONS AND EMISSIONS TABLES

#### Construction Modeling Assumptions and Estimated Emissions by Planning Area

##### Planning Area 6A

Table A.2-1, Planning Area 6A Construction Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for construction of this Planning Area.

**Table A.2-1  
Planning Area 6A  
Construction Analysis Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet
Commercial	General Office Building	270	1,000 sq ft	21	270,000
Educational	Elementary School	994	Student	5	83,102
Industrial	Industrial Park	1,400	1,000 sq ft	109	1,400,000
Parking	Other Asphalt Surfaces	59	Acre	59	2,570,040
Recreational	City Park	5	Acre	5	217,800
Residential	Apartments Low Rise	750	Dwelling Unit	75	750,000
Residential	Single Family Housing	585	Dwelling Unit	149	1,053,000
Retail	Strip Mall	150	1,000 sq ft	20	150,000

Note: See Appendix B

Table A.2-2, Planning Area 6A Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2016, 2017, and 2018 from on-site and off-site emission sources.

**Table A.2-2  
Planning Area 6A  
Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
<i>Unmitigated</i>						
2016	12.40	34.72	34.19	0.06	1.62	1.5
2017	15.84	39.96	41.63	0.07	1.88	1.74
2018	14.90	29.93	36.15	0.07	1.36	1.26
Maximum Annual Emissions	15.84	39.96	41.63	0.07	1.88	1.74
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>

## APPENDIX A (Continued)

**Table A.2-2**  
**Planning Area 6A**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
Threshold Exceeded?	Yes	Yes	No	No	No	No
<i>Mitigated</i>						
2016	10.72	27.47	33.43	0.06	0.75	0.74
2017	13.98	33.63	41.54	0.07	0.94	0.93
2018	13.76	28.99	37.22	0.07	0.83	0.82
Maximum Annual Emissions	13.98	33.63	41.54	0.07	0.94	0.93
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	No	No	No	No

Note: See Appendix B for detailed results.

Table A.2-3, Planning Area 6A Estimated Maximum Daily Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2016, 2017, and 2018 from on-site and off-site emission sources.

**Table A.2-3**  
**Planning Area 6A**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Unmitigated</i>						
2016	124.48	320.86	354.83	0.52	14.89	13.8
2017	124.28	318.55	362.05	0.57	14.95	13.84
2018	121.20	290.59	355.70	0.60	13.37	12.38
Maximum Daily Emissions	124.48	320.86	362.05	0.60	14.95	13.84
<i>Mitigated</i>						
2016	109.45	258.52	350.25	0.52	7.08	6.97
2017	109.52	268.38	361.64	0.57	7.49	7.39
2018	109.26	275.18	363.88	0.60	7.86	7.77
Maximum Daily Emissions	109.52	275.18	363.88	0.60	7.86	7.77

Note: See Appendix B for detailed results.

Table A.2-4, Planning Area 6A Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for the 2016, 2017, and 2018 from on-site and off-site emission sources.

## APPENDIX A (Continued)

**Table A.2-4**  
**Planning Area 6A**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2016	4,820.93	0.68	0.00	4,835.21
2017	6,180.84	0.84	0.00	6,198.51
2018	5,700.58	0.70	0.00	5,715.26
Total	16,702.35	2.22	0.00	16,748.98
<i>Mitigated</i>				
2016	4,820.93	0.68	0.00	4,835.20
2017	6,180.84	0.84	0.00	6,198.51
2018	5,700.58	0.70	0.00	5,715.25
Total	16,702.35	2.22	0.00	16,748.96

Note: See Appendix B for detailed results.

### Planning Area 2

Table A.2-5, Planning Area 2 Construction Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for construction of this Planning Area.

**Table A.2-5**  
**Planning Area 2**  
**Construction Analysis Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet
Commercial	General Office Building	780	1,000 sq ft	59	780,000
Educational	Elementary School	994	Student	5	8,3102
Educational	High School	840	Student	20	111,435
Educational	Junior High School	1,500	Student	5	176,343
Parking	Other Asphalt Surfaces	92	Acre	92	400,7520
Recreational	City Park	58	Acre	58	2,526,480
Residential	Apartments Low Rise	980	Dwelling Unit	98	980,000
Residential	Single Family Housing	1,780	Dwelling Unit	455	3,204,000
Retail	Regional Shopping Center	210	1,000 sq ft	27	210,000
Retail	Strip Mall	270	1,000 sq ft	35	270,000

Note: See Appendix B.

Table A.2-6, Planning Area 2 Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2019, 2020, 2021, and 2022 from on-site and off-site emission sources.

## APPENDIX A (Continued)

**Table A.2-6**  
**Planning Area 2**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
<i>Unmitigated</i>						
2019	12.31	23.38	26.46	0.05	1.09	1.01
2020	17.85	28.62	36.00	0.08	1.35	1.25
2021	17.84	27.62	39.00	0.09	1.29	1.2
2022	16.56	16.59	28.05	0.06	0.75	0.7
Maximum Annual Emissions	17.85	28.62	39.00	0.09	1.35	1.25
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	No	No	No	No
<i>Mitigated</i>						
2019	11.28	23.09	27.39	0.05	0.67	0.66
2020	16.68	30.81	37.72	0.08	0.93	0.92
2021	16.85	33.42	41.36	0.09	1.03	1.03
2022	16.10	23.01	29.87	0.06	0.73	0.73
Maximum Annual Emissions	16.85	33.42	41.36	0.09	1.03	1.03
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	No	No	No	No

Note: See Appendix B for detailed results.

Table A.2-7, Planning Area 2 Estimated Maximum Daily Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2019, 2020, 2021, and 2022 from on-site and off-site emission sources.

**Table A.2-7**  
**Planning Area 2**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Unmitigated</i>						
2019	136.06	218.48	272.27	0.53	10.23	9.5
2020	139.30	234.43	315.56	0.66	11.02	10.22
2021	138.46	218.82	326.85	0.70	10.2	9.46
2022	133.47	173.07	287.48	0.64	7.88	7.31
Maximum Daily Emissions	139.30	234.43	326.85	0.70	11.02	10.22

## APPENDIX A (Continued)

**Table A.2-7**  
**Planning Area 2**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Mitigated</i>						
2019	126.63	218.74	281.35	0.53	6.42	6.37
2020	129.84	252.77	329.77	0.66	7.62	7.57
2021	130.68	264.97	345.51	0.70	8.18	8.12
2022	128.22	236.89	307.42	0.64	7.38	7.33
Maximum Daily Emissions	130.20	264.97	345.51	0.70	8.18	8.12

Notes: See Appendix B for detailed results.

Table A.2-8, Planning Area 2 Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for the 2019, 2020, 2021, and 2022 from on-site and off-site emission sources.

**Table A.2-8**  
**Planning Area 2**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2019	4,230.61	0.65	0.00	4,244.26
2020	5,901.48	0.88	0.00	5,919.94
2021	6,563.27	0.98	0.00	6,583.86
2022	4,935.61	0.65	0.00	4,949.17
Total	21,630.97	3.16	0.00	21,697.23
<i>Mitigated</i>				
2019	4,230.61	0.65	0.00	4,244.26
2020	5,901.48	0.88	0.00	5,919.94
2021	6,563.27	0.98	0.00	6,583.86
2022	4,935.61	0.65	0.00	4,949.17
Total	21,630.97	3.16	0.00	21,697.23

Notes: See Appendix B for detailed results.

### Planning Area 1

Table A.2-9, Planning Area 1 Construction Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for construction of this Planning Area.

## APPENDIX A (Continued)

**Table A.2-9**  
**Planning Area 1**  
**Construction Analysis Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet
Commercial	General Office Building	400	1,000 sq ft	30	400,000
Parking	Other Asphalt Surfaces	48	Acre	48	2,090,880
Residential	Apartments Low Rise	230	Dwelling Unit	23	230,000
Residential	Single Family Housing	1,250	Dwelling Unit	321	2,250,000
Retail	Regional Shopping Center	50	1,000 sq ft	7	50,000

Notes: See Appendix B

Table A.2-10, Planning Area 1 Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2023 and 2024 from on-site and off-site emission sources.

**Table A.2-10**  
**Planning Area 1**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
<i>Unmitigated</i>						
2023	12.52	12.70	20.07	0.05	0.57	0.53
2024	17.59	9.16	18.47	0.05	0.41	0.38
Maximum Annual Emissions	17.59	12.70	20.07	0.05	0.57	0.53
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	Yes	Yes	No	No	No	No
<i>Mitigated</i>						
2023	11.88	11.38	21.90	0.05	0.53	0.52
2024	17.18	9.17	19.65	0.05	0.45	0.45
Maximum Annual Emissions	17.18	11.38	21.90	0.05	0.53	0.52
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	Yes	Yes	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-11, Planning Area 1 Estimated Maximum Daily Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2023 and 2024 from on-site and off-site emission sources.

## APPENDIX A (Continued)

**Table A.2-11**  
**Planning Area 1**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Unmitigated</i>						
2023	139.43	114.98	196.97	0.45	5.2	4.81
2024	135.13	75.98	155.11	0.38	3.47	3.21
Maximum Daily Emissions	139.43	114.98	196.97	0.45	5.2	4.81
<i>Mitigated</i>						
2023	133.73	104.26	213.42	0.45	4.85	4.82
2024	131.60	74.85	164.64	0.38	3.69	3.67
Maximum Daily Emissions	133.73	104.26	213.42	0.45	4.85	4.82

Notes: See Appendix B for detailed results.

Table A.2-12, Planning Area 1 Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for the 2023 and 2024 from on-site and off-site emission sources.

**Table A.2-12**  
**Planning Area 1**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2023	3,495.05	0.58	0.00	3,507.18
2024	3,417.43	0.43	0.00	3,426.49
Total	6,912.48	1.01	0.00	6,933.67
<i>Mitigated</i>				
2023	3,495.05	0.58	0.00	3,507.18
2024	3,417.43	0.43	0.00	3,426.49
Total	6,912.48	1.01	0.00	6,933.67

Notes: See Appendix B for detailed results.

### Planning Area 3

Table A.2-13, Planning Area 3 Construction Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for construction of this Planning Area.



## APPENDIX A (Continued)

**Table A.2-13**  
**Planning Area 3**  
**Construction Analysis Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet
Commercial	General Office Building	650	1,000 sq ft	14.92	650,000
Educational	Elementary School	994	Student	5	83,102
Parking	Other Asphalt Surfaces	82	Acre	82	3,571,920
Recreational	City Park	5	Acre	5	217,800
Residential	Apartments Low Rise	730	Dwelling Unit	73	730,000
Residential	Single Family Housing	1,180	Dwelling Unit	303	2,124,000
Retail	Regional Shopping Center	540	1,000 sq ft	68	540,000
Retail	Strip Mall	170	1,000 sq ft	22	170,000
Commercial	General Office Building	650	1,000 sq ft	14.92	650,000
Educational	Elementary School	994	Student	5	83,102
Parking	Other Asphalt Surfaces	82	Acre	82	3,571,920

Notes: See Appendix B

Table A.2-14, Planning Area 3 Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2025, 2026, and 2027 from on-site and off-site emission sources.

**Table A.2-14**  
**Planning Area 3**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
<i>Unmitigated</i>						
2025	11.11	12.42	22.41	0.05	0.53	0.49
2026	14.59	15.41	28.52	0.07	0.67	0.61
2027	14.35	13.26	26.42	0.07	0.56	0.52
Maximum Annual Emissions	14.59	15.41	28.52	0.07	0.67	0.61
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	Yes	Yes	No	No	No	No
<i>Mitigated</i>						
2025	10.37	11.09	24.77	0.05	0.1	0.09

## APPENDIX A (Continued)

**Table A.2-14**  
**Planning Area 3**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
2026	13.68	14.07	31.31	0.07	0.13	0.12
2027	13.61	12.78	28.56	0.07	0.12	0.12
Maximum Annual Emissions	13.68	14.07	31.31	0.07	0.13	0.12
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-15, Planning Area 3 Estimated Maximum Daily Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2025, 2026, and 2027 from on-site and off-site emission sources.

**Table A.2-15**  
**Planning Area 3**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Unmitigated</i>						
2025	111.48	113.38	224.11	0.52	4.8	4.45
2026	113.02	122.76	240.79	0.58	5.24	4.85
2027	113.67	128.90	252.15	0.61	5.49	5.09
Maximum Daily Emissions	113.67	128.90	252.15	0.61	5.49	5.09
<i>Mitigated</i>						
2025	104.83	103.10	244.53	0.52	0.93	0.89
2026	105.79	112.47	262.86	0.58	1	0.96
2027	106.21	119.39	275.52	0.61	1.07	1.03
Maximum Daily Emissions	106.21	119.39	275.52	0.61	1.07	1.03

Notes: See Appendix B for detailed results.

Table A.2-16, Planning Area 3 Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for the 2025, 2026, and 2027 from on-site and off-site emission sources.

## APPENDIX A (Continued)

**Table A.2-16**  
**Planning Area 3**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2025	4,118.84	0.64	0.00	4,132.24
2026	5,306.11	0.79	0.00	5,322.70
2027	4,978.77	0.66	0.00	4,992.67
Total	14,403.72	2.09	0.00	14,447.61
<i>Mitigated</i>				
2025	4,118.84	0.64	0.00	4,132.24
2026	5,306.11	0.79	0.00	5,322.70
2027	4,978.77	0.66	0.00	4,992.66
Total	14,403.72	2.09	0.00	14,447.60

Notes: See Appendix B for detailed results.

### Planning Area 4

Table A.2-17, Planning Area 4 Construction Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for construction of this Planning Area.

**Table A.2-17**  
**Planning Area 4**  
**Construction Analysis Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet
Educational	Elementary School	994	Student	5	83,102
Educational	High School	840	Student	20	111,435
Educational	Junior High School	1,500	Student	5	176,343
Parking	Other Asphalt Surfaces	74	Acre	74	3,223,440
Recreational	City Park	58	Acre	58	2,526,480
Residential	Apartments Low Rise	570	Dwelling Unit	57	570,000
Residential	Single Family Housing	1,850	Dwelling Unit	473	3,330,000
Retail	Strip Mall	120	1,000 sq ft	15	120,000

Notes: See Appendix B

Table A.2-18, Planning Area 4 Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2028, 2029, 2030, and 2031 from on-site and off-site emission sources.

## APPENDIX A (Continued)

**Table A.2-18**  
**Planning Area 4**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
<i>Unmitigated</i>						
2028	7.94	9.34	14.57	0.03	0.41	0.38
2029	13.38	13.49	22.94	0.06	0.59	0.55
2030	13.30	7.47	22.16	0.06	0.24	0.24
2031	12.50	4.35	12.36	0.03	0.14	0.14
Maximum Annual Emissions	13.38	13.49	22.94	0.06	0.59	0.55
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	No	No	No	No
<i>Mitigated</i>						
2028	7.34	8.05	16.61	0.03	0.06	0.06
2029	12.55	12.17	25.60	0.06	0.1	0.1
2030	12.51	12.21	25.28	0.06	0.1	0.1
2031	12.09	6.66	13.79	0.03	0.06	0.06
Maximum Annual Emissions	12.55	12.21	25.60	0.06	0.1	0.1
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-19, Planning Area 4 Estimated Maximum Daily Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2028, 2029, 2030, and 2031 from on-site and off-site emission sources.

**Table A.2-19**  
**Planning Area 4**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Unmitigated</i>						
2028	99.52	82.97	140.94	0.31	3.63	3.36
2029	102.74	103.76	184.57	0.44	4.54	4.21
2030	103.32	62.42	197.62	0.51	1.98	1.94
2031	98.81	44.83	130.16	0.32	1.5	1.47
Maximum Daily Emissions	103.32	103.76	197.62	0.51	4.54	4.21

## APPENDIX A (Continued)

**Table A.2-19**  
**Planning Area 4**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Mitigated</i>						
2028	94.23	72.87	158.00	0.31	0.58	0.55
2029	96.31	93.65	204.94	0.44	0.77	0.74
2030	96.86	103.31	222.87	0.51	0.84	0.81
2031	93.96	69.23	150.61	0.32	0.57	0.55
Maximum Daily Emissions	96.86	103.31	222.87	0.51	0.84	0.81

Notes: See Appendix B for detailed results.

Table A.2-20, Planning Area 4 Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for the 2028, 2029, 2030, and 2031 from on-site and off-site emission sources.

**Table A.2-20**  
**Planning Area 4**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2028	2,660.90	0.50	0.00	2,611.38
2029	4,235.70	0.72	0.00	4,250.88
2030	4,543.30	0.14	0.00	4,546.21
2031	2,504.27	0.07	0.00	2,505.76
Total	13,884.17	1.43	0.00	13,914.23
<i>Mitigated</i>				
2028	2,660.90	0.50	0.00	2,611.38
2029	4,235.70	0.72	0.00	4,250.88
2030	4,543.30	0.14	0.00	4,546.21
2031	2,504.27	0.07	0.00	2,505.76
Total	13,884.17	1.43	0.00	13,914.23

Notes: See Appendix B for detailed results.

### Planning Area 6B

Table A.2-21, Planning Area 6B Construction Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for construction of this Planning Area.

## APPENDIX A (Continued)

**Table A.2-21**  
**Planning Area 6B**  
**Construction Analysis Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet
Industrial	Industrial Park	50	1,000 sq ft	322	50,000
Parking	Other Asphalt Surfaces	18	Acre	18	784,080

Notes: See Appendix B

Table A.2-22, Planning Area 6B Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2032, 2033, and 2034 from on-site and off-site emission sources.

**Table A.2-22**  
**Planning Area 6B**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
<i>Unmitigated</i>						
2032	0.83	3.02	7.35	0.02	0.11	0.11
2033	0.62	1.82	5.60	0.02	0.06	0.06
2034	0.53	1.38	4.46	0.01	0.04	0.04
Maximum Annual Emissions	0.83	3.02	7.35	0.02	0.11	0.11
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No
<i>Mitigated</i>						
2032	0.40	1.21	8.93	0.02	0.03	0.03
2033	0.44	0.94	5.92	0.02	0.03	0.03
2034	0.42	0.85	4.72	0.01	0.02	0.02
Maximum Annual Emissions	0.44	1.21	8.93	0.02	0.03	0.03
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-23, Planning Area 6B Estimated Maximum Daily Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2032, 2033, and 2034 from on-site and off-site emission sources.

## APPENDIX A (Continued)

**Table A.2-23**  
**Planning Area 6B**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Unmitigated</i>						
2032	7.87	26.44	70.15	0.18	0.91	0.9
2033	5.06	15.11	48.84	0.12	0.52	0.51
2034	4.17	10.76	36.94	0.10	0.34	0.33
Maximum Daily Emissions	7.87	26.44	70.15	0.18	0.91	0.9
<i>Mitigated</i>						
2032	4.32	11.10	82.62	0.18	0.3	0.29
2033	3.56	7.61	51.69	0.12	0.21	0.2
2034	3.30	6.68	38.94	0.10	0.18	0.17
Maximum Daily Emissions	4.32	11.10	82.62	0.18	0.3	0.29

Notes: See Appendix B for detailed results.

Table A.2-24, Planning Area 6B Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for the 2032, 2033, and 2034 from on-site and off-site emission sources.

**Table A.2-24**  
**Planning Area 6B**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2032	1,656.93	0.06	0.00	1,658.11
2033	1,112.07	0.03	0.00	1,122.75
2034	941.97	0.03	0.00	942.50
Total	3,720.97	0.11	0.00	3,723.36
<i>Mitigated</i>				
2032	1,656.93	0.06	0.00	1,658.11
2033	1,112.07	0.03	0.00	1,122.75
2034	941.97	0.03	0.00	942.50
Total	3,720.97	0.11	0.00	3,723.36

Notes: See Appendix B for detailed results.

## APPENDIX A (Continued)

### Planning Area 5A

Table A.2-25, Planning Area 5A Construction Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for construction of this Planning Area.

**Table A.2-25**  
**Planning Area 5A**  
**Construction Analysis Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet
Educational	Elementary School	994	Student	5	83,102
Parking	Other Asphalt Surfaces	66	Acre	66	2,874,960
Recreational	City Park	5	Acre	5	217,800
Residential	Apartments Low Rise	330	Dwelling Unit	33	330,000
Residential	Single Family Housing	1,730	Dwelling Unit	442	3,114,000
Retail	Regional Shopping Center	40	1,000 sq ft	5	40,000

Notes: See Appendix B

Table A.2-26, Planning Area 5A Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2032, 2033, 2034, and 2035 from on-site and off-site emission sources.

**Table A.2-26**  
**Planning Area 5A**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
<i>Unmitigated</i>						
2032	6.68	4.78	12.72	0.03	0.16	0.16
2033	10.92	6.36	18.41	0.05	0.21	0.21
2034	11.06	7.00	20.71	0.05	0.23	0.23
2035	10.17	3.02	10.86	0.03	0.08	0.08
Maximum Annual Emissions	11.06	7.00	20.71	0.05	0.23	0.23
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	Yes	No	No	No	No	No
<i>Mitigated</i>						
2032	6.06	2.06	14.73	0.03	0.06	0.06
2033	10.11	2.77	20.83	0.05	0.08	0.08



## APPENDIX A (Continued)

**Table A.2-26**  
**Planning Area 5A**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
2034	10.19	3.13	23.32	0.05	0.09	0.09
2035	9.88	1.84	11.60	0.03	0.05	0.05
Maximum Annual Emissions	10.19	3.13	23.32	0.05	0.09	0.09
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	No	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-27, Planning Area 5A Estimated Maximum Daily Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2032, 2033, 2034, and 2035 from on-site and off-site emission sources.

**Table A.2-27**  
**Planning Area 5A**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Unmitigated</i>						
2032	82.70	44.38	127.01	0.31	1.51	1.49
2033	84.11	49.19	147.92	0.38	1.64	1.62
2034	85.27	54.14	166.31	0.43	1.78	1.75
2035	78.67	26.36	98.27	0.24	0.69	0.67
Maximum Daily Emissions	85.27	54.14	166.31	0.43	1.78	1.75
<i>Mitigated</i>						
2032	77.05	19.06	144.21	0.31	0.53	0.51
2033	77.94	21.63	166.56	0.38	0.61	0.59
2034	78.57	24.36	186.38	0.43	0.69	0.67
2035	76.01	15.02	104.67	0.24	0.42	0.4
Maximum Daily Emissions	78.57	24.36	186.38	0.43	0.69	0.67

Notes: See Appendix B for detailed results.

## APPENDIX A (Continued)

### Planning Area 6C

Table A.2-28, Planning Area 6C Construction Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for construction of this Planning Area.

**Table A.2-28**  
**Planning Area 6C**  
**Construction Analysis Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet
Industrial	User Defined Industrial	1	User Defined Unit	190	0
Parking	Other Asphalt Surfaces	3	Acre	3	130680

Notes: See Appendix B

Table A.2-29, Planning Area 6C Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2033 from on-site and off-site emission sources.

**Table A.2-29**  
**Planning Area 6C**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
<i>Unmitigated</i>						
2033	1.37	2.89	7.52	0.02	0.11	0.11
Maximum Annual Emissions	1.37	2.89	7.52	0.02	0.11	0.11
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	No	No	No	No	No	No
<i>Mitigated</i>						
2033	0.90	0.86	9.06	0.02	0.03	0.03
Maximum Annual Emissions	0.90	0.86	9.06	0.02	0.03	0.03
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-30, Planning Area 6C Estimated Maximum Daily Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2033 from on-site and off-site emission sources.

## APPENDIX A (Continued)

**Table A.2-30**  
**Planning Area 6C**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Unmitigated</i>						
2033	15.99	29.77	78.84	0.18	1.13	1.13
Maximum Daily Emissions	15.99	29.77	78.84	0.18	1.13	1.13
<i>Mitigated</i>						
2033	11.15	8.83	94.55	0.18	0.26	0.26
Maximum Daily Emissions	11.15	8.83	94.55	0.18	0.26	0.26

Notes: See Appendix B for detailed results.

Table A.2-31, Planning Area 6C Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for the 2033 from on-site and off-site emission sources.

**Table A.2-31**  
**Planning Area 6C**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2033	1,490.47	0.06	0.00	1,491.63
Total	1,490.47	0.06	0.00	1,491.63
<i>Mitigated</i>				
2033	1,490.47	0.06	0.00	1,491.63
Total	1,490.47	0.06	0.00	1,491.63

Notes: See Appendix B for detailed results.

### Planning Area 6D

Table A.2-32, Planning Area 6D Construction Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for construction of this Planning Area.

## APPENDIX A (Continued)

**Table A.2-32**  
**Planning Area 6D**  
**Construction Analysis Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet
Industrial	User Defined Industrial	1	User Defined Unit	173	0
Parking	Other Asphalt Surfaces	4	Acre	4	174240

Notes: See Appendix B

Table A.2-33, Planning Area 6D Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2034 and 2035 from on-site and off-site emission sources.

**Table A.2-33**  
**Planning Area 6D**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
<i>Unmitigated</i>						
2034	0.94	2.63	5.95	0.02	0.1	0.1
2035	1.15	1.78	6.77	0.02	0.06	0.06
Maximum Annual Emissions	1.15	2.63	6.77	0.02	0.1	0.1
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No
<i>Mitigated</i>						
2034	0.50	0.77	7.56	0.02	0.02	0.02
2035	0.82	0.76	8.07	0.02	0.02	0.02
Maximum Annual Emissions	0.82	0.77	8.07	0.02	0.02	0.02
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-34, Planning Area 6D Estimated Maximum Daily Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2034 and 2035 from on-site and off-site emission sources.

## APPENDIX A (Continued)

**Table A.2-34**  
**Planning Area 6D**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Unmitigated</i>						
2034	10.40	23.43	56.84	0.14	0.85	0.85
2035	10.26	17.92	63.43	0.15	0.6	0.59
Maximum Daily Emissions	10.40	23.43	63.43	0.15	0.85	0.85
<i>Mitigated</i>						
2034	6.58	6.96	70.04	0.14	0.21	0.21
2035	6.75	7.57	78.87	0.15	0.23	0.23
Maximum Daily Emissions	6.75	7.57	78.87	0.15	0.23	0.23

Notes: See Appendix B for detailed results.

Table A.2-35, Planning Area 6D Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for the 2034 and 2035 from on-site and off-site emission sources.

**Table A.2-35**  
**Planning Area 6D**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2034	1,358.09	0.05	0.00	1,359.16
2035	1,324.82	0.04	0.00	1,325.71
Total	2,682.91	0.09	0.00	2,684.86
<i>Mitigated</i>				
2034	1,358.09	0.05	0.00	1,359.16
2035	1,324.82	0.04	0.00	1,325.71
Total	2,682.91	0.09	0.00	2,684.86

Notes: See Appendix B for detailed results.

### Planning Area 6E

Table A.2-36, Planning Area 6E Construction Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for construction of this Planning Area.

## APPENDIX A (Continued)

**Table A.2-36**  
**Planning Area 6E**  
**Construction Analysis Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet
Industrial	User Defined Industrial	100	User Defined Unit	0	0
Parking	Other Asphalt Surfaces	4	Acre	4	174240

Notes: See Appendix B

Table A.2-37, Planning Area 6E Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2034 and 2035 from on-site and off-site emission sources.

**Table A.2-37**  
**Planning Area 6E**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
<i>Unmitigated</i>						
2034	1.12	2.63	5.95	0.02	0.1	0.1
2035	1.50	1.78	6.77	0.02	0.06	0.06
Maximum Annual Emissions	1.50	2.63	6.77	0.02	0.1	0.1
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	No	No	No	No	No	No
<i>Mitigated</i>						
2034	0.68	0.77	7.56	0.02	0.02	0.02
2035	1.17	0.76	8.07	0.02	0.02	0.02
Maximum Annual Emissions	1.17	0.77	8.07	0.02	0.02	0.02
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-38, Planning Area 6E Estimated Maximum Daily Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2034 and 2035 from on-site and off-site emission sources.

## APPENDIX A (Continued)

**Table A.2-38**  
**Planning Area 6E**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Unmitigated</i>						
2034	13.08	23.43	56.84	0.14	0.85	0.85
2035	12.93	17.92	63.43	0.15	0.6	0.59
Maximum Daily Emissions	13.08	23.43	63.43	0.15	0.85	0.85
<i>Mitigated</i>						
2034	9.26	6.96	70.05	0.14	0.21	0.21
2035	9.41	7.57	78.87	0.15	0.23	0.23
Maximum Daily Emissions	9.41	7.57	78.87	0.15	0.23	0.23

Notes: See Appendix B for detailed results.

Table A.2-39, Planning Area 6E Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for the 2034 and 2035 from on-site and off-site emission sources.

**Table A.2-39**  
**Planning Area 6E**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2034	1,358.09	0.05	0.00	1,359.16
2035	1,324.82	0.04	0.00	1,325.71
Total	2,682.91	0.09	0.00	2,684.86
<i>Mitigated</i>				
2034	1,358.09	0.05	0.00	1,359.16
2035	1,324.82	0.04	0.00	1,325.71
Total	2,682.91	0.09	0.00	2,684.86

Notes: See Appendix B for detailed results.

### Planning Area 5B

Table A.2-40, Planning Area 5B Construction Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for construction of this Planning Area.

## APPENDIX A (Continued)

**Table A.2-40**  
**Planning Area 5B**  
**Construction Analysis Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet
Parking	Other Asphalt Surfaces	10	Acre	10	435,600
Residential	Single Family Housing	35	Dwelling Unit	93	63,000

Notes: See Appendix B

Table A.2-41, Planning Area 5B Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2035 from on-site and off-site emission sources.

**Table A.2-41**  
**Planning Area 6C**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
<i>Unmitigated</i>						
2035	1.37	2.89	7.52	0.02	0.11	0.11
Maximum Annual Emissions	1.37	2.89	7.52	0.02	0.11	0.11
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No
<i>Mitigated</i>						
2035	0.90	0.86	9.06	0.02	0.03	0.03
Maximum Annual Emissions	0.90	0.86	9.06	0.02	0.03	0.03
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-42, Planning Area 5B Estimated Maximum Daily Construction Criteria Air Pollutant Emissions, presents construction emissions for the 2035 from on-site and off-site emission sources.



## APPENDIX A (Continued)

**Table A.2-42**  
**Planning Area 5B**  
**Estimated Maximum Daily Construction Criteria Air Pollutant Emissions**

Year	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> Exhaust (pounds/day)	PM <sub>2.5</sub> Exhaust (pounds/day)
<i>Unmitigated</i>						
2035	15.99	29.77	78.84	0.18	1.13	1.13
Maximum Daily Emissions	15.99	29.77	78.84	0.18	1.13	1.13
<i>Mitigated</i>						
2035	11.15	8.83	94.55	0.18	0.26	0.26
Maximum Daily Emissions	11.15	8.83	94.55	0.18	0.26	0.26

Notes: See Appendix B for detailed results.

Table A.2-43, Planning Area 5B Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for the 2035 from on-site and off-site emission sources.

**Table A.2-43**  
**Planning Area 5B**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2035	566.55	0.02	0.00	566.93
Total	566.55	0.02	0.00	566.93
<i>Mitigated</i>				
2035	566.55	0.02	0.00	566.93
Total	566.55	0.02	0.00	566.93

Notes: See Appendix B for detailed results.

## Transportation Improvements

Table A.2-44 presents the construction assumptions for the transportation improvement alternatives.

**Table A.2-44**  
**Transportation Improvements – Construction Assumptions**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
I-5/Grapevine Road Interchange Alt 1 North	15.5	Acre	15.5
I-5/Grapevine Road Interchange Alt 2 South	28.0	Acre	28.0

## APPENDIX A (Continued)

**Table A.2-44**  
**Transportation Improvements – Construction Assumptions**

Land Use Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage
I-5/Grapevine Road Interchange Alt 3 Existing Interchange	41.5	Acre	41.5
I-5/Grapevine Road Interchange Demolition	3.8	Acre	3.8
I-5/Grapevine Overpass Alts 1 and 2	4.0	Acre	4.0
Weight Station Relocation	525.7	1,000 sq ft	12.1

Notes: See Appendix B

### Interchange Alternative 1 North

Table A.2-45, Interchange Alternative 1 North Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for 2018 and 2019.

**Table A.2-45**  
**Interchange Alternative 1 North**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
2018	0.43	4.78	3.12	0.00	0.21	0.2
2019	0.43	3.65	2.98	0.00	0.17	0.15
Maximum Annual Emissions	0.43	4.78	3.12	0.00	0.21	0.2
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	No	No	No	No	No	No
<i>Mitigated</i>						
2018	0.43	4.78	3.12	0.00	0.21	0.2
2019	0.43	3.65	2.98	0.00	0.17	0.15
Maximum Annual Emissions	0.43	4.78	3.12	0.00	0.21	0.2
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-46, Interchange Alternative 1 North Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for 2018 and 2019.

## APPENDIX A (Continued)

**Table A.2-46**  
**Interchange Alternative 1 North**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2017	492.91	0.13	0.00	495.56
2018	519.97	0.13	0.00	522.72
Total	519.97	0.13	0.00	522.72
<i>Mitigated</i>				
2017	492.91	0.13	0.00	495.56
2018	519.97	0.13	0.00	522.72
Total	519.97	0.13	0.00	522.72

Notes: See Appendix B for detailed results.

### Interchange Alternative 2 South

Table A.2-47, Interchange Alternative 2 South Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for 2017 and 2018.

**Table A.2-47**  
**Interchange Alternative 2 South**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
2017	1.07	11.42	7.13	0.01	0.56	0.52
2018	0.63	4.32	3.94	0.00	0.21	0.19
Maximum Annual Emissions	1.07	11.42	7.13	0.01	0.56	0.52
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	Yes	No	No	No	No
<i>Mitigated</i>						
2019	1.07	11.42	7.13	0.01	0.56	0.52
2020	0.63	4.32	3.94	0.00	0.21	0.19
Maximum Annual Emissions	1.07	11.42	7.13	0.01	0.56	0.52
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	Yes	No	No	No	No

Notes: See Appendix B for detailed results.

## APPENDIX A (Continued)

Table A.2-48, Interchange Alternative 2 South Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for 2017 and 2018.

**Table A.2-48**  
**Interchange Alternative 2 South**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2017	1,109.38	0.28	0.00	1,115.25
2018	597.91	0.15	0.00	601.10
Total	1,109.38	0.28	0.00	1,115.25
<i>Mitigated</i>				
2017	1,109.38	0.28	0.00	1,115.25
2018	597.91	0.15	0.00	601.10
Total	1,109.38	0.28	0.00	1,115.25

Notes: See Appendix B for detailed results.

### Interchange Alternative 3 Existing

Table A.2-49, Interchange Alternative 3 Existing Interchange Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions for 2017, 2018, 2019, and 2020.

**Table A.2-49**  
**Interchange Alternative 3 Existing Interchange**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
2017	1.32	15.05	11.60	0.03	0.55	0.51
2018	0.67	6.58	4.56	0.00	0.35	0.32
2019	0.55	2.71	2.84	0.00	0.13	0.12
2020	0.08	0.22	0.30	0.00	0.01	0.01
Maximum Annual Emissions	1.32	15.05	11.60	0.03	0.55	0.51
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	Yes	No	No	No	No
<i>Mitigated</i>						
2017	1.32	15.05	11.60	0.03	0.55	0.51
2018	0.67	6.58	4.56	0.00	0.35	0.32

## APPENDIX A (Continued)

**Table A.2-49**  
**Interchange Alternative 3 Existing Interchange**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
2019	0.55	2.71	2.84	0.00	0.13	0.12
2020	0.08	0.22	0.30	0.00	0.01	0.01
Maximum Annual Emissions	1.32	15.05	11.60	0.03	0.55	0.51
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	No	Yes	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-50, Interchange Alternative 3 Existing Interchange Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions for 2017, 2018, 2019, and 2020.

**Table A.2-50**  
**Interchange Alternative 3 Existing Interchange**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2017	2,456.58	0.23	0.00	2,461.33
2018	782.35	0.20	0.00	786.62
2019	433.83	0.09	0.00	435.82
2020	46.71	0.01	0.00	46.88
Total	3,719.47	0.53	0.00	3,730.65
<i>Mitigated</i>				
2017	2,456.58	0.23	0.00	2,461.33
2018	782.35	0.20	0.00	786.62
2019	433.83	0.09	0.00	435.82
2020	46.71	0.01	0.00	46.88
Total	3,719.47	0.53	0.00	3,730.65

Notes: See Appendix B for detailed results.

### Freeway Overpass

Table A.2-51, Freeway Overpass Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions in 2017.

## APPENDIX A (Continued)

**Table A.2-51**  
**Freeway Overpass**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
2017	0.48	5.19	3.3	0.01	0.24	0.22
Maximum Annual Emissions	0.48	5.19	3.3	0.01	0.24	0.22
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No
<i>Mitigated</i>						
2017	0.48	5.19	3.3	0.01	0.24	0.22
Maximum Annual Emissions	0.48	5.19	3.3	0.01	0.24	0.22
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-52, Freeway Overpass Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions in 2017.

**Table A.2-52**  
**Freeway Overpass**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2017	574.66	0.13	0.00	577.39
Total	574.66	0.13	0.00	577.39
<i>Mitigated</i>				
2017	574.66	0.13	0.00	577.39
Total	574.66	0.13	0.00	577.39

Notes: See Appendix B for detailed results.

### Interchange Demolition

Table A.2-53, Interchange Demolition Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions in 2019 and 2020.

## APPENDIX A (Continued)

**Table A.2-53**  
**Interchange Demolition**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
2019	0.08	0.82	0.77	0.00	0.04	0.04
2020	0.13	1.39	1.02	0.00	0.07	0.06
Maximum Annual Emissions	0.13	1.39	1.02	0.00	0.07	0.06
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No
<i>Mitigated</i>						
2019	0.08	0.82	0.77	0.00	0.04	0.04
2020	0.13	1.39	1.02	0.00	0.07	0.06
Maximum Annual Emissions	0.13	1.39	1.02	0.00	0.07	0.06
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-54, Interchange Demolition Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions in 2019 and 2020.

**Table A.2-54**  
**Interchange Demolition**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2019	105.56	0.02	0.00	106.01
2020	142.17	0.05	0.00	143.11
Total	247.73	0.07	0.00	249.12
<i>Mitigated</i>				
2019	105.56	0.02	0.00	106.01
2020	142.17	0.05	0.00	143.11
Total	247.73	0.07	0.00	249.12

Notes: See Appendix B for detailed results.

## APPENDIX A (Continued)

### Weigh Station

Table A.2-55, Weigh Station Estimated Annual Construction Criteria Air Pollutant Emissions, presents construction emissions in 2017 and 2018.

**Table A.2-55**  
**Weigh Station**  
**Estimated Annual Construction Criteria Air Pollutant Emissions**

Year	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
2017	0.27	2.31	2.18	0.00	0.13	0.12
2018	0.28	2.49	2.48	0.00	0.13	0.12
Maximum Annual Emissions	0.28	2.49	2.48	0.00	0.13	0.12
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No
<i>Mitigated</i>						
2017	0.27	2.31	2.18	0.00	0.13	0.12
2018	0.28	2.49	2.48	0.00	0.13	0.12
Maximum Annual Emissions	0.28	2.49	2.48	0.00	0.13	0.12
<i>SJVAPCD Threshold</i>	10	10	100	27	15	15
Threshold Exceeded?	No	No	No	No	No	No

Notes: See Appendix B for detailed results.

Table A.2-56, Weigh Station Estimated Annual Construction Greenhouse Gas Emissions, presents construction emissions in 2017 and 2018.

**Table A.2-56**  
**Weigh Station**  
**Estimated Annual Construction Greenhouse Gas Emissions**

Year	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
2017	324.21	0.6	0.00	325.51
2018	385.42	0.06	0.00	386.72
Total	709.63	0.66	0.00	712.23
<i>Mitigated</i>				
2017	324.21	0.6	0.00	325.51
2018	385.42	0.06	0.00	386.72
Total	709.63	0.66	0.00	712.23

Notes: See Appendix B for detailed results.



## APPENDIX A (Continued)

### A.3 OPERATIONAL ASSUMPTIONS AND EMISSIONS TABLES

#### Operational Modeling Assumptions and Estimated Emissions by Planning Area

##### Operational Year 2019

Table A.3-1, Operational Year 2019 Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for this operational year.

**Table A.3-1  
Operational Year 2019  
Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
Commercial	Bank (with Drive-Through)	8	1,000 sq ft	0.74	8,000	0
Commercial	General Office Building	242	1,000 sq ft	22.3	242,000	0
Commercial	Pharmacy/Drugstore w/o Drive Thru	5	1,000 sq ft	0.46	5,000	0
Commercial	Research & Development	81	1,000 sq ft	6.3	81,000	0
Educational	Elementary School	994	Student	5	83,101.75	0
Educational	Junior College (2 year)	350	1,000 sq ft	27.25	350,000	0
Industrial	General Heavy Industry	52.5	1,000 sq ft	4.09	52,500	0
Industrial	General Light Industry	105	1,000 sq ft	8.18	105,000	0
Industrial	Industrial Park	525	1,000 sq ft	40.88	525,000	0
Industrial	Manufacturing	52.5	1,000 sq ft	4.09	52,500	0
Industrial	Refrigerated Warehouse-No Rail	105	1,000 sq ft	8.18	105,000	0
Industrial	Unrefrigerated Warehouse-No Rail	210	1,000 sq ft	16.35	210,000	0
Parking	Other Asphalt Surfaces	59	Acre	59	2,570,040	0
Recreational	City Park	5	Acre	5	217,800	0
Recreational	Fast Food Restaurant with Drive Thru	4	1,000 sq ft	0.53	4,000	0
Recreational	High Turnover (Sit Down Restaurant)	8	1,000 sq ft	1.07	8,000	0
Residential	Apartments Low Rise	750	Dwelling Unit	75	750,000	2,145
Residential	Single Family Housing	585	Dwelling Unit	149	1,053,000	1,673
Retail	Convenience Market with Gas Pumps	3	1,000 sq ft	0.4	3,000	0
Retail	Regional Shopping Center	49	1,000 sq ft	6.53	49,000	0
Retail	Supermarket	20	1,000 sq ft	2.67	20,000	0

## APPENDIX A (Continued)

Table A.3-2, Operational Year 2019 Estimated Annual Operational Criteria Air Pollutant Emissions, presents annual operational emissions in the year 2019, which includes full buildout and associated operational emissions of Planning Area 6A.

**Table A.3-2**  
**Operational Year 2019**  
**Estimated Annual Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
Area	28.80	0.12	9.99	0.00	0.10	0.09
Energy	0.30	2.66	1.78	0.02	0.21	0.21
Mobile	22.00	132.13	289.16	0.88	45.24	13.65
<b>Total Annual Emissions</b>	<b>51.10</b>	<b>134.91</b>	<b>300.93</b>	<b>0.90</b>	<b>45.55</b>	<b>13.95</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	No
<i>Mitigated</i>						
Area	28.80	0.12	9.99	0.00	0.10	0.09
Energy	0.24	2.09	1.39	0.01	0.16	0.16
Mobile	22.0	132.13	289.16	0.88	45.24	13.65
<b>Total Annual Emissions</b>	<b>51.04</b>	<b>134.34</b>	<b>300.54</b>	<b>0.89</b>	<b>45.5</b>	<b>13.9</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	No

Notes: See Appendix C for detailed results.

Table A.3-3, Operational Year 2019 Estimated Maximum Daily Operational Criteria Air Pollutant Emissions, presents maximum daily operational emissions in the year 2019, which includes full buildout and associated operational emissions of Planning Area 6A.

**Table A.3-3**  
**Operational Year 2019**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
<i>Unmitigated</i>						
Area	170.96	1.28	11.06	5.84 e-003	1.59	1.58
Energy	1.64	14.57	9.76	0.09	1.14	1.14
Mobile	149.86	885.39	2,118.28	6.05	299.94	90.22
<b>Maximum Daily Emissions</b>	<b>322.46</b>	<b>901.24</b>	<b>2,139.1</b>	<b>6.14</b>	<b>302.67</b>	<b>92.94</b>
<i>Mitigated</i>						
Area	170.96	1.28	111.06	5.84 e-003	1.59	1.58

## APPENDIX A (Continued)

**Table A.3-3**  
**Operational Year 2019**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
Energy	1.29	11.43	7.60	0.07	0.89	0.89
Mobile	149.86	885.39	2,118.28	6.05	299.94	90.22
Maximum Daily Emissions	322.11	898.1	2,236.94	6.12	302.42	92.69

Notes: See Appendix C for detailed results.

Table A.3-4, Operational Year 2019 Estimated Annual Operational Greenhouse Gas Emissions, presents annual operational emissions in the year 2019, which includes full buildout and associated operational emissions of Planning Area 6A.

**Table A.3-4**  
**Operational Year 2019**  
**Estimated Annual Operational Project Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
Area	549.58	0.03	0.01	598.43
Energy	9,778.13	0.41	0.13	9,826.26
Mobile	68,802.09	1.61	0.00	68,835.99
Water Supply and Wastewater	209.68	0.01	0.00	210.60
Solid Waste	699.01	41.31	0.00	1,566.52
Stationary	-	-	-	12,300
<b>Total</b>	<b>80,038.49</b>	<b>43.37</b>	<b>0.14</b>	<b>93,337.80</b>
<i>Mitigated</i>				
Area	549.58	0.03	0.01	598.43
Energy	8,862.22	0.38	0.11	8,905.24
Mobile	68,802.09	1.61	0.00	68,835.99
Water Supply and Wastewater	209.68	0.01	0	210.6
Solid Waste	174.75	10.33	0	391.63
Stationary	-	-	-	12,300
<b>Total</b>	<b>78,598.32</b>	<b>12.36</b>	<b>0.12</b>	<b>91,241.89</b>

Notes: See Appendix C for detailed results.

Table A.3-5, Operational Year 2019 Project and BAU Estimated Annual Water Consumption and Associated Greenhouse Gas Emissions, presents the total mitigated water consumption and GHGs from operation of Planning Area 6A.

## APPENDIX A (Continued)

**Table A.3-5**  
**Operational Year 2019**  
**Project and BAU Estimated Annual Water Consumption and Associated Greenhouse Gas Emissions**

Water Consumption (MG/yr)					
<i>Planning Area</i>	<i>Potable Water - Indoor</i>	<i>Potable Water - Outdoor</i>	<i>Recycled Water - Outdoor</i>	<i>Treatment &amp; Distribution Loses</i>	<i>Total</i>
6A	95.80	46.60	81.46	19.55	243.41
Total	95.80	46.60	81.46	19.55	243.41
GHG Emissions (MT/yr)					
<i>Planning Area</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>E</i>	
6A	209.68	0.01	0.00	210.60	
Total	209.68	0.01	0.00	210.60	

Notes: See Appendix C for detailed results.

### Operational Year 2023

Table A.3-6, Operational Year 2023 Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for this operational year.

**Table A.3-6**  
**Operational Year 2023**  
**Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
Commercial	Bank (with Drive-Through)	16	1,000 sq ft	1.46	16,000	0
Commercial	General Office Building	680.8	1,000 sq ft	61.68	680,800	0
Commercial	Medical Office Building	300	1,000 sq ft	22.69	300,000	0
Commercial	Pharmacy/Drugstore w/o Drive Thru	13	1,000 sq ft	1.18	13,000	0
Commercial	Research & Development	225	1,000 sq ft	17.19	225,000	0
Educational	Elementary School	1,988	Student	10	166,203.5	0
Educational	High School	1,500	Student	5	198,991.47	0
Educational	Junior College (2 year)	350	1,000 sq ft	27.25	350,000	0
Educational	Junior High School	840	Student	20	98,751.81	0
Industrial	General Heavy Industry	52.5	1,000 sq ft	4.09	52,500	0
Industrial	General Light Industry	105	1,000 sq ft	8.18	105,000	0
Industrial	Industrial Park	525	1,000 sq ft	40.88	525,000	0
Industrial	Manufacturing	52.5	1,000 sq ft	4.09	52,500	0
Industrial	Refrigerated Warehouse-No Rail	105	1,000 sq ft	8.18	105,000	0

## APPENDIX A (Continued)

**Table A.3-6**  
**Operational Year 2023**  
**Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
Industrial	Unrefrigerated Warehouse-No Rail	210	1,000 sq ft	16.35	210,000	0
Parking	Other Asphalt Surfaces	151	Acre	151	6,577,560	0
Recreational	City Park	63	Acre	63	2,744,280	0
Recreational	Fast Food Restaurant with Drive Thru	12	1,000 sq ft	1.57	12,000	0
Recreational	High Turnover (Sit Down Restaurant)	16	1,000 sq ft	2.1	16,000	0
Residential	Apartments Low Rise	1,730	Dwelling Unit	173	1,730,000	4,948
Residential	Single Family Housing	2,365	Dwelling Unit	604	4,257,000	6,764
Retail	Convenience Market with Gas Pumps	9	1,000 sq ft	1.17	9,000	0
Retail	Regional Shopping Center	328.2	1,000 sq ft	42.55	328,200	0
Retail	Supermarket	80	1,000 sq ft	10.41	80,000	0

Table A.3-7, Operational Year 2023 Estimated Annual Operational Criteria Air Pollutant Emissions, presents annual operational emissions in the year 2023, which includes full buildout and associated operational emissions of Planning Area 6A and Planning Area 2.

**Table A.3-7**  
**Operational Year 2023**  
**Estimated Annual Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
Area	83.01	0.35	30.49	0.00	0.29	0.29
Energy	0.70	6.12	3.63	0.04	0.48	0.48
Mobile	57.20	244.33	749.71	2.74	139.95	41.73
Total Annual Emissions	140.91	250.79	783.83	2.78	140.72	42.50
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes
<i>Mitigated</i>						
Area	83.01	0.35	30.49	0.00	0.29	0.29

## APPENDIX A (Continued)

**Table A.3-7**  
**Operational Year 2023**  
**Estimated Annual Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
Energy	0.56	4.86	2.87	0.03	0.38	0.38
Mobile	57.2	244.33	749.71	2.74	139.95	41.73
<b>Total Annual Emissions</b>	<b>140.77</b>	<b>249.54</b>	<b>783.07</b>	<b>2.77</b>	<b>140.62</b>	<b>42.4</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes

Notes: See Appendix C for detailed results.

Table A.3-8, Operational Year 2023 Estimated Maximum Daily Operational Criteria Air Pollutant Emissions, presents maximum daily operational emissions in the year 2023, which includes full buildout and associated operational emissions of Planning Area 6A and Planning Area 2.

**Table A.3-8**  
**Operational Year 2023**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
<i>Unmitigated</i>						
Area	497.88	3.90	338.93	0.02	4.89	4.86
Energy	3.83	33.51	19.90	0.21	2.64	2.64
Mobile	390.27	1,640.31	5,512.57	18.76	927.30	275.70
<b>Maximum Daily Emissions</b>	<b>891.98</b>	<b>1,677.72</b>	<b>5,871.4</b>	<b>18.99</b>	<b>934.83</b>	<b>283.2</b>
<i>Mitigated</i>						
Area	497.88	3.90	338.93	0.02	4.89	4.86
Energy	3.04	26.63	15.70	0.17	2.10	2.10
Mobile	390.27	1,640.31	5,512.57	18.76	927.3	275.7
<b>Maximum Daily Emissions</b>	<b>891.19</b>	<b>1,670.84</b>	<b>5,867.2</b>	<b>18.95</b>	<b>934.29</b>	<b>282.66</b>

Notes: See Appendix C for detailed results.

Table A.3-9, Operational Year 2023 Estimated Annual Operational Greenhouse Gas Emissions, presents annual operational emissions in the year 2023, which includes full buildout and associated operational emissions of Planning Area 6A and Planning Area 2.

## APPENDIX A (Continued)

**Table A.3-9**  
**Operational Year 2023**  
**Estimated Annual Operational Project Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
Area	1,823.79	0.08	0.03	1,835.59
Energy	20,533.63	0.92	0.29	20,663.11
Mobile	203,632.60	4.20	0.00	203,720.72
Water Supply and Wastewater	647.75	0.04	0.01	650.95
Solid Waste	2,257.78	133.43	0.00	5,059.83
Stationary	-	-	-	12,300
<b>Total</b>	<b>228,895.55</b>	<b>138.67</b>	<b>0.33</b>	<b>244,230.20</b>
<i>Mitigated</i>				
Area	1,832.79	0.08	0.03	1,835.59
Energy	18,598.80	0.87	0.26	18,697.00
Mobile	203,632.60	4.20	0.00	203,720.72
Water Supply and Wastewater	647.75	0.04	0.01	650.95
Solid Waste	564.46	33.36	0	1,264.96
Stationary	-	-	-	12,300
<b>Total</b>	<b>225,276.40</b>	<b>38.55</b>	<b>0.30</b>	<b>238,469.22</b>

Notes: See Appendix C for detailed results.

Table A.3-10, Operational Year 2023 Project and BAU Estimated Annual Water Consumption and Associated Greenhouse Gas Emissions, presents the total mitigated water consumption and GHGs from operation of Planning Areas 6A and 2.

**Table A.3-10**  
**Operational Year 2023**  
**Project and BAU Estimated Annual Water Consumption**  
**and Associated Greenhouse Gas Emissions**

Water Consumption (MG/yr)					
Planning Area	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
6A	95.80	46.60	81.46	19.55	243.41
2	209.20	163.90	177.59	47.25	597.94
<b>Total</b>	<b>305.00</b>	<b>210.50</b>	<b>259.05</b>	<b>66.80</b>	<b>841.35</b>

## APPENDIX A (Continued)

**Table A.3-10**  
**Operational Year 2023**  
**Project and BAU Estimated Annual Water Consumption**  
**and Associated Greenhouse Gas Emissions**

GHG Emissions (MT/yr)				
Planning Area	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> E
6A	187.31	0.01	0.00	188.24
2	460.43	0.03	0.01	462.71
Total	647.75	0.04	0.01	650.95

Notes: See Appendix C for detailed results.

### Operational Year 2025

Table A.3-11, Operational Year 2025 Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for this operational year.

**Table A.3-11**  
**Operational Year 2025**  
**Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
Commercial	Bank (with Drive-Through)	20	1,000 sq ft	1.77	20,000	0
Commercial	General Office Building	978.8	1,000 sq ft	85.44	978,800	0
Commercial	Medical Office Building	300	1,000 sq ft	22.69	300,000	0
Commercial	Pharmacy/Drugstore w/o Drive Thru	13	1,000 sq ft	1.18	13,000	0
Commercial	Research & Development	345	1,000 sq ft	26.19	345,000	0
Educational	Elementary School	1988	Student	10	166,203.5	0
Educational	High School	1500	Student	5	198,991.47	0
Educational	Junior College (2 year)	350	1,000 sq ft	27.25	350,000	0
Educational	Junior High School	840	Student	20	98,751.81	0
Industrial	General Heavy Industry	52.5	1,000 sq ft	4.09	52,500	0
Industrial	General Light Industry	105	1,000 sq ft	8.18	105,000	0
Industrial	Industrial Park	525	1,000 sq ft	40.88	525,000	0
Industrial	Manufacturing	52.5	1,000 sq ft	4.09	52,500	0
Industrial	Refrigerated Warehouse-No Rail	105	1,000 sq ft	8.18	105,000	0
Industrial	Unrefrigerated Warehouse-No Rail	210	1,000 sq ft	16.35	210,000	0
Parking	Other Asphalt Surfaces	199	Acre	199	8,668,440	0
Recreational	City Park	63	Acre	63	2,744,280	0
Recreational	Fast Food Restaurant with	14.2	1,000 sq ft	1.87	14,200	0



## APPENDIX A (Continued)

**Table A.3-11**  
**Operational Year 2025**  
**Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
	Drive Thru					
Recreational	High Turnover (Sit Down Restaurant)	16	1,000 sq ft	2.1	16,000	0
Residential	Apartments Low Rise	1,960	Dwelling Unit	196	1,960,000	6,272
Residential	Single Family Housing	3,615	Dwelling Unit	925	6,507,000	11,568
Retail	Convenience Market with Gas Pumps	12	1,000 sq ft	1.59	12,000	0
Retail	Regional Shopping Center	341	1,000 sq ft	44.35	341,000	0
Retail	Supermarket	90	1,000 sq ft	11.81	90,000	0

Table A.3-12, Operational Year 2025 Estimated Annual Operational Criteria Air Pollutant Emissions, presents annual operational emissions in the year 2025, which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2 and Planning Area 1.

**Table A.3-12**  
**Operational Year 2025**  
**Estimated Annual Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
Area	105.69	0.48	41.44	0.00	0.40	0.40
Energy	0.91	7.92	4.53	0.05	0.63	0.63
Mobile	67.68	293.31	884.24	3.40	174.12	51.90
<b>Total Annual Emissions</b>	<b>174.28</b>	<b>301.71</b>	<b>930.21</b>	<b>3.45</b>	<b>175.15</b>	<b>52.93</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes
<i>Mitigated</i>						
Area	105.69	0.48	41.44	0.00	0.40	0.40
Energy	0.72	6.32	3.58	0.04	0.50	0.50
Mobile	67.68	293.31	884.24	3.4	174.12	51.9
<b>Total Annual Emissions</b>	<b>174.09</b>	<b>300.11</b>	<b>929.26</b>	<b>3.44</b>	<b>175.02</b>	<b>52.8</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes

Notes: See Appendix C for detailed results.

## APPENDIX A (Continued)

Table A.3-13, Operational Year 2025 Estimated Maximum Daily Operational Criteria Air Pollutant Emissions, presents maximum daily operational emissions in the year 2025, which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2 and Planning Area 1.

**Table A.3-13**  
**Operational Year 2025**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
<i>Unmitigated</i>						
Area	632.96	5.30	460.66	0.02	6.67	6.62
Energy	4.97	43.41	24.80	0.27	3.44	3.44
Mobile	457.36	1,949.67	6,448.28	23.10	1,143.32	339.83
Maximum Daily Emissions	1,095.29	1,998.38	6,933.74	23.39	1,153.43	349.89
<i>Mitigated</i>						
Area	632.96	5.30	460.66	0.02	6.67	6.62
Energy	3.97	34.61	19.62	0.22	2.74	2.74
Mobile	457.36	1,949.67	6,448.28	23.1	1,143.32	339.83
Maximum Daily Emissions	1,094.29	1,989.58	6,928.56	23.34	1,152.73	349.19

Notes: See Appendix C for detailed results.

Table A.3-14, Operational Year 2025 Estimated Annual Operational Greenhouse Gas Emissions, presents annual operational emissions in the year 2025, which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2 and Planning Area 1.

**Table A.3-14**  
**Operational Year 2025**  
**Estimated Annual Operational Project Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
Area	2,482.89	0.11	0.04	2,498.96
Energy	25,785.22	1.15	0.37	25,922.91
Mobile	250,549.08	4.94	0.00	250,652.81
Water Supply and Wastewater	859.37	0.05	0.01	863.61
Solid Waste	2,656.81	157.01	0.00	5,954.07
Stationary	-	-	-	12,300
<b>Total</b>	<b>282,333.37</b>	<b>163.26</b>	<b>0.42</b>	<b>298,192.36</b>
<i>Mitigated</i>				

## APPENDIX A (Continued)

**Table A.3-14**  
**Operational Year 2025**  
**Estimated Annual Operational Project Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
Area	2,482.89	0.11	0.04	2,498.96
Energy	23,331.32	1.08	0.33	23,454.81
Mobile	250,549.08	4.94	0.00	250,652.81
Water Supply and Wastewater	859.37	0.05	0.01	863.61
Solid Waste	664.2	39.25	0	1,488.52
Stationary	-	-	-	12,300
<b>Total</b>	<b>277,886.86</b>	<b>45.43</b>	<b>0.38</b>	<b>291,258.71</b>

Notes: See Appendix C for detailed results.

Table A.3-15, Operational Year 2025 Project and BAU Estimated Annual Water Consumption and Associated Greenhouse Gas Emissions, presents the total mitigated water consumption and GHGs from operation of Planning Areas 6A, 2, and 1.

**Table A.3-15**  
**Operational Year 2025**  
**Project and BAU Estimated Annual Water Consumption**  
**and Associated Greenhouse Gas Emissions**

Water Consumption (MG/yr)					
Planning Area	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
6A	95.80	46.60	81.46	19.55	243.41
2	209.20	163.90	177.59	47.25	597.94
1	93.52	79.51	79.51	22.81	275.34
<b>Total</b>	<b>398.52</b>	<b>290.01</b>	<b>338.56</b>	<b>89.61</b>	<b>1,116.69</b>
GHG Emissions (MT/yr)					
Planning Area	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> E	
6A	187.31	0.01	0.00	188.24	
2	460.43	0.03	0.01	462.71	
1	211.62	0.01	0.00	212.67	
<b>Total</b>	<b>859.37</b>	<b>0.05</b>	<b>0.01</b>	<b>863.61</b>	

Notes: See Appendix C for detailed results.

### Operational Year 2028

Table A.3-16, Operational Year 2028 Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for this operational year.

## APPENDIX A (Continued)

**Table A.3-16**  
**Operational Year 2028 Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
Commercial	Bank (with Drive-Through)	28	1,000 sq ft	2.45	28,000	0
Commercial	General Office Building	1,486.6	1,000 sq ft	128.27	1,486,600	0
Commercial	Government Office Building	6	1,000 sq ft	0.51	6,000	0
Commercial	Medical Office Building	300	1,000 sq ft	22.69	300,000	0
Commercial	Pharmacy/Drugstore w/o Drive Thru	21	1,000 sq ft	1.85	21,000	0
Commercial	Research & Development	540	1,000 sq ft	41.19	540,000	0
Educational	Elementary School	2,982	Student	15	249,305.25	0
Educational	High School	1,500	Student	5	198,991.47	0
Educational	Junior College (2 year)	350	1,000 sq ft	27.25	98,751.81	0
Educational	Junior High School	840	Student	20	350,000	0
Industrial	General Heavy Industry	52.5	1,000 sq ft	4.09	52,500	0
Industrial	General Light Industry	105	1,000 sq ft	8.18	525,000	0
Industrial	Industrial Park	525	1,000 sq ft	40.88	105,000	0
Industrial	Manufacturing	52.5	1,000 sq ft	4.09	210,000	0
Industrial	Refrigerated Warehouse-No Rail	105	1,000 sq ft	8.18	105,000	0
Industrial	Unrefrigerated Warehouse-No Rail	210	1,000 sq ft	16.35	52,500	0
Parking	Other Asphalt Surfaces	281	Acre	281	12,240,360	0
Recreational	City Park	68	Acre	68	2,962,080	0
Recreational	Fast Food Restaurant with Drive Thru	22.2	1,000 sq ft	2.89	22,200	0
Recreational	High Turnover (Sit Down Restaurant)	24	1,000 sq ft	3.11	24,000	0
Residential	Apartments Low Rise	2,690	Dwelling Unit	269	2,690,000	8,608
Residential	Single Family Housing	4,795	Dwelling Unit	1,227	8,631,000	15,344
Retail	Convenience Market with Gas Pumps	18	1,000 sq ft	2.35	18,000	0
Retail	Regional Shopping Center	894.2	1,000 sq ft	114.3	894,200	0
Retail	Supermarket	150	1,000 sq ft	19.39	150,000	0

Table A.3-17, Operational Year 2028 Estimated Annual Operational Criteria Air Pollutant Emissions, presents annual operational emissions in the year 2028, which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1 and Planning Area 3.

## APPENDIX A (Continued)

**Table A.3-17**  
**Operational Year 2028**  
**Estimated Annual Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
Area	141.17	0.64	55.54	0.00	0.53	0.53
Energy	1.16	10.08	5.62	0.06	0.80	0.80
Mobile	104.15	451.34	1,360.68	5.23	267.93	79.86
<b>Total Annual Emissions</b>	<b>246.48</b>	<b>462.06</b>	<b>1,421.94</b>	<b>5.29</b>	<b>269.26</b>	<b>81.19</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes
<i>Mitigated</i>						
Area	141.17	0.64	55.64	0.00	0.53	0.53
Energy	0.93	8.06	4.46	0.05	0.64	0.64
Mobile	104.15	451.34	1,360.68	5.23	267.93	79.86
<b>Total Annual Emissions</b>	<b>246.25</b>	<b>460.04</b>	<b>1,420.78</b>	<b>5.28</b>	<b>269.1</b>	<b>81.03</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes

Notes: See Appendix C for detailed results.

Table A.3-18, Operational Year 2028 Estimated Maximum Daily Operational Criteria Air Pollutant Emissions, presents maximum daily operational emissions in the year 2028, which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1 and Planning Area 3.

**Table A.3-18**  
**Operational Year 2028**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
<i>Unmitigated</i>						
Area	847.42	7.12	618.45	0.03	8.95	8.89
Energy	6.34	55.22	30.79	0.35	4.38	4.38
Mobile	708.30	3,019.37	9,986.14	35.77	1,770.61	526.28
<b>Maximum Daily Emissions</b>	<b>1,562.06</b>	<b>3,081.71</b>	<b>10,635.38</b>	<b>36.15</b>	<b>1,783.94</b>	<b>539.55</b>
<i>Mitigated</i>						
Area	847.42	7.12	618.45	0.03	8.95	8.89
Energy	5.07	44.14	24.45	0.28	3.50	3.50
Mobile	708.3	3,019.37	9,986.14	35.77	1,770.61	526.28
<b>Maximum Daily</b>	<b>1,560.79</b>	<b>3,070.63</b>	<b>10,629.04</b>	<b>36.08</b>	<b>1,783.06</b>	<b>538.67</b>

## APPENDIX A (Continued)

**Table A.3-18**  
**Operational Year 2028**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
Emissions						

Notes: See Appendix C for detailed results.

Table A.3-19, Operational Year 2028 Estimated Annual Operational Greenhouse Gas Emissions, presents annual operational emissions in the year 2028, which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1 and Planning Area 3.

**Table A.3-19**  
**Operational Year 2028**  
**Estimated Annual Operational Project Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
Area	3,333.53	0.15	0.06	3,355.10
Energy	33,118.62	1.48	0.47	33,295.37
Mobile	385,548.23	7.60	0.00	385,707.85
Water Supply and Wastewater	1,203.02	0.07	0.01	1,208.96
Solid Waste	3,377.47	199.60	0.00	7,569.12
Stationary	-	-	-	12,300
<b>Total</b>	<b>426,580.87</b>	<b>208.90</b>	<b>0.54</b>	<b>443,436.40</b>
<i>Mitigated</i>				
Area	3,333.53	0.15	0.06	3,355.10
Energy	30,011.80	1.39	0.42	30,170.57
Mobile	385,548.23	7.60	0.00	385,707.85
Water Supply and Wastewater	1,203.02	0.07	0.01	1,208.96
Solid Waste	844.37	49.9	0	1,892.28
Stationary	-	-	-	12,300
<b>Total</b>	<b>390,929.15</b>	<b>59.11</b>	<b>0.49</b>	<b>434,634.76</b>

Notes: See Appendix C for detailed results.

Table A.3-20, Year 2028 - Project and BAU Estimated Annual Water Consumption and Associated Greenhouse Gas Emissions, presents the total mitigated water consumption and GHGs from operation of Planning Areas 6A, 2, 1, and 3.

## APPENDIX A (Continued)

**Table A.3-20**  
**Operational Year 2028**  
**Project and BAU Estimated Annual Water Consumption**  
**and Associated Greenhouse Gas Emissions**

Water Consumption (MG/yr)					
Planning Area	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
6A	95.80	46.60	81.46	19.55	243.41
2	209.20	163.90	177.59	47.25	597.94
1	93.52	79.51	79.51	22.81	275.34
3	174.00	88.96	147.94	35.52	446.42
Total	572.52	378.96	486.50	125.13	1,563.11
GHG Emissions (MT/yr)					
Planning Area	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> E	
6A	187.31	0.01	0.00	188.24	
2	460.43	0.03	0.01	462.71	
1	211.62	0.01	0.00	212.67	
3	343.65	0.02	0.00	345.34	
Total	1,203.02	0.07	0.01	1,208.96	

Notes: See Appendix C for detailed results.

### Operational Year 2032

Table A.3-21, Operational Year 2032 Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for this operational year.

**Table A.3-21**  
**Operational Year 2032 Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
Commercial	Bank (with Drive-Through)	32	1,000 sq ft	2.95	32,000	0
Commercial	General Office Building	1,535.4	1,000 sq ft	134.37	1,535,400	0
Commercial	Government Office Building	6	1,000 sq ft	0.51	6,000	0
Commercial	Medical Office Building	300	1,000 sq ft	22.69	300,000	0
Commercial	Pharmacy/Drugstore w/o Drive Thru	21	1,000 sq ft	1.85	21,000	0
Commercial	Research & Development	540	1,000 sq ft	41.19	540,000	0
Educational	Elementary School	3,976	Student	20	332,407	0
Educational	High School	3,000	Student	10	397,982.93	0
Educational	Junior College (2 year)	350	1,000 sq ft	27.25	350,000	0
Educational	Junior High School	1,680	Student	40	197,503.63	0
Industrial	General Heavy Industry	52.5	1,000 sq ft	4.09	52,500	0

## APPENDIX A (Continued)

**Table A.3-21**  
**Operational Year 2032 Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
Industrial	General Light Industry	105	1,000 sq ft	8.18	105,000	0
Industrial	Industrial Park	525	1,000 sq ft	40.88	525,000	0
Industrial	Manufacturing	52.5	1,000 sq ft	4.09	52,500	0
Industrial	Refrigerated Warehouse-No Rail	105	1,000 sq ft	8.18	105,000	0
Industrial	Unrefrigerated Warehouse-No Rail	210	1,000 sq ft	16.35	210,000	0
Parking	Other Asphalt Surfaces	355	Acre	355	15,463,800	0
Recreational	City Park	126	Acre	126	5,488,560	0
Recreational	Fast Food Restaurant with Drive Thru	24.4	1,000 sq ft	3.16	24,400	0
Recreational	High Turnover (Sit Down Restaurant)	24	1,000 sq ft	3.11	24,000	0
Residential	Apartments Low Rise	3,260	Dwelling Unit	326	3,260,000	10,432
Residential	Single Family Housing	6,645	Dwelling Unit	1700	11,961,000	21,264
Retail	Convenience Market with Gas Pumps	20.5	1,000 sq ft	2.67	20,500	0
Retail	Regional Shopping Center	936.7	1,000 sq ft	119.61	936,700	0
Retail	Supermarket	170	1,000 sq ft	21.89	170,000	0

Table A.3-22, Operational Year 2032 Estimated Annual Operational Criteria Air Pollutant Emissions, presents annual operational emissions in the year 2032, which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1, Planning Area 3 and Planning Area 4.

**Table A.3-22**  
**Operational Year 2032**  
**Estimated Annual Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
Area	185.58	0.85	73.50	0.00	0.71	0.70
Energy	1.49	12.98	7.08	0.08	1.03	1.03
Mobile	112.94	498.57	1,467.09	6.24	321.42	95.54
<b>Total Annual Emissions</b>	<b>300.01</b>	<b>512.40</b>	<b>1,547.67</b>	<b>6.32</b>	<b>323.16</b>	<b>97.27</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes
<i>Mitigated</i>						



## APPENDIX A (Continued)

**Table A.3-22**  
**Operational Year 2032**  
**Estimated Annual Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
Area	185.58	0.85	73.50	0.00	0.71	0.70
Energy	1.20	10.39	5.62	0.07	0.83	0.83
Mobile	112.94	498.57	1,467.09	6.24	321.42	95.54
<b>Total Annual Emissions</b>	<b>299.72</b>	<b>509.81</b>	<b>1,546.21</b>	<b>6.31</b>	<b>322.96</b>	<b>97.07</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes

Notes: See Appendix C for detailed results.

Table A.3-23, Operational Year 2032 Estimated Maximum Daily Operational Criteria Air Pollutant Emissions, presents maximum daily operational emissions in the year 2032, which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1, Planning Area 3 and Planning Area 4.

**Table A.3-23**  
**Operational Year 2032**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
<i>Unmitigated</i>						
Area	1,116.99	9.41	817.03	0.04	11.84	11.77
Energy	8.18	71.13	38.77	0.45	5.65	5.65
Mobile	764.59	3,305.88	10,613.33	42.36	2,108.17	624.89
<b>Maximum Daily Emissions</b>	<b>1,889.76</b>	<b>3,386.42</b>	<b>11,469.13</b>	<b>42.85</b>	<b>2,125.66</b>	<b>642.31</b>
<i>Mitigated</i>						
Area	1,116.99	9.41	817.03	0.04	11.84	11.77
Energy	6.55	56.92	30.81	0.36	4.53	4.53
Mobile	764.59	3,305.88	10,613.33	42.36	2,108.17	624.89
<b>Maximum Daily Emissions</b>	<b>1,888.13</b>	<b>3,372.21</b>	<b>11,461.17</b>	<b>42.76</b>	<b>2,124.54</b>	<b>641.19</b>

Notes: See Appendix C for detailed results.

Table A.3-24, Operational Year 2032 Estimated Annual Operational Greenhouse Gas Emissions, presents annual operational emissions in the year 2032, which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1, Planning Area 3 and Planning Area 4.

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**Table A.3-24**  
**Operational Year 2032**  
**Estimated Annual Operational Project Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
Area	4,411.31	0.20	0.08	4,439.84
Energy	35,230.78	1.87	0.60	35,456.15
Mobile	453,007.66	8.24	0.00	453,180.65
Water Supply and Wastewater	1,226.27	0.10	0.02	1,234.39
Solid Waste	4,044.16	239.00	0.00	9,063.23
Stationary	-	-	-	12,300
<b>Total</b>	<b>497,920.18</b>	<b>249.41</b>	<b>0.70</b>	<b>515,674.26</b>
<i>Mitigated</i>				
Area	4,411.31	0.2	0.08	4,439.84
Energy	31,529.89	1.76	0.53	31,732.33
Mobile	453,007.66	8.24	0.00	453,180.65
Water Supply and Wastewater	1,226.27	0.1	0.02	1,234.39
Solid Waste	1,011.04	59.75	0	2,265.81
Stationary	-	-	-	12,300
<b>Total</b>	<b>491,186.17</b>	<b>70.05</b>	<b>0.63</b>	<b>505,153.02</b>

Notes: See Appendix C for detailed results.

Table A.3-25, Operational Year 2032 Project and BAU Estimated Annual Water Consumption and Associated Greenhouse Gas Emissions, presents the total mitigated water consumption and GHGs from operation of Planning Areas 6A, 2, 1, 3, and 4.

**Table A.3-25**  
**Operational Year 2032**  
**Project and BAU Estimated Annual Water Consumption**  
**and Associated Greenhouse Gas Emissions**

Water Consumption (MG/yr)					
Planning Area	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
6A	95.80	46.60	81.46	19.55	243.41
2	209.20	163.90	177.59	47.25	597.94
1	93.52	79.51	79.51	22.81	275.34
3	174.00	88.96	147.94	35.52	446.42
4	134.90	279.25	114.70	42.03	570.89
<b>Total</b>	<b>707.42</b>	<b>658.22</b>	<b>601.20</b>	<b>167.16</b>	<b>2,134.00</b>
GHG Emissions (MT/yr)					
Planning Area	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> E	

## APPENDIX A (Continued)

6A	139.79	0.01	0.00	140.71
2	343.61	0.03	0.01	345.88
1	157.93	0.01	0.00	158.97
3	256.45	0.02	0.00	258.15
4	328.50	0.03	0.01	330.68
Total	1,226.27	0.10	0.02	1,234.39

Notes: See Appendix C for detailed results.

### Operational Year 2034

Table A.3-26, Operational Year 2034 Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for this operational year.

**Table A.3-26**  
**Operational Year 2034**  
**Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
Commercial	Bank (with Drive-Through)	32	1,000 sq ft	2.95	32,000	0
Commercial	General Office Building	1,535.4	1,000 sq ft	134.37	1,535,400	0
Commercial	Government Office Building	6	1,000 sq ft	0.51	6,000	0
Commercial	Medical Office Building	300	1,000 sq ft	22.69	300,000	0
Commercial	Pharmacy/Drugstore w/o Drive Thru	21	1,000 sq ft	1.85	21,000	0
Commercial	Research & Development	540	1,000 sq ft	41.19	540,000	0
Educational	Elementary School	3,976	Student	20	332,407	0
Educational	High School	3,000	Student	10	397,982.93	0
Educational	Junior College (2 year)	350	1,000 sq ft	27.25	350,000	0
Educational	Junior High School	1,680	Student	40	197,503.63	0
Industrial	General Heavy Industry	52.5	1,000 sq ft	23.09	52,500	0
Industrial	General Light Industry	105	1,000 sq ft	27.18	105,000	0
Industrial	Industrial Park	525	1,000 sq ft	50.38	525,000	0
Industrial	Manufacturing	52.5	1,000 sq ft	99.09	52,500	0
Industrial	Refrigerated Warehouse-No Rail	105	1,000 sq ft	46.17	105,000	0
Industrial	Unrefrigerated Warehouse-No Rail	210	1,000 sq ft	206.35	210,000	0
Parking	Other Asphalt Surfaces	358	Acre	358	15,594,480	0
Recreational	City Park	126	Acre	126	5,488,560	0
Recreational	Fast Food Restaurant with Drive Thru	24.4	1,000 sq ft	3.16	24,400	0
Recreational	High Turnover (Sit Down Restaurant)	24	1,000 sq ft	3.11	24,000	0
Residential	Apartments Low Rise	3,260	Dwelling Unit	326	3,260,000	10,432

## APPENDIX A (Continued)

**Table A.3-26**  
**Operational Year 2034**  
**Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
Residential	Single Family Housing	6,645	Dwelling Unit	1700	11,961,000	21,264
Retail	Convenience Market with Gas Pumps	20.5	1,000 sq ft	2.67	20,500	0
Retail	Regional Shopping Center	936.7	1,000 sq ft	119.61	936,700	0
Retail	Supermarket	170	1,000 sq ft	21.89	170,000	0

Table A.3-27, Operational Year 2034 Estimated Annual Operational Criteria Air Pollutant Emissions, presents annual operational emissions in the year 2034 which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1, Planning Area 3, Planning Area 4 and Planning Area 6C.

**Table A.3-27**  
**Operational Year 2034**  
**Estimated Annual Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
Area	186.09	0.85	73.50	0.00	0.71	0.70
Energy	1.49	12.98	7.08	0.08	1.03	1.03
Mobile	112.94	498.57	1,467.09	6.24	321.42	95.54
<b>Total Annual Emissions</b>	<b>300.52</b>	<b>512.40</b>	<b>1,547.67</b>	<b>6.32</b>	<b>323.16</b>	<b>97.27</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes
<i>Mitigated</i>						
Area	186.09	0.85	73.50	0.00	0.71	0.70
Energy	1.20	10.39	5.62	0.07	0.83	0.83
Mobile	112.94	498.57	1,467.09	6.24	321.42	95.54
<b>Total Annual Emissions</b>	<b>300.23</b>	<b>509.81</b>	<b>1,546.21</b>	<b>6.31</b>	<b>322.96</b>	<b>97.07</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes

Notes: See Appendix C for detailed results.

Table A.3-28, Operational Year 2034 Estimated Maximum Daily Operational Criteria Air Pollutant Emissions, presents maximum daily operational emissions in the year 2034 which

## APPENDIX A (Continued)

includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1, Planning Area 3, Planning Area 4 and Planning Area 6C.

**Table A.3-28**  
**Operational Year 2034**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
<i>Unmitigated</i>						
Area	1,120.28	9.41	817.03	0.04	11.84	11.77
Energy	8.18	71.13	38.77	0.45	5.65	5.65
Mobile	747.49	3,305.88	10,613.33	42.36	2,108.17	624.89
Maximum Daily Emissions	1,875.95	3,386.42	11,469.13	42.85	2,125.66	642.31
<i>Mitigated</i>						
Area	1,120.28	9.41	817.03	0.04	11.84	11.77
Energy	6.55	56.92	30.81	0.36	4.53	4.53
Mobile	747.49	3,305.88	10,613.33	42.36	2,108.17	624.89
Maximum Daily Emissions	1,874.32	3,372.21	11,461.17	42.76	2,124.54	641.19

Notes: See Appendix C for detailed results.

Table A.3-29, Operational Year 2034 Estimated Annual Operational Greenhouse Gas Emissions, presents annual operational emissions in the year 2034 which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1, Planning Area 3, Planning Area 4 and Planning Area 6C.

**Table A.3-29**  
**Operational Year 2034**  
**Estimated Annual Operational Project Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
Area	4,411.31	0.20	0.08	4,439.84
Energy	35,230.78	1.87	0.60	35,456.15
Mobile	453,007.66	8.24	0.00	453,180.65
Water Supply and Wastewater	1,226.42	0.10	0.02	1,234.54
Solid Waste	4,044.16	239.00	0.00	9,063.23
Stationary	-	-	-	12,300
Total	497,920.33	249.41	0.70	515,674.41
<i>Mitigated</i>				
Area	4,411.31	0.2	0.08	4,439.84

## APPENDIX A (Continued)

**Table A.3-29**  
**Operational Year 2034**  
**Estimated Annual Operational Project Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
Energy	31,529.89	1.76	0.53	31,732.33
Mobile	453,007.66	8.24	0.00	453,180.65
Water Supply and Wastewater	1,226.42	0.1	0.02	1,234.54
Solid Waste	1,011.04	59.75	0	2,265.81
Stationary	-	-	-	12,300
<b>Total</b>	<b>491,186.32</b>	<b>70.05</b>	<b>0.63</b>	<b>505,153.17</b>

Notes: See Appendix C for detailed results.

Table A.3-30, Year 2034 Project and BAU Estimated Annual Water Consumption and Associated Greenhouse Gas Emissions, presents the total mitigated water consumption and GHGs from operation of Planning Areas 6A, 2, 1, 3, 4, and 6C.

**Table A.3-30**  
**Operational Year 2034**  
**Project and BAU Estimated Annual Water Consumption**  
**and Associated Greenhouse Gas Emissions**

Water Consumption (MG/yr)					
Planning Area	Potable Water - Indoor	Potable Water - Outdoor	Recycled Water - Outdoor	Treatment & Distribution Loses	Total
6A	95.80	46.60	81.46	19.55	243.41
2	209.20	163.90	177.59	47.25	597.94
1	93.52	79.51	79.51	22.81	275.34
3	174.00	88.96	147.94	35.52	446.42
4	134.90	279.25	114.70	42.03	570.89
6C	0.00	0.25	0.01	0.00	0.26
<b>Total</b>	<b>707.42</b>	<b>658.47</b>	<b>601.20</b>	<b>167.16</b>	<b>2,134.26</b>
GHG Emissions (MT/yr)					
Planning Area	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub> E	
6A	139.79	0.01	0.00	140.71	
2	343.61	0.03	0.01	345.88	
1	157.93	0.01	0.00	158.97	
3	256.45	0.02	0.00	258.15	
4	328.50	0.03	0.01	330.68	
6C	0.15	0.00	0.00	0.15	
<b>Total</b>	<b>1,226.42</b>	<b>0.10</b>	<b>0.02</b>	<b>1,234.54</b>	

Notes: See Appendix C for detailed results.

## APPENDIX A (Continued)

### Operational Year 2035

Table A.3-31, Operational Year 2035 Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for this operational year.

**Table A.3-31  
Operational Year 2035 Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
Commercial	Bank (with Drive-Through)	32	1,000 sq ft	2.95	32,000	0
Commercial	General Office Building	1,535.4	1,000 sq ft	134.37	1,535,400	0
Commercial	Government Office Building	6	1,000 sq ft	0.51	6,000	0
Commercial	Medical Office Building	300	1,000 sq ft	22.69	300,000	0
Commercial	Pharmacy/Drugstore w/o Drive Thru	21	1,000 sq ft	1.85	21,000	0
Commercial	Research & Development	540	1,000 sq ft	41.19	540,000	0
Educational	Elementary School	3,976	Student	20	332,407	0
Educational	High School	3,000	Student	10	397,982.93	0
Educational	Junior College (2 year)	350	1,000 sq ft	27.25	350,000	0
Educational	Junior High School	1,680	Student	40	197,503.63	0
Industrial	General Heavy Industry	55	1,000 sq ft	39.19	55,000	0
Industrial	General Light Industry	110	1,000 sq ft	59.38	110,000	0
Industrial	Industrial Park	550	1,000 sq ft	211.38	550,000	0
Industrial	Manufacturing	55	1,000 sq ft	115.19	55,000	0
Industrial	Refrigerated Warehouse-No Rail	110	1,000 sq ft	78.38	110,000	0
Industrial	Unrefrigerated Warehouse-No Rail	220	1,000 sq ft	270.75	220,000	0
Parking	Other Asphalt Surfaces	376	Acre	376	16,378,560	0
Recreational	City Park	126	Acre	126	5,488,560	0
Recreational	Fast Food Restaurant with Drive Thru	24.4	1,000 sq ft	3.16	24,400	0
Recreational	High Turnover (Sit Down Restaurant)	24	1,000 sq ft	3.11	24,000	0
Residential	Apartments Low Rise	3,260	Dwelling Unit	326	3,260,000	10,432
Residential	Single Family Housing	6645	Dwelling Unit	1700	11,961,000	21,264
Retail	Convenience Market with Gas Pumps	20.5	1,000 sq ft	2.67	20,500	0
Retail	Regional Shopping Center	936.7	1,000 sq ft	119.61	936,700	0
Retail	Supermarket	170	1,000 sq ft	21.89	170,000	0

Table A.3-32, Operational Year 2035 Estimated Annual Operational Criteria Air Pollutant Emissions, presents annual operational emissions in the year 2035 which includes full buildout

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and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1, Planning Area 3, Planning Area 4, Planning Area 6C and Planning Area 6B.

**Table A.3-32**  
**Operational Year 2035**  
**Estimated Annual Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
Area	189.40	0.85	73.44	0.00	0.71	0.70
Energy	1.50	13.01	7.10	0.08	1.03	1.03
Mobile	108.47	482.19	1,423.07	6.26	321.85	95.67
<b>Total Annual Emissions</b>	<b>299.37</b>	<b>496.05</b>	<b>1,503.61</b>	<b>6.34</b>	<b>323.59</b>	<b>97.40</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes
<i>Mitigated</i>						
Area	189.40	0.85	73.44	0.00	0.71	0.70
Energy	1.20	10.41	5.64	0.07	0.83	0.83
Mobile	108.47	482.19	1,423.07	6.26	321.85	95.67
<b>Total Annual Emissions</b>	<b>299.07</b>	<b>493.45</b>	<b>1,502.15</b>	<b>6.33</b>	<b>323.39</b>	<b>97.20</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes

Notes: See Appendix C for detailed results.

Table A.3-33, Operational Year 2035 Estimated Maximum Daily Operational Criteria Air Pollutant Emissions, presents maximum daily operational emissions in the year 2035, which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1, Planning Area 3, Planning Area 4, Planning Area 6C and Planning Area 6B.

**Table A.3-33**  
**Operational Year 2035**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
<i>Unmitigated</i>						
Area	1,141.28	9.41	816.32	0.04	11.84	11.77
Energy	8.19	71.27	38.89	0.45	5.66	5.66
Mobile	730.94	3,194.55	10,349.75	42.49	2,111.06	625.75
<b>Maximum Daily Emissions</b>	<b>1,880.41</b>	<b>3,275.23</b>	<b>11,204.96</b>	<b>42.98</b>	<b>2,128.56</b>	<b>643.18</b>



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**Table A.3-33**  
**Operational Year 2035**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
<i>Mitigated</i>						
Area	1,141.28	9.41	816.32	0.04	11.84	11.77
Energy	6.56	57.03	30.90	0.36	4.53	4.53
Mobile	730.94	3,194.55	10,349.75	42.49	2,111.06	625.75
Maximum Daily Emissions	1,878.78	3,260.99	11,196.97	42.89	2,127.43	642.05

Notes: See Appendix C for detailed results.

Table A.3-34, Operational Year 2035 Estimated Annual Operational Greenhouse Gas Emissions, presents annual operational emissions in the year 2035, which includes full buildout and associated operational emissions of Planning Area 6A, Planning Area 2, Planning Area 1, Planning Area 3, Planning Area 4, Planning Area 6C and Planning Area 6B.

**Table A.3-34**  
**Operational Year 2035**  
**Estimated Annual Operational Project Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
Area	4,411.31	0.20	0.08	4,439.84
Energy	35,330.49	1.88	0.60	35,566.50
Mobile	451,863.54	7.77	0.00	452,026.81
Water Supply and Wastewater	1,229.37	0.10	0.02	1,237.51
Solid Waste	4,055.83	239.69	0.00	9,089.39
Stationary	-	-	-	12,300
<b>Total</b>	<b>496,890.54</b>	<b>249.64</b>	<b>0.70</b>	<b>514,660.05</b>
<i>Mitigated</i>				
Area	4,411.31	0.2	0.08	4,439.84
Energy	31,620.25	1.76	0.54	31,832.28
Mobile	451,863.54	7.77	0.00	452,026.81
Water Supply and Wastewater	1,229.37	0.1	0.02	1,237.51
Solid Waste	1,013.96	59.92	0	2,272.35
Stationary	-	-	-	12,300
<b>Total</b>	<b>490,138.43</b>	<b>69.75</b>	<b>0.64</b>	<b>504,108.79</b>

Notes: See Appendix C for detailed results.

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Table A.3-35, Operational Year 2035 Project and BAU Estimated Annual Water Consumption and Associated Greenhouse Gas Emissions, presents the total mitigated water consumption and GHGs from operation of Planning Areas 6A, 2, 1, 3, 4, 6C, and 6B.

**Table A.3-35**  
**Operational Year 2035**  
**Project and BAU Estimated Annual Water Consumption and**  
**Associated Greenhouse Gas Emissions**

Water Consumption (MG/yr)					
<i>Planning Area</i>	<i>Potable Water - Indoor</i>	<i>Potable Water - Outdoor</i>	<i>Recycled Water - Outdoor</i>	<i>Treatment &amp; Distribution Loses</i>	<i>Total</i>
6A	95.80	46.60	81.46	19.55	243.41
2	209.20	163.90	177.59	47.25	597.94
1	93.52	79.51	79.51	22.81	275.34
3	174.00	88.96	147.94	35.52	446.42
4	134.90	279.25	114.70	42.03	570.89
6C	0.00	0.25	0.01	0.00	0.26
6B	0.33	4.17	0.33	0.29	5.12
Total	707.75	662.64	601.53	167.45	2,139.37
GHG Emissions (MT/yr)					
<i>Planning Area</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>E</i>	
6A	139.79	0.01	0.00	140.71	
2	343.61	0.03	0.01	345.88	
1	157.93	0.01	0.00	158.97	
3	256.45	0.02	0.00	258.15	
4	328.50	0.03	0.01	330.68	
6C	0.15	0.00	0.00	0.15	
6B	2.94	0.00	0.00	2.96	
Total	1,229.37	0.10	0.02	1,237.51	

Notes: See Appendix C for detailed results.

### Operational Year 2036

Table A.3-36, Operational Year 2036 Land Use Assumptions, presents the land use assumptions incorporated into CalEEMod for this operational year.

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**Table A.3-36**  
**Operational Year 2036**  
**Land Use Assumptions**

Land Use Type	Land Use Sub Type	Land Use Unit Amount	Land Use Size Metric	Lot Acreage	Land Use Square Feet	Population
Commercial	Bank (with Drive-Through)	32	1,000 sq ft	2.95	32,000	0
Commercial	General Office Building	1,553	1,000 sq ft	136.57	1,553,000	0
Commercial	Government Office Building	6	1,000 sq ft	0.51	6,000	0
Commercial	Medical Office Building	300	1,000 sq ft	22.69	300,000	0
Commercial	Pharmacy/Drugstore w/o Drive Thru	21	1,000 sq ft	1.85	21,000	0
Commercial	Research & Development	540	1,000 sq ft	41.19	540,000	0
Educational	Elementary School	4,970	Student	25	415,508.75	0
Educational	High School	3,000	Student	10	397,982.93	0
Educational	Junior College (2 year)	350	1,000 sq ft	27.25	350,000	0
Educational	Junior High School	1,680	Student	40	197,503.63	0
Industrial	General Heavy Industry	55	1,000 sq ft	73.59	55,000	0
Industrial	General Light Industry	110	1,000 sq ft	93.78	110,000	0
Industrial	Industrial Park	550	1,000 sq ft	228.57	550,000	0
Industrial	Manufacturing	55	1,000 sq ft	287.19	55,000	0
Industrial	Refrigerated Warehouse-No Rail	110	1,000 sq ft	147.18	110,000	0
Industrial	Unrefrigerated Warehouse-No Rail	220	1,000 sq ft	614.75	220,000	0
Parking	Other Asphalt Surfaces	460	Acre	460	20,037,600	0
Recreational	City Park	131	Acre	131	5,706,360	0
Recreational	Fast Food Restaurant with Drive Thru	26.6	1,000 sq ft	3.44	26,600	0
Recreational	High Turnover (Sit Down Restaurant)	24	1,000 sq ft	3.11	24,000	0
Residential	Apartments Low Rise	3,590	Dwelling Unit	359	3,590,000	11,488
Residential	Single Family Housing	8,410	Dwelling Unit	2235	15,138,000	26,912
Retail	Convenience Market with Gas Pumps	23	1,000 sq ft	2.98	23,000	0
Retail	Regional Shopping Center	944.4	1,000 sq ft	120.57	944,400	0
Retail	Supermarket	180	1,000 sq ft	23.14	180,000	0

Table A.3-37, Operational Year 2036 Estimated Annual Operational Criteria Air Pollutant Emissions, presents annual operational emissions in the year 2036, which includes full buildout and associated operational emissions of the project. Full buildout includes Planning Area 6A, 2, 1, 3, 4, 6C, 6B, 6C, 6D, 6E, 5A, 5B.

## APPENDIX A (Continued)

**Table A.3-37**  
**Operational Year 2036 Full Buildout**  
**Estimated Annual Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> (tons/year)	PM <sub>2.5</sub> (tons/year)
<i>Unmitigated</i>						
Area	222.73	1.03	88.96	0.00	0.86	0.85
Energy	1.75	15.20	8.06	0.10	1.21	1.21
Mobile	121.77	541.34	1,597.63	7.03	361.33	107.41
<b>Total Annual Emissions</b>	<b>346.25</b>	<b>557.57</b>	<b>1,694.65</b>	<b>7.13</b>	<b>363.40</b>	<b>109.47</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes
<i>Mitigated</i>						
Area	222.73	1.03	88.96	0.00	0.86	0.85
Energy	1.41	12.19	6.42	0.08	0.97	0.97
Mobile	121.77	541.34	1,597.63	7.03	361.33	107.41
<b>Total Annual Emissions</b>	<b>345.91</b>	<b>554.56</b>	<b>1,693.01</b>	<b>7.11</b>	<b>363.16</b>	<b>109.23</b>
<i>SJVAPCD Threshold</i>	<i>10</i>	<i>10</i>	<i>100</i>	<i>27</i>	<i>15</i>	<i>15</i>
Threshold Exceeded?	Yes	Yes	Yes	No	Yes	Yes

Notes: See Appendix C for detailed results.

Table A.3-38, Operational Year 2036 Estimated Maximum Daily Operational Criteria Air Pollutant Emissions, presents maximum daily operational emissions in the year 2036, which includes full buildout and associated operational emissions of the project. Full buildout includes Planning Area 6A, 2, 1, 3, 4, 6C, 6B, 6C, 6D, 6E, 5A, 5B.

**Table A.3-38**  
**Operational Year 2036 Full Buildout**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
<i>Unmitigated</i>						
Area	1,342.60	11.40	988.79	0.05	14.35	14.25
Energy	9.60	83.29	44.15	0.52	6.63	6.63
Mobile	814.51	3,559.81	11,533.10	47.34	2,352.43	697.30
<b>Maximum Daily Emissions</b>	<b>2,166.71</b>	<b>3,654.50</b>	<b>12,566.04</b>	<b>47.91</b>	<b>2,373.41</b>	<b>718.18</b>

## APPENDIX A (Continued)

**Table A.3-38**  
**Operational Year 2036 Full Buildout**  
**Estimated Maximum Daily Operational Criteria Air Pollutant Emissions**

Emission Source	ROG (pounds/day)	NO <sub>x</sub> (pounds/day)	CO (pounds/day)	SO <sub>x</sub> (pounds/day)	PM <sub>10</sub> (pounds/day)	PM <sub>2.5</sub> (pounds/day)
<i>Mitigated</i>						
Area	1,342.60	11.40	988.79	0.05	14.35	14.25
Energy	7.70	66.79	35.17	0.42	5.32	5.32
Mobile	814.51	3,559.81	11,533.10	47.34	2,352.43	697.30
Maximum Daily Emissions	2,164.81	3,638.00	12,557.06	47.81	2,372.10	716.87

Notes: See Appendix C for detailed results.

Table A.3-39, Operational Year 2036 Buildout Estimated Annual Operational Greenhouse Gas Emissions, presents annual operational emissions in the year 2036, which includes full buildout and associated operational emissions of the project. Full buildout includes Planning Area 6A, 2, 1, 3, 4, 6C, 6B, 6C, 6D, 6E, 5A, and 5B.

**Table A.3-39**  
**Operational Year 2036 Buildout**  
**Estimated Annual Operational Project Greenhouse Gas Emissions**

Emission Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
<i>Unmitigated</i>				
Area	5,344.31	0.24	0.10	5,378.87
Energy	40,481.84	2.13	0.69	40,740.60
Mobile	507,290.06	8.73	0.00	507,473.36
Water Supply and Wastewater	1,435.05	0.11	0.02	1,444.55
Solid Waste	4,566.76	269.89	0.00	10,234.41
Stationary	-	-	-	12,300
<b>Total</b>	<b>559,118.02</b>	<b>281.10</b>	<b>0.81</b>	<b>577,571.79</b>
<i>Mitigated</i>				
Area	5,344.31	0.24	0.1	5,378.87
Energy	36,236.27	2	0.61	36,468.76
Mobile	507,290.06	8.73	0.00	507,473.36
Water Supply and Wastewater	1,435.05	0.11	0.02	1,444.55
Solid Waste	1,141.69	67.47	0	2,558.60
Stationary	-	-	-	12,300
<b>Total</b>	<b>551,447.38</b>	<b>78.55</b>	<b>0.73</b>	<b>565,624.14</b>

Notes: See Appendix C for detailed results.

## APPENDIX A (Continued)

Table A.3-40, Operational Year 2036 Full Buildout Project and BAU Estimated Annual Water Consumption and Associated Greenhouse Gas Emissions, presents the total mitigated water consumption and GHGs from operation of all Planning Areas.

**Table A.3-40**  
**Operational Year 2036 Full Buildout**  
**Project and BAU Estimated Annual Water Consumption**  
**and Associated Greenhouse Gas Emissions**

Water Consumption (MG/yr)					
<i>Planning Area</i>	<i>Potable Water - Indoor</i>	<i>Potable Water - Outdoor</i>	<i>Recycled Water - Outdoor</i>	<i>Treatment &amp; Distribution Loses</i>	<i>Total</i>
6A	95.80	46.60	81.46	19.55	243.41
2	209.20	163.90	177.59	47.25	597.94
1	93.52	79.51	79.51	22.81	275.34
3	174.00	88.96	147.94	35.52	446.42
4	134.90	279.25	114.70	42.03	570.89
6C	0.00	0.25	0.01	0.00	0.26
6B	0.33	4.17	0.33	0.29	5.12
6D	0.00	0.26	0.00	0.00	0.26
6E	0.00	0.26	0.00	0.00	0.26
5A	109.71	104.30	93.19	28.35	335.56
5B	1.82	17.60	1.63	1.63	22.68
<b>Total</b>	<b>819.29</b>	<b>785.06</b>	<b>696.36</b>	<b>197.43</b>	<b>2,498.14</b>
GHG Emissions (MT/yr)					
<i>Planning Area</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>E</i>	
6A	139.79	0.01	0.00	140.71	
2	343.61	0.03	0.01	345.88	
1	157.93	0.01	0.00	158.97	
3	256.45	0.02	0.00	258.15	
4	328.50	0.03	0.01	330.68	
6C	0.15	0.00	0.00	0.15	
6B	2.94	0.00	0.00	2.96	
6D	0.15	0.00	0.00	0.15	
6E	0.15	0.00	0.00	0.15	
5A	192.36	0.01	0.00	193.63	
5B	13.02	0.00	0.00	13.11	
<b>Total</b>	<b>1,435.05</b>	<b>0.11</b>	<b>0.02</b>	<b>1,444.55</b>	

Notes: See Appendix C for detailed results.

## APPENDIX A (Continued)

### Combined Construction and Operation

As discussed in Section 2.5.3, Operational Emissions, the emissions of construction and operational emissions are not intended to be combined and then compared to a single threshold. Nonetheless, because the project would be built over approximately 20 years and portions of the project would be in operation during construction, the estimated maximum annual combined criteria air pollutant emissions, as well as combined GHG emissions, associated with the project are presented for disclosure purposes only.

### Criteria Air Pollutants

Table A.3-41 presents a summary of combined annual unmitigated construction and operational criteria air pollutant emissions.

**Table A.3-41**  
**Summary of Estimated Annual Unmitigated Construction**  
**and Operational Criteria Air Pollutant Emissions**

Year – Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
2016– Construction	12.4	34.72	34.19	0.06	1.62	1.5
2016 – Operation	N/A	N/A	N/A	N/A	N/A	N/A
2016 – Total Emissions	12.4	34.72	34.19	0.06	1.62	1.5
2017 – Construction	15.84	39.96	41.63	0.07	1.88	1.74
2017 – Operation	N/A	N/A	N/A	N/A	N/A	N/A
2017 – Total Emissions	15.84	39.96	41.63	0.07	1.88	1.74
2018 – Construction	14.9	29.93	36.15	0.07	1.36	1.26
2018 – Operation	N/A	N/A	N/A	N/A	N/A	N/A
2018 – Total Emissions	14.9	29.93	36.15	0.07	1.36	1.26
2019 – Construction	12.31	23.38	26.46	0.05	1.09	1.01
2019 – Operation	51.1	134.91	300.93	0.9	45.55	13.95
2019 – Total Emissions	63.41	158.29	327.39	0.95	46.64	14.96
2020 – Construction	17.85	28.62	36	0.08	1.35	1.25
2020 – Operation	51.1	134.91	300.93	0.9	45.55	13.95
2020 – Total Emissions	68.95	163.53	336.93	0.98	46.9	15.2
2021 – Construction	17.84	27.62	39	0.09	1.29	1.2
2021 – Operation	51.1	134.91	300.93	0.9	45.55	13.95
2021 – Total Emissions	68.94	162.53	339.93	0.99	46.84	15.15
2022 – Construction	16.56	16.59	28.05	0.06	0.75	0.7
2022 – Operation	51.1	134.91	300.93	0.9	45.55	13.95
2022 – Total Emissions	67.66	151.5	328.98	0.96	46.3	14.65
2023 – Construction	12.52	12.7	20.07	0.05	0.57	0.53

## APPENDIX A (Continued)

**Table A.3-41**  
**Summary of Estimated Annual Unmitigated Construction**  
**and Operational Criteria Air Pollutant Emissions**

Year – Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
2023 – Operation	140.91	250.79	783.83	2.78	140.72	42.5
2023 – Total Emissions	153.43	263.49	803.9	2.83	141.29	43.03
2024 – Construction	17.59	9.16	18.47	0.05	0.41	0.38
2024 – Operation	140.91	250.79	783.83	2.78	140.72	42.5
2024 – Total Emissions	158.5	259.95	802.3	2.83	141.13	42.88
2025 – Construction	11.11	12.42	22.41	0.05	0.53	0.49
2025 – Operation	174.28	301.71	930.21	3.45	175.15	52.93
2025 – Total Emissions	185.39	314.13	952.62	3.5	175.68	53.42
2026 – Construction	14.59	15.41	28.52	0.07	0.67	0.61
2026 – Operation	174.28	301.71	930.21	3.45	175.15	52.93
2026 – Total Emissions	188.87	317.12	958.73	3.52	175.82	53.54
2027 – Construction	14.35	13.26	26.42	0.07	0.56	0.52
2027 – Operation	174.28	301.71	930.21	3.45	175.15	52.93
2027 – Total Emissions	188.63	314.97	956.63	3.52	175.71	53.45
2028 – Construction	7.94	9.34	14.57	0.03	0.41	0.38
2028 – Operation	246.48	462.06	1,421.94	5.29	269.26	81.19
2028 – Total Emissions	254.42	471.4	1436.51	5.32	269.67	81.57
2029 – Construction	13.38	13.49	22.94	0.06	0.59	0.55
2029 – Operation	246.48	462.06	1,421.94	5.29	269.26	81.19
2029 – Total Emissions	259.86	475.55	1444.88	5.35	269.85	81.74
2030 – Construction	13.3	7.47	22.16	0.06	0.24	0.24
2030 – Operation	246.48	462.06	1,421.94	5.29	269.26	81.19
2030 – Total Emissions	259.78	469.53	1444.1	5.35	269.5	81.43
2031 – Construction	12.5	4.35	12.36	0.03	0.14	0.14
2031 – Operation	246.48	462.06	1,421.94	5.29	269.26	81.19
2031 – Total Emissions	258.98	466.41	1434.3	5.32	269.4	81.33
2032 – Construction	7.51	7.8	20.07	0.05	0.27	0.27
2032 – Operation	300.01	512.4	1,547.67	6.32	323.16	97.27
2032 – Total Emissions	307.52	520.2	1567.74	6.37	323.43	97.54
2033 – Construction	12.91	11.07	31.53	0.09	0.38	0.38
2033 – Operation	300.01	512.4	1,547.67	6.32	323.16	97.27
2033 – Total Emissions	312.92	523.47	1579.2	6.41	323.54	97.65
2034 – Construction	13.65	13.64	37.07	0.1	0.47	0.47
2034 – Operation	300.52	512.4	1,547.67	6.32	323.16	97.27
2034 – Total Emissions	314.17	526.04	1584.74	6.42	323.63	97.74
2035 – Construction	14.19	9.47	31.92	0.09	0.31	0.31
2035 – Operation	299.37	496.05	1,503.61	6.34	323.59	97.4



## APPENDIX A (Continued)

**Table A.3-41**  
**Summary of Estimated Annual Unmitigated Construction**  
**and Operational Criteria Air Pollutant Emissions**

Year – Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
2035 – Total Emissions	313.56	505.52	1535.53	6.43	323.9	97.71
2036 – Construction	N/A	N/A	N/A	N/A	N/A	N/A
2036 – Operation	299.37	496.05	1,503.61	6.34	323.59	97.4
2036 – Total Emissions	299.37	496.05	1503.61	6.34	323.59	97.4

Notes: See Appendices B and C for detailed results.  
N/A = not applicable

Table A.3-42 presents a summary of combined annual mitigated construction and operational criteria air pollutant emissions.

**Table A.3-42**  
**Summary of Estimated Annual Mitigated Construction and Operational**  
**Criteria Air Pollutant Emissions**

Year – Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
2016– Construction	10.72	27.47	33.43	0.06	0.75	0.74
2016 – Operation	N/A	N/A	N/A	N/A	N/A	N/A
2016 – Total Emissions	10.72	27.47	33.43	0.06	0.75	0.74
2017 – Construction	13.98	33.63	41.54	0.07	0.94	0.93
2017 – Operation	N/A	N/A	N/A	N/A	N/A	N/A
2017 – Total Emissions	13.98	33.63	41.54	0.07	0.94	0.93
2018 – Construction	13.76	28.99	37.22	0.07	0.83	0.82
2018 – Operation	N/A	N/A	N/A	N/A	N/A	N/A
2018 – Total Emissions	13.76	28.99	37.22	0.07	0.83	0.82
2019 – Construction	11.28	23.09	27.39	0.05	0.67	0.66
2019 – Operation	51.04	134.34	300.54	0.89	45.50	13.90
2019 – Total Emissions	62.32	157.43	327.93	0.94	46.17	14.56
2020 – Construction	16.68	30.81	37.72	0.08	0.93	0.92
2020 – Operation	51.03	134.33	300.54	0.90	45.49	13.91
2020 – Total Emissions	67.71	165.14	338.26	0.98	46.42	14.83
2021 – Construction	16.85	33.42	41.36	0.09	1.03	1.03
2021 – Operation	51.03	134.33	300.54	0.90	45.49	13.91
2021 – Total Emissions	67.88	167.75	341.90	0.99	46.52	14.94
2022 – Construction	16.1	23.01	29.87	0.06	0.73	0.73
2022 – Operation	51.03	134.33	300.54	0.90	45.49	13.91
2022 – Total Emissions	67.13	157.34	330.41	0.96	46.22	14.64

## APPENDIX A (Continued)

**Table A.3-42**  
**Summary of Estimated Annual Mitigated Construction and Operational**  
**Criteria Air Pollutant Emissions**

Year – Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
2023 – Construction	11.88	11.38	21.9	0.05	0.53	0.52
2023 – Operation	140.77	249.54	783.07	2.77	140.62	42.40
2023 – Total Emissions	152.65	260.92	804.97	2.82	141.15	42.92
2024 – Construction	17.18	9.17	19.65	0.05	0.45	0.45
2024 – Operation	140.77	249.54	783.07	2.77	140.62	42.40
2024 – Total Emissions	157.95	258.71	802.72	2.82	141.07	42.85
2025 – Construction	10.37	11.09	24.77	0.05	0.1	0.09
2025 – Operation	174.10	300.10	929.27	3.44	175.02	52.80
2025 – Total Emissions	184.47	311.19	954.04	3.49	175.12	52.89
2026 – Construction	13.68	14.07	31.31	0.07	0.13	0.12
2026 – Operation	174.10	300.10	929.27	3.44	175.02	52.80
2026 – Total Emissions	187.78	314.17	960.58	3.51	175.15	52.92
2027 – Construction	13.61	12.78	28.56	0.07	0.12	0.12
2027 – Operation	174.10	300.10	929.27	3.44	175.02	52.80
2027 – Total Emissions	187.71	312.88	957.83	3.51	175.14	52.92
2028 – Construction	7.34	8.05	16.61	0.03	0.06	0.06
2028 – Operation	246.25	460.04	1,420.78	5.29	269.11	81.04
2028 – Total Emissions	253.59	468.09	1,437.39	5.32	269.17	81.10
2029 – Construction	12.55	12.17	25.6	0.06	0.1	0.1
2029 – Operation	246.25	460.04	1,420.78	5.29	269.11	81.04
2029 – Total Emissions	258.80	472.21	1,446.38	5.35	269.21	81.14
2030 – Construction	12.51	12.21	25.28	0.06	0.1	0.1
2030 – Operation	246.25	460.04	1,420.78	5.29	269.11	81.04
2030 – Total Emissions	258.76	472.25	1,446.06	5.35	269.21	81.14
2031 – Construction	12.09	6.66	13.79	0.03	0.06	0.06
2031 – Operation	246.25	460.04	1,420.78	5.29	269.11	81.04
2031 – Total Emissions	258.34	466.70	1,434.57	5.32	269.17	81.10
2032 – Construction	6.46	3.27	23.66	0.05	0.09	0.09
2032 – Operation	299.71	509.80	1,546.22	6.31	322.96	97.07
2032 – Total Emissions	306.17	513.07	1,569.88	6.36	323.05	97.16
2033 – Construction	11.45	4.57	35.81	0.09	0.14	0.14
2033 – Operation	299.71	509.80	1,546.22	6.31	322.96	97.07
2033 – Total Emissions	311.16	514.37	1,582.03	6.40	323.10	97.21
2034 – Construction	11.79	5.52	43.16	0.1	0.15	0.15
2034 – Operation	300.22	509.80	1,546.22	6.31	322.96	97.07
2034 – Total Emissions	312.01	515.32	1,589.38	6.41	323.11	97.22
2035 – Construction	12.77	4.22	36.8	0.09	0.12	0.12

## APPENDIX A (Continued)

**Table A.3-42**  
**Summary of Estimated Annual Mitigated Construction and Operational**  
**Criteria Air Pollutant Emissions**

Year – Source	ROG (tons/year)	NO <sub>x</sub> (tons/year)	CO (tons/year)	SO <sub>x</sub> (tons/year)	PM <sub>10</sub> Exhaust (tons/year)	PM <sub>2.5</sub> Exhaust (tons/year)
2035 – Operation	299.06	493.45	1,502.15	6.33	323.39	97.20
2035 – Total Emissions	311.83	497.67	1,538.95	6.42	323.51	97.32
2036 – Construction	N/A	N/A	N/A	N/A	N/A	N/A
2036 – Operation	345.91	554.55	1,693.00	7.11	363.16	109.23
2036 – Total Emissions	345.91	554.55	1,693.00	7.11	363.16	109.23

Notes: See Appendices B and C for detailed results.  
N/A = not applicable

### Greenhouse Gas Emissions

Table A.3-43 presents a summary of combined annual unmitigated construction and operational GHG emissions.

**Table A.3-43**  
**Summary of Estimated Annual Unmitigated Construction and**  
**Operational Greenhouse Gas Emissions**

Year – Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
2016 – Construction	4,820.93	0.68	0	4,835.21
2016 – Operation	N/A	N/A	N/A	N/A
2016 – Total Emissions	4,820.93	0.68	0.00	4,835.21
2017 – Construction	6,180.84	0.84	0.00	6,198.51
2017 – Operation	N/A	N/A	N/A	N/A
2017 – Total Emissions	6,180.84	0.84	0.00	6,198.51
2018 – Construction	5,700.58	0.70	0.00	5,715.26
2018 – Operation	N/A	N/A	N/A	N/A
2018 – Total Emissions	5,700.58	0.70	0.00	5,715.26
2019 – Construction	4,230.61	0.65	0.00	4,244.26
2019 – Operation	80,215.97	43.38	0.14	93,515.85
2019 – Total Emissions	84,446.58	44.03	0.14	97,760.11
2020 – Construction	5,901.48	0.88	0.00	5,919.94
2020 – Operation	80,215.97	43.38	0.14	93,515.85
2020 – Total Emissions	86,117.45	44.26	0.14	99,435.79
2021 – Construction	6,563.27	0.98	0.00	6,583.86
2021 – Operation	80,215.97	43.38	0.14	93,515.85
2021 – Total Emissions	86,779.24	44.36	0.14	100,099.71

## APPENDIX A (Continued)

**Table A.3-43**  
**Summary of Estimated Annual Unmitigated Construction and**  
**Operational Greenhouse Gas Emissions**

Year – Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
2022 – Construction	4,935.61	0.65	0.00	4,949.17
2022 – Operation	80,215.97	43.38	0.14	93,515.85
2022 – Total Emissions	85,151.58	44.03	0.14	98,465.02
2023 – Construction	3,495.05	0.58	0.00	3,507.18
2023 – Operation	229,566.73	138.69	0.33	244,903.26
2023 – Total Emissions	233,061.78	139.27	0.33	248,410.44
2024 – Construction	3,417.43	0.43	0.00	3,426.49
2024 – Operation	229,566.73	138.69	0.33	244,903.26
2024 – Total Emissions	232,984.16	139.12	0.33	248,329.75
2025 – Construction	4,118.84	0.64	0.00	4,132.24
2025 – Operation	283,218.94	163.29	0.43	299,080.40
2025 – Total Emissions	287,337.78	163.93	0.43	303,212.64
2026 – Construction	5,306.11	0.79	0.00	5,322.70
2026 – Operation	283,218.94	163.29	0.43	299,080.40
2026 – Total Emissions	288,525.05	164.08	0.43	304,403.10
2027 – Construction	4,978.77	0.66	0.00	4,992.67
2027 – Operation	283,218.94	163.29	0.43	299,080.40
2027 – Total Emissions	288,197.71	163.95	0.43	304,073.07
2028 – Construction	2,660.90	0.5	0.00	2,611.38
2028 – Operation	427,831.47	208.94	0.55	444,690.51
2028 – Total Emissions	430,492.37	209.44	0.55	447,301.89
2029 – Construction	4,235.70	0.72	0.00	4,250.88
2029 – Operation	427,831.47	208.94	0.55	444,690.51
2029 – Total Emissions	432,067.17	209.66	0.55	448,941.39
2030 – Construction	4,543.30	0.14	0.00	4,546.21
2030 – Operation	427,831.47	208.94	0.55	444,690.51
2030 – Total Emissions	432,374.77	209.08	0.55	449,236.72
2031 – Construction	2,504.27	0.07	0.00	2,505.76
2031 – Operation	427,831.47	208.94	0.55	444,690.51
2031 – Total Emissions	430,335.74	209.01	0.55	447,196.27
2032 – Construction	4,333.17	0.14	0.00	4,336.13
2032 – Operation	499,991.38	249.46	0.71	517,750.03
2032 – Total Emissions	504,324.55	249.60	0.71	522,086.16
2033 – Construction	6,426.20	0.21	0.00	6,440.58
2033 – Operation	499,991.38	249.46	0.71	517,750.03
2033 – Total Emissions	506,417.58	249.67	0.71	524,190.61
2034 – Construction	7,927.42	0.26	0.00	7,932.88
2034 – Operation	499,991.73	249.46	0.71	517,750.39

## APPENDIX A (Continued)

**Table A.3-43**  
**Summary of Estimated Annual Unmitigated Construction and Operational Greenhouse Gas Emissions**

Year – Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
2034 – Total Emissions	507,919.15	249.72	0.71	525,683.27
2035 – Construction	5,326.38	0.15	0.00	5,329.67
2035 – Operation	498,965.96	249.69	0.71	516,740.06
2035 – Total Emissions	504,292.34	249.84	0.71	522,069.73
2036 – Construction	N/A	N/A	N/A	N/A
2036 – Operation	561,535.28	281.16	0.83	579,994.38
2036 – Total Emissions	561,535.28	281.16	0.83	579,994.38

Notes: See Appendices B and C for detailed results.  
N/A = not applicable

Table A.3-44 presents a summary of combined annual mitigated construction and operational GHG emissions.

**Table A.3-44**  
**Summary of Estimated Annual Mitigated Construction and Operational Greenhouse Gas Emissions**

Year – Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
2016– Construction	4,820.93	0.68	0	4,835.21
2016 – Operation	N/A	N/A	N/A	N/A
2016 – Total Emissions	4,820.93	0.68	0.00	4,835.21
2017 – Construction	6,180.84	0.84	0	6,198.51
2017 – Operation	N/A	N/A	N/A	N/A
2017 – Total Emissions	6,180.84	0.84	0.00	6,198.51
2018 – Construction	5,700.58	0.7	0	5,715.26
2018 – Operation	N/A	N/A	N/A	N/A
2018 – Total Emissions	5,700.58	0.70	0.00	5,715.26
2019 – Construction	4,230.61	0.65	0	4,244.26
2019 – Operation	78,598.32	12.36	0.12	91,241.89
2019 – Total Emissions	82,828.93	13.01	0.12	95,486.15
2020 – Construction	5,901.48	0.88	0	5,919.94
2020 – Operation	78,598.32	12.36	0.12	91,241.89
2020 – Total Emissions	84,499.80	13.24	0.12	97,161.83
2021 – Construction	6,563.27	0.98	0	6,583.86
2021 – Operation	78,598.32	12.36	0.12	91,241.89
2021 – Total Emissions	85,161.59	13.34	0.12	97,825.75
2022 – Construction	4,935.61	0.65	0	4,949.17

## APPENDIX A (Continued)

**Table A.3-44**  
**Summary of Estimated Annual Mitigated Construction and**  
**Operational Greenhouse Gas Emissions**

Year – Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
2022 – Operation	78,598.32	12.36	0.12	91,241.89
2022 – Total Emissions	83,533.93	13.01	0.12	96,191.06
2023 – Construction	3,495.05	0.58	0	3,507.18
2023 – Operation	225,276.40	38.55	0.30	238,469.22
2023 – Total Emissions	228,771.45	39.13	0.30	241,976.40
2024 – Construction	3,417.43	0.43	0	3,426.49
2024 – Operation	225,276.40	38.55	0.30	238,469.22
2024 – Total Emissions	228,693.83	38.98	0.30	241,895.71
2025 – Construction	4,118.84	0.64	0	4,132.24
2025 – Operation	277,886.86	45.43	0.38	291,258.71
2025 – Total Emissions	282,005.70	46.07	0.38	295,390.95
2026 – Construction	5,306.11	0.79	0	5,322.70
2026 – Operation	277,886.86	45.43	0.38	291,258.71
2026 – Total Emissions	283,192.97	46.22	0.38	296,581.41
2027 – Construction	4,978.77	0.66	0	4,992.67
2027 – Operation	277,886.86	45.43	0.38	291,258.71
2027 – Total Emissions	282,865.63	46.09	0.38	296,251.38
2028 – Construction	2,660.90	0.5	0	2,611.38
2028 – Operation	390,929.15	59.11	0.49	434,634.76
2028 – Total Emissions	393,590.05	59.61	0.49	437,246.14
2029 – Construction	4,235.70	0.72	0	4,250.88
2029 – Operation	390,929.15	59.11	0.49	434,634.76
2029 – Total Emissions	395,164.85	59.83	0.49	438,885.64
2030 – Construction	4,543.30	0.14	0	4,546.21
2030 – Operation	390,929.15	59.11	0.49	434,634.76
2030 – Total Emissions	395,472.45	59.25	0.49	439,180.97
2031 – Construction	2,504.27	0.07	0	2,505.76
2031 – Operation	390,929.15	59.11	0.49	434,634.76
2031 – Total Emissions	393,433.42	59.18	0.49	437,140.52
2032 – Construction	4,333.17	0.14	0	4,336.13
2032 – Operation	491,186.17	70.05	0.63	505,153.02
2032 – Total Emissions	495,519.34	70.19	0.63	509,489.15
2033 – Construction	6,426.20	0.21	0	6,440.58
2033 – Operation	491,186.17	70.05	0.63	505,153.02
2033 – Total Emissions	497,612.37	70.26	0.63	511,593.60
2034 – Construction	7,927.42	0.26	0	7,932.88
2034 – Operation	491,186.32	70.05	0.63	505,153.17
2034 – Total Emissions	499,113.74	70.31	0.63	513,086.05

## APPENDIX A (Continued)

**Table A.3-44**  
**Summary of Estimated Annual Mitigated Construction and**  
**Operational Greenhouse Gas Emissions**

Year – Source	CO <sub>2</sub> (MT/year)	CH <sub>4</sub> (MT/year)	N <sub>2</sub> O (MT/year)	CO <sub>2</sub> E (MT/year)
2035 – Construction	5,326.38	0.15	0	5,329.67
2035 – Operation	490,138.43	69.75	0.64	504,108.79
2035 – Total Emissions	495,464.81	69.90	0.64	509,438.46
2036 – Construction	N/A	N/A	N/A	N/A
2036 – Operation	551,447.38	78.55	0.73	565,624.14
2036 – Total Emissions	551,447.38	78.55	0.73	565,624.14

Notes: See Appendices B and C for detailed results.

N/A = not applicable

# APPENDIX B

## *Construction Emissions – CalEEMod Output*



## Grapevine Construction - Planning Area 6A

### Kern-San Joaquin County, Annual

## 1.0 Project Characteristics

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	270.00	1000sqft	21.00	270,000.00	0
Elementary School	994.00	Student	5.00	83,101.75	0
Industrial Park	1,400.00	1000sqft	109.00	1,400,000.00	0
Other Asphalt Surfaces	59.00	Acre	59.00	2,570,040.00	0
City Park	5.00	Acre	5.00	217,800.00	0
Apartments Low Rise	750.00	Dwelling Unit	75.00	750,000.00	2145
Single Family Housing	585.00	Dwelling Unit	149.00	1,053,000.00	1673
Strip Mall	150.00	1000sqft	20.00	150,000.00	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2019
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Area 6A. Kern County, San Joaquin Valley Air Basin.

Land Use - See 1.1 Land Usage.

Construction Phase - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Trips and VMT - See 3.0 Construction Detail.

Demolition - None.

Grading - See 3.0 Construction Detail.

Architectural Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and an adjustment for parking/asphalt surface and park land uses. See 3.0 Construction Detail.

Area Coating - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Construction Off-road Equipment Mitigation - Tier 2 for construction equipment > 75 HP.

On-road Fugitive Dust - Water Exposed Area, Frequency: 3 times per day. Unpaved Road Mitigation, Vehicle Speed: 15 miles per hour.

**Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report:** Exhaust PM10 and PM2.5 emissions presented in the Technical Report; no Fugitive Dust PM10 and PM2.5 emissions presented in the Technical Report.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	2,345,471.00	1,118,246.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	7,036,413.00	2,854,653.00
tblAreaCoating	Area_Nonresidential_Interior	7036413	9632043
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	19.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	22.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	550.00	717.00
tblConstructionPhase	NumDays	7,750.00	347.00
tblConstructionPhase	NumDays	7,750.00	130.00
tblConstructionPhase	NumDays	7,750.00	740.00
tblConstructionPhase	NumDays	7,750.00	717.00
tblConstructionPhase	NumDays	7,750.00	717.00
tblConstructionPhase	NumDays	7,750.00	717.00
tblConstructionPhase	NumDays	775.00	630.00
tblConstructionPhase	NumDays	550.00	717.00
tblConstructionPhase	NumDays	300.00	521.00
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	4/29/2020	9/30/2018
tblConstructionPhase	PhaseEndDate	3/29/2019	9/30/2018

tblConstructionPhase	PhaseEndDate	4/30/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	5/29/2020	5/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	12/29/2017	12/31/2017
tblConstructionPhase	PhaseEndDate	9/30/2020	6/30/2018
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	6/1/2017
tblConstructionPhase	PhaseStartDate	10/1/2018	4/1/2018
tblConstructionPhase	PhaseStartDate	7/1/2018	3/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2018	1/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	6/1/2018	3/1/2016
tblGrading	AcresOfGrading	2,362.50	586.00
tblGrading	AcresOfGrading	260.50	586.00
tblGrading	MaterialExported	0.00	146,450.00
tblLandUse	LotAcreage	6.20	21.00
tblLandUse	LotAcreage	1.91	5.00
tblLandUse	LotAcreage	32.14	109.00
tblLandUse	LotAcreage	46.88	75.00
tblLandUse	LotAcreage	189.94	149.00
tblLandUse	LotAcreage	3.44	20.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00



tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	HaulingPercentPave	100.00	50.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblSolidWaste	SolidWasteGenerationRate	1,736.00	3,918.40
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	VendorTripNumber	912.00	14.00
tblTripsAndVMT	VendorTripNumber	912.00	32.00
tblTripsAndVMT	VendorTripNumber	912.00	144.00
tblTripsAndVMT	VendorTripNumber	912.00	22.00
tblTripsAndVMT	VendorTripNumber	912.00	518.00
tblTripsAndVMT	VendorTripNumber	912.00	44.00
tblTripsAndVMT	WorkerTripNumber	3.00	4.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	300.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	80.00
tblTripsAndVMT	WorkerTripNumber	63.00	64.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	220.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	200.00

tblTripsAndVMT	WorkerTripNumber	2,679.00	450.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	160.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	536.00	282.00
tblWater	IndoorWaterUseRate	323,750,000.00	730,750,000.00

## 2.0 Emissions Summary

### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	12.3977	34.7245	34.1866	0.0551	8.4113	1.6216	10.0329	1.1259	1.5015	2.6274	0.0000	4,820.9334	4,820.9334	0.6797	0.0000	4,835.2069
2017	15.8400	39.9632	41.6326	0.0726	9.0767	1.8751	10.9517	1.3058	1.7365	3.0423	0.0000	6,180.8381	6,180.8381	0.8417	0.0000	6,198.5142
2018	14.8972	29.9332	36.1536	0.0689	8.8327	1.3561	10.1888	1.2903	1.2579	2.5481	0.0000	5,700.5794	5,700.5794	0.6989	0.0000	5,715.2552
<b>Total</b>	<b>43.1349</b>	<b>104.6208</b>	<b>111.9727</b>	<b>0.1967</b>	<b>26.3206</b>	<b>4.8528</b>	<b>31.1734</b>	<b>3.7219</b>	<b>4.4959</b>	<b>8.2179</b>	<b>0.0000</b>	<b>16,702.3509</b>	<b>16,702.3509</b>	<b>2.2203</b>	<b>0.0000</b>	<b>16,748.9763</b>

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	10.7195	27.4658	33.4333	0.0551	5.6430	0.7546	6.3975	0.8457	0.7433	1.5890	0.0000	4,820.9308	4,820.9308	0.6797	0.0000	4,835.2043
2017	13.9826	33.6255	41.5360	0.0726	6.3084	0.9392	7.2475	1.0256	0.9267	1.9522	0.0000	6,180.8351	6,180.8351	0.8417	0.0000	6,198.5111
2018	13.7560	28.9877	37.2154	0.0689	6.2540	0.8287	7.0827	1.0305	0.8170	1.8475	0.0000	5,700.5769	5,700.5769	0.6989	0.0000	5,715.2527
<b>Total</b>	<b>38.4581</b>	<b>90.0789</b>	<b>112.1848</b>	<b>0.1967</b>	<b>18.2053</b>	<b>2.5225</b>	<b>20.7278</b>	<b>2.9018</b>	<b>2.4869</b>	<b>5.3888</b>	<b>0.0000</b>	<b>16,702.3427</b>	<b>16,702.3427</b>	<b>2.2203</b>	<b>0.0000</b>	<b>16,748.9681</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>10.84</b>	<b>13.90</b>	<b>-0.19</b>	<b>0.00</b>	<b>30.83</b>	<b>48.02</b>	<b>33.51</b>	<b>22.03</b>	<b>44.68</b>	<b>34.43</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>



### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2016	12/31/2017	5	521	
2	Grading	Grading	1/1/2016	5/31/2018	5	630	
3	Trenching	Trenching	3/1/2016	6/30/2018	5	609	
4	Building Construction - Residential	Building Construction	3/1/2016	12/31/2018	5	740	
5	Building Construction - Village Commercial	Building Construction	4/1/2016	12/31/2018	5	717	
6	Building Construction - Industrial	Building Construction	4/1/2016	12/31/2018	5	717	
7	Building Construction - Office/R&D	Building Construction	4/1/2016	12/31/2018	5	717	
8	Paving	Paving	4/1/2016	12/31/2018	5	717	
9	Architectural Coating	Architectural Coating	4/1/2016	12/31/2018	5	717	
10	Building Construction - School	Building Construction	6/1/2017	9/30/2018	5	347	
11	Building Construction - Parks	Building Construction	4/1/2018	9/30/2018	5	130	

**Acres of Grading (Site Preparation Phase): 586**

**Acres of Grading (Grading Phase): 586**

**Acres of Paving: 0**

**Residential Indoor: 3,651,075; Residential Outdoor: 1,217,025; Non-Residential Indoor: 2,854,653; Non-Residential Outdoor: 1,118,246**

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	0	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	2	6.00	174	0.41
Grading	Rollers	2	4.00	80	0.38

Grading	Rubber Tired Dozers	0	8.00	255	0.40
Grading	Rubber Tired Loaders	1	2.00	199	0.36
Grading	Scrapers	3	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Trenching	Other Construction Equipment	3	2.00	171	0.42
Trenching	Other Construction Equipment	2	1.00	171	0.42
Trenching	Tractors/Loaders/Backhoes	6	2.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	4	1.00	97	0.37
Trenching	Trenchers	6	2.00	80	0.50
Trenching	Trenchers	4	1.00	80	0.50
Building Construction - Residential	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Residential	Cranes	0	7.00	226	0.29
Building Construction - Residential	Forklifts	0	8.00	89	0.20
Building Construction - Residential	Generator Sets	0	8.00	84	0.74
Building Construction - Residential	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Residential	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Residential	Welders	0	8.00	46	0.45
Building Construction - Village Commercial	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Village Commercial	Cranes	0	7.00	226	0.29
Building Construction - Village Commercial	Forklifts	0	8.00	89	0.20
Building Construction - Village Commercial	Generator Sets	0	8.00	84	0.74
Building Construction - Village Commercial	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Village Commercial	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Village Commercial	Welders	0	8.00	46	0.45
Building Construction - Industrial	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Industrial	Cranes	0	7.00	226	0.29
Building Construction - Industrial	Forklifts	0	8.00	89	0.20
Building Construction - Industrial	Generator Sets	0	8.00	84	0.74
Building Construction - Industrial	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Industrial	Tractors/Loaders/Backhoes	2	8.00	97	0.37

Building Construction - Industrial	Welders	0	8.00	46	0.45
Building Construction - Office/R&D	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Office/R&D	Cranes	0	7.00	226	0.29
Building Construction - Office/R&D	Forklifts	0	8.00	89	0.20
Building Construction - Office/R&D	Generator Sets	0	8.00	84	0.74
Building Construction - Office/R&D	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Office/R&D	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Office/R&D	Welders	0	8.00	46	0.45
Paving	Other Construction Equipment	2	8.00	171	0.42
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38
Architectural Coating	Air Compressors	6	6.00	78	0.48
Building Construction - School	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - School	Cranes	0	7.00	226	0.29
Building Construction - School	Forklifts	0	8.00	89	0.20
Building Construction - School	Generator Sets	0	8.00	84	0.74
Building Construction - School	Other Construction Equipment	2	8.00	171	0.42
Building Construction - School	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - School	Welders	0	8.00	46	0.45
Building Construction - Parks	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Parks	Cranes	0	7.00	226	0.29
Building Construction - Parks	Forklifts	0	8.00	89	0.20
Building Construction - Parks	Generator Sets	0	8.00	84	0.74
Building Construction - Parks	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Parks	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Parks	Welders	0	8.00	46	0.45

### Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	18,306.00	10.80	7.30	1.00	LD_Mix	HDT_Mix	HHDT
Trenching	25	64.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Residential	5	220.00	144.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Village Commercial	5	200.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Industrial	5	450.00	518.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Office/R&D	5	160.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	6	282.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - School	5	300.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Parks	5	80.00	32.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

### 3.2 Site Preparation - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3107	0.0000	0.3107	0.0336	0.0000	0.0336	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1330	1.3546	0.6430	8.1000e-004		0.0761	0.0761		0.0700	0.0700	0.0000	76.8817	76.8817	0.0232	0.0000	77.3687

Total	0.1330	1.3546	0.6430	8.1000e-004	0.3107	0.0761	0.3868	0.0336	0.0700	0.1036	0.0000	76.8817	76.8817	0.0232	0.0000	77.3687
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9200e-003	2.3900e-003	0.0237	5.0000e-005	4.2100e-003	3.0000e-005	4.2400e-003	1.1200e-003	3.0000e-005	1.1500e-003	0.0000	4.0416	4.0416	2.1000e-004	0.0000	4.0460
Total	1.9200e-003	2.3900e-003	0.0237	5.0000e-005	4.2100e-003	3.0000e-005	4.2400e-003	1.1200e-003	3.0000e-005	1.1500e-003	0.0000	4.0416	4.0416	2.1000e-004	0.0000	4.0460

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1212	0.0000	0.1212	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0312	0.6847	0.6075	8.1000e-004		0.0210	0.0210		0.0210	0.0210	0.0000	76.8816	76.8816	0.0232	0.0000	77.3686
Total	0.0312	0.6847	0.6075	8.1000e-004	0.1212	0.0210	0.1422	0.0131	0.0210	0.0341	0.0000	76.8816	76.8816	0.0232	0.0000	77.3686

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.9200e-003	2.3900e-003	0.0237	5.0000e-005	4.2100e-003	3.0000e-005	4.2400e-003	1.1200e-003	3.0000e-005	1.1500e-003	0.0000	4.0416	4.0416	2.1000e-004	0.0000	4.0460
<b>Total</b>	<b>1.9200e-003</b>	<b>2.3900e-003</b>	<b>0.0237</b>	<b>5.0000e-005</b>	<b>4.2100e-003</b>	<b>3.0000e-005</b>	<b>4.2400e-003</b>	<b>1.1200e-003</b>	<b>3.0000e-005</b>	<b>1.1500e-003</b>	<b>0.0000</b>	<b>4.0416</b>	<b>4.0416</b>	<b>2.1000e-004</b>	<b>0.0000</b>	<b>4.0460</b>

### 3.2 Site Preparation - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3107	0.0000	0.3107	0.0336	0.0000	0.0336	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1238	1.2534	0.6290	8.1000e-004		0.0704	0.0704		0.0648	0.0648	0.0000	75.1949	75.1949	0.0230	0.0000	75.6787
<b>Total</b>	<b>0.1238</b>	<b>1.2534</b>	<b>0.6290</b>	<b>8.1000e-004</b>	<b>0.3107</b>	<b>0.0704</b>	<b>0.3811</b>	<b>0.0336</b>	<b>0.0648</b>	<b>0.0983</b>	<b>0.0000</b>	<b>75.1949</b>	<b>75.1949</b>	<b>0.0230</b>	<b>0.0000</b>	<b>75.6787</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6700e-003	2.1100e-003	0.0207	5.0000e-005	4.1900e-003	3.0000e-005	4.2200e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.8662	3.8662	1.9000e-004	0.0000	3.8701
<b>Total</b>	<b>1.6700e-003</b>	<b>2.1100e-003</b>	<b>0.0207</b>	<b>5.0000e-005</b>	<b>4.1900e-003</b>	<b>3.0000e-005</b>	<b>4.2200e-003</b>	<b>1.1100e-003</b>	<b>3.0000e-005</b>	<b>1.1400e-003</b>	<b>0.0000</b>	<b>3.8662</b>	<b>3.8662</b>	<b>1.9000e-004</b>	<b>0.0000</b>	<b>3.8701</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1212	0.0000	0.1212	0.0131	0.0000	0.0131	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0311	0.6821	0.6052	8.1000e-004		0.0209	0.0209		0.0209	0.0209	0.0000	75.1948	75.1948	0.0230	0.0000	75.6786
<b>Total</b>	<b>0.0311</b>	<b>0.6821</b>	<b>0.6052</b>	<b>8.1000e-004</b>	<b>0.1212</b>	<b>0.0209</b>	<b>0.1421</b>	<b>0.0131</b>	<b>0.0209</b>	<b>0.0340</b>	<b>0.0000</b>	<b>75.1948</b>	<b>75.1948</b>	<b>0.0230</b>	<b>0.0000</b>	<b>75.6786</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.6700e-003	2.1100e-003	0.0207	5.0000e-005	4.1900e-003	3.0000e-005	4.2200e-003	1.1100e-003	3.0000e-005	1.1400e-003	0.0000	3.8662	3.8662	1.9000e-004	0.0000	3.8701
<b>Total</b>	<b>1.6700e-003</b>	<b>2.1100e-003</b>	<b>0.0207</b>	<b>5.0000e-005</b>	<b>4.1900e-003</b>	<b>3.0000e-005</b>	<b>4.2200e-003</b>	<b>1.1100e-003</b>	<b>3.0000e-005</b>	<b>1.1400e-003</b>	<b>0.0000</b>	<b>3.8662</b>	<b>3.8662</b>	<b>1.9000e-004</b>	<b>0.0000</b>	<b>3.8701</b>

### 3.3 Grading - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3215	0.0000	0.3215	0.0352	0.0000	0.0352	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.8008	9.5377	5.6021	7.5900e-003		0.4289	0.4289		0.3946	0.3946	0.0000	716.0211	716.0211	0.2160	0.0000	720.5566
<b>Total</b>	<b>0.8008</b>	<b>9.5377</b>	<b>5.6021</b>	<b>7.5900e-003</b>	<b>0.3215</b>	<b>0.4289</b>	<b>0.7504</b>	<b>0.0352</b>	<b>0.3946</b>	<b>0.4298</b>	<b>0.0000</b>	<b>716.0211</b>	<b>716.0211</b>	<b>0.2160</b>	<b>0.0000</b>	<b>720.5566</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0412	0.1274	0.7385	2.1000e-004	6.1490	1.0100e-003	6.1500	0.6142	9.2000e-004	0.6151	0.0000	18.6129	18.6129	2.8000e-004	0.0000	18.6188
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5800e-003	0.0119	0.1184	2.7000e-004	0.0210	1.7000e-004	0.0212	5.5900e-003	1.5000e-004	5.7400e-003	0.0000	20.2081	20.2081	1.0300e-003	0.0000	20.2299
<b>Total</b>	<b>0.0508</b>	<b>0.1393</b>	<b>0.8568</b>	<b>4.8000e-004</b>	<b>6.1700</b>	<b>1.1800e-003</b>	<b>6.1712</b>	<b>0.6198</b>	<b>1.0700e-003</b>	<b>0.6209</b>	<b>0.0000</b>	<b>38.8210</b>	<b>38.8210</b>	<b>1.3100e-003</b>	<b>0.0000</b>	<b>38.8486</b>

#### Mitigated Construction On-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1254	0.0000	0.1254	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2114	6.0651	4.3882	7.5900e-003		0.1539	0.1539		0.1539	0.1539	0.0000	716.0202	716.0202	0.2160	0.0000	720.5557
<b>Total</b>	<b>0.2114</b>	<b>6.0651</b>	<b>4.3882</b>	<b>7.5900e-003</b>	<b>0.1254</b>	<b>0.1539</b>	<b>0.2793</b>	<b>0.0137</b>	<b>0.1539</b>	<b>0.1676</b>	<b>0.0000</b>	<b>716.0202</b>	<b>716.0202</b>	<b>0.2160</b>	<b>0.0000</b>	<b>720.5557</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0412	0.1274	0.7385	2.1000e-004	3.7664	1.0100e-003	3.7674	0.3760	9.2000e-004	0.3769	0.0000	18.6129	18.6129	2.8000e-004	0.0000	18.6188
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.5800e-003	0.0119	0.1184	2.7000e-004	0.0210	1.7000e-004	0.0212	5.5900e-003	1.5000e-004	5.7400e-003	0.0000	20.2081	20.2081	1.0300e-003	0.0000	20.2299
<b>Total</b>	<b>0.0508</b>	<b>0.1393</b>	<b>0.8568</b>	<b>4.8000e-004</b>	<b>3.7874</b>	<b>1.1800e-003</b>	<b>3.7886</b>	<b>0.3815</b>	<b>1.0700e-003</b>	<b>0.3826</b>	<b>0.0000</b>	<b>38.8210</b>	<b>38.8210</b>	<b>1.3100e-003</b>	<b>0.0000</b>	<b>38.8486</b>

### 3.3 Grading - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3215	0.0000	0.3215	0.0352	0.0000	0.0352	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.7481	8.8166	5.2378	7.5600e-003		0.3950	0.3950		0.3634	0.3634	0.0000	701.8588	701.8588	0.2151	0.0000	706.3748
<b>Total</b>	<b>0.7481</b>	<b>8.8166</b>	<b>5.2378</b>	<b>7.5600e-003</b>	<b>0.3215</b>	<b>0.3950</b>	<b>0.7165</b>	<b>0.0352</b>	<b>0.3634</b>	<b>0.3986</b>	<b>0.0000</b>	<b>701.8588</b>	<b>701.8588</b>	<b>0.2151</b>	<b>0.0000</b>	<b>706.3748</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0363	0.1167	0.6934	2.1000e-004	6.1490	8.6000e-004	6.1498	0.6142	7.9000e-004	0.6150	0.0000	18.2068	18.2068	2.8000e-004	0.0000	18.2127
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3700e-003	0.0106	0.1035	2.7000e-004	0.0210	1.6000e-004	0.0211	5.5700e-003	1.5000e-004	5.7100e-003	0.0000	19.3309	19.3309	9.4000e-004	0.0000	19.3507
<b>Total</b>	<b>0.0447</b>	<b>0.1272</b>	<b>0.7968</b>	<b>4.8000e-004</b>	<b>6.1699</b>	<b>1.0200e-003</b>	<b>6.1709</b>	<b>0.6198</b>	<b>9.4000e-004</b>	<b>0.6207</b>	<b>0.0000</b>	<b>37.5378</b>	<b>37.5378</b>	<b>1.2200e-003</b>	<b>0.0000</b>	<b>37.5633</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1254	0.0000	0.1254	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2106	6.0419	4.3714	7.5600e-003		0.1533	0.1533		0.1533	0.1533	0.0000	701.8580	701.8580	0.2151	0.0000	706.3740
<b>Total</b>	<b>0.2106</b>	<b>6.0419</b>	<b>4.3714</b>	<b>7.5600e-003</b>	<b>0.1254</b>	<b>0.1533</b>	<b>0.2787</b>	<b>0.0137</b>	<b>0.1533</b>	<b>0.1670</b>	<b>0.0000</b>	<b>701.8580</b>	<b>701.8580</b>	<b>0.2151</b>	<b>0.0000</b>	<b>706.3740</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0363	0.1167	0.6934	2.1000e-004	3.7664	8.6000e-004	3.7672	0.3760	7.9000e-004	0.3767	0.0000	18.2068	18.2068	2.8000e-004	0.0000	18.2127
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.3700e-003	0.0106	0.1035	2.7000e-004	0.0210	1.6000e-004	0.0211	5.5700e-003	1.5000e-004	5.7100e-003	0.0000	19.3309	19.3309	9.4000e-004	0.0000	19.3507
<b>Total</b>	<b>0.0447</b>	<b>0.1272</b>	<b>0.7968</b>	<b>4.8000e-004</b>	<b>3.7873</b>	<b>1.0200e-003</b>	<b>3.7883</b>	<b>0.3815</b>	<b>9.4000e-004</b>	<b>0.3825</b>	<b>0.0000</b>	<b>37.5378</b>	<b>37.5378</b>	<b>1.2200e-003</b>	<b>0.0000</b>	<b>37.5633</b>

### 3.3 Grading - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.3215	0.0000	0.3215	0.0352	0.0000	0.0352	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2723	3.1688	1.9234	3.1700e-003		0.1399	0.1399		0.1287	0.1287	0.0000	289.5472	289.5472	0.0901	0.0000	291.4401
<b>Total</b>	<b>0.2723</b>	<b>3.1688</b>	<b>1.9234</b>	<b>3.1700e-003</b>	<b>0.3215</b>	<b>0.1399</b>	<b>0.4614</b>	<b>0.0352</b>	<b>0.1287</b>	<b>0.1639</b>	<b>0.0000</b>	<b>289.5472</b>	<b>289.5472</b>	<b>0.0901</b>	<b>0.0000</b>	<b>291.4401</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0144	0.0454	0.2798	9.0000e-005	6.1485	3.5000e-004	6.1488	0.6140	3.2000e-004	0.6143	0.0000	7.5002	7.5002	1.2000e-004	0.0000	7.5026
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0900e-003	3.9500e-003	0.0383	1.1000e-004	8.7800e-003	7.0000e-005	8.8500e-003	2.3300e-003	6.0000e-005	2.3900e-003	0.0000	7.7741	7.7741	3.6000e-004	0.0000	7.7817
<b>Total</b>	<b>0.0175</b>	<b>0.0494</b>	<b>0.3181</b>	<b>2.0000e-004</b>	<b>6.1572</b>	<b>4.2000e-004</b>	<b>6.1577</b>	<b>0.6164</b>	<b>3.8000e-004</b>	<b>0.6167</b>	<b>0.0000</b>	<b>15.2743</b>	<b>15.2743</b>	<b>4.8000e-004</b>	<b>0.0000</b>	<b>15.2843</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1254	0.0000	0.1254	0.0137	0.0000	0.0137	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0883	2.5330	1.8326	3.1700e-003		0.0643	0.0643		0.0643	0.0643	0.0000	289.5468	289.5468	0.0901	0.0000	291.4398
<b>Total</b>	<b>0.0883</b>	<b>2.5330</b>	<b>1.8326</b>	<b>3.1700e-003</b>	<b>0.1254</b>	<b>0.0643</b>	<b>0.1897</b>	<b>0.0137</b>	<b>0.0643</b>	<b>0.0780</b>	<b>0.0000</b>	<b>289.5468</b>	<b>289.5468</b>	<b>0.0901</b>	<b>0.0000</b>	<b>291.4398</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0144	0.0454	0.2798	9.0000e-005	3.7659	3.5000e-004	3.7662	0.3758	3.2000e-004	0.3761	0.0000	7.5002	7.5002	1.2000e-004	0.0000	7.5026
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0900e-003	3.9500e-003	0.0383	1.1000e-004	8.7800e-003	7.0000e-005	8.8500e-003	2.3300e-003	6.0000e-005	2.3900e-003	0.0000	7.7741	7.7741	3.6000e-004	0.0000	7.7817
<b>Total</b>	<b>0.0175</b>	<b>0.0494</b>	<b>0.3181</b>	<b>2.0000e-004</b>	<b>3.7746</b>	<b>4.2000e-004</b>	<b>3.7751</b>	<b>0.3781</b>	<b>3.8000e-004</b>	<b>0.3785</b>	<b>0.0000</b>	<b>15.2743</b>	<b>15.2743</b>	<b>4.8000e-004</b>	<b>0.0000</b>	<b>15.2843</b>

### 3.4 Trenching - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2691	2.5862	1.6101	2.1100e-003		0.1810	0.1810		0.1665	0.1665	0.0000	199.1872	199.1872	0.0601	0.0000	200.4489
<b>Total</b>	<b>0.2691</b>	<b>2.5862</b>	<b>1.6101</b>	<b>2.1100e-003</b>		<b>0.1810</b>	<b>0.1810</b>		<b>0.1665</b>	<b>0.1665</b>	<b>0.0000</b>	<b>199.1872</b>	<b>199.1872</b>	<b>0.0601</b>	<b>0.0000</b>	<b>200.4489</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0257	0.0320	0.3178	7.3000e-004	0.0565	4.5000e-004	0.0569	0.0150	4.1000e-004	0.0154	0.0000	54.2600	54.2600	2.7800e-003	0.0000	54.3184
<b>Total</b>	<b>0.0257</b>	<b>0.0320</b>	<b>0.3178</b>	<b>7.3000e-004</b>	<b>0.0565</b>	<b>4.5000e-004</b>	<b>0.0569</b>	<b>0.0150</b>	<b>4.1000e-004</b>	<b>0.0154</b>	<b>0.0000</b>	<b>54.2600</b>	<b>54.2600</b>	<b>2.7800e-003</b>	<b>0.0000</b>	<b>54.3184</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0938	1.9707	1.5978	2.1100e-003		0.0740	0.0740		0.0740	0.0740	0.0000	199.1869	199.1869	0.0601	0.0000	200.4486
<b>Total</b>	<b>0.0938</b>	<b>1.9707</b>	<b>1.5978</b>	<b>2.1100e-003</b>		<b>0.0740</b>	<b>0.0740</b>		<b>0.0740</b>	<b>0.0740</b>	<b>0.0000</b>	<b>199.1869</b>	<b>199.1869</b>	<b>0.0601</b>	<b>0.0000</b>	<b>200.4486</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0257	0.0320	0.3178	7.3000e-004	0.0565	4.5000e-004	0.0569	0.0150	4.1000e-004	0.0154	0.0000	54.2600	54.2600	2.7800e-003	0.0000	54.3184
<b>Total</b>	<b>0.0257</b>	<b>0.0320</b>	<b>0.3178</b>	<b>7.3000e-004</b>	<b>0.0565</b>	<b>4.5000e-004</b>	<b>0.0569</b>	<b>0.0150</b>	<b>4.1000e-004</b>	<b>0.0154</b>	<b>0.0000</b>	<b>54.2600</b>	<b>54.2600</b>	<b>2.7800e-003</b>	<b>0.0000</b>	<b>54.3184</b>

### 3.4 Trenching - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3045	2.9212	1.8999	2.5100e-003		0.2033	0.2033		0.1870	0.1870	0.0000	232.6849	232.6849	0.0713	0.0000	234.1821

<b>Total</b>	<b>0.3045</b>	<b>2.9212</b>	<b>1.8999</b>	<b>2.5100e-003</b>		<b>0.2033</b>	<b>0.2033</b>		<b>0.1870</b>	<b>0.1870</b>	<b>0.0000</b>	<b>232.6849</b>	<b>232.6849</b>	<b>0.0713</b>	<b>0.0000</b>	<b>234.1821</b>
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0268	0.0338	0.3311	8.6000e-004	0.0670	5.1000e-004	0.0676	0.0178	4.7000e-004	0.0183	0.0000	61.8590	61.8590	3.0100e-003	0.0000	61.9222
<b>Total</b>	<b>0.0268</b>	<b>0.0338</b>	<b>0.3311</b>	<b>8.6000e-004</b>	<b>0.0670</b>	<b>5.1000e-004</b>	<b>0.0676</b>	<b>0.0178</b>	<b>4.7000e-004</b>	<b>0.0183</b>	<b>0.0000</b>	<b>61.8590</b>	<b>61.8590</b>	<b>3.0100e-003</b>	<b>0.0000</b>	<b>61.9222</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1113	2.3397	1.8969	2.5100e-003		0.0879	0.0879		0.0879	0.0879	0.0000	232.6846	232.6846	0.0713	0.0000	234.1818
<b>Total</b>	<b>0.1113</b>	<b>2.3397</b>	<b>1.8969</b>	<b>2.5100e-003</b>		<b>0.0879</b>	<b>0.0879</b>		<b>0.0879</b>	<b>0.0879</b>	<b>0.0000</b>	<b>232.6846</b>	<b>232.6846</b>	<b>0.0713</b>	<b>0.0000</b>	<b>234.1818</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0268	0.0338	0.3311	8.6000e-004	0.0670	5.1000e-004	0.0676	0.0178	4.7000e-004	0.0183	0.0000	61.8590	61.8590	3.0100e-003	0.0000	61.9222
<b>Total</b>	<b>0.0268</b>	<b>0.0338</b>	<b>0.3311</b>	<b>8.6000e-004</b>	<b>0.0670</b>	<b>5.1000e-004</b>	<b>0.0676</b>	<b>0.0178</b>	<b>4.7000e-004</b>	<b>0.0183</b>	<b>0.0000</b>	<b>61.8590</b>	<b>61.8590</b>	<b>3.0100e-003</b>	<b>0.0000</b>	<b>61.9222</b>

### 3.4 Trenching - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1309	1.2759	0.9260	1.2500e-003		0.0861	0.0861		0.0792	0.0792	0.0000	114.4130	114.4130	0.0356	0.0000	115.1610
<b>Total</b>	<b>0.1309</b>	<b>1.2759</b>	<b>0.9260</b>	<b>1.2500e-003</b>		<b>0.0861</b>	<b>0.0861</b>		<b>0.0792</b>	<b>0.0792</b>	<b>0.0000</b>	<b>114.4130</b>	<b>114.4130</b>	<b>0.0356</b>	<b>0.0000</b>	<b>115.1610</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					



Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0118	0.0151	0.1461	4.3000e-004	0.0335	2.5000e-004	0.0338	8.9000e-003	2.3000e-004	9.1300e-003	0.0000	29.6700	29.6700	1.3800e-003	0.0000	29.6990
<b>Total</b>	<b>0.0118</b>	<b>0.0151</b>	<b>0.1461</b>	<b>4.3000e-004</b>	<b>0.0335</b>	<b>2.5000e-004</b>	<b>0.0338</b>	<b>8.9000e-003</b>	<b>2.3000e-004</b>	<b>9.1300e-003</b>	<b>0.0000</b>	<b>29.6700</b>	<b>29.6700</b>	<b>1.3800e-003</b>	<b>0.0000</b>	<b>29.6990</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0557	1.1698	0.9484	1.2500e-003		0.0440	0.0440		0.0440	0.0440	0.0000	114.4129	114.4129	0.0356	0.0000	115.1609
<b>Total</b>	<b>0.0557</b>	<b>1.1698</b>	<b>0.9484</b>	<b>1.2500e-003</b>		<b>0.0440</b>	<b>0.0440</b>		<b>0.0440</b>	<b>0.0440</b>	<b>0.0000</b>	<b>114.4129</b>	<b>114.4129</b>	<b>0.0356</b>	<b>0.0000</b>	<b>115.1609</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0118	0.0151	0.1461	4.3000e-004	0.0335	2.5000e-004	0.0338	8.9000e-003	2.3000e-004	9.1300e-003	0.0000	29.6700	29.6700	1.3800e-003	0.0000	29.6990
<b>Total</b>	<b>0.0118</b>	<b>0.0151</b>	<b>0.1461</b>	<b>4.3000e-004</b>	<b>0.0335</b>	<b>2.5000e-004</b>	<b>0.0338</b>	<b>8.9000e-003</b>	<b>2.3000e-004</b>	<b>9.1300e-003</b>	<b>0.0000</b>	<b>29.6700</b>	<b>29.6700</b>	<b>1.3800e-003</b>	<b>0.0000</b>	<b>29.6990</b>

### 3.5 Building Construction - Residential - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2265	2.3671	1.4933	2.1000e-003		0.1414	0.1414		0.1302	0.1302	0.0000	196.1505	196.1505	0.0582	0.0000	197.3721
<b>Total</b>	<b>0.2265</b>	<b>2.3671</b>	<b>1.4933</b>	<b>2.1000e-003</b>		<b>0.1414</b>	<b>0.1414</b>		<b>0.1302</b>	<b>0.1302</b>	<b>0.0000</b>	<b>196.1505</b>	<b>196.1505</b>	<b>0.0582</b>	<b>0.0000</b>	<b>197.3721</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1909	1.5908	2.3041	3.7400e-003	0.1035	0.0279	0.1314	0.0297	0.0257	0.0553	0.0000	339.8493	339.8493	2.9400e-003	0.0000	339.9110
Worker	0.0884	0.1101	1.0924	2.5000e-003	0.1941	1.5300e-003	0.1957	0.0516	1.4000e-003	0.0530	0.0000	186.5188	186.5188	9.5500e-003	0.0000	186.7194
<b>Total</b>	<b>0.2793</b>	<b>1.7009</b>	<b>3.3965</b>	<b>6.2400e-003</b>	<b>0.2976</b>	<b>0.0295</b>	<b>0.3271</b>	<b>0.0812</b>	<b>0.0271</b>	<b>0.1083</b>	<b>0.0000</b>	<b>526.3681</b>	<b>526.3681</b>	<b>0.0125</b>	<b>0.0000</b>	<b>526.6304</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0910	1.8557	1.5731	2.1000e-003		0.0638	0.0638		0.0638	0.0638	0.0000	196.1502	196.1502	0.0582	0.0000	197.3719
<b>Total</b>	<b>0.0910</b>	<b>1.8557</b>	<b>1.5731</b>	<b>2.1000e-003</b>		<b>0.0638</b>	<b>0.0638</b>		<b>0.0638</b>	<b>0.0638</b>	<b>0.0000</b>	<b>196.1502</b>	<b>196.1502</b>	<b>0.0582</b>	<b>0.0000</b>	<b>197.3719</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1909	1.5908	2.3041	3.7400e-003	0.1035	0.0279	0.1314	0.0297	0.0257	0.0553	0.0000	339.8493	339.8493	2.9400e-003	0.0000	339.9110
Worker	0.0884	0.1101	1.0924	2.5000e-003	0.1941	1.5300e-003	0.1957	0.0516	1.4000e-003	0.0530	0.0000	186.5188	186.5188	9.5500e-003	0.0000	186.7194
<b>Total</b>	<b>0.2793</b>	<b>1.7009</b>	<b>3.3965</b>	<b>6.2400e-003</b>	<b>0.2976</b>	<b>0.0295</b>	<b>0.3271</b>	<b>0.0812</b>	<b>0.0271</b>	<b>0.1083</b>	<b>0.0000</b>	<b>526.3681</b>	<b>526.3681</b>	<b>0.0125</b>	<b>0.0000</b>	<b>526.6304</b>

### **3.5 Building Construction - Residential - 2017**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2548	2.6488	1.7617	2.5000e-003		0.1570	0.1570		0.1446	0.1446	0.0000	229.1961	229.1961	0.0690	0.0000	230.6454

<b>Total</b>	<b>0.2548</b>	<b>2.6488</b>	<b>1.7617</b>	<b>2.5000e-003</b>		<b>0.1570</b>	<b>0.1570</b>		<b>0.1446</b>	<b>0.1446</b>	<b>0.0000</b>	<b>229.1961</b>	<b>229.1961</b>	<b>0.0690</b>	<b>0.0000</b>	<b>230.6454</b>
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2006	1.6655	2.5391	4.4400e-003	0.1229	0.0279	0.1508	0.0352	0.0256	0.0608	0.0000	396.6148	396.6148	3.2300e-003	0.0000	396.6827
Worker	0.0921	0.1162	1.1381	2.9700e-003	0.2305	1.7500e-003	0.2322	0.0612	1.6100e-003	0.0628	0.0000	212.6403	212.6403	0.0103	0.0000	212.8574
<b>Total</b>	<b>0.2927</b>	<b>1.7816</b>	<b>3.6772</b>	<b>7.4100e-003</b>	<b>0.3534</b>	<b>0.0296</b>	<b>0.3830</b>	<b>0.0964</b>	<b>0.0272</b>	<b>0.1237</b>	<b>0.0000</b>	<b>609.2551</b>	<b>609.2551</b>	<b>0.0136</b>	<b>0.0000</b>	<b>609.5401</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1081	2.2030	1.8676	2.5000e-003		0.0757	0.0757		0.0757	0.0757	0.0000	229.1958	229.1958	0.0690	0.0000	230.6452
<b>Total</b>	<b>0.1081</b>	<b>2.2030</b>	<b>1.8676</b>	<b>2.5000e-003</b>		<b>0.0757</b>	<b>0.0757</b>		<b>0.0757</b>	<b>0.0757</b>	<b>0.0000</b>	<b>229.1958</b>	<b>229.1958</b>	<b>0.0690</b>	<b>0.0000</b>	<b>230.6452</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2006	1.6655	2.5391	4.4400e-003	0.1229	0.0279	0.1508	0.0352	0.0256	0.0608	0.0000	396.6148	396.6148	3.2300e-003	0.0000	396.6827
Worker	0.0921	0.1162	1.1381	2.9700e-003	0.2305	1.7500e-003	0.2322	0.0612	1.6100e-003	0.0628	0.0000	212.6403	212.6403	0.0103	0.0000	212.8574
<b>Total</b>	<b>0.2927</b>	<b>1.7816</b>	<b>3.6772</b>	<b>7.4100e-003</b>	<b>0.3534</b>	<b>0.0296</b>	<b>0.3830</b>	<b>0.0964</b>	<b>0.0272</b>	<b>0.1237</b>	<b>0.0000</b>	<b>609.2551</b>	<b>609.2551</b>	<b>0.0136</b>	<b>0.0000</b>	<b>609.5401</b>

### 3.5 Building Construction - Residential - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2214	2.3064	1.7290	2.5100e-003		0.1332	0.1332		0.1227	0.1227	0.0000	226.3950	226.3950	0.0692	0.0000	227.8490
<b>Total</b>	<b>0.2214</b>	<b>2.3064</b>	<b>1.7290</b>	<b>2.5100e-003</b>		<b>0.1332</b>	<b>0.1332</b>		<b>0.1227</b>	<b>0.1227</b>	<b>0.0000</b>	<b>226.3950</b>	<b>226.3950</b>	<b>0.0692</b>	<b>0.0000</b>	<b>227.8490</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1859	1.4999	2.4107	4.4400e-003	0.1234	0.0256	0.1490	0.0353	0.0236	0.0589	0.0000	391.1902	391.1902	3.1500e-003	0.0000	391.2564
Worker	0.0815	0.1041	1.0085	2.9700e-003	0.2314	1.7200e-003	0.2331	0.0615	1.5900e-003	0.0630	0.0000	204.7658	204.7658	9.5100e-003	0.0000	204.9656
<b>Total</b>	<b>0.2674</b>	<b>1.6040</b>	<b>3.4192</b>	<b>7.4100e-003</b>	<b>0.3547</b>	<b>0.0274</b>	<b>0.3821</b>	<b>0.0968</b>	<b>0.0252</b>	<b>0.1219</b>	<b>0.0000</b>	<b>595.9561</b>	<b>595.9561</b>	<b>0.0127</b>	<b>0.0000</b>	<b>596.2221</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	226.3947	226.3947	0.0692	0.0000	227.8487
<b>Total</b>	<b>0.1085</b>	<b>2.2114</b>	<b>1.8748</b>	<b>2.5100e-003</b>		<b>0.0759</b>	<b>0.0759</b>		<b>0.0759</b>	<b>0.0759</b>	<b>0.0000</b>	<b>226.3947</b>	<b>226.3947</b>	<b>0.0692</b>	<b>0.0000</b>	<b>227.8487</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1859	1.4999	2.4107	4.4400e-003	0.1234	0.0256	0.1490	0.0353	0.0236	0.0589	0.0000	391.1902	391.1902	3.1500e-003	0.0000	391.2564
Worker	0.0815	0.1041	1.0085	2.9700e-003	0.2314	1.7200e-003	0.2331	0.0615	1.5900e-003	0.0630	0.0000	204.7658	204.7658	9.5100e-003	0.0000	204.9656
<b>Total</b>	<b>0.2674</b>	<b>1.6040</b>	<b>3.4192</b>	<b>7.4100e-003</b>	<b>0.3547</b>	<b>0.0274</b>	<b>0.3821</b>	<b>0.0968</b>	<b>0.0252</b>	<b>0.1219</b>	<b>0.0000</b>	<b>595.9561</b>	<b>595.9561</b>	<b>0.0127</b>	<b>0.0000</b>	<b>596.2221</b>

### 3.6 Building Construction - Village Commercial - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2027	2.1185	1.3365	1.8800e-003		0.1265	0.1265		0.1165	0.1165	0.0000	175.5502	175.5502	0.0521	0.0000	176.6435
<b>Total</b>	<b>0.2027</b>	<b>2.1185</b>	<b>1.3365</b>	<b>1.8800e-003</b>		<b>0.1265</b>	<b>0.1265</b>		<b>0.1165</b>	<b>0.1165</b>	<b>0.0000</b>	<b>175.5502</b>	<b>175.5502</b>	<b>0.0521</b>	<b>0.0000</b>	<b>176.6435</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0261	0.2175	0.3151	5.1000e-004	0.0142	3.8200e-003	0.0180	4.0500e-003	3.5100e-003	7.5600e-003	0.0000	46.4685	46.4685	4.0000e-004	0.0000	46.4769
Worker	0.0719	0.0896	0.8888	2.0300e-003	0.1579	1.2500e-003	0.1592	0.0420	1.1400e-003	0.0431	0.0000	151.7546	151.7546	7.7700e-003	0.0000	151.9178
<b>Total</b>	<b>0.0980</b>	<b>0.3071</b>	<b>1.2039</b>	<b>2.5400e-003</b>	<b>0.1721</b>	<b>5.0700e-003</b>	<b>0.1772</b>	<b>0.0460</b>	<b>4.6500e-003</b>	<b>0.0507</b>	<b>0.0000</b>	<b>198.2231</b>	<b>198.2231</b>	<b>8.1700e-003</b>	<b>0.0000</b>	<b>198.3947</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0815	1.6608	1.4079	1.8800e-003		0.0571	0.0571		0.0571	0.0571	0.0000	175.5500	175.5500	0.0521	0.0000	176.6433
<b>Total</b>	<b>0.0815</b>	<b>1.6608</b>	<b>1.4079</b>	<b>1.8800e-003</b>		<b>0.0571</b>	<b>0.0571</b>		<b>0.0571</b>	<b>0.0571</b>	<b>0.0000</b>	<b>175.5500</b>	<b>175.5500</b>	<b>0.0521</b>	<b>0.0000</b>	<b>176.6433</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0261	0.2175	0.3151	5.1000e-004	0.0142	3.8200e-003	0.0180	4.0500e-003	3.5100e-003	7.5600e-003	0.0000	46.4685	46.4685	4.0000e-004	0.0000	46.4769
Worker	0.0719	0.0896	0.8888	2.0300e-003	0.1579	1.2500e-003	0.1592	0.0420	1.1400e-003	0.0431	0.0000	151.7546	151.7546	7.7700e-003	0.0000	151.9178
<b>Total</b>	<b>0.0980</b>	<b>0.3071</b>	<b>1.2039</b>	<b>2.5400e-003</b>	<b>0.1721</b>	<b>5.0700e-003</b>	<b>0.1772</b>	<b>0.0460</b>	<b>4.6500e-003</b>	<b>0.0507</b>	<b>0.0000</b>	<b>198.2231</b>	<b>198.2231</b>	<b>8.1700e-003</b>	<b>0.0000</b>	<b>198.3947</b>

### **3.6 Building Construction - Village Commercial - 2017**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2548	2.6488	1.7617	2.5000e-003		0.1570	0.1570		0.1446	0.1446	0.0000	229.1961	229.1961	0.0690	0.0000	230.6454



Total	0.2548	2.6488	1.7617	2.5000e-003		0.1570	0.1570		0.1446	0.1446	0.0000	229.1961	229.1961	0.0690	0.0000	230.6454
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0306	0.2545	0.3879	6.8000e-004	0.0188	4.2600e-003	0.0230	5.3800e-003	3.9100e-003	9.2900e-003	0.0000	60.5939	60.5939	4.9000e-004	0.0000	60.6043
Worker	0.0837	0.1056	1.0347	2.7000e-003	0.2095	1.5900e-003	0.2111	0.0557	1.4700e-003	0.0571	0.0000	193.3094	193.3094	9.4000e-003	0.0000	193.5068
Total	0.1144	0.3600	1.4226	3.3800e-003	0.2283	5.8500e-003	0.2341	0.0610	5.3800e-003	0.0664	0.0000	253.9033	253.9033	9.8900e-003	0.0000	254.1111

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1081	2.2030	1.8676	2.5000e-003		0.0757	0.0757		0.0757	0.0757	0.0000	229.1958	229.1958	0.0690	0.0000	230.6452
Total	0.1081	2.2030	1.8676	2.5000e-003		0.0757	0.0757		0.0757	0.0757	0.0000	229.1958	229.1958	0.0690	0.0000	230.6452

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0306	0.2545	0.3879	6.8000e-004	0.0188	4.2600e-003	0.0230	5.3800e-003	3.9100e-003	9.2900e-003	0.0000	60.5939	60.5939	4.9000e-004	0.0000	60.6043
Worker	0.0837	0.1056	1.0347	2.7000e-003	0.2095	1.5900e-003	0.2111	0.0557	1.4700e-003	0.0571	0.0000	193.3094	193.3094	9.4000e-003	0.0000	193.5068
<b>Total</b>	<b>0.1144</b>	<b>0.3600</b>	<b>1.4226</b>	<b>3.3800e-003</b>	<b>0.2283</b>	<b>5.8500e-003</b>	<b>0.2341</b>	<b>0.0610</b>	<b>5.3800e-003</b>	<b>0.0664</b>	<b>0.0000</b>	<b>253.9033</b>	<b>253.9033</b>	<b>9.8900e-003</b>	<b>0.0000</b>	<b>254.1111</b>

### 3.6 Building Construction - Village Commercial - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2214	2.3064	1.7290	2.5100e-003		0.1332	0.1332		0.1227	0.1227	0.0000	226.3950	226.3950	0.0692	0.0000	227.8490
<b>Total</b>	<b>0.2214</b>	<b>2.3064</b>	<b>1.7290</b>	<b>2.5100e-003</b>		<b>0.1332</b>	<b>0.1332</b>		<b>0.1227</b>	<b>0.1227</b>	<b>0.0000</b>	<b>226.3950</b>	<b>226.3950</b>	<b>0.0692</b>	<b>0.0000</b>	<b>227.8490</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0284	0.2292	0.3683	6.8000e-004	0.0189	3.9200e-003	0.0228	5.4000e-003	3.6000e-003	9.0000e-003	0.0000	59.7652	59.7652	4.8000e-004	0.0000	59.7753
Worker	0.0741	0.0946	0.9168	2.7000e-003	0.2103	1.5600e-003	0.2119	0.0559	1.4400e-003	0.0573	0.0000	186.1508	186.1508	8.6500e-003	0.0000	186.3324
<b>Total</b>	<b>0.1025</b>	<b>0.3238</b>	<b>1.2851</b>	<b>3.3800e-003</b>	<b>0.2292</b>	<b>5.4800e-003</b>	<b>0.2346</b>	<b>0.0613</b>	<b>5.0400e-003</b>	<b>0.0663</b>	<b>0.0000</b>	<b>245.9159</b>	<b>245.9159</b>	<b>9.1300e-003</b>	<b>0.0000</b>	<b>246.1077</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	226.3947	226.3947	0.0692	0.0000	227.8487
<b>Total</b>	<b>0.1085</b>	<b>2.2114</b>	<b>1.8748</b>	<b>2.5100e-003</b>		<b>0.0759</b>	<b>0.0759</b>		<b>0.0759</b>	<b>0.0759</b>	<b>0.0000</b>	<b>226.3947</b>	<b>226.3947</b>	<b>0.0692</b>	<b>0.0000</b>	<b>227.8487</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0284	0.2292	0.3683	6.8000e-004	0.0189	3.9200e-003	0.0228	5.4000e-003	3.6000e-003	9.0000e-003	0.0000	59.7652	59.7652	4.8000e-004	0.0000	59.7753
Worker	0.0741	0.0946	0.9168	2.7000e-003	0.2103	1.5600e-003	0.2119	0.0559	1.4400e-003	0.0573	0.0000	186.1508	186.1508	8.6500e-003	0.0000	186.3324
<b>Total</b>	<b>0.1025</b>	<b>0.3238</b>	<b>1.2851</b>	<b>3.3800e-003</b>	<b>0.2292</b>	<b>5.4800e-003</b>	<b>0.2346</b>	<b>0.0613</b>	<b>5.0400e-003</b>	<b>0.0663</b>	<b>0.0000</b>	<b>245.9159</b>	<b>245.9159</b>	<b>9.1300e-003</b>	<b>0.0000</b>	<b>246.1077</b>

### 3.7 Building Construction - Industrial - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2027	2.1185	1.3365	1.8800e-003		0.1265	0.1265		0.1165	0.1165	0.0000	175.5502	175.5502	0.0521	0.0000	176.6435
<b>Total</b>	<b>0.2027</b>	<b>2.1185</b>	<b>1.3365</b>	<b>1.8800e-003</b>		<b>0.1265</b>	<b>0.1265</b>		<b>0.1165</b>	<b>0.1165</b>	<b>0.0000</b>	<b>175.5502</b>	<b>175.5502</b>	<b>0.0521</b>	<b>0.0000</b>	<b>176.6435</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.6146	5.1215	7.4180	0.0121	0.3332	0.0899	0.4231	0.0955	0.0827	0.1781	0.0000	1,094.1215	1,094.1215	9.4600e-003	0.0000	1,094.3202
Worker	0.1618	0.2016	1.9998	4.5800e-003	0.3554	2.8000e-003	0.3582	0.0944	2.5700e-003	0.0970	0.0000	341.4479	341.4479	0.0175	0.0000	341.8151
<b>Total</b>	<b>0.7765</b>	<b>5.3231</b>	<b>9.4178</b>	<b>0.0166</b>	<b>0.6886</b>	<b>0.0927</b>	<b>0.7813</b>	<b>0.1899</b>	<b>0.0852</b>	<b>0.2751</b>	<b>0.0000</b>	<b>1,435.5695</b>	<b>1,435.5695</b>	<b>0.0269</b>	<b>0.0000</b>	<b>1,436.1353</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0815	1.6608	1.4079	1.8800e-003		0.0571	0.0571		0.0571	0.0571	0.0000	175.5500	175.5500	0.0521	0.0000	176.6433
<b>Total</b>	<b>0.0815</b>	<b>1.6608</b>	<b>1.4079</b>	<b>1.8800e-003</b>		<b>0.0571</b>	<b>0.0571</b>		<b>0.0571</b>	<b>0.0571</b>	<b>0.0000</b>	<b>175.5500</b>	<b>175.5500</b>	<b>0.0521</b>	<b>0.0000</b>	<b>176.6433</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.6146	5.1215	7.4180	0.0121	0.3332	0.0899	0.4231	0.0955	0.0827	0.1781	0.0000	1,094.1215	1,094.1215	9.4600e-003	0.0000	1,094.3202
Worker	0.1618	0.2016	1.9998	4.5800e-003	0.3554	2.8000e-003	0.3582	0.0944	2.5700e-003	0.0970	0.0000	341.4479	341.4479	0.0175	0.0000	341.8151
<b>Total</b>	<b>0.7765</b>	<b>5.3231</b>	<b>9.4178</b>	<b>0.0166</b>	<b>0.6886</b>	<b>0.0927</b>	<b>0.7813</b>	<b>0.1899</b>	<b>0.0852</b>	<b>0.2751</b>	<b>0.0000</b>	<b>1,435.5695</b>	<b>1,435.5695</b>	<b>0.0269</b>	<b>0.0000</b>	<b>1,436.1353</b>

### 3.7 Building Construction - Industrial - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2548	2.6488	1.7617	2.5000e-003		0.1570	0.1570		0.1446	0.1446	0.0000	229.1961	229.1961	0.0690	0.0000	230.6454

<b>Total</b>	<b>0.2548</b>	<b>2.6488</b>	<b>1.7617</b>	<b>2.5000e-003</b>		<b>0.1570</b>	<b>0.1570</b>		<b>0.1446</b>	<b>0.1446</b>	<b>0.0000</b>	<b>229.1961</b>	<b>229.1961</b>	<b>0.0690</b>	<b>0.0000</b>	<b>230.6454</b>
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.7215	5.9910	9.1338	0.0160	0.4421	0.1002	0.5423	0.1266	0.0921	0.2188	0.0000	1,426.7116	1,426.7116	0.0116	0.0000	1,426.9557
Worker	0.1884	0.2376	2.3280	6.0700e-003	0.4714	3.5800e-003	0.4750	0.1252	3.3000e-003	0.1285	0.0000	434.9462	434.9462	0.0212	0.0000	435.3902
<b>Total</b>	<b>0.9099</b>	<b>6.2286</b>	<b>11.4617</b>	<b>0.0220</b>	<b>0.9135</b>	<b>0.1038</b>	<b>1.0173</b>	<b>0.2519</b>	<b>0.0954</b>	<b>0.3473</b>	<b>0.0000</b>	<b>1,861.6577</b>	<b>1,861.6577</b>	<b>0.0328</b>	<b>0.0000</b>	<b>1,862.3459</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1081	2.2030	1.8676	2.5000e-003		0.0757	0.0757		0.0757	0.0757	0.0000	229.1958	229.1958	0.0690	0.0000	230.6452
<b>Total</b>	<b>0.1081</b>	<b>2.2030</b>	<b>1.8676</b>	<b>2.5000e-003</b>		<b>0.0757</b>	<b>0.0757</b>		<b>0.0757</b>	<b>0.0757</b>	<b>0.0000</b>	<b>229.1958</b>	<b>229.1958</b>	<b>0.0690</b>	<b>0.0000</b>	<b>230.6452</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.7215	5.9910	9.1338	0.0160	0.4421	0.1002	0.5423	0.1266	0.0921	0.2188	0.0000	1,426.7116	1,426.7116	0.0116	0.0000	1,426.9557
Worker	0.1884	0.2376	2.3280	6.0700e-003	0.4714	3.5800e-003	0.4750	0.1252	3.3000e-003	0.1285	0.0000	434.9462	434.9462	0.0212	0.0000	435.3902
<b>Total</b>	<b>0.9099</b>	<b>6.2286</b>	<b>11.4617</b>	<b>0.0220</b>	<b>0.9135</b>	<b>0.1038</b>	<b>1.0173</b>	<b>0.2519</b>	<b>0.0954</b>	<b>0.3473</b>	<b>0.0000</b>	<b>1,861.6577</b>	<b>1,861.6577</b>	<b>0.0328</b>	<b>0.0000</b>	<b>1,862.3459</b>

### 3.7 Building Construction - Industrial - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2214	2.3064	1.7290	2.5100e-003		0.1332	0.1332		0.1227	0.1227	0.0000	226.3950	226.3950	0.0692	0.0000	227.8490
<b>Total</b>	<b>0.2214</b>	<b>2.3064</b>	<b>1.7290</b>	<b>2.5100e-003</b>		<b>0.1332</b>	<b>0.1332</b>		<b>0.1227</b>	<b>0.1227</b>	<b>0.0000</b>	<b>226.3950</b>	<b>226.3950</b>	<b>0.0692</b>	<b>0.0000</b>	<b>227.8490</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.6688	5.3955	8.6719	0.0160	0.4438	0.0922	0.5359	0.1271	0.0848	0.2119	0.0000	1,407.198 2	1,407.1982	0.0113	0.0000	1,407.4363
Worker	0.1667	0.2129	2.0628	6.0700e- 003	0.4732	3.5100e- 003	0.4767	0.1257	3.2400e- 003	0.1290	0.0000	418.8392	418.8392	0.0195	0.0000	419.2479
<b>Total</b>	<b>0.8355</b>	<b>5.6085</b>	<b>10.7347</b>	<b>0.0221</b>	<b>0.9170</b>	<b>0.0957</b>	<b>1.0127</b>	<b>0.2528</b>	<b>0.0880</b>	<b>0.3408</b>	<b>0.0000</b>	<b>1,826.037 4</b>	<b>1,826.0374</b>	<b>0.0308</b>	<b>0.0000</b>	<b>1,826.6842</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1085	2.2114	1.8748	2.5100e- 003		0.0759	0.0759		0.0759	0.0759	0.0000	226.3947	226.3947	0.0692	0.0000	227.8487
<b>Total</b>	<b>0.1085</b>	<b>2.2114</b>	<b>1.8748</b>	<b>2.5100e- 003</b>		<b>0.0759</b>	<b>0.0759</b>		<b>0.0759</b>	<b>0.0759</b>	<b>0.0000</b>	<b>226.3947</b>	<b>226.3947</b>	<b>0.0692</b>	<b>0.0000</b>	<b>227.8487</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.6688	5.3955	8.6719	0.0160	0.4438	0.0922	0.5359	0.1271	0.0848	0.2119	0.0000	1,407.198 2	1,407.1982	0.0113	0.0000	1,407.4363
Worker	0.1667	0.2129	2.0628	6.0700e- 003	0.4732	3.5100e- 003	0.4767	0.1257	3.2400e- 003	0.1290	0.0000	418.8392	418.8392	0.0195	0.0000	419.2479
<b>Total</b>	<b>0.8355</b>	<b>5.6085</b>	<b>10.7347</b>	<b>0.0221</b>	<b>0.9170</b>	<b>0.0957</b>	<b>1.0127</b>	<b>0.2528</b>	<b>0.0880</b>	<b>0.3408</b>	<b>0.0000</b>	<b>1,826.037 4</b>	<b>1,826.0374</b>	<b>0.0308</b>	<b>0.0000</b>	<b>1,826.6842</b>



### 3.8 Building Construction - Office/R&D - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2027	2.1185	1.3365	1.8800e-003		0.1265	0.1265		0.1165	0.1165	0.0000	175.5502	175.5502	0.0521	0.0000	176.6435
<b>Total</b>	<b>0.2027</b>	<b>2.1185</b>	<b>1.3365</b>	<b>1.8800e-003</b>		<b>0.1265</b>	<b>0.1265</b>		<b>0.1165</b>	<b>0.1165</b>	<b>0.0000</b>	<b>175.5502</b>	<b>175.5502</b>	<b>0.0521</b>	<b>0.0000</b>	<b>176.6435</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0522	0.4350	0.6301	1.0200e-003	0.0283	7.6400e-003	0.0359	8.1100e-003	7.0200e-003	0.0151	0.0000	92.9370	92.9370	8.0000e-004	0.0000	92.9538
Worker	0.0575	0.0717	0.7110	1.6300e-003	0.1264	1.0000e-003	0.1274	0.0336	9.1000e-004	0.0345	0.0000	121.4037	121.4037	6.2200e-003	0.0000	121.5343
<b>Total</b>	<b>0.1098</b>	<b>0.5067</b>	<b>1.3411</b>	<b>2.6500e-003</b>	<b>0.1547</b>	<b>8.6400e-003</b>	<b>0.1633</b>	<b>0.0417</b>	<b>7.9300e-003</b>	<b>0.0496</b>	<b>0.0000</b>	<b>214.3407</b>	<b>214.3407</b>	<b>7.0200e-003</b>	<b>0.0000</b>	<b>214.4881</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0815	1.6608	1.4079	1.8800e-003		0.0571	0.0571		0.0571	0.0571	0.0000	175.5500	175.5500	0.0521	0.0000	176.6433
<b>Total</b>	<b>0.0815</b>	<b>1.6608</b>	<b>1.4079</b>	<b>1.8800e-003</b>		<b>0.0571</b>	<b>0.0571</b>		<b>0.0571</b>	<b>0.0571</b>	<b>0.0000</b>	<b>175.5500</b>	<b>175.5500</b>	<b>0.0521</b>	<b>0.0000</b>	<b>176.6433</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0522	0.4350	0.6301	1.0200e-003	0.0283	7.6400e-003	0.0359	8.1100e-003	7.0200e-003	0.0151	0.0000	92.9370	92.9370	8.0000e-004	0.0000	92.9538
Worker	0.0575	0.0717	0.7110	1.6300e-003	0.1264	1.0000e-003	0.1274	0.0336	9.1000e-004	0.0345	0.0000	121.4037	121.4037	6.2200e-003	0.0000	121.5343
<b>Total</b>	<b>0.1098</b>	<b>0.5067</b>	<b>1.3411</b>	<b>2.6500e-003</b>	<b>0.1547</b>	<b>8.6400e-003</b>	<b>0.1633</b>	<b>0.0417</b>	<b>7.9300e-003</b>	<b>0.0496</b>	<b>0.0000</b>	<b>214.3407</b>	<b>214.3407</b>	<b>7.0200e-003</b>	<b>0.0000</b>	<b>214.4881</b>

### **3.8 Building Construction - Office/R&D - 2017**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2548	2.6488	1.7617	2.5000e-003		0.1570	0.1570		0.1446	0.1446	0.0000	229.1961	229.1961	0.0690	0.0000	230.6454

<b>Total</b>	<b>0.2548</b>	<b>2.6488</b>	<b>1.7617</b>	<b>2.5000e-003</b>		<b>0.1570</b>	<b>0.1570</b>		<b>0.1446</b>	<b>0.1446</b>	<b>0.0000</b>	<b>229.1961</b>	<b>229.1961</b>	<b>0.0690</b>	<b>0.0000</b>	<b>230.6454</b>
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0613	0.5089	0.7758	1.3600e-003	0.0376	8.5100e-003	0.0461	0.0108	7.8300e-003	0.0186	0.0000	121.1879	121.1879	9.9000e-004	0.0000	121.2086
Worker	0.0670	0.0845	0.8277	2.1600e-003	0.1676	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0457	0.0000	154.6475	154.6475	7.5200e-003	0.0000	154.8054
<b>Total</b>	<b>0.1283</b>	<b>0.5934</b>	<b>1.6036</b>	<b>3.5200e-003</b>	<b>0.2052</b>	<b>9.7800e-003</b>	<b>0.2150</b>	<b>0.0553</b>	<b>9.0000e-003</b>	<b>0.0643</b>	<b>0.0000</b>	<b>275.8354</b>	<b>275.8354</b>	<b>8.5100e-003</b>	<b>0.0000</b>	<b>276.0140</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1081	2.2030	1.8676	2.5000e-003		0.0757	0.0757		0.0757	0.0757	0.0000	229.1958	229.1958	0.0690	0.0000	230.6452
<b>Total</b>	<b>0.1081</b>	<b>2.2030</b>	<b>1.8676</b>	<b>2.5000e-003</b>		<b>0.0757</b>	<b>0.0757</b>		<b>0.0757</b>	<b>0.0757</b>	<b>0.0000</b>	<b>229.1958</b>	<b>229.1958</b>	<b>0.0690</b>	<b>0.0000</b>	<b>230.6452</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0613	0.5089	0.7758	1.3600e-003	0.0376	8.5100e-003	0.0461	0.0108	7.8300e-003	0.0186	0.0000	121.1879	121.1879	9.9000e-004	0.0000	121.2086
Worker	0.0670	0.0845	0.8277	2.1600e-003	0.1676	1.2700e-003	0.1689	0.0445	1.1700e-003	0.0457	0.0000	154.6475	154.6475	7.5200e-003	0.0000	154.8054
<b>Total</b>	<b>0.1283</b>	<b>0.5934</b>	<b>1.6036</b>	<b>3.5200e-003</b>	<b>0.2052</b>	<b>9.7800e-003</b>	<b>0.2150</b>	<b>0.0553</b>	<b>9.0000e-003</b>	<b>0.0643</b>	<b>0.0000</b>	<b>275.8354</b>	<b>275.8354</b>	<b>8.5100e-003</b>	<b>0.0000</b>	<b>276.0140</b>

### 3.8 Building Construction - Office/R&D - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2214	2.3064	1.7290	2.5100e-003		0.1332	0.1332		0.1227	0.1227	0.0000	226.3950	226.3950	0.0692	0.0000	227.8490
<b>Total</b>	<b>0.2214</b>	<b>2.3064</b>	<b>1.7290</b>	<b>2.5100e-003</b>		<b>0.1332</b>	<b>0.1332</b>		<b>0.1227</b>	<b>0.1227</b>	<b>0.0000</b>	<b>226.3950</b>	<b>226.3950</b>	<b>0.0692</b>	<b>0.0000</b>	<b>227.8490</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0568	0.4583	0.7366	1.3600e-003	0.0377	7.8300e-003	0.0455	0.0108	7.2000e-003	0.0180	0.0000	119.5304	119.5304	9.6000e-004	0.0000	119.5506
Worker	0.0593	0.0757	0.7334	2.1600e-003	0.1683	1.2500e-003	0.1695	0.0447	1.1500e-003	0.0459	0.0000	148.9206	148.9206	6.9200e-003	0.0000	149.0659
<b>Total</b>	<b>0.1161</b>	<b>0.5340</b>	<b>1.4700</b>	<b>3.5200e-003</b>	<b>0.2060</b>	<b>9.0800e-003</b>	<b>0.2150</b>	<b>0.0555</b>	<b>8.3500e-003</b>	<b>0.0639</b>	<b>0.0000</b>	<b>268.4510</b>	<b>268.4510</b>	<b>7.8800e-003</b>	<b>0.0000</b>	<b>268.6165</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	226.3947	226.3947	0.0692	0.0000	227.8487
<b>Total</b>	<b>0.1085</b>	<b>2.2114</b>	<b>1.8748</b>	<b>2.5100e-003</b>		<b>0.0759</b>	<b>0.0759</b>		<b>0.0759</b>	<b>0.0759</b>	<b>0.0000</b>	<b>226.3947</b>	<b>226.3947</b>	<b>0.0692</b>	<b>0.0000</b>	<b>227.8487</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0568	0.4583	0.7366	1.3600e-003	0.0377	7.8300e-003	0.0455	0.0108	7.2000e-003	0.0180	0.0000	119.5304	119.5304	9.6000e-004	0.0000	119.5506
Worker	0.0593	0.0757	0.7334	2.1600e-003	0.1683	1.2500e-003	0.1695	0.0447	1.1500e-003	0.0459	0.0000	148.9206	148.9206	6.9200e-003	0.0000	149.0659
<b>Total</b>	<b>0.1161</b>	<b>0.5340</b>	<b>1.4700</b>	<b>3.5200e-003</b>	<b>0.2060</b>	<b>9.0800e-003</b>	<b>0.2150</b>	<b>0.0555</b>	<b>8.3500e-003</b>	<b>0.0639</b>	<b>0.0000</b>	<b>268.4510</b>	<b>268.4510</b>	<b>7.8800e-003</b>	<b>0.0000</b>	<b>268.6165</b>

### 3.9 Paving - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2719	2.9835	1.8390	2.7400e-003		0.1597	0.1597		0.1469	0.1469	0.0000	258.1727	258.1727	0.0779	0.0000	259.8080
Paving	0.0211					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.2931</b>	<b>2.9835</b>	<b>1.8390</b>	<b>2.7400e-003</b>		<b>0.1597</b>	<b>0.1597</b>		<b>0.1469</b>	<b>0.1469</b>	<b>0.0000</b>	<b>258.1727</b>	<b>258.1727</b>	<b>0.0779</b>	<b>0.0000</b>	<b>259.8080</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7500e-003	7.1700e-003	0.0711	1.6000e-004	0.0126	1.0000e-004	0.0127	3.3600e-003	9.0000e-005	3.4500e-003	0.0000	12.1404	12.1404	6.2000e-004	0.0000	12.1534
<b>Total</b>	<b>5.7500e-003</b>	<b>7.1700e-003</b>	<b>0.0711</b>	<b>1.6000e-004</b>	<b>0.0126</b>	<b>1.0000e-004</b>	<b>0.0127</b>	<b>3.3600e-003</b>	<b>9.0000e-005</b>	<b>3.4500e-003</b>	<b>0.0000</b>	<b>12.1404</b>	<b>12.1404</b>	<b>6.2000e-004</b>	<b>0.0000</b>	<b>12.1534</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1091	2.3790	2.0838	2.7400e-003		0.0755	0.0755		0.0755	0.0755	0.0000	258.1724	258.1724	0.0779	0.0000	259.8077
Paving	0.0211					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.1302</b>	<b>2.3790</b>	<b>2.0838</b>	<b>2.7400e-003</b>		<b>0.0755</b>	<b>0.0755</b>		<b>0.0755</b>	<b>0.0755</b>	<b>0.0000</b>	<b>258.1724</b>	<b>258.1724</b>	<b>0.0779</b>	<b>0.0000</b>	<b>259.8077</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.7500e-003	7.1700e-003	0.0711	1.6000e-004	0.0126	1.0000e-004	0.0127	3.3600e-003	9.0000e-005	3.4500e-003	0.0000	12.1404	12.1404	6.2000e-004	0.0000	12.1534
<b>Total</b>	<b>5.7500e-003</b>	<b>7.1700e-003</b>	<b>0.0711</b>	<b>1.6000e-004</b>	<b>0.0126</b>	<b>1.0000e-004</b>	<b>0.0127</b>	<b>3.3600e-003</b>	<b>9.0000e-005</b>	<b>3.4500e-003</b>	<b>0.0000</b>	<b>12.1404</b>	<b>12.1404</b>	<b>6.2000e-004</b>	<b>0.0000</b>	<b>12.1534</b>

### **3.9 Paving - 2017**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.3356	3.6527	2.4252	3.6300e-003		0.1954	0.1954		0.1798	0.1798	0.0000	337.1643	337.1643	0.1033	0.0000	339.3338

Paving	0.0280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.3636</b>	<b>3.6527</b>	<b>2.4252</b>	<b>3.6300e-003</b>		<b>0.1954</b>	<b>0.1954</b>		<b>0.1798</b>	<b>0.1798</b>	<b>0.0000</b>	<b>337.1643</b>	<b>337.1643</b>	<b>0.1033</b>	<b>0.0000</b>	<b>339.3338</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-003	8.4500e-003	0.0828	2.2000e-004	0.0168	1.3000e-004	0.0169	4.4500e-003	1.2000e-004	4.5700e-003	0.0000	15.4648	15.4648	7.5000e-004	0.0000	15.4805
<b>Total</b>	<b>6.7000e-003</b>	<b>8.4500e-003</b>	<b>0.0828</b>	<b>2.2000e-004</b>	<b>0.0168</b>	<b>1.3000e-004</b>	<b>0.0169</b>	<b>4.4500e-003</b>	<b>1.2000e-004</b>	<b>4.5700e-003</b>	<b>0.0000</b>	<b>15.4648</b>	<b>15.4648</b>	<b>7.5000e-004</b>	<b>0.0000</b>	<b>15.4805</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1447	3.1558	2.7642	3.6300e-003		0.1001	0.1001		0.1001	0.1001	0.0000	337.1639	337.1639	0.1033	0.0000	339.3334
Paving	0.0280					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.1728</b>	<b>3.1558</b>	<b>2.7642</b>	<b>3.6300e-003</b>		<b>0.1001</b>	<b>0.1001</b>		<b>0.1001</b>	<b>0.1001</b>	<b>0.0000</b>	<b>337.1639</b>	<b>337.1639</b>	<b>0.1033</b>	<b>0.0000</b>	<b>339.3334</b>

### Mitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7000e-003	8.4500e-003	0.0828	2.2000e-004	0.0168	1.3000e-004	0.0169	4.4500e-003	1.2000e-004	4.5700e-003	0.0000	15.4648	15.4648	7.5000e-004	0.0000	15.4805
<b>Total</b>	<b>6.7000e-003</b>	<b>8.4500e-003</b>	<b>0.0828</b>	<b>2.2000e-004</b>	<b>0.0168</b>	<b>1.3000e-004</b>	<b>0.0169</b>	<b>4.4500e-003</b>	<b>1.2000e-004</b>	<b>4.5700e-003</b>	<b>0.0000</b>	<b>15.4648</b>	<b>15.4648</b>	<b>7.5000e-004</b>	<b>0.0000</b>	<b>15.4805</b>

### 3.9 Paving - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2904	3.1447	2.3919	3.6500e-003		0.1661	0.1661		0.1528	0.1528	0.0000	333.1216	333.1216	0.1037	0.0000	335.2995
Paving	0.0281					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.3185</b>	<b>3.1447</b>	<b>2.3919</b>	<b>3.6500e-003</b>		<b>0.1661</b>	<b>0.1661</b>		<b>0.1528</b>	<b>0.1528</b>	<b>0.0000</b>	<b>333.1216</b>	<b>333.1216</b>	<b>0.1037</b>	<b>0.0000</b>	<b>335.2995</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9300e-003	7.5700e-003	0.0733	2.2000e-004	0.0168	1.2000e-004	0.0170	4.4700e-003	1.2000e-004	4.5800e-003	0.0000	14.8921	14.8921	6.9000e-004	0.0000	14.9066
<b>Total</b>	<b>5.9300e-003</b>	<b>7.5700e-003</b>	<b>0.0733</b>	<b>2.2000e-004</b>	<b>0.0168</b>	<b>1.2000e-004</b>	<b>0.0170</b>	<b>4.4700e-003</b>	<b>1.2000e-004</b>	<b>4.5800e-003</b>	<b>0.0000</b>	<b>14.8921</b>	<b>14.8921</b>	<b>6.9000e-004</b>	<b>0.0000</b>	<b>14.9066</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1453	3.1679	2.7749	3.6500e-003		0.1005	0.1005		0.1005	0.1005	0.0000	333.1212	333.1212	0.1037	0.0000	335.2991
Paving	0.0281					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.1734</b>	<b>3.1679</b>	<b>2.7749</b>	<b>3.6500e-003</b>		<b>0.1005</b>	<b>0.1005</b>		<b>0.1005</b>	<b>0.1005</b>	<b>0.0000</b>	<b>333.1212</b>	<b>333.1212</b>	<b>0.1037</b>	<b>0.0000</b>	<b>335.2991</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.9300e-003	7.5700e-003	0.0733	2.2000e-004	0.0168	1.2000e-004	0.0170	4.4700e-003	1.2000e-004	4.5800e-003	0.0000	14.8921	14.8921	6.9000e-004	0.0000	14.9066
<b>Total</b>	<b>5.9300e-003</b>	<b>7.5700e-003</b>	<b>0.0733</b>	<b>2.2000e-004</b>	<b>0.0168</b>	<b>1.2000e-004</b>	<b>0.0170</b>	<b>4.4700e-003</b>	<b>1.2000e-004</b>	<b>4.5800e-003</b>	<b>0.0000</b>	<b>14.8921</b>	<b>14.8921</b>	<b>6.9000e-004</b>	<b>0.0000</b>	<b>14.9066</b>

### 3.10 Architectural Coating - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.4014					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2167	1.3949	1.1077	1.7500e-003		0.1156	0.1156		0.1156	0.1156	0.0000	150.1313	150.1313	0.0177	0.0000	150.5030
<b>Total</b>	<b>8.6180</b>	<b>1.3949</b>	<b>1.1077</b>	<b>1.7500e-003</b>		<b>0.1156</b>	<b>0.1156</b>		<b>0.1156</b>	<b>0.1156</b>	<b>0.0000</b>	<b>150.1313</b>	<b>150.1313</b>	<b>0.0177</b>	<b>0.0000</b>	<b>150.5030</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1014	0.1263	1.2532	2.8700e-003	0.2227	1.7600e-003	0.2245	0.0592	1.6100e-003	0.0608	0.0000	213.9740	213.9740	0.0110	0.0000	214.2041
<b>Total</b>	<b>0.1014</b>	<b>0.1263</b>	<b>1.2532</b>	<b>2.8700e-003</b>	<b>0.2227</b>	<b>1.7600e-003</b>	<b>0.2245</b>	<b>0.0592</b>	<b>1.6100e-003</b>	<b>0.0608</b>	<b>0.0000</b>	<b>213.9740</b>	<b>213.9740</b>	<b>0.0110</b>	<b>0.0000</b>	<b>214.2041</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	8.4014					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0670	1.3832	1.0775	1.7500e-003		0.0559	0.0559		0.0559	0.0559	0.0000	150.1311	150.1311	0.0177	0.0000	150.5028
<b>Total</b>	<b>8.4683</b>	<b>1.3832</b>	<b>1.0775</b>	<b>1.7500e-003</b>		<b>0.0559</b>	<b>0.0559</b>		<b>0.0559</b>	<b>0.0559</b>	<b>0.0000</b>	<b>150.1311</b>	<b>150.1311</b>	<b>0.0177</b>	<b>0.0000</b>	<b>150.5028</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1014	0.1263	1.2532	2.8700e-003	0.2227	1.7600e-003	0.2245	0.0592	1.6100e-003	0.0608	0.0000	213.9740	213.9740	0.0110	0.0000	214.2041
<b>Total</b>	<b>0.1014</b>	<b>0.1263</b>	<b>1.2532</b>	<b>2.8700e-003</b>	<b>0.2227</b>	<b>1.7600e-003</b>	<b>0.2245</b>	<b>0.0592</b>	<b>1.6100e-003</b>	<b>0.0608</b>	<b>0.0000</b>	<b>213.9740</b>	<b>213.9740</b>	<b>0.0110</b>	<b>0.0000</b>	<b>214.2041</b>

### **3.10 Architectural Coating - 2017**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	11.1447					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.2592	1.7043	1.4571	2.3200e-003		0.1352	0.1352		0.1352	0.1352	0.0000	199.1538	199.1538	0.0210	0.0000	199.5953
<b>Total</b>	<b>11.4039</b>	<b>1.7043</b>	<b>1.4571</b>	<b>2.3200e-003</b>		<b>0.1352</b>	<b>0.1352</b>		<b>0.1352</b>	<b>0.1352</b>	<b>0.0000</b>	<b>199.1538</b>	<b>199.1538</b>	<b>0.0210</b>	<b>0.0000</b>	<b>199.5953</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1181	0.1489	1.4589	3.8000e-003	0.2954	2.2400e-003	0.2977	0.0785	2.0700e-003	0.0805	0.0000	272.5663	272.5663	0.0133	0.0000	272.8445
<b>Total</b>	<b>0.1181</b>	<b>0.1489</b>	<b>1.4589</b>	<b>3.8000e-003</b>	<b>0.2954</b>	<b>2.2400e-003</b>	<b>0.2977</b>	<b>0.0785</b>	<b>2.0700e-003</b>	<b>0.0805</b>	<b>0.0000</b>	<b>272.5663</b>	<b>272.5663</b>	<b>0.0133</b>	<b>0.0000</b>	<b>272.8445</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	11.1447					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0889	1.8349	1.4293	2.3200e-003		0.0742	0.0742		0.0742	0.0742	0.0000	199.1536	199.1536	0.0210	0.0000	199.5951
<b>Total</b>	<b>11.2335</b>	<b>1.8349</b>	<b>1.4293</b>	<b>2.3200e-003</b>		<b>0.0742</b>	<b>0.0742</b>		<b>0.0742</b>	<b>0.0742</b>	<b>0.0000</b>	<b>199.1536</b>	<b>199.1536</b>	<b>0.0210</b>	<b>0.0000</b>	<b>199.5951</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1181	0.1489	1.4589	3.8000e-003	0.2954	2.2400e-003	0.2977	0.0785	2.0700e-003	0.0805	0.0000	272.5663	272.5663	0.0133	0.0000	272.8445
<b>Total</b>	<b>0.1181</b>	<b>0.1489</b>	<b>1.4589</b>	<b>3.8000e-003</b>	<b>0.2954</b>	<b>2.2400e-003</b>	<b>0.2977</b>	<b>0.0785</b>	<b>2.0700e-003</b>	<b>0.0805</b>	<b>0.0000</b>	<b>272.5663</b>	<b>272.5663</b>	<b>0.0133</b>	<b>0.0000</b>	<b>272.8445</b>

### 3.10 Architectural Coating - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	11.1875					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2338	1.5705	1.4518	2.3300e-003		0.1179	0.1179		0.1179	0.1179	0.0000	199.9201	199.9201	0.0190	0.0000	200.3191
<b>Total</b>	<b>11.4214</b>	<b>1.5705</b>	<b>1.4518</b>	<b>2.3300e-003</b>		<b>0.1179</b>	<b>0.1179</b>		<b>0.1179</b>	<b>0.1179</b>	<b>0.0000</b>	<b>199.9201</b>	<b>199.9201</b>	<b>0.0190</b>	<b>0.0000</b>	<b>200.3191</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1044	0.1335	1.2927	3.8100e-003	0.2966	2.2000e-003	0.2988	0.0788	2.0300e-003	0.0808	0.0000	262.4726	262.4726	0.0122	0.0000	262.7287
<b>Total</b>	<b>0.1044</b>	<b>0.1335</b>	<b>1.2927</b>	<b>3.8100e-003</b>	<b>0.2966</b>	<b>2.2000e-003</b>	<b>0.2988</b>	<b>0.0788</b>	<b>2.0300e-003</b>	<b>0.0808</b>	<b>0.0000</b>	<b>262.4726</b>	<b>262.4726</b>	<b>0.0122</b>	<b>0.0000</b>	<b>262.7287</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	11.1875					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0892	1.8419	1.4348	2.3300e-003		0.0745	0.0745		0.0745	0.0745	0.0000	199.9199	199.9199	0.0190	0.0000	200.3188
<b>Total</b>	<b>11.2767</b>	<b>1.8419</b>	<b>1.4348</b>	<b>2.3300e-003</b>		<b>0.0745</b>	<b>0.0745</b>		<b>0.0745</b>	<b>0.0745</b>	<b>0.0000</b>	<b>199.9199</b>	<b>199.9199</b>	<b>0.0190</b>	<b>0.0000</b>	<b>200.3188</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1044	0.1335	1.2927	3.8100e-003	0.2966	2.2000e-003	0.2988	0.0788	2.0300e-003	0.0808	0.0000	262.4726	262.4726	0.0122	0.0000	262.7287
<b>Total</b>	<b>0.1044</b>	<b>0.1335</b>	<b>1.2927</b>	<b>3.8100e-003</b>	<b>0.2966</b>	<b>2.2000e-003</b>	<b>0.2988</b>	<b>0.0788</b>	<b>2.0300e-003</b>	<b>0.0808</b>	<b>0.0000</b>	<b>262.4726</b>	<b>262.4726</b>	<b>0.0122</b>	<b>0.0000</b>	<b>262.7287</b>

### 3.11 Building Construction - School - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1490	1.5485	1.0299	1.4600e-003		0.0918	0.0918		0.0845	0.0845	0.0000	133.9915	133.9915	0.0404	0.0000	134.8389
<b>Total</b>	<b>0.1490</b>	<b>1.5485</b>	<b>1.0299</b>	<b>1.4600e-003</b>		<b>0.0918</b>	<b>0.0918</b>		<b>0.0845</b>	<b>0.0845</b>	<b>0.0000</b>	<b>133.9915</b>	<b>133.9915</b>	<b>0.0404</b>	<b>0.0000</b>	<b>134.8389</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0114	0.0947	0.1443	2.5000e-004	6.9900e-003	1.5800e-003	8.5700e-003	2.0000e-003	1.4600e-003	3.4600e-003	0.0000	22.5426	22.5426	1.8000e-004	0.0000	22.5465
Worker	0.0734	0.0926	0.9073	2.3600e-003	0.1837	1.4000e-003	0.1851	0.0488	1.2900e-003	0.0501	0.0000	169.5175	169.5175	8.2400e-003	0.0000	169.6906
<b>Total</b>	<b>0.0848</b>	<b>0.1873</b>	<b>1.0516</b>	<b>2.6100e-003</b>	<b>0.1907</b>	<b>2.9800e-003</b>	<b>0.1937</b>	<b>0.0508</b>	<b>2.7500e-003</b>	<b>0.0536</b>	<b>0.0000</b>	<b>192.0601</b>	<b>192.0601</b>	<b>8.4200e-003</b>	<b>0.0000</b>	<b>192.2370</b>

#### Mitigated Construction On-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0632	1.2879	1.0918	1.4600e-003		0.0442	0.0442		0.0442	0.0442	0.0000	133.9914	133.9914	0.0404	0.0000	134.8387
<b>Total</b>	<b>0.0632</b>	<b>1.2879</b>	<b>1.0918</b>	<b>1.4600e-003</b>		<b>0.0442</b>	<b>0.0442</b>		<b>0.0442</b>	<b>0.0442</b>	<b>0.0000</b>	<b>133.9914</b>	<b>133.9914</b>	<b>0.0404</b>	<b>0.0000</b>	<b>134.8387</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0114	0.0947	0.1443	2.5000e-004	6.9900e-003	1.5800e-003	8.5700e-003	2.0000e-003	1.4600e-003	3.4600e-003	0.0000	22.5426	22.5426	1.8000e-004	0.0000	22.5465
Worker	0.0734	0.0926	0.9073	2.3600e-003	0.1837	1.4000e-003	0.1851	0.0488	1.2900e-003	0.0501	0.0000	169.5175	169.5175	8.2400e-003	0.0000	169.6906
<b>Total</b>	<b>0.0848</b>	<b>0.1873</b>	<b>1.0516</b>	<b>2.6100e-003</b>	<b>0.1907</b>	<b>2.9800e-003</b>	<b>0.1937</b>	<b>0.0508</b>	<b>2.7500e-003</b>	<b>0.0536</b>	<b>0.0000</b>	<b>192.0601</b>	<b>192.0601</b>	<b>8.4200e-003</b>	<b>0.0000</b>	<b>192.2370</b>

### **3.11 Building Construction - School - 2018**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1654	1.7232	1.2918	1.8700e-003		0.0995	0.0995		0.0917	0.0917	0.0000	169.1457	169.1457	0.0517	0.0000	170.2320

<b>Total</b>	<b>0.1654</b>	<b>1.7232</b>	<b>1.2918</b>	<b>1.8700e-003</b>		<b>0.0995</b>	<b>0.0995</b>		<b>0.0917</b>	<b>0.0917</b>	<b>0.0000</b>	<b>169.1457</b>	<b>169.1457</b>	<b>0.0517</b>	<b>0.0000</b>	<b>170.2320</b>
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0135	0.1090	0.1751	3.2000e-004	8.9600e-003	1.8600e-003	0.0108	2.5700e-003	1.7100e-003	4.2800e-003	0.0000	28.4150	28.4150	2.3000e-004	0.0000	28.4198
Worker	0.0830	0.1061	1.0274	3.0200e-003	0.2357	1.7500e-003	0.2375	0.0626	1.6200e-003	0.0642	0.0000	208.6172	208.6172	9.6900e-003	0.0000	208.8208
<b>Total</b>	<b>0.0965</b>	<b>0.2150</b>	<b>1.2025</b>	<b>3.3400e-003</b>	<b>0.2447</b>	<b>3.6100e-003</b>	<b>0.2483</b>	<b>0.0652</b>	<b>3.3300e-003</b>	<b>0.0685</b>	<b>0.0000</b>	<b>237.0322</b>	<b>237.0322</b>	<b>9.9200e-003</b>	<b>0.0000</b>	<b>237.2406</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0811	1.6522	1.4007	1.8700e-003		0.0567	0.0567		0.0567	0.0567	0.0000	169.1455	169.1455	0.0517	0.0000	170.2318
<b>Total</b>	<b>0.0811</b>	<b>1.6522</b>	<b>1.4007</b>	<b>1.8700e-003</b>		<b>0.0567</b>	<b>0.0567</b>		<b>0.0567</b>	<b>0.0567</b>	<b>0.0000</b>	<b>169.1455</b>	<b>169.1455</b>	<b>0.0517</b>	<b>0.0000</b>	<b>170.2318</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0135	0.1090	0.1751	3.2000e-004	8.9600e-003	1.8600e-003	0.0108	2.5700e-003	1.7100e-003	4.2800e-003	0.0000	28.4150	28.4150	2.3000e-004	0.0000	28.4198
Worker	0.0830	0.1061	1.0274	3.0200e-003	0.2357	1.7500e-003	0.2375	0.0626	1.6200e-003	0.0642	0.0000	208.6172	208.6172	9.6900e-003	0.0000	208.8208
<b>Total</b>	<b>0.0965</b>	<b>0.2150</b>	<b>1.2025</b>	<b>3.3400e-003</b>	<b>0.2447</b>	<b>3.6100e-003</b>	<b>0.2483</b>	<b>0.0652</b>	<b>3.3300e-003</b>	<b>0.0685</b>	<b>0.0000</b>	<b>237.0322</b>	<b>237.0322</b>	<b>9.9200e-003</b>	<b>0.0000</b>	<b>237.2406</b>

### 3.12 Building Construction - Parks - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1103	1.1488	0.8612	1.2500e-003		0.0664	0.0664		0.0611	0.0611	0.0000	112.7638	112.7638	0.0345	0.0000	113.4880
<b>Total</b>	<b>0.1103</b>	<b>1.1488</b>	<b>0.8612</b>	<b>1.2500e-003</b>		<b>0.0664</b>	<b>0.0664</b>		<b>0.0611</b>	<b>0.0611</b>	<b>0.0000</b>	<b>112.7638</b>	<b>112.7638</b>	<b>0.0345</b>	<b>0.0000</b>	<b>113.4880</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0206	0.1660	0.2668	4.9000e-004	0.0137	2.8400e-003	0.0165	3.9100e-003	2.6100e-003	6.5200e-003	0.0000	43.2991	43.2991	3.5000e-004	0.0000	43.3064
Worker	0.0148	0.0189	0.1827	5.4000e-004	0.0419	3.1000e-004	0.0422	0.0111	2.9000e-004	0.0114	0.0000	37.0875	37.0875	1.7200e-003	0.0000	37.1237
<b>Total</b>	<b>0.0353</b>	<b>0.1849</b>	<b>0.4495</b>	<b>1.0300e-003</b>	<b>0.0556</b>	<b>3.1500e-003</b>	<b>0.0587</b>	<b>0.0150</b>	<b>2.9000e-003</b>	<b>0.0179</b>	<b>0.0000</b>	<b>80.3866</b>	<b>80.3866</b>	<b>2.0700e-003</b>	<b>0.0000</b>	<b>80.4301</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0540	1.1015	0.9338	1.2500e-003		0.0378	0.0378		0.0378	0.0378	0.0000	112.7637	112.7637	0.0345	0.0000	113.4879
<b>Total</b>	<b>0.0540</b>	<b>1.1015</b>	<b>0.9338</b>	<b>1.2500e-003</b>		<b>0.0378</b>	<b>0.0378</b>		<b>0.0378</b>	<b>0.0378</b>	<b>0.0000</b>	<b>112.7637</b>	<b>112.7637</b>	<b>0.0345</b>	<b>0.0000</b>	<b>113.4879</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0206	0.1660	0.2668	4.9000e-004	0.0137	2.8400e-003	0.0165	3.9100e-003	2.6100e-003	6.5200e-003	0.0000	43.2991	43.2991	3.5000e-004	0.0000	43.3064
Worker	0.0148	0.0189	0.1827	5.4000e-004	0.0419	3.1000e-004	0.0422	0.0111	2.9000e-004	0.0114	0.0000	37.0875	37.0875	1.7200e-003	0.0000	37.1237
<b>Total</b>	<b>0.0353</b>	<b>0.1849</b>	<b>0.4495</b>	<b>1.0300e-003</b>	<b>0.0556</b>	<b>3.1500e-003</b>	<b>0.0587</b>	<b>0.0150</b>	<b>2.9000e-003</b>	<b>0.0179</b>	<b>0.0000</b>	<b>80.3866</b>	<b>80.3866</b>	<b>2.0700e-003</b>	<b>0.0000</b>	<b>80.4301</b>

**Grapevine Construction - Planning Area 6A**  
**Kern-San Joaquin County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	270.00	1000sqft	21.00	270,000.00	0
Elementary School	994.00	Student	5.00	83,101.75	0
Industrial Park	1,400.00	1000sqft	109.00	1,400,000.00	0
Other Asphalt Surfaces	59.00	Acre	59.00	2,570,040.00	0
City Park	5.00	Acre	5.00	217,800.00	0
Apartments Low Rise	750.00	Dwelling Unit	75.00	750,000.00	2145
Single Family Housing	585.00	Dwelling Unit	149.00	1,053,000.00	1673
Strip Mall	150.00	1000sqft	20.00	150,000.00	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2019
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Area 6A. Kern County, San Joaquin Valley Air Basin.

Land Use - See 1.1 Land Usage.

Construction Phase - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

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Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Trips and VMT - See 3.0 Construction Detail.

Demolition - None.

Grading - See 3.0 Construction Detail.

Architectural Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and an adjustment for parking/asphalt surface and park land uses. See 3.0 Construction Detail.

Area Coating - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Construction Off-road Equipment Mitigation - Tier 2 for construction equipment > 75 HP.

On-road Fugitive Dust - Water Exposed Area, Frequency: 3 times per day. Unpaved Road Mitigation, Vehicle Speed: 15 miles per hour.

**Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report:** Exhaust PM10 and PM2.5 emissions presented in the Technical Report; no Fugitive Dust PM10 and PM2.5 emissions presented in the Technical Report.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	2,345,471.00	1,118,246.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	7,036,413.00	2,854,653.00
tblAreaCoating	Area_Nonresidential_Interior	7036413	9632043
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	19.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	22.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	550.00	717.00
tblConstructionPhase	NumDays	7,750.00	347.00
tblConstructionPhase	NumDays	7,750.00	130.00
tblConstructionPhase	NumDays	7,750.00	740.00
tblConstructionPhase	NumDays	7,750.00	717.00
tblConstructionPhase	NumDays	7,750.00	717.00
tblConstructionPhase	NumDays	7,750.00	717.00
tblConstructionPhase	NumDays	775.00	630.00
tblConstructionPhase	NumDays	550.00	717.00
tblConstructionPhase	NumDays	300.00	521.00
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	4/29/2020	9/30/2018
tblConstructionPhase	PhaseEndDate	3/29/2019	9/30/2018
tblConstructionPhase	PhaseEndDate	4/30/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018

tblConstructionPhase	PhaseEndDate	5/29/2020	5/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	12/29/2017	12/31/2017
tblConstructionPhase	PhaseEndDate	9/30/2020	6/30/2018
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	6/1/2017
tblConstructionPhase	PhaseStartDate	10/1/2018	4/1/2018
tblConstructionPhase	PhaseStartDate	7/1/2018	3/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2018	1/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	6/1/2018	3/1/2016
tblGrading	AcresOfGrading	2,362.50	586.00
tblGrading	AcresOfGrading	260.50	586.00
tblGrading	MaterialExported	0.00	146,450.00
tblLandUse	LotAcreage	6.20	21.00
tblLandUse	LotAcreage	1.91	5.00
tblLandUse	LotAcreage	32.14	109.00
tblLandUse	LotAcreage	46.88	75.00
tblLandUse	LotAcreage	189.94	149.00
tblLandUse	LotAcreage	3.44	20.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00





tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	HaulingPercentPave	100.00	50.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblSolidWaste	SolidWasteGenerationRate	1,736.00	3,918.40
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	VendorTripNumber	912.00	14.00
tblTripsAndVMT	VendorTripNumber	912.00	32.00
tblTripsAndVMT	VendorTripNumber	912.00	144.00
tblTripsAndVMT	VendorTripNumber	912.00	22.00
tblTripsAndVMT	VendorTripNumber	912.00	518.00
tblTripsAndVMT	VendorTripNumber	912.00	44.00
tblTripsAndVMT	WorkerTripNumber	3.00	4.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	300.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	80.00
tblTripsAndVMT	WorkerTripNumber	63.00	64.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	220.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	200.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	450.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	160.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	536.00	282.00

tblWater	IndoorWaterUseRate	323,750,000.00	730,750,000.00
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## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	124.4817	320.8581	354.8336	0.5215	70.3456	14.8937	85.2393	9.8718	13.8004	23.6722	0.0000	50,161.2815	50,161.2815	6.8156	0.0000	50,304.4082
2017	124.2779	318.5516	362.0464	0.5733	73.1028	14.9501	88.0529	10.5723	13.8429	24.4152	0.0000	53,721.0603	53,721.0603	7.4334	0.0000	53,877.1612
2018	121.2021	290.5863	355.6993	0.6004	144.5564	13.3701	157.9265	17.8397	12.3799	30.2196	0.0000	55,117.5363	55,117.5363	7.7753	0.0000	55,280.8177
Total	369.9617	929.9959	1,072.5792	1.6952	288.0048	43.2140	331.2187	38.2837	40.0233	78.3070	0.0000	158,999.8781	158,999.8781	22.0242	0.0000	159,462.3871

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	109.4470	258.5244	350.2506	0.5215	48.9834	7.0828	56.0661	7.7239	6.9701	14.6940	0.0000	50,161.2815	50,161.2815	6.8156	0.0000	50,304.4082
2017	109.5211	268.3761	361.6423	0.5733	51.6636	7.4910	59.1546	8.4167	7.3927	15.8094	0.0000	53,721.0602	53,721.0602	7.4334	0.0000	53,877.1612
2018	109.2569	275.1788	363.8827	0.6004	96.0153	7.8638	103.8791	12.9797	7.7699	20.7495	0.0000	55,117.5363	55,117.5363	7.7753	0.0000	55,280.8176
Total	328.2249	802.0793	1,075.7756	1.6952	196.6622	22.4376	219.0998	29.1202	22.1327	51.2529	0.0000	158,999.8780	158,999.8780	22.0242	0.0000	159,462.3871

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	11.28	13.75	-0.30	0.00	31.72	48.08	33.85	23.94	44.70	34.55	0.00	0.00	0.00	0.00	0.00	0.00

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2016	12/31/2017	5	521	
2	Grading	Grading	1/1/2016	5/31/2018	5	630	
3	Trenching	Trenching	3/1/2016	6/30/2018	5	609	
4	Building Construction - Residential	Building Construction	3/1/2016	12/31/2018	5	740	
5	Building Construction - Village Commercial	Building Construction	4/1/2016	12/31/2018	5	717	
6	Building Construction - Industrial	Building Construction	4/1/2016	12/31/2018	5	717	
7	Building Construction - Office/R&D	Building Construction	4/1/2016	12/31/2018	5	717	
8	Paving	Paving	4/1/2016	12/31/2018	5	717	
9	Architectural Coating	Architectural Coating	4/1/2016	12/31/2018	5	717	
10	Building Construction - School	Building Construction	6/1/2017	9/30/2018	5	347	
11	Building Construction - Parks	Building Construction	4/1/2018	9/30/2018	5	130	

**Acres of Grading (Site Preparation Phase): 586**

**Acres of Grading (Grading Phase): 586**

**Acres of Paving: 0**

**Residential Indoor: 3,651,075; Residential Outdoor: 1,217,025; Non-Residential Indoor: 2,854,653; Non-Residential Outdoor: 1,118,246**

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	0	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	0	8.00	162	0.38

Grading	Graders	2	6.00	174	0.41
Grading	Rollers	2	4.00	80	0.38
Grading	Rubber Tired Dozers	0	8.00	255	0.40
Grading	Rubber Tired Loaders	1	2.00	199	0.36
Grading	Scrapers	3	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Trenching	Other Construction Equipment	3	2.00	171	0.42
Trenching	Other Construction Equipment	2	1.00	171	0.42
Trenching	Tractors/Loaders/Backhoes	6	2.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	4	1.00	97	0.37
Trenching	Trenchers	6	2.00	80	0.50
Trenching	Trenchers	4	1.00	80	0.50
Building Construction - Residential	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Residential	Cranes	0	7.00	226	0.29
Building Construction - Residential	Forklifts	0	8.00	89	0.20
Building Construction - Residential	Generator Sets	0	8.00	84	0.74
Building Construction - Residential	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Residential	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Residential	Welders	0	8.00	46	0.45
Building Construction - Village	Cement and Mortar Mixers	1	8.00	9	0.56
Commercial Building Construction - Village	Cranes	0	7.00	226	0.29
Commercial Building Construction - Village	Forklifts	0	8.00	89	0.20
Commercial Building Construction - Village	Generator Sets	0	8.00	84	0.74
Commercial Building Construction - Village	Other Construction Equipment	2	8.00	171	0.42
Commercial Building Construction - Village	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Commercial Building Construction - Village	Welders	0	8.00	46	0.45
Commercial Building Construction - Industrial	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Industrial	Cranes	0	7.00	226	0.29
Building Construction - Industrial	Forklifts	0	8.00	89	0.20
Building Construction - Industrial	Generator Sets	0	8.00	84	0.74

Building Construction - Industrial	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Industrial	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Industrial	Welders	0	8.00	46	0.45
Building Construction - Office/R&D	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Office/R&D	Cranes	0	7.00	226	0.29
Building Construction - Office/R&D	Forklifts	0	8.00	89	0.20
Building Construction - Office/R&D	Generator Sets	0	8.00	84	0.74
Building Construction - Office/R&D	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Office/R&D	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Office/R&D	Welders	0	8.00	46	0.45
Paving	Other Construction Equipment	2	8.00	171	0.42
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38
Architectural Coating	Air Compressors	6	6.00	78	0.48
Building Construction - School	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - School	Cranes	0	7.00	226	0.29
Building Construction - School	Forklifts	0	8.00	89	0.20
Building Construction - School	Generator Sets	0	8.00	84	0.74
Building Construction - School	Other Construction Equipment	2	8.00	171	0.42
Building Construction - School	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - School	Welders	0	8.00	46	0.45
Building Construction - Parks	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Parks	Cranes	0	7.00	226	0.29
Building Construction - Parks	Forklifts	0	8.00	89	0.20
Building Construction - Parks	Generator Sets	0	8.00	84	0.74
Building Construction - Parks	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Parks	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Parks	Welders	0	8.00	46	0.45

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	18,306.00	10.80	7.30	1.00	LD_Mix	HDT_Mix	HHDT
Trenching	25	64.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Residential	5	220.00	144.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Village Commercial	5	200.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Industrial	5	450.00	518.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Office/R&D	5	160.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	6	282.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - School	5	300.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Parks	5	80.00	32.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

### 3.2 Site Preparation - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1928	0.0000	1.1928	0.1288	0.0000	0.1288			0.0000			0.0000
Off-Road	1.0187	10.3799	4.9275	6.2400e-003		0.5831	0.5831		0.5365	0.5365		649.4069	649.4069	0.1959		653.5205

<b>Total</b>	<b>1.0187</b>	<b>10.3799</b>	<b>4.9275</b>	<b>6.2400e-003</b>	<b>1.1928</b>	<b>0.5831</b>	<b>1.7759</b>	<b>0.1288</b>	<b>0.5365</b>	<b>0.6653</b>		<b>649.4069</b>	<b>649.4069</b>	<b>0.1959</b>		<b>653.5205</b>
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0149	0.0200	0.1818	4.0000e-004	0.0329	2.5000e-004	0.0331	8.7200e-003	2.3000e-004	8.9500e-003		32.7514	32.7514	1.7500e-003		32.7881
<b>Total</b>	<b>0.0149</b>	<b>0.0200</b>	<b>0.1818</b>	<b>4.0000e-004</b>	<b>0.0329</b>	<b>2.5000e-004</b>	<b>0.0331</b>	<b>8.7200e-003</b>	<b>2.3000e-004</b>	<b>8.9500e-003</b>		<b>32.7514</b>	<b>32.7514</b>	<b>1.7500e-003</b>		<b>32.7881</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4652	0.0000	0.4652	0.0502	0.0000	0.0502			0.0000			0.0000
Off-Road	0.2391	5.2468	4.6554	6.2400e-003		0.1611	0.1611		0.1611	0.1611	0.0000	649.4069	649.4069	0.1959		653.5205
<b>Total</b>	<b>0.2391</b>	<b>5.2468</b>	<b>4.6554</b>	<b>6.2400e-003</b>	<b>0.4652</b>	<b>0.1611</b>	<b>0.6263</b>	<b>0.0502</b>	<b>0.1611</b>	<b>0.2113</b>	<b>0.0000</b>	<b>649.4069</b>	<b>649.4069</b>	<b>0.1959</b>		<b>653.5205</b>

### Mitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0149	0.0200	0.1818	4.0000e-004	0.0329	2.5000e-004	0.0331	8.7200e-003	2.3000e-004	8.9500e-003		32.7514	32.7514	1.7500e-003		32.7881
<b>Total</b>	<b>0.0149</b>	<b>0.0200</b>	<b>0.1818</b>	<b>4.0000e-004</b>	<b>0.0329</b>	<b>2.5000e-004</b>	<b>0.0331</b>	<b>8.7200e-003</b>	<b>2.3000e-004</b>	<b>8.9500e-003</b>		<b>32.7514</b>	<b>32.7514</b>	<b>1.7500e-003</b>		<b>32.7881</b>

### 3.2 Site Preparation - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1928	0.0000	1.1928	0.1288	0.0000	0.1288			0.0000			0.0000
Off-Road	0.9526	9.6413	4.8381	6.2200e-003		0.5416	0.5416		0.4983	0.4983		637.6014	637.6014	0.1954		641.7039
<b>Total</b>	<b>0.9526</b>	<b>9.6413</b>	<b>4.8381</b>	<b>6.2200e-003</b>	<b>1.1928</b>	<b>0.5416</b>	<b>1.7344</b>	<b>0.1288</b>	<b>0.4983</b>	<b>0.6271</b>		<b>637.6014</b>	<b>637.6014</b>	<b>0.1954</b>		<b>641.7039</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0130	0.0178	0.1587	4.0000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.3000e-004	8.9400e-003		31.4481	31.4481	1.5900e-003		31.4816
<b>Total</b>	<b>0.0130</b>	<b>0.0178</b>	<b>0.1587</b>	<b>4.0000e-004</b>	<b>0.0329</b>	<b>2.4000e-004</b>	<b>0.0331</b>	<b>8.7200e-003</b>	<b>2.3000e-004</b>	<b>8.9400e-003</b>		<b>31.4481</b>	<b>31.4481</b>	<b>1.5900e-003</b>		<b>31.4816</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4652	0.0000	0.4652	0.0502	0.0000	0.0502			0.0000			0.0000
Off-Road	0.2391	5.2468	4.6554	6.2200e-003		0.1611	0.1611		0.1611	0.1611	0.0000	637.6014	637.6014	0.1954		641.7039
<b>Total</b>	<b>0.2391</b>	<b>5.2468</b>	<b>4.6554</b>	<b>6.2200e-003</b>	<b>0.4652</b>	<b>0.1611</b>	<b>0.6263</b>	<b>0.0502</b>	<b>0.1611</b>	<b>0.2113</b>	<b>0.0000</b>	<b>637.6014</b>	<b>637.6014</b>	<b>0.1954</b>		<b>641.7039</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0130	0.0178	0.1587	4.0000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.3000e-004	8.9400e-003		31.4481	31.4481	1.5900e-003		31.4816
<b>Total</b>	<b>0.0130</b>	<b>0.0178</b>	<b>0.1587</b>	<b>4.0000e-004</b>	<b>0.0329</b>	<b>2.4000e-004</b>	<b>0.0331</b>	<b>8.7200e-003</b>	<b>2.3000e-004</b>	<b>8.9400e-003</b>		<b>31.4481</b>	<b>31.4481</b>	<b>1.5900e-003</b>		<b>31.4816</b>

### 3.3 Grading - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0207	0.0000	1.0207	0.1117	0.0000	0.1117			0.0000			0.0000
Off-Road	6.1366	73.0854	42.9278	0.0582		3.2867	3.2867		3.0237	3.0237		6,048.1083	6,048.1083	1.8243		6,086.4191
<b>Total</b>	<b>6.1366</b>	<b>73.0854</b>	<b>42.9278</b>	<b>0.0582</b>	<b>1.0207</b>	<b>3.2867</b>	<b>4.3074</b>	<b>0.1117</b>	<b>3.0237</b>	<b>3.1355</b>		<b>6,048.1083</b>	<b>6,048.1083</b>	<b>1.8243</b>		<b>6,086.4191</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3811	0.9881	7.4630	1.6500e-003	51.6441	7.9300e-003	51.6521	5.1582	7.2700e-003	5.1655		154.2424	154.2424	2.4900e-003		154.2946
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0744	0.1002	0.9087	1.9900e-003	0.1643	1.2700e-003	0.1656	0.0436	1.1700e-003	0.0447		163.7568	163.7568	8.7400e-003		163.9403
<b>Total</b>	<b>0.4554</b>	<b>1.0883</b>	<b>8.3717</b>	<b>3.6400e-003</b>	<b>51.8084</b>	<b>9.2000e-003</b>	<b>51.8176</b>	<b>5.2018</b>	<b>8.4400e-003</b>	<b>5.2102</b>		<b>317.9991</b>	<b>317.9991</b>	<b>0.0112</b>		<b>318.2349</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3981	0.0000	0.3981	0.0436	0.0000	0.0436			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	6,048.1083	6,048.1083	1.8243		6,086.4191
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.3981</b>	<b>1.1791</b>	<b>1.5772</b>	<b>0.0436</b>	<b>1.1791</b>	<b>1.2227</b>	<b>0.0000</b>	<b>6,048.1083</b>	<b>6,048.1083</b>	<b>1.8243</b>		<b>6,086.4191</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3811	0.9881	7.4630	1.6500e-003	31.6322	7.9300e-003	31.6401	3.1570	7.2700e-003	3.1643		154.2424	154.2424	2.4900e-003		154.2946
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0744	0.1002	0.9087	1.9900e-003	0.1643	1.2700e-003	0.1656	0.0436	1.1700e-003	0.0447		163.7568	163.7568	8.7400e-003		163.9403
<b>Total</b>	<b>0.4554</b>	<b>1.0883</b>	<b>8.3717</b>	<b>3.6400e-003</b>	<b>31.7965</b>	<b>9.2000e-003</b>	<b>31.8057</b>	<b>3.2006</b>	<b>8.4400e-003</b>	<b>3.2090</b>		<b>317.9991</b>	<b>317.9991</b>	<b>0.0112</b>		<b>318.2349</b>

### 3.3 Grading - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0207	0.0000	1.0207	0.1117	0.0000	0.1117			0.0000			0.0000

Off-Road	5.7548	67.8201	40.2906	0.0582		3.0382	3.0382		2.7952	2.7952		5,951.2840	5,951.2840	1.8235		5,989.5767
<b>Total</b>	<b>5.7548</b>	<b>67.8201</b>	<b>40.2906</b>	<b>0.0582</b>	<b>1.0207</b>	<b>3.0382</b>	<b>4.0590</b>	<b>0.1117</b>	<b>2.7952</b>	<b>2.9069</b>		<b>5,951.2840</b>	<b>5,951.2840</b>	<b>1.8235</b>		<b>5,989.5767</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3353	0.9091	7.0856	1.6400e-003	51.8427	6.7900e-003	51.8495	5.1781	6.2300e-003	5.1843		151.4506	151.4506	2.4700e-003		151.5025
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0890	0.7935	1.9900e-003	0.1643	1.2200e-003	0.1655	0.0436	1.1300e-003	0.0447		157.2405	157.2405	7.9700e-003		157.4079
<b>Total</b>	<b>0.4003</b>	<b>0.9981</b>	<b>7.8792</b>	<b>3.6300e-003</b>	<b>52.0070</b>	<b>8.0100e-003</b>	<b>52.0150</b>	<b>5.2216</b>	<b>7.3600e-003</b>	<b>5.2290</b>		<b>308.6911</b>	<b>308.6911</b>	<b>0.0104</b>		<b>308.9104</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3981	0.0000	0.3981	0.0436	0.0000	0.0436			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	5,951.2840	5,951.2840	1.8235		5,989.5767
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.3981</b>	<b>1.1791</b>	<b>1.5772</b>	<b>0.0436</b>	<b>1.1791</b>	<b>1.2227</b>	<b>0.0000</b>	<b>5,951.2840</b>	<b>5,951.2840</b>	<b>1.8235</b>		<b>5,989.5767</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3353	0.9091	7.0856	1.6400e-003	31.7538	6.7900e-003	31.7606	3.1692	6.2300e-003	3.1754		151.4506	151.4506	2.4700e-003		151.5025
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0650	0.0890	0.7935	1.9900e-003	0.1643	1.2200e-003	0.1655	0.0436	1.1300e-003	0.0447		157.2405	157.2405	7.9700e-003		157.4079
<b>Total</b>	<b>0.4003</b>	<b>0.9981</b>	<b>7.8792</b>	<b>3.6300e-003</b>	<b>31.9181</b>	<b>8.0100e-003</b>	<b>31.9261</b>	<b>3.2127</b>	<b>7.3600e-003</b>	<b>3.2201</b>		<b>308.6911</b>	<b>308.6911</b>	<b>0.0104</b>		<b>308.9104</b>

### 3.3 Grading - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0207	0.0000	1.0207	0.1117	0.0000	0.1117			0.0000			0.0000
Off-Road	4.9960	58.1422	35.2912	0.0582		2.5670	2.5670		2.3617	2.3617		5,856.3505	5,856.3505	1.8232		5,894.6369
<b>Total</b>	<b>4.9960</b>	<b>58.1422</b>	<b>35.2912</b>	<b>0.0582</b>	<b>1.0207</b>	<b>2.5670</b>	<b>3.5878</b>	<b>0.1117</b>	<b>2.3617</b>	<b>2.4734</b>		<b>5,856.3505</b>	<b>5,856.3505</b>	<b>1.8232</b>		<b>5,894.6369</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.3156	0.8442	6.8143	1.6300e-003	123.6521	6.6500e-003	123.6587	12.3479	6.1000e-003	12.3540		148.8138	148.8138	2.5200e-003		148.8668
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0795	0.6968	1.9800e-003	0.1643	1.1900e-003	0.1655	0.0436	1.1000e-003	0.0447		150.8292	150.8292	7.3100e-003		150.9827
<b>Total</b>	<b>0.3726</b>	<b>0.9237</b>	<b>7.5110</b>	<b>3.6100e-003</b>	<b>123.8164</b>	<b>7.8400e-003</b>	<b>123.8242</b>	<b>12.3915</b>	<b>7.2000e-003</b>	<b>12.3987</b>		<b>299.6430</b>	<b>299.6430</b>	<b>9.8300e-003</b>		<b>299.8494</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3981	0.0000	0.3981	0.0436	0.0000	0.0436			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	5,856.3505	5,856.3505	1.8232		5,894.6369
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.3981</b>	<b>1.1791</b>	<b>1.5772</b>	<b>0.0436</b>	<b>1.1791</b>	<b>1.2227</b>	<b>0.0000</b>	<b>5,856.3505</b>	<b>5,856.3505</b>	<b>1.8232</b>		<b>5,894.6369</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.3156	0.8442	6.8143	1.6300e-003	75.7336	6.6500e-003	75.7402	7.5560	6.1000e-003	7.5621		148.8138	148.8138	2.5200e-003		148.8668
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0570	0.0795	0.6968	1.9800e-003	0.1643	1.1900e-003	0.1655	0.0436	1.1000e-003	0.0447		150.8292	150.8292	7.3100e-003		150.9827
<b>Total</b>	<b>0.3726</b>	<b>0.9237</b>	<b>7.5110</b>	<b>3.6100e-003</b>	<b>75.8979</b>	<b>7.8400e-003</b>	<b>75.9057</b>	<b>7.5996</b>	<b>7.2000e-003</b>	<b>7.6068</b>		<b>299.6430</b>	<b>299.6430</b>	<b>9.8300e-003</b>		<b>299.8494</b>

### 3.4 Trenching - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4572	23.6180	14.7044	0.0193		1.6526	1.6526		1.5204	1.5204		2,005.1713	2,005.1713	0.6048		2,017.8728
<b>Total</b>	<b>2.4572</b>	<b>23.6180</b>	<b>14.7044</b>	<b>0.0193</b>		<b>1.6526</b>	<b>1.6526</b>		<b>1.5204</b>	<b>1.5204</b>		<b>2,005.1713</b>	<b>2,005.1713</b>	<b>0.6048</b>		<b>2,017.8728</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2380	0.3206	2.9079	6.3700e-003	0.5257	4.0700e-003	0.5298	0.1395	3.7300e-003	0.1432		524.0217	524.0217	0.0280		524.6090
<b>Total</b>	<b>0.2380</b>	<b>0.3206</b>	<b>2.9079</b>	<b>6.3700e-003</b>	<b>0.5257</b>	<b>4.0700e-003</b>	<b>0.5298</b>	<b>0.1395</b>	<b>3.7300e-003</b>	<b>0.1432</b>		<b>524.0217</b>	<b>524.0217</b>	<b>0.0280</b>		<b>524.6090</b>

#### Mitigated Construction On-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8564	17.9976	14.5914	0.0193		0.6761	0.6761		0.6761	0.6761	0.0000	2,005.1713	2,005.1713	0.6048		2,017.8728
<b>Total</b>	<b>0.8564</b>	<b>17.9976</b>	<b>14.5914</b>	<b>0.0193</b>		<b>0.6761</b>	<b>0.6761</b>		<b>0.6761</b>	<b>0.6761</b>	<b>0.0000</b>	<b>2,005.1713</b>	<b>2,005.1713</b>	<b>0.6048</b>		<b>2,017.8728</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2380	0.3206	2.9079	6.3700e-003	0.5257	4.0700e-003	0.5298	0.1395	3.7300e-003	0.1432		524.0217	524.0217	0.0280		524.6090
<b>Total</b>	<b>0.2380</b>	<b>0.3206</b>	<b>2.9079</b>	<b>6.3700e-003</b>	<b>0.5257</b>	<b>4.0700e-003</b>	<b>0.5298</b>	<b>0.1395</b>	<b>3.7300e-003</b>	<b>0.1432</b>		<b>524.0217</b>	<b>524.0217</b>	<b>0.0280</b>		<b>524.6090</b>

### 3.4 Trenching - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3420	22.4707	14.6145	0.0193		1.5637	1.5637		1.4386	1.4386		1,973.0092	1,973.0092	0.6045		1,985.7042

<b>Total</b>	<b>2.3420</b>	<b>22.4707</b>	<b>14.6145</b>	<b>0.0193</b>		<b>1.5637</b>	<b>1.5637</b>		<b>1.4386</b>	<b>1.4386</b>		<b>1,973.009 2</b>	<b>1,973.0092</b>	<b>0.6045</b>		<b>1,985.7042</b>
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2079	0.2848	2.5393	6.3700e-003	0.5257	3.9200e-003	0.5297	0.1395	3.6100e-003	0.1431		503.1697	503.1697	0.0255		503.7053
<b>Total</b>	<b>0.2079</b>	<b>0.2848</b>	<b>2.5393</b>	<b>6.3700e-003</b>	<b>0.5257</b>	<b>3.9200e-003</b>	<b>0.5297</b>	<b>0.1395</b>	<b>3.6100e-003</b>	<b>0.1431</b>		<b>503.1697</b>	<b>503.1697</b>	<b>0.0255</b>		<b>503.7053</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8564	17.9976	14.5914	0.0193		0.6761	0.6761		0.6761	0.6761	0.0000	1,973.009 2	1,973.0092	0.6045		1,985.7042
<b>Total</b>	<b>0.8564</b>	<b>17.9976</b>	<b>14.5914</b>	<b>0.0193</b>		<b>0.6761</b>	<b>0.6761</b>		<b>0.6761</b>	<b>0.6761</b>	<b>0.0000</b>	<b>1,973.009 2</b>	<b>1,973.0092</b>	<b>0.6045</b>		<b>1,985.7042</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2079	0.2848	2.5393	6.3700e-003	0.5257	3.9200e-003	0.5297	0.1395	3.6100e-003	0.1431		503.1697	503.1697	0.0255		503.7053
<b>Total</b>	<b>0.2079</b>	<b>0.2848</b>	<b>2.5393</b>	<b>6.3700e-003</b>	<b>0.5257</b>	<b>3.9200e-003</b>	<b>0.5297</b>	<b>0.1395</b>	<b>3.6100e-003</b>	<b>0.1431</b>		<b>503.1697</b>	<b>503.1697</b>	<b>0.0255</b>		<b>503.7053</b>

### 3.4 Trenching - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0135	19.6288	14.2463	0.0193		1.3244	1.3244		1.2184	1.2184		1,940.2891	1,940.2891	0.6040		1,952.9739
<b>Total</b>	<b>2.0135</b>	<b>19.6288</b>	<b>14.2463</b>	<b>0.0193</b>		<b>1.3244</b>	<b>1.3244</b>		<b>1.2184</b>	<b>1.2184</b>		<b>1,940.2891</b>	<b>1,940.2891</b>	<b>0.6040</b>		<b>1,952.9739</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1823	0.2543	2.2297	6.3500e-003	0.5257	3.8200e-003	0.5296	0.1395	3.5400e-003	0.1430		482.6535	482.6535	0.0234		483.1445
<b>Total</b>	<b>0.1823</b>	<b>0.2543</b>	<b>2.2297</b>	<b>6.3500e-003</b>	<b>0.5257</b>	<b>3.8200e-003</b>	<b>0.5296</b>	<b>0.1395</b>	<b>3.5400e-003</b>	<b>0.1430</b>		<b>482.6535</b>	<b>482.6535</b>	<b>0.0234</b>		<b>483.1445</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8564	17.9976	14.5914	0.0193		0.6761	0.6761		0.6761	0.6761	0.0000	1,940.2891	1,940.2891	0.6040		1,952.9739
<b>Total</b>	<b>0.8564</b>	<b>17.9976</b>	<b>14.5914</b>	<b>0.0193</b>		<b>0.6761</b>	<b>0.6761</b>		<b>0.6761</b>	<b>0.6761</b>	<b>0.0000</b>	<b>1,940.2891</b>	<b>1,940.2891</b>	<b>0.6040</b>		<b>1,952.9739</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1823	0.2543	2.2297	6.3500e-003	0.5257	3.8200e-003	0.5296	0.1395	3.5400e-003	0.1430		482.6535	482.6535	0.0234		483.1445
<b>Total</b>	<b>0.1823</b>	<b>0.2543</b>	<b>2.2297</b>	<b>6.3500e-003</b>	<b>0.5257</b>	<b>3.8200e-003</b>	<b>0.5296</b>	<b>0.1395</b>	<b>3.5400e-003</b>	<b>0.1430</b>		<b>482.6535</b>	<b>482.6535</b>	<b>0.0234</b>		<b>483.1445</b>

### 3.5 Building Construction - Residential - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0686	21.6175	13.6374	0.0192		1.2911	1.2911		1.1890	1.1890		1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>2.0686</b>	<b>21.6175</b>	<b>13.6374</b>	<b>0.0192</b>		<b>1.2911</b>	<b>1.2911</b>		<b>1.1890</b>	<b>1.1890</b>		<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9816	14.7455	26.8724	0.0341	0.9605	0.2570	1.2175	0.2745	0.2363	0.5108		3,406.0222	3,406.0222	0.0300		3,406.6524
Worker	0.8182	1.1019	9.9960	0.0219	1.8073	0.0140	1.8212	0.4794	0.0128	0.4922		1,801.3244	1,801.3244	0.0961		1,803.3434
<b>Total</b>	<b>2.7998</b>	<b>15.8474</b>	<b>36.8684</b>	<b>0.0560</b>	<b>2.7677</b>	<b>0.2710</b>	<b>3.0387</b>	<b>0.7539</b>	<b>0.2492</b>	<b>1.0030</b>		<b>5,207.3466</b>	<b>5,207.3466</b>	<b>0.1262</b>		<b>5,209.9959</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8314	16.9468	14.3660	0.0192		0.5822	0.5822		0.5822	0.5822	0.0000	1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>0.8314</b>	<b>16.9468</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5822</b>	<b>0.5822</b>		<b>0.5822</b>	<b>0.5822</b>	<b>0.0000</b>	<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.9816	14.7455	26.8724	0.0341	0.9605	0.2570	1.2175	0.2745	0.2363	0.5108		3,406.0222	3,406.0222	0.0300		3,406.6524
Worker	0.8182	1.1019	9.9960	0.0219	1.8073	0.0140	1.8212	0.4794	0.0128	0.4922		1,801.3244	1,801.3244	0.0961		1,803.3434
<b>Total</b>	<b>2.7998</b>	<b>15.8474</b>	<b>36.8684</b>	<b>0.0560</b>	<b>2.7677</b>	<b>0.2710</b>	<b>3.0387</b>	<b>0.7539</b>	<b>0.2492</b>	<b>1.0030</b>		<b>5,207.3466</b>	<b>5,207.3466</b>	<b>0.1262</b>		<b>5,209.9959</b>

### 3.5 Building Construction - Residential - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159

Total	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.7465	13.0007	25.1340	0.0341	0.9606	0.2159	1.1765	0.2746	0.1985	0.4731		3,348.0454	3,348.0454	0.0278		3,348.6299
Worker	0.7147	0.9791	8.7290	0.0219	1.8073	0.0135	1.8207	0.4794	0.0124	0.4918		1,729.6460	1,729.6460	0.0877		1,731.4868
Total	2.4611	13.9798	33.8630	0.0559	2.7679	0.2293	2.9972	0.7539	0.2109	0.9649		5,077.6914	5,077.6914	0.1155		5,080.1167

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.4261	1,943.4261	0.5852		1,955.7159
Total	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.4261	1,943.4261	0.5852		1,955.7159

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.7465	13.0007	25.1340	0.0341	0.9606	0.2159	1.1765	0.2746	0.1985	0.4731		3,348.0454	3,348.0454	0.0278		3,348.6299
Worker	0.7147	0.9791	8.7290	0.0219	1.8073	0.0135	1.8207	0.4794	0.0124	0.4918		1,729.6460	1,729.6460	0.0877		1,731.4868
<b>Total</b>	<b>2.4611</b>	<b>13.9798</b>	<b>33.8630</b>	<b>0.0559</b>	<b>2.7679</b>	<b>0.2293</b>	<b>2.9972</b>	<b>0.7539</b>	<b>0.2109</b>	<b>0.9649</b>		<b>5,077.6914</b>	<b>5,077.6914</b>	<b>0.1155</b>		<b>5,080.1167</b>

### 3.5 Building Construction - Residential - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>1.6966</b>	<b>17.6738</b>	<b>13.2494</b>	<b>0.0192</b>		<b>1.0209</b>	<b>1.0209</b>		<b>0.9404</b>	<b>0.9404</b>		<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					



Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.6059	11.6606	23.8077	0.0340	0.9605	0.1979	1.1584	0.2745	0.1820	0.4565		3,289.5538	3,289.5538	0.0271		3,290.1221
Worker	0.6268	0.8742	7.6645	0.0218	1.8073	0.0131	1.8204	0.4794	0.0122	0.4915		1,659.1215	1,659.1215	0.0804		1,660.8091
<b>Total</b>	<b>2.2326</b>	<b>12.5348</b>	<b>31.4722</b>	<b>0.0558</b>	<b>2.7678</b>	<b>0.2110</b>	<b>2.9788</b>	<b>0.7539</b>	<b>0.1941</b>	<b>0.9480</b>		<b>4,948.6753</b>	<b>4,948.6753</b>	<b>0.1074</b>		<b>4,950.9312</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5818</b>	<b>0.5818</b>		<b>0.5818</b>	<b>0.5818</b>	<b>0.0000</b>	<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.6059	11.6606	23.8077	0.0340	0.9605	0.1979	1.1584	0.2745	0.1820	0.4565		3,289.5538	3,289.5538	0.0271		3,290.1221
Worker	0.6268	0.8742	7.6645	0.0218	1.8073	0.0131	1.8204	0.4794	0.0122	0.4915		1,659.1215	1,659.1215	0.0804		1,660.8091
<b>Total</b>	<b>2.2326</b>	<b>12.5348</b>	<b>31.4722</b>	<b>0.0558</b>	<b>2.7678</b>	<b>0.2110</b>	<b>2.9788</b>	<b>0.7539</b>	<b>0.1941</b>	<b>0.9480</b>		<b>4,948.6753</b>	<b>4,948.6753</b>	<b>0.1074</b>		<b>4,950.9312</b>

### 3.6 Building Construction - Village Commercial - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0686	21.6175	13.6374	0.0192		1.2911	1.2911		1.1890	1.1890		1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>2.0686</b>	<b>21.6175</b>	<b>13.6374</b>	<b>0.0192</b>		<b>1.2911</b>	<b>1.2911</b>		<b>1.1890</b>	<b>1.1890</b>		<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3028	2.2528	4.1055	5.2200e-003	0.1467	0.0393	0.1860	0.0419	0.0361	0.0780		520.3645	520.3645	4.5900e-003		520.4608
Worker	0.7438	1.0017	9.0873	0.0199	1.6430	0.0127	1.6557	0.4358	0.0117	0.4475		1,637.5677	1,637.5677	0.0874		1,639.4031
<b>Total</b>	<b>1.0466</b>	<b>3.2545</b>	<b>13.1928</b>	<b>0.0251</b>	<b>1.7897</b>	<b>0.0520</b>	<b>1.8417</b>	<b>0.4777</b>	<b>0.0478</b>	<b>0.5255</b>		<b>2,157.9322</b>	<b>2,157.9322</b>	<b>0.0920</b>		<b>2,159.8639</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8314	16.9468	14.3660	0.0192		0.5822	0.5822		0.5822	0.5822	0.0000	1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>0.8314</b>	<b>16.9468</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5822</b>	<b>0.5822</b>		<b>0.5822</b>	<b>0.5822</b>	<b>0.0000</b>	<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3028	2.2528	4.1055	5.2200e-003	0.1467	0.0393	0.1860	0.0419	0.0361	0.0780		520.3645	520.3645	4.5900e-003		520.4608
Worker	0.7438	1.0017	9.0873	0.0199	1.6430	0.0127	1.6557	0.4358	0.0117	0.4475		1,637.5677	1,637.5677	0.0874		1,639.4031
<b>Total</b>	<b>1.0466</b>	<b>3.2545</b>	<b>13.1928</b>	<b>0.0251</b>	<b>1.7897</b>	<b>0.0520</b>	<b>1.8417</b>	<b>0.4777</b>	<b>0.0478</b>	<b>0.5255</b>		<b>2,157.9322</b>	<b>2,157.9322</b>	<b>0.0920</b>		<b>2,159.8639</b>

### 3.6 Building Construction - Village Commercial - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159

Total	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.426 1	1,943.4261	0.5852		1,955.7159
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2668	1.9862	3.8399	5.2000e-003	0.1468	0.0330	0.1797	0.0420	0.0303	0.0723		511.5069	511.5069	4.2500e-003		511.5962
Worker	0.6497	0.8901	7.9354	0.0199	1.6430	0.0123	1.6552	0.4358	0.0113	0.4471		1,572.4054	1,572.4054	0.0797		1,574.0789
Total	0.9165	2.8763	11.7753	0.0251	1.7897	0.0452	1.8349	0.4777	0.0416	0.5193		2,083.9124	2,083.9124	0.0839		2,085.6752

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.4261	1,943.4261	0.5852		1,955.7159
Total	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.4261	1,943.4261	0.5852		1,955.7159

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2668	1.9862	3.8399	5.2000e-003	0.1468	0.0330	0.1797	0.0420	0.0303	0.0723		511.5069	511.5069	4.2500e-003		511.5962
Worker	0.6497	0.8901	7.9354	0.0199	1.6430	0.0123	1.6552	0.4358	0.0113	0.4471		1,572.4054	1,572.4054	0.0797		1,574.0789
<b>Total</b>	<b>0.9165</b>	<b>2.8763</b>	<b>11.7753</b>	<b>0.0251</b>	<b>1.7897</b>	<b>0.0452</b>	<b>1.8349</b>	<b>0.4777</b>	<b>0.0416</b>	<b>0.5193</b>		<b>2,083.9124</b>	<b>2,083.9124</b>	<b>0.0839</b>		<b>2,085.6752</b>

### 3.6 Building Construction - Village Commercial - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>1.6966</b>	<b>17.6738</b>	<b>13.2494</b>	<b>0.0192</b>		<b>1.0209</b>	<b>1.0209</b>		<b>0.9404</b>	<b>0.9404</b>		<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2453	1.7815	3.6373	5.1900e-003	0.1467	0.0302	0.1770	0.0419	0.0278	0.0697		502.5707	502.5707	4.1300e-003		502.6575
Worker	0.5698	0.7947	6.9678	0.0198	1.6430	0.0120	1.6549	0.4358	0.0111	0.4468		1,508.2923	1,508.2923	0.0731		1,509.8265
<b>Total</b>	<b>0.8151</b>	<b>2.5762</b>	<b>10.6050</b>	<b>0.0250</b>	<b>1.7897</b>	<b>0.0422</b>	<b>1.8319</b>	<b>0.4777</b>	<b>0.0389</b>	<b>0.5166</b>		<b>2,010.8630</b>	<b>2,010.8630</b>	<b>0.0772</b>		<b>2,012.4840</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5818</b>	<b>0.5818</b>		<b>0.5818</b>	<b>0.5818</b>	<b>0.0000</b>	<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2453	1.7815	3.6373	5.1900e-003	0.1467	0.0302	0.1770	0.0419	0.0278	0.0697		502.5707	502.5707	4.1300e-003		502.6575
Worker	0.5698	0.7947	6.9678	0.0198	1.6430	0.0120	1.6549	0.4358	0.0111	0.4468		1,508.2923	1,508.2923	0.0731		1,509.8265
<b>Total</b>	<b>0.8151</b>	<b>2.5762</b>	<b>10.6050</b>	<b>0.0250</b>	<b>1.7897</b>	<b>0.0422</b>	<b>1.8319</b>	<b>0.4777</b>	<b>0.0389</b>	<b>0.5166</b>		<b>2,010.8630</b>	<b>2,010.8630</b>	<b>0.0772</b>		<b>2,012.4840</b>

### 3.7 Building Construction - Industrial - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0686	21.6175	13.6374	0.0192		1.2911	1.2911		1.1890	1.1890		1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>2.0686</b>	<b>21.6175</b>	<b>13.6374</b>	<b>0.0192</b>		<b>1.2911</b>	<b>1.2911</b>		<b>1.1890</b>	<b>1.1890</b>		<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.1283	53.0430	96.6659	0.1228	3.4551	0.9245	4.3796	0.9874	0.8502	1.8375		12,252.2186	12,252.2186	0.1080		12,254.4858
Worker	1.6736	2.2538	20.4465	0.0448	3.6966	0.0286	3.7253	0.9805	0.0262	1.0068		3,684.5273	3,684.5273	0.1967		3,688.6570
<b>Total</b>	<b>8.8020</b>	<b>55.2968</b>	<b>117.1124</b>	<b>0.1676</b>	<b>7.1517</b>	<b>0.9532</b>	<b>8.1049</b>	<b>1.9679</b>	<b>0.8764</b>	<b>2.8443</b>		<b>15,936.7458</b>	<b>15,936.7458</b>	<b>0.3046</b>		<b>15,943.1429</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8314	16.9468	14.3660	0.0192		0.5822	0.5822		0.5822	0.5822	0.0000	1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>0.8314</b>	<b>16.9468</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5822</b>	<b>0.5822</b>		<b>0.5822</b>	<b>0.5822</b>	<b>0.0000</b>	<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	7.1283	53.0430	96.6659	0.1228	3.4551	0.9245	4.3796	0.9874	0.8502	1.8375		12,252.2186	12,252.2186	0.1080		12,254.4858
Worker	1.6736	2.2538	20.4465	0.0448	3.6966	0.0286	3.7253	0.9805	0.0262	1.0068		3,684.5273	3,684.5273	0.1967		3,688.6570
<b>Total</b>	<b>8.8020</b>	<b>55.2968</b>	<b>117.1124</b>	<b>0.1676</b>	<b>7.1517</b>	<b>0.9532</b>	<b>8.1049</b>	<b>1.9679</b>	<b>0.8764</b>	<b>2.8443</b>		<b>15,936.7458</b>	<b>15,936.7458</b>	<b>0.3046</b>		<b>15,943.1429</b>

### 3.7 Building Construction - Industrial - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159



Total	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.426 1	1,943.4261	0.5852		1,955.7159
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.2824	46.7665	90.4127	0.1225	3.4556	0.7765	4.2322	0.9876	0.7141	1.7017		12,043.66 34	12,043.663 4	0.1001		12,045.765 8
Worker	1.4618	2.0026	17.8547	0.0448	3.6966	0.0276	3.7242	0.9805	0.0254	1.0059		3,537.912 2	3,537.9122	0.1793		3,541.6776
Total	7.7442	48.7691	108.2674	0.1673	7.1523	0.8041	7.9564	1.9681	0.7395	2.7077		15,581.57 56	15,581.575 6	0.2794		15,587.443 4

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.426 1	1,943.4261	0.5852		1,955.7159
Total	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.426 1	1,943.4261	0.5852		1,955.7159

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	6.2824	46.7665	90.4127	0.1225	3.4556	0.7765	4.2322	0.9876	0.7141	1.7017		12,043.6634	12,043.6634	0.1001		12,045.7658
Worker	1.4618	2.0026	17.8547	0.0448	3.6966	0.0276	3.7242	0.9805	0.0254	1.0059		3,537.9122	3,537.9122	0.1793		3,541.6776
<b>Total</b>	<b>7.7442</b>	<b>48.7691</b>	<b>108.2674</b>	<b>0.1673</b>	<b>7.1523</b>	<b>0.8041</b>	<b>7.9564</b>	<b>1.9681</b>	<b>0.7395</b>	<b>2.7077</b>		<b>15,581.5756</b>	<b>15,581.5756</b>	<b>0.2794</b>		<b>15,587.4434</b>

### 3.7 Building Construction - Industrial - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>1.6966</b>	<b>17.6738</b>	<b>13.2494</b>	<b>0.0192</b>		<b>1.0209</b>	<b>1.0209</b>		<b>0.9404</b>	<b>0.9404</b>		<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.7767	41.9457	85.6415	0.1222	3.4552	0.7117	4.1669	0.9874	0.6546	1.6420		11,833.2560	11,833.2560	0.0974		11,835.3003
Worker	1.2820	1.7882	15.6774	0.0446	3.6966	0.0269	3.7235	0.9805	0.0249	1.0054		3,393.6577	3,393.6577	0.1644		3,397.1096
<b>Total</b>	<b>7.0587</b>	<b>43.7338</b>	<b>101.3189</b>	<b>0.1668</b>	<b>7.1518</b>	<b>0.7386</b>	<b>7.8904</b>	<b>1.9679</b>	<b>0.6795</b>	<b>2.6474</b>		<b>15,226.9137</b>	<b>15,226.9137</b>	<b>0.2617</b>		<b>15,232.4099</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5818</b>	<b>0.5818</b>		<b>0.5818</b>	<b>0.5818</b>	<b>0.0000</b>	<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.7767	41.9457	85.6415	0.1222	3.4552	0.7117	4.1669	0.9874	0.6546	1.6420		11,833.2560	11,833.2560	0.0974		11,835.3003
Worker	1.2820	1.7882	15.6774	0.0446	3.6966	0.0269	3.7235	0.9805	0.0249	1.0054		3,393.6577	3,393.6577	0.1644		3,397.1096
<b>Total</b>	<b>7.0587</b>	<b>43.7338</b>	<b>101.3189</b>	<b>0.1668</b>	<b>7.1518</b>	<b>0.7386</b>	<b>7.8904</b>	<b>1.9679</b>	<b>0.6795</b>	<b>2.6474</b>		<b>15,226.9137</b>	<b>15,226.9137</b>	<b>0.2617</b>		<b>15,232.4099</b>

### 3.8 Building Construction - Office/R&D - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0686	21.6175	13.6374	0.0192		1.2911	1.2911		1.1890	1.1890		1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>2.0686</b>	<b>21.6175</b>	<b>13.6374</b>	<b>0.0192</b>		<b>1.2911</b>	<b>1.2911</b>		<b>1.1890</b>	<b>1.1890</b>		<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6055	4.5056	8.2110	0.0104	0.2935	0.0785	0.3720	0.0839	0.0722	0.1561		1,040.7290	1,040.7290	9.1700e-003		1,040.9216
Worker	0.5951	0.8014	7.2699	0.0159	1.3144	0.0102	1.3245	0.3486	9.3300e-003	0.3580		1,310.0541	1,310.0541	0.0699		1,311.5225
<b>Total</b>	<b>1.2006</b>	<b>5.3070</b>	<b>15.4809</b>	<b>0.0264</b>	<b>1.6078</b>	<b>0.0887</b>	<b>1.6965</b>	<b>0.4325</b>	<b>0.0815</b>	<b>0.5140</b>		<b>2,350.7831</b>	<b>2,350.7831</b>	<b>0.0791</b>		<b>2,352.4441</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8314	16.9468	14.3660	0.0192		0.5822	0.5822		0.5822	0.5822	0.0000	1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>0.8314</b>	<b>16.9468</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5822</b>	<b>0.5822</b>		<b>0.5822</b>	<b>0.5822</b>	<b>0.0000</b>	<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6055	4.5056	8.2110	0.0104	0.2935	0.0785	0.3720	0.0839	0.0722	0.1561		1,040.7290	1,040.7290	9.1700e-003		1,040.9216
Worker	0.5951	0.8014	7.2699	0.0159	1.3144	0.0102	1.3245	0.3486	9.3300e-003	0.3580		1,310.0541	1,310.0541	0.0699		1,311.5225
<b>Total</b>	<b>1.2006</b>	<b>5.3070</b>	<b>15.4809</b>	<b>0.0264</b>	<b>1.6078</b>	<b>0.0887</b>	<b>1.6965</b>	<b>0.4325</b>	<b>0.0815</b>	<b>0.5140</b>		<b>2,350.7831</b>	<b>2,350.7831</b>	<b>0.0791</b>		<b>2,352.4441</b>

### **3.8 Building Construction - Office/R&D - 2017**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159

Total	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.426 1	1,943.4261	0.5852		1,955.7159
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5336	3.9725	7.6799	0.0104	0.2935	0.0660	0.3595	0.0839	0.0607	0.1446		1,023.013 9	1,023.0139	8.5000e- 003		1,023.1925
Worker	0.5198	0.7120	6.3483	0.0159	1.3144	9.8000e- 003	1.3242	0.3486	9.0300e- 003	0.3577		1,257.924 3	1,257.9243	0.0638		1,259.2632
Total	1.0534	4.6845	14.0282	0.0263	1.6079	0.0758	1.6837	0.4325	0.0697	0.5022		2,280.938 2	2,280.9382	0.0723		2,282.4556

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.426 1	1,943.4261	0.5852		1,955.7159
Total	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.426 1	1,943.4261	0.5852		1,955.7159

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.5336	3.9725	7.6799	0.0104	0.2935	0.0660	0.3595	0.0839	0.0607	0.1446		1,023.0139	1,023.0139	8.5000e-003		1,023.1925
Worker	0.5198	0.7120	6.3483	0.0159	1.3144	9.8000e-003	1.3242	0.3486	9.0300e-003	0.3577		1,257.9243	1,257.9243	0.0638		1,259.2632
<b>Total</b>	<b>1.0534</b>	<b>4.6845</b>	<b>14.0282</b>	<b>0.0263</b>	<b>1.6079</b>	<b>0.0758</b>	<b>1.6837</b>	<b>0.4325</b>	<b>0.0697</b>	<b>0.5022</b>		<b>2,280.9382</b>	<b>2,280.9382</b>	<b>0.0723</b>		<b>2,282.4556</b>

### 3.8 Building Construction - Office/R&D - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>1.6966</b>	<b>17.6738</b>	<b>13.2494</b>	<b>0.0192</b>		<b>1.0209</b>	<b>1.0209</b>		<b>0.9404</b>	<b>0.9404</b>		<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4907	3.5630	7.2746	0.0104	0.2935	0.0605	0.3539	0.0839	0.0556	0.1395		1,005.1414	1,005.1414	8.2700e-003		1,005.3151
Worker	0.4558	0.6358	5.5742	0.0159	1.3144	9.5600e-003	1.3239	0.3486	8.8400e-003	0.3575		1,206.6339	1,206.6339	0.0585		1,207.8612
<b>Total</b>	<b>0.9465</b>	<b>4.1987</b>	<b>12.8488</b>	<b>0.0263</b>	<b>1.6079</b>	<b>0.0700</b>	<b>1.6779</b>	<b>0.4325</b>	<b>0.0644</b>	<b>0.4970</b>		<b>2,211.7753</b>	<b>2,211.7753</b>	<b>0.0667</b>		<b>2,213.1763</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5818</b>	<b>0.5818</b>		<b>0.5818</b>	<b>0.5818</b>	<b>0.0000</b>	<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4907	3.5630	7.2746	0.0104	0.2935	0.0605	0.3539	0.0839	0.0556	0.1395		1,005.1414	1,005.1414	8.2700e-003		1,005.3151
Worker	0.4558	0.6358	5.5742	0.0159	1.3144	9.5600e-003	1.3239	0.3486	8.8400e-003	0.3575		1,206.6339	1,206.6339	0.0585		1,207.8612
<b>Total</b>	<b>0.9465</b>	<b>4.1987</b>	<b>12.8488</b>	<b>0.0263</b>	<b>1.6079</b>	<b>0.0700</b>	<b>1.6779</b>	<b>0.4325</b>	<b>0.0644</b>	<b>0.4970</b>		<b>2,211.7753</b>	<b>2,211.7753</b>	<b>0.0667</b>		<b>2,213.1763</b>



### 3.9 Paving - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7747	30.4442	18.7648	0.0279		1.6298	1.6298		1.4994	1.4994		2,903.9453	2,903.9453	0.8759		2,922.3399
Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.9902</b>	<b>30.4442</b>	<b>18.7648</b>	<b>0.0279</b>		<b>1.6298</b>	<b>1.6298</b>		<b>1.4994</b>	<b>1.4994</b>		<b>2,903.9453</b>	<b>2,903.9453</b>	<b>0.8759</b>		<b>2,922.3399</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0595	0.0801	0.7270	1.5900e-003	0.1314	1.0200e-003	0.1325	0.0349	9.3000e-004	0.0358		131.0054	131.0054	6.9900e-003		131.1523
<b>Total</b>	<b>0.0595</b>	<b>0.0801</b>	<b>0.7270</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>1.0200e-003</b>	<b>0.1325</b>	<b>0.0349</b>	<b>9.3000e-004</b>	<b>0.0358</b>		<b>131.0054</b>	<b>131.0054</b>	<b>6.9900e-003</b>		<b>131.1523</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0279		0.7699	0.7699		0.7699	0.7699	0.0000	2,903.9453	2,903.9453	0.8759		2,922.3399
Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3289</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0279</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,903.9453</b>	<b>2,903.9453</b>	<b>0.8759</b>		<b>2,922.3399</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0595	0.0801	0.7270	1.5900e-003	0.1314	1.0200e-003	0.1325	0.0349	9.3000e-004	0.0358		131.0054	131.0054	6.9900e-003		131.1523
<b>Total</b>	<b>0.0595</b>	<b>0.0801</b>	<b>0.7270</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>1.0200e-003</b>	<b>0.1325</b>	<b>0.0349</b>	<b>9.3000e-004</b>	<b>0.0358</b>		<b>131.0054</b>	<b>131.0054</b>	<b>6.9900e-003</b>		<b>131.1523</b>

### **3.9 Paving - 2017**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5816	28.0979	18.6551	0.0280		1.5029	1.5029		1.3827	1.3827		2,858.9236	2,858.9236	0.8760		2,877.3189

Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.7972</b>	<b>28.0979</b>	<b>18.6551</b>	<b>0.0280</b>		<b>1.5029</b>	<b>1.5029</b>		<b>1.3827</b>	<b>1.3827</b>		<b>2,858.9236</b>	<b>2,858.9236</b>	<b>0.8760</b>		<b>2,877.3189</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0520	0.0712	0.6348	1.5900e-003	0.1314	9.8000e-004	0.1324	0.0349	9.0000e-004	0.0358		125.7924	125.7924	6.3800e-003		125.9263
<b>Total</b>	<b>0.0520</b>	<b>0.0712</b>	<b>0.6348</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>9.8000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>9.0000e-004</b>	<b>0.0358</b>		<b>125.7924</b>	<b>125.7924</b>	<b>6.3800e-003</b>		<b>125.9263</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,858.9236	2,858.9236	0.8760		2,877.3189
Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3289</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,858.9236</b>	<b>2,858.9236</b>	<b>0.8760</b>		<b>2,877.3189</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0520	0.0712	0.6348	1.5900e-003	0.1314	9.8000e-004	0.1324	0.0349	9.0000e-004	0.0358		125.7924	125.7924	6.3800e-003		125.9263
<b>Total</b>	<b>0.0520</b>	<b>0.0712</b>	<b>0.6348</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>9.8000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>9.0000e-004</b>	<b>0.0358</b>		<b>125.7924</b>	<b>125.7924</b>	<b>6.3800e-003</b>		<b>125.9263</b>

### 3.9 Paving - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2250	24.0973	18.3288	0.0280		1.2727	1.2727		1.1709	1.1709		2,813.8218	2,813.8218	0.8760		2,832.2174
Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.4406</b>	<b>24.0973</b>	<b>18.3288</b>	<b>0.0280</b>		<b>1.2727</b>	<b>1.2727</b>		<b>1.1709</b>	<b>1.1709</b>		<b>2,813.8218</b>	<b>2,813.8218</b>	<b>0.8760</b>		<b>2,832.2174</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0456	0.0636	0.5574	1.5900e-003	0.1314	9.6000e-004	0.1324	0.0349	8.8000e-004	0.0358		120.6634	120.6634	5.8400e-003		120.7861
<b>Total</b>	<b>0.0456</b>	<b>0.0636</b>	<b>0.5574</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>9.6000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0358</b>		<b>120.6634</b>	<b>120.6634</b>	<b>5.8400e-003</b>		<b>120.7861</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,813.8218	2,813.8218	0.8760		2,832.2174
Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3289</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,813.8218</b>	<b>2,813.8218</b>	<b>0.8760</b>		<b>2,832.2174</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0456	0.0636	0.5574	1.5900e-003	0.1314	9.6000e-004	0.1324	0.0349	8.8000e-004	0.0358		120.6634	120.6634	5.8400e-003		120.7861
<b>Total</b>	<b>0.0456</b>	<b>0.0636</b>	<b>0.5574</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>9.6000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0358</b>		<b>120.6634</b>	<b>120.6634</b>	<b>5.8400e-003</b>		<b>120.7861</b>

### 3.10 Architectural Coating - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	2.2108	14.2334	11.3035	0.0178		1.1797	1.1797		1.1797	1.1797		1,688.6883	1,688.6883	0.1991		1,692.8692
<b>Total</b>	<b>87.9389</b>	<b>14.2334</b>	<b>11.3035</b>	<b>0.0178</b>		<b>1.1797</b>	<b>1.1797</b>		<b>1.1797</b>	<b>1.1797</b>		<b>1,688.6883</b>	<b>1,688.6883</b>	<b>0.1991</b>		<b>1,692.8692</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0488	1.4124	12.8131	0.0281	2.3166	0.0179	2.3345	0.6145	0.0164	0.6309		2,308.9704	2,308.9704	0.1232		2,311.5584
<b>Total</b>	<b>1.0488</b>	<b>1.4124</b>	<b>12.8131</b>	<b>0.0281</b>	<b>2.3166</b>	<b>0.0179</b>	<b>2.3345</b>	<b>0.6145</b>	<b>0.0164</b>	<b>0.6309</b>		<b>2,308.9704</b>	<b>2,308.9704</b>	<b>0.1232</b>		<b>2,311.5584</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6834	14.1145	10.9945	0.0178		0.5705	0.5705		0.5705	0.5705	0.0000	1,688.6883	1,688.6883	0.1991		1,692.8692
<b>Total</b>	<b>86.4115</b>	<b>14.1145</b>	<b>10.9945</b>	<b>0.0178</b>		<b>0.5705</b>	<b>0.5705</b>		<b>0.5705</b>	<b>0.5705</b>	<b>0.0000</b>	<b>1,688.6883</b>	<b>1,688.6883</b>	<b>0.1991</b>		<b>1,692.8692</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0488	1.4124	12.8131	0.0281	2.3166	0.0179	2.3345	0.6145	0.0164	0.6309		2,308.9704	2,308.9704	0.1232		2,311.5584
<b>Total</b>	<b>1.0488</b>	<b>1.4124</b>	<b>12.8131</b>	<b>0.0281</b>	<b>2.3166</b>	<b>0.0179</b>	<b>2.3345</b>	<b>0.6145</b>	<b>0.0164</b>	<b>0.6309</b>		<b>2,308.9704</b>	<b>2,308.9704</b>	<b>0.1232</b>		<b>2,311.5584</b>

### **3.10 Architectural Coating - 2017**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Off-Road	1.9939	13.1102	11.2084	0.0178		1.0400	1.0400		1.0400	1.0400		1,688.6883	1,688.6883	0.1783		1,692.4324
<b>Total</b>	<b>87.7220</b>	<b>13.1102</b>	<b>11.2084</b>	<b>0.0178</b>		<b>1.0400</b>	<b>1.0400</b>		<b>1.0400</b>	<b>1.0400</b>		<b>1,688.6883</b>	<b>1,688.6883</b>	<b>0.1783</b>		<b>1,692.4324</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.9161	1.2550	11.1889	0.0281	2.3166	0.0173	2.3338	0.6145	0.0159	0.6304		2,217.0917	2,217.0917	0.1124		2,219.4513
<b>Total</b>	<b>0.9161</b>	<b>1.2550</b>	<b>11.1889</b>	<b>0.0281</b>	<b>2.3166</b>	<b>0.0173</b>	<b>2.3338</b>	<b>0.6145</b>	<b>0.0159</b>	<b>0.6304</b>		<b>2,217.0917</b>	<b>2,217.0917</b>	<b>0.1124</b>		<b>2,219.4513</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6834	14.1145	10.9945	0.0178		0.5705	0.5705		0.5705	0.5705	0.0000	1,688.6883	1,688.6883	0.1783		1,692.4324
<b>Total</b>	<b>86.4115</b>	<b>14.1145</b>	<b>10.9945</b>	<b>0.0178</b>		<b>0.5705</b>	<b>0.5705</b>		<b>0.5705</b>	<b>0.5705</b>	<b>0.0000</b>	<b>1,688.6883</b>	<b>1,688.6883</b>	<b>0.1783</b>		<b>1,692.4324</b>

### Mitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.9161	1.2550	11.1889	0.0281	2.3166	0.0173	2.3338	0.6145	0.0159	0.6304		2,217.0917	2,217.0917	0.1124		2,219.4513
<b>Total</b>	<b>0.9161</b>	<b>1.2550</b>	<b>11.1889</b>	<b>0.0281</b>	<b>2.3166</b>	<b>0.0173</b>	<b>2.3338</b>	<b>0.6145</b>	<b>0.0159</b>	<b>0.6304</b>		<b>2,217.0917</b>	<b>2,217.0917</b>	<b>0.1124</b>		<b>2,219.4513</b>

### 3.10 Architectural Coating - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.7918	12.0345	11.1252	0.0178		0.9033	0.9033		0.9033	0.9033		1,688.6913	1,688.6913	0.1605		1,692.0609
<b>Total</b>	<b>87.5199</b>	<b>12.0345</b>	<b>11.1252</b>	<b>0.0178</b>		<b>0.9033</b>	<b>0.9033</b>		<b>0.9033</b>	<b>0.9033</b>		<b>1,688.6913</b>	<b>1,688.6913</b>	<b>0.1605</b>		<b>1,692.0609</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8034	1.1206	9.8245	0.0280	2.3166	0.0169	2.3334	0.6145	0.0156	0.6300		2,126.692 2	2,126.6922	0.1030		2,128.8554
<b>Total</b>	<b>0.8034</b>	<b>1.1206</b>	<b>9.8245</b>	<b>0.0280</b>	<b>2.3166</b>	<b>0.0169</b>	<b>2.3334</b>	<b>0.6145</b>	<b>0.0156</b>	<b>0.6300</b>		<b>2,126.692 2</b>	<b>2,126.6922</b>	<b>0.1030</b>		<b>2,128.8554</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6834	14.1145	10.9945	0.0178		0.5705	0.5705		0.5705	0.5705	0.0000	1,688.691 3	1,688.6913	0.1605		1,692.0609
<b>Total</b>	<b>86.4115</b>	<b>14.1145</b>	<b>10.9945</b>	<b>0.0178</b>		<b>0.5705</b>	<b>0.5705</b>		<b>0.5705</b>	<b>0.5705</b>	<b>0.0000</b>	<b>1,688.691 3</b>	<b>1,688.6913</b>	<b>0.1605</b>		<b>1,692.0609</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.8034	1.1206	9.8245	0.0280	2.3166	0.0169	2.3334	0.6145	0.0156	0.6300		2,126.692 2	2,126.6922	0.1030		2,128.8554
<b>Total</b>	<b>0.8034</b>	<b>1.1206</b>	<b>9.8245</b>	<b>0.0280</b>	<b>2.3166</b>	<b>0.0169</b>	<b>2.3334</b>	<b>0.6145</b>	<b>0.0156</b>	<b>0.6300</b>		<b>2,126.692 2</b>	<b>2,126.6922</b>	<b>0.1030</b>		<b>2,128.8554</b>

### 3.11 Building Construction - School - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159
<b>Total</b>	<b>1.9601</b>	<b>20.3752</b>	<b>13.5516</b>	<b>0.0192</b>		<b>1.2079</b>	<b>1.2079</b>		<b>1.1124</b>	<b>1.1124</b>		<b>1,943.4261</b>	<b>1,943.4261</b>	<b>0.5852</b>		<b>1,955.7159</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1698	1.2640	2.4436	3.3100e-003	0.0934	0.0210	0.1144	0.0267	0.0193	0.0460		325.5044	325.5044	2.7100e-003		325.5612
Worker	0.9745	1.3351	11.9031	0.0298	2.4644	0.0184	2.4828	0.6537	0.0169	0.6706		2,358.6081	2,358.6081	0.1195		2,361.1184
<b>Total</b>	<b>1.1443</b>	<b>2.5990</b>	<b>14.3467</b>	<b>0.0332</b>	<b>2.5578</b>	<b>0.0394</b>	<b>2.5972</b>	<b>0.6804</b>	<b>0.0362</b>	<b>0.7166</b>		<b>2,684.1126</b>	<b>2,684.1126</b>	<b>0.1223</b>		<b>2,686.6797</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.4261	1,943.4261	0.5852		1,955.7159
<b>Total</b>	<b>0.8313</b>	<b>16.9461</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5820</b>	<b>0.5820</b>		<b>0.5820</b>	<b>0.5820</b>	<b>0.0000</b>	<b>1,943.4261</b>	<b>1,943.4261</b>	<b>0.5852</b>		<b>1,955.7159</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1698	1.2640	2.4436	3.3100e-003	0.0934	0.0210	0.1144	0.0267	0.0193	0.0460		325.5044	325.5044	2.7100e-003		325.5612
Worker	0.9745	1.3351	11.9031	0.0298	2.4644	0.0184	2.4828	0.6537	0.0169	0.6706		2,358.6081	2,358.6081	0.1195		2,361.1184
<b>Total</b>	<b>1.1443</b>	<b>2.5990</b>	<b>14.3467</b>	<b>0.0332</b>	<b>2.5578</b>	<b>0.0394</b>	<b>2.5972</b>	<b>0.6804</b>	<b>0.0362</b>	<b>0.7166</b>		<b>2,684.1126</b>	<b>2,684.1126</b>	<b>0.1223</b>		<b>2,686.6797</b>

### 3.11 Building Construction - School - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017

Total	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1561	1.1337	2.3146	3.3000e-003	0.0934	0.0192	0.1126	0.0267	0.0177	0.0444		319.8177	319.8177	2.6300e-003		319.8730
Worker	0.8547	1.1921	10.4516	0.0298	2.4644	0.0179	2.4824	0.6537	0.0166	0.6703		2,262.4385	2,262.4385	0.1096		2,264.7397
Total	1.0108	2.3258	12.7663	0.0331	2.5578	0.0372	2.5950	0.6804	0.0343	0.7146		2,582.2562	2,582.2562	0.1122		2,584.6127

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017
Total	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1561	1.1337	2.3146	3.3000e-003	0.0934	0.0192	0.1126	0.0267	0.0177	0.0444		319.8177	319.8177	2.6300e-003		319.8730
Worker	0.8547	1.1921	10.4516	0.0298	2.4644	0.0179	2.4824	0.6537	0.0166	0.6703		2,262.4385	2,262.4385	0.1096		2,264.7397
<b>Total</b>	<b>1.0108</b>	<b>2.3258</b>	<b>12.7663</b>	<b>0.0331</b>	<b>2.5578</b>	<b>0.0372</b>	<b>2.5950</b>	<b>0.6804</b>	<b>0.0343</b>	<b>0.7146</b>		<b>2,582.2562</b>	<b>2,582.2562</b>	<b>0.1122</b>		<b>2,584.6127</b>

### 3.12 Building Construction - Parks - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>1.6966</b>	<b>17.6738</b>	<b>13.2494</b>	<b>0.0192</b>		<b>1.0209</b>	<b>1.0209</b>		<b>0.9404</b>	<b>0.9404</b>		<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3569	2.5912	5.2906	7.5500e-003	0.2135	0.0440	0.2574	0.0610	0.0404	0.1014		731.0120	731.0120	6.0100e-003		731.1382

Worker	0.2279	0.3179	2.7871	7.9300e-003	0.6572	4.7800e-003	0.6620	0.1743	4.4200e-003	0.1787		603.3169	603.3169	0.0292		603.9306
<b>Total</b>	<b>0.5848</b>	<b>2.9091</b>	<b>8.0777</b>	<b>0.0155</b>	<b>0.8706</b>	<b>0.0488</b>	<b>0.9194</b>	<b>0.2353</b>	<b>0.0449</b>	<b>0.2802</b>		<b>1,334.3289</b>	<b>1,334.3289</b>	<b>0.0352</b>		<b>1,335.0688</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5818</b>	<b>0.5818</b>		<b>0.5818</b>	<b>0.5818</b>	<b>0.0000</b>	<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3569	2.5912	5.2906	7.5500e-003	0.2135	0.0440	0.2574	0.0610	0.0404	0.1014		731.0120	731.0120	6.0100e-003		731.1382
Worker	0.2279	0.3179	2.7871	7.9300e-003	0.6572	4.7800e-003	0.6620	0.1743	4.4200e-003	0.1787		603.3169	603.3169	0.0292		603.9306
<b>Total</b>	<b>0.5848</b>	<b>2.9091</b>	<b>8.0777</b>	<b>0.0155</b>	<b>0.8706</b>	<b>0.0488</b>	<b>0.9194</b>	<b>0.2353</b>	<b>0.0449</b>	<b>0.2802</b>		<b>1,334.3289</b>	<b>1,334.3289</b>	<b>0.0352</b>		<b>1,335.0688</b>

## Grapevine Construction - Planning Area 6A

### Kern-San Joaquin County, Summer

## 1.0 Project Characteristics

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	270.00	1000sqft	21.00	270,000.00	0
Elementary School	994.00	Student	5.00	83,101.75	0
Industrial Park	1,400.00	1000sqft	109.00	1,400,000.00	0
Other Asphalt Surfaces	59.00	Acre	59.00	2,570,040.00	0
City Park	5.00	Acre	5.00	217,800.00	0
Apartments Low Rise	750.00	Dwelling Unit	75.00	750,000.00	2145
Single Family Housing	585.00	Dwelling Unit	149.00	1,053,000.00	1673
Strip Mall	150.00	1000sqft	20.00	150,000.00	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2019
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Area 6A. Kern County, San Joaquin Valley Air Basin.

Land Use - See 1.1 Land Usage.

Construction Phase - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.



Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Trips and VMT - See 3.0 Construction Detail.

Demolition - None.

Grading - See 3.0 Construction Detail.

Architectural Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and an adjustment for parking/asphalt surface and park land uses. See 3.0 Construction Detail.

Area Coating - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Construction Off-road Equipment Mitigation - Tier 2 for construction equipment > 75 HP.

On-road Fugitive Dust - Water Exposed Area, Frequency: 3 times per day. Unpaved Road Mitigation, Vehicle Speed: 15 miles per hour.

**Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report:** Exhaust PM10 and PM2.5 emissions presented in the Technical Report; no Fugitive Dust PM10 and PM2.5 emissions presented in the Technical Report.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	2,345,471.00	1,118,246.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	7,036,413.00	2,854,653.00
tblAreaCoating	Area_Nonresidential_Interior	7036413	9632043
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	19.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	22.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	550.00	717.00
tblConstructionPhase	NumDays	7,750.00	347.00
tblConstructionPhase	NumDays	7,750.00	130.00
tblConstructionPhase	NumDays	7,750.00	740.00
tblConstructionPhase	NumDays	7,750.00	717.00
tblConstructionPhase	NumDays	7,750.00	717.00
tblConstructionPhase	NumDays	7,750.00	717.00
tblConstructionPhase	NumDays	775.00	630.00
tblConstructionPhase	NumDays	550.00	717.00
tblConstructionPhase	NumDays	300.00	521.00
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	4/29/2020	9/30/2018
tblConstructionPhase	PhaseEndDate	3/29/2019	9/30/2018

tblConstructionPhase	PhaseEndDate	4/30/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	5/29/2020	5/31/2018
tblConstructionPhase	PhaseEndDate	9/29/2021	12/31/2018
tblConstructionPhase	PhaseEndDate	12/29/2017	12/31/2017
tblConstructionPhase	PhaseEndDate	9/30/2020	6/30/2018
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	6/1/2017
tblConstructionPhase	PhaseStartDate	10/1/2018	4/1/2018
tblConstructionPhase	PhaseStartDate	7/1/2018	3/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2018	1/1/2016
tblConstructionPhase	PhaseStartDate	1/1/2019	4/1/2016
tblConstructionPhase	PhaseStartDate	6/1/2018	3/1/2016
tblGrading	AcresOfGrading	2,362.50	586.00
tblGrading	AcresOfGrading	260.50	586.00
tblGrading	MaterialExported	0.00	146,450.00
tblLandUse	LotAcreage	6.20	21.00
tblLandUse	LotAcreage	1.91	5.00
tblLandUse	LotAcreage	32.14	109.00
tblLandUse	LotAcreage	46.88	75.00
tblLandUse	LotAcreage	189.94	149.00
tblLandUse	LotAcreage	3.44	20.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	6.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00



tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	HaulingPercentPave	100.00	50.00
tblProjectCharacteristics	OperationalYear	2014	2019
tblSolidWaste	SolidWasteGenerationRate	1,736.00	3,918.40
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	VendorTripNumber	912.00	14.00
tblTripsAndVMT	VendorTripNumber	912.00	32.00
tblTripsAndVMT	VendorTripNumber	912.00	144.00
tblTripsAndVMT	VendorTripNumber	912.00	22.00
tblTripsAndVMT	VendorTripNumber	912.00	518.00
tblTripsAndVMT	VendorTripNumber	912.00	44.00
tblTripsAndVMT	WorkerTripNumber	3.00	4.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	300.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	80.00
tblTripsAndVMT	WorkerTripNumber	63.00	64.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	220.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	200.00

tblTripsAndVMT	WorkerTripNumber	2,679.00	450.00
tblTripsAndVMT	WorkerTripNumber	2,679.00	160.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	536.00	282.00
tblWater	IndoorWaterUseRate	323,750,000.00	730,750,000.00

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	123.4938	315.6365	311.1211	0.5436	70.3456	14.8757	85.2213	9.8718	13.7839	23.6557	0.0000	52,055.69 24	52,055.692 4	6.8116	0.0000	52,198.735 7
2017	123.6669	313.7371	320.3622	0.6000	73.1028	14.9354	88.0381	10.5723	13.8293	24.4016	0.0000	55,907.12 38	55,907.123 8	7.4294	0.0000	56,063.140 3
2018	120.6843	286.1491	314.0218	0.6283	144.5564	13.3561	157.9126	17.8397	12.3671	30.2067	0.0000	57,313.43 06	57,313.430 6	7.7710	0.0000	57,476.622 2
Total	367.8450	915.5226	945.5051	1.7719	288.0048	43.1672	331.1720	38.2837	39.9803	78.2640	0.0000	165,276.2 469	165,276.24 69	22.0120	0.0000	165,738.49 81

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2016	108.4591	253.3027	306.5381	0.5436	48.9834	7.0648	56.0482	7.7239	6.9536	14.6774	0.0000	52,055.69 24	52,055.692 4	6.8116	0.0000	52,198.735 7
2017	108.9101	263.5616	319.9581	0.6000	51.6636	7.4762	59.1398	8.4167	7.3791	15.7959	0.0000	55,907.12 38	55,907.123 8	7.4294	0.0000	56,063.140 2
2018	108.7391	270.7417	322.2053	0.6283	96.0153	7.8499	103.8651	12.9797	7.7570	20.7367	0.0000	57,313.43 06	57,313.430 6	7.7710	0.0000	57,476.622 2
Total	326.1083	787.6060	948.7014	1.7719	196.6622	22.3909	219.0531	29.1202	22.0897	51.2100	0.0000	165,276.2 468	165,276.24 68	22.0120	0.0000	165,738.49 81

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Percent Reduction	11.35	13.97	-0.34	0.00	31.72	48.13	33.86	23.94	44.75	34.57	0.00	0.00	0.00	0.00	0.00	0.00
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### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2016	12/31/2017	5	521	
2	Grading	Grading	1/1/2016	5/31/2018	5	630	
3	Trenching	Trenching	3/1/2016	6/30/2018	5	609	
4	Building Construction - Residential	Building Construction	3/1/2016	12/31/2018	5	740	
5	Building Construction - Village Commercial	Building Construction	4/1/2016	12/31/2018	5	717	
6	Building Construction - Industrial	Building Construction	4/1/2016	12/31/2018	5	717	
7	Building Construction - Office/R&D	Building Construction	4/1/2016	12/31/2018	5	717	
8	Paving	Paving	4/1/2016	12/31/2018	5	717	
9	Architectural Coating	Architectural Coating	4/1/2016	12/31/2018	5	717	
10	Building Construction - School	Building Construction	6/1/2017	9/30/2018	5	347	
11	Building Construction - Parks	Building Construction	4/1/2018	9/30/2018	5	130	

Acres of Grading (Site Preparation Phase): 586

Acres of Grading (Grading Phase): 586

Acres of Paving: 0

Residential Indoor: 3,651,075; Residential Outdoor: 1,217,025; Non-Residential Indoor: 2,854,653; Non-Residential Outdoor: 1,118,246

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	0	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	0	8.00	162	0.38



Grading	Graders	2	6.00	174	0.41
Grading	Rollers	2	4.00	80	0.38
Grading	Rubber Tired Dozers	0	8.00	255	0.40
Grading	Rubber Tired Loaders	1	2.00	199	0.36
Grading	Scrapers	3	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Trenching	Other Construction Equipment	3	2.00	171	0.42
Trenching	Other Construction Equipment	2	1.00	171	0.42
Trenching	Tractors/Loaders/Backhoes	6	2.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	4	1.00	97	0.37
Trenching	Trenchers	6	2.00	80	0.50
Trenching	Trenchers	4	1.00	80	0.50
Building Construction - Residential	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Residential	Cranes	0	7.00	226	0.29
Building Construction - Residential	Forklifts	0	8.00	89	0.20
Building Construction - Residential	Generator Sets	0	8.00	84	0.74
Building Construction - Residential	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Residential	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Residential	Welders	0	8.00	46	0.45
Building Construction - Village	Cement and Mortar Mixers	1	8.00	9	0.56
Commercial Building Construction - Village	Cranes	0	7.00	226	0.29
Commercial Building Construction - Village	Forklifts	0	8.00	89	0.20
Commercial Building Construction - Village	Generator Sets	0	8.00	84	0.74
Commercial Building Construction - Village	Other Construction Equipment	2	8.00	171	0.42
Commercial Building Construction - Village	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Commercial Building Construction - Village	Welders	0	8.00	46	0.45
Commercial Building Construction - Industrial	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Industrial	Cranes	0	7.00	226	0.29
Building Construction - Industrial	Forklifts	0	8.00	89	0.20
Building Construction - Industrial	Generator Sets	0	8.00	84	0.74

Building Construction - Industrial	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Industrial	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Industrial	Welders	0	8.00	46	0.45
Building Construction - Office/R&D	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Office/R&D	Cranes	0	7.00	226	0.29
Building Construction - Office/R&D	Forklifts	0	8.00	89	0.20
Building Construction - Office/R&D	Generator Sets	0	8.00	84	0.74
Building Construction - Office/R&D	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Office/R&D	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Office/R&D	Welders	0	8.00	46	0.45
Paving	Other Construction Equipment	2	8.00	171	0.42
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38
Architectural Coating	Air Compressors	6	6.00	78	0.48
Building Construction - School	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - School	Cranes	0	7.00	226	0.29
Building Construction - School	Forklifts	0	8.00	89	0.20
Building Construction - School	Generator Sets	0	8.00	84	0.74
Building Construction - School	Other Construction Equipment	2	8.00	171	0.42
Building Construction - School	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - School	Welders	0	8.00	46	0.45
Building Construction - Parks	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Parks	Cranes	0	7.00	226	0.29
Building Construction - Parks	Forklifts	0	8.00	89	0.20
Building Construction - Parks	Generator Sets	0	8.00	84	0.74
Building Construction - Parks	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Parks	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Parks	Welders	0	8.00	46	0.45

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	18,306.00	10.80	7.30	1.00	LD_Mix	HDT_Mix	HHDT
Trenching	25	64.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Residential	5	220.00	144.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Village Commercial	5	200.00	22.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Industrial	5	450.00	518.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Office/R&D	5	160.00	44.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	6	282.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - School	5	300.00	14.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Parks	5	80.00	32.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

### 3.2 Site Preparation - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1928	0.0000	1.1928	0.1288	0.0000	0.1288			0.0000			0.0000
Off-Road	1.0187	10.3799	4.9275	6.2400e-003		0.5831	0.5831		0.5365	0.5365		649.4069	649.4069	0.1959		653.5205

<b>Total</b>	<b>1.0187</b>	<b>10.3799</b>	<b>4.9275</b>	<b>6.2400e-003</b>	<b>1.1928</b>	<b>0.5831</b>	<b>1.7759</b>	<b>0.1288</b>	<b>0.5365</b>	<b>0.6653</b>		<b>649.4069</b>	<b>649.4069</b>	<b>0.1959</b>		<b>653.5205</b>
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0177	0.0171	0.2109	4.6000e-004	0.0329	2.5000e-004	0.0331	8.7200e-003	2.3000e-004	8.9500e-003		37.7150	37.7150	1.7500e-003		37.7517
<b>Total</b>	<b>0.0177</b>	<b>0.0171</b>	<b>0.2109</b>	<b>4.6000e-004</b>	<b>0.0329</b>	<b>2.5000e-004</b>	<b>0.0331</b>	<b>8.7200e-003</b>	<b>2.3000e-004</b>	<b>8.9500e-003</b>		<b>37.7150</b>	<b>37.7150</b>	<b>1.7500e-003</b>		<b>37.7517</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4652	0.0000	0.4652	0.0502	0.0000	0.0502			0.0000			0.0000
Off-Road	0.2391	5.2468	4.6554	6.2400e-003		0.1611	0.1611		0.1611	0.1611	0.0000	649.4069	649.4069	0.1959		653.5205
<b>Total</b>	<b>0.2391</b>	<b>5.2468</b>	<b>4.6554</b>	<b>6.2400e-003</b>	<b>0.4652</b>	<b>0.1611</b>	<b>0.6263</b>	<b>0.0502</b>	<b>0.1611</b>	<b>0.2113</b>	<b>0.0000</b>	<b>649.4069</b>	<b>649.4069</b>	<b>0.1959</b>		<b>653.5205</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0177	0.0171	0.2109	4.6000e-004	0.0329	2.5000e-004	0.0331	8.7200e-003	2.3000e-004	8.9500e-003		37.7150	37.7150	1.7500e-003		37.7517
<b>Total</b>	<b>0.0177</b>	<b>0.0171</b>	<b>0.2109</b>	<b>4.6000e-004</b>	<b>0.0329</b>	<b>2.5000e-004</b>	<b>0.0331</b>	<b>8.7200e-003</b>	<b>2.3000e-004</b>	<b>8.9500e-003</b>		<b>37.7150</b>	<b>37.7150</b>	<b>1.7500e-003</b>		<b>37.7517</b>

### 3.2 Site Preparation - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1928	0.0000	1.1928	0.1288	0.0000	0.1288			0.0000			0.0000
Off-Road	0.9526	9.6413	4.8381	6.2200e-003		0.5416	0.5416		0.4983	0.4983		637.6014	637.6014	0.1954		641.7039
<b>Total</b>	<b>0.9526</b>	<b>9.6413</b>	<b>4.8381</b>	<b>6.2200e-003</b>	<b>1.1928</b>	<b>0.5416</b>	<b>1.7344</b>	<b>0.1288</b>	<b>0.4983</b>	<b>0.6271</b>		<b>637.6014</b>	<b>637.6014</b>	<b>0.1954</b>		<b>641.7039</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0157	0.0152	0.1857	4.6000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.3000e-004	8.9400e-003		36.2219	36.2219	1.5900e-003		36.2554
<b>Total</b>	<b>0.0157</b>	<b>0.0152</b>	<b>0.1857</b>	<b>4.6000e-004</b>	<b>0.0329</b>	<b>2.4000e-004</b>	<b>0.0331</b>	<b>8.7200e-003</b>	<b>2.3000e-004</b>	<b>8.9400e-003</b>		<b>36.2219</b>	<b>36.2219</b>	<b>1.5900e-003</b>		<b>36.2554</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4652	0.0000	0.4652	0.0502	0.0000	0.0502			0.0000			0.0000
Off-Road	0.2391	5.2468	4.6554	6.2200e-003		0.1611	0.1611		0.1611	0.1611	0.0000	637.6014	637.6014	0.1954		641.7039
<b>Total</b>	<b>0.2391</b>	<b>5.2468</b>	<b>4.6554</b>	<b>6.2200e-003</b>	<b>0.4652</b>	<b>0.1611</b>	<b>0.6263</b>	<b>0.0502</b>	<b>0.1611</b>	<b>0.2113</b>	<b>0.0000</b>	<b>637.6014</b>	<b>637.6014</b>	<b>0.1954</b>		<b>641.7039</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0157	0.0152	0.1857	4.6000e-004	0.0329	2.4000e-004	0.0331	8.7200e-003	2.3000e-004	8.9400e-003		36.2219	36.2219	1.5900e-003		36.2554
<b>Total</b>	<b>0.0157</b>	<b>0.0152</b>	<b>0.1857</b>	<b>4.6000e-004</b>	<b>0.0329</b>	<b>2.4000e-004</b>	<b>0.0331</b>	<b>8.7200e-003</b>	<b>2.3000e-004</b>	<b>8.9400e-003</b>		<b>36.2219</b>	<b>36.2219</b>	<b>1.5900e-003</b>		<b>36.2554</b>

### 3.3 Grading - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0207	0.0000	1.0207	0.1117	0.0000	0.1117			0.0000			0.0000
Off-Road	6.1366	73.0854	42.9278	0.0582		3.2867	3.2867		3.0237	3.0237		6,048.1083	6,048.1083	1.8243		6,086.4191
<b>Total</b>	<b>6.1366</b>	<b>73.0854</b>	<b>42.9278</b>	<b>0.0582</b>	<b>1.0207</b>	<b>3.2867</b>	<b>4.3074</b>	<b>0.1117</b>	<b>3.0237</b>	<b>3.1355</b>		<b>6,048.1083</b>	<b>6,048.1083</b>	<b>1.8243</b>		<b>6,086.4191</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2751	0.9511	4.3417	1.6500e-003	51.6441	7.5700e-003	51.6517	5.1582	6.9400e-003	5.1652		159.3761	159.3761	2.2700e-003		159.4238
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0887	0.0855	1.0545	2.3000e-003	0.1643	1.2700e-003	0.1656	0.0436	1.1700e-003	0.0447		188.5748	188.5748	8.7400e-003		188.7583
<b>Total</b>	<b>0.3638</b>	<b>1.0366</b>	<b>5.3963</b>	<b>3.9500e-003</b>	<b>51.8084</b>	<b>8.8400e-003</b>	<b>51.8173</b>	<b>5.2018</b>	<b>8.1100e-003</b>	<b>5.2099</b>		<b>347.9509</b>	<b>347.9509</b>	<b>0.0110</b>		<b>348.1821</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3981	0.0000	0.3981	0.0436	0.0000	0.0436			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	6,048.1083	6,048.1083	1.8243		6,086.4191
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.3981</b>	<b>1.1791</b>	<b>1.5772</b>	<b>0.0436</b>	<b>1.1791</b>	<b>1.2227</b>	<b>0.0000</b>	<b>6,048.1083</b>	<b>6,048.1083</b>	<b>1.8243</b>		<b>6,086.4191</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2751	0.9511	4.3417	1.6500e-003	31.6322	7.5700e-003	31.6398	3.1570	6.9400e-003	3.1640		159.3761	159.3761	2.2700e-003		159.4238
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0887	0.0855	1.0545	2.3000e-003	0.1643	1.2700e-003	0.1656	0.0436	1.1700e-003	0.0447		188.5748	188.5748	8.7400e-003		188.7583
<b>Total</b>	<b>0.3638</b>	<b>1.0366</b>	<b>5.3963</b>	<b>3.9500e-003</b>	<b>31.7965</b>	<b>8.8400e-003</b>	<b>31.8053</b>	<b>3.2006</b>	<b>8.1100e-003</b>	<b>3.2087</b>		<b>347.9509</b>	<b>347.9509</b>	<b>0.0110</b>		<b>348.1821</b>

### 3.3 Grading - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0207	0.0000	1.0207	0.1117	0.0000	0.1117			0.0000			0.0000



Off-Road	5.7548	67.8201	40.2906	0.0582		3.0382	3.0382		2.7952	2.7952		5,951.2840	5,951.2840	1.8235		5,989.5767
<b>Total</b>	<b>5.7548</b>	<b>67.8201</b>	<b>40.2906</b>	<b>0.0582</b>	<b>1.0207</b>	<b>3.0382</b>	<b>4.0590</b>	<b>0.1117</b>	<b>2.7952</b>	<b>2.9069</b>		<b>5,951.2840</b>	<b>5,951.2840</b>	<b>1.8235</b>		<b>5,989.5767</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2435	0.8748	4.0342	1.6400e-003	51.8427	6.5000e-003	51.8492	5.1781	5.9600e-003	5.1840		156.5041	156.5041	2.2500e-003		156.5514
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0783	0.0761	0.9285	2.2900e-003	0.1643	1.2200e-003	0.1655	0.0436	1.1300e-003	0.0447		181.1094	181.1094	7.9700e-003		181.2768
<b>Total</b>	<b>0.3218</b>	<b>0.9508</b>	<b>4.9627</b>	<b>3.9300e-003</b>	<b>52.0070</b>	<b>7.7200e-003</b>	<b>52.0148</b>	<b>5.2216</b>	<b>7.0900e-003</b>	<b>5.2287</b>		<b>337.6135</b>	<b>337.6135</b>	<b>0.0102</b>		<b>337.8282</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3981	0.0000	0.3981	0.0436	0.0000	0.0436			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	5,951.2840	5,951.2840	1.8235		5,989.5767
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.3981</b>	<b>1.1791</b>	<b>1.5772</b>	<b>0.0436</b>	<b>1.1791</b>	<b>1.2227</b>	<b>0.0000</b>	<b>5,951.2840</b>	<b>5,951.2840</b>	<b>1.8235</b>		<b>5,989.5767</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2435	0.8748	4.0342	1.6400e-003	31.7538	6.5000e-003	31.7603	3.1692	5.9600e-003	3.1751		156.5041	156.5041	2.2500e-003		156.5514
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0783	0.0761	0.9285	2.2900e-003	0.1643	1.2200e-003	0.1655	0.0436	1.1300e-003	0.0447		181.1094	181.1094	7.9700e-003		181.2768
<b>Total</b>	<b>0.3218</b>	<b>0.9508</b>	<b>4.9627</b>	<b>3.9300e-003</b>	<b>31.9181</b>	<b>7.7200e-003</b>	<b>31.9258</b>	<b>3.2127</b>	<b>7.0900e-003</b>	<b>3.2198</b>		<b>337.6135</b>	<b>337.6135</b>	<b>0.0102</b>		<b>337.8282</b>

### 3.3 Grading - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0207	0.0000	1.0207	0.1117	0.0000	0.1117			0.0000			0.0000
Off-Road	4.9960	58.1422	35.2912	0.0582		2.5670	2.5670		2.3617	2.3617		5,856.3505	5,856.3505	1.8232		5,894.6369
<b>Total</b>	<b>4.9960</b>	<b>58.1422</b>	<b>35.2912</b>	<b>0.0582</b>	<b>1.0207</b>	<b>2.5670</b>	<b>3.5878</b>	<b>0.1117</b>	<b>2.3617</b>	<b>2.4734</b>		<b>5,856.3505</b>	<b>5,856.3505</b>	<b>1.8232</b>		<b>5,894.6369</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.2312	0.8125	3.8848	1.6300e-003	123.6521	6.3600e-003	123.6584	12.3479	5.8400e-003	12.3537		153.7856	153.7856	2.3000e-003		153.8338
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0681	0.8226	2.2900e-003	0.1643	1.1900e-003	0.1655	0.0436	1.1000e-003	0.0447		173.7545	173.7545	7.3100e-003		173.9079
<b>Total</b>	<b>0.3007</b>	<b>0.8806</b>	<b>4.7074</b>	<b>3.9200e-003</b>	<b>123.8164</b>	<b>7.5500e-003</b>	<b>123.8239</b>	<b>12.3915</b>	<b>6.9400e-003</b>	<b>12.3984</b>		<b>327.5401</b>	<b>327.5401</b>	<b>9.6100e-003</b>		<b>327.7417</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.3981	0.0000	0.3981	0.0436	0.0000	0.0436			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	5,856.3505	5,856.3505	1.8232		5,894.6369
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.3981</b>	<b>1.1791</b>	<b>1.5772</b>	<b>0.0436</b>	<b>1.1791</b>	<b>1.2227</b>	<b>0.0000</b>	<b>5,856.3505</b>	<b>5,856.3505</b>	<b>1.8232</b>		<b>5,894.6369</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2312	0.8125	3.8848	1.6300e-003	75.7336	6.3600e-003	75.7399	7.5560	5.8400e-003	7.5619		153.7856	153.7856	2.3000e-003		153.8338
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0695	0.0681	0.8226	2.2900e-003	0.1643	1.1900e-003	0.1655	0.0436	1.1000e-003	0.0447		173.7545	173.7545	7.3100e-003		173.9079
<b>Total</b>	<b>0.3007</b>	<b>0.8806</b>	<b>4.7074</b>	<b>3.9200e-003</b>	<b>75.8979</b>	<b>7.5500e-003</b>	<b>75.9054</b>	<b>7.5996</b>	<b>6.9400e-003</b>	<b>7.6065</b>		<b>327.5401</b>	<b>327.5401</b>	<b>9.6100e-003</b>		<b>327.7417</b>

### 3.4 Trenching - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.4572	23.6180	14.7044	0.0193		1.6526	1.6526		1.5204	1.5204		2,005.1713	2,005.1713	0.6048		2,017.8728
<b>Total</b>	<b>2.4572</b>	<b>23.6180</b>	<b>14.7044</b>	<b>0.0193</b>		<b>1.6526</b>	<b>1.6526</b>		<b>1.5204</b>	<b>1.5204</b>		<b>2,005.1713</b>	<b>2,005.1713</b>	<b>0.6048</b>		<b>2,017.8728</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2839	0.2736	3.3744	7.3500e-003	0.5257	4.0700e-003	0.5298	0.1395	3.7300e-003	0.1432		603.4393	603.4393	0.0280		604.0267
<b>Total</b>	<b>0.2839</b>	<b>0.2736</b>	<b>3.3744</b>	<b>7.3500e-003</b>	<b>0.5257</b>	<b>4.0700e-003</b>	<b>0.5298</b>	<b>0.1395</b>	<b>3.7300e-003</b>	<b>0.1432</b>		<b>603.4393</b>	<b>603.4393</b>	<b>0.0280</b>		<b>604.0267</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8564	17.9976	14.5914	0.0193		0.6761	0.6761		0.6761	0.6761	0.0000	2,005.1713	2,005.1713	0.6048		2,017.8728
<b>Total</b>	<b>0.8564</b>	<b>17.9976</b>	<b>14.5914</b>	<b>0.0193</b>		<b>0.6761</b>	<b>0.6761</b>		<b>0.6761</b>	<b>0.6761</b>	<b>0.0000</b>	<b>2,005.1713</b>	<b>2,005.1713</b>	<b>0.6048</b>		<b>2,017.8728</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2839	0.2736	3.3744	7.3500e-003	0.5257	4.0700e-003	0.5298	0.1395	3.7300e-003	0.1432		603.4393	603.4393	0.0280		604.0267
<b>Total</b>	<b>0.2839</b>	<b>0.2736</b>	<b>3.3744</b>	<b>7.3500e-003</b>	<b>0.5257</b>	<b>4.0700e-003</b>	<b>0.5298</b>	<b>0.1395</b>	<b>3.7300e-003</b>	<b>0.1432</b>		<b>603.4393</b>	<b>603.4393</b>	<b>0.0280</b>		<b>604.0267</b>

### 3.4 Trenching - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.3420	22.4707	14.6145	0.0193		1.5637	1.5637		1.4386	1.4386		1,973.0092	1,973.0092	0.6045		1,985.7042

Total	2.3420	22.4707	14.6145	0.0193		1.5637	1.5637		1.4386	1.4386		1,973.009 2	1,973.0092	0.6045		1,985.7042
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2507	0.2435	2.9713	7.3400e-003	0.5257	3.9200e-003	0.5297	0.1395	3.6100e-003	0.1431		579.5501	579.5501	0.0255		580.0856
Total	0.2507	0.2435	2.9713	7.3400e-003	0.5257	3.9200e-003	0.5297	0.1395	3.6100e-003	0.1431		579.5501	579.5501	0.0255		580.0856

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8564	17.9976	14.5914	0.0193		0.6761	0.6761		0.6761	0.6761	0.0000	1,973.009 2	1,973.0092	0.6045		1,985.7042
Total	0.8564	17.9976	14.5914	0.0193		0.6761	0.6761		0.6761	0.6761	0.0000	1,973.009 2	1,973.0092	0.6045		1,985.7042

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2507	0.2435	2.9713	7.3400e-003	0.5257	3.9200e-003	0.5297	0.1395	3.6100e-003	0.1431		579.5501	579.5501	0.0255		580.0856
<b>Total</b>	<b>0.2507</b>	<b>0.2435</b>	<b>2.9713</b>	<b>7.3400e-003</b>	<b>0.5257</b>	<b>3.9200e-003</b>	<b>0.5297</b>	<b>0.1395</b>	<b>3.6100e-003</b>	<b>0.1431</b>		<b>579.5501</b>	<b>579.5501</b>	<b>0.0255</b>		<b>580.0856</b>

### 3.4 Trenching - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0135	19.6288	14.2463	0.0193		1.3244	1.3244		1.2184	1.2184		1,940.2891	1,940.2891	0.6040		1,952.9739
<b>Total</b>	<b>2.0135</b>	<b>19.6288</b>	<b>14.2463</b>	<b>0.0193</b>		<b>1.3244</b>	<b>1.3244</b>		<b>1.2184</b>	<b>1.2184</b>		<b>1,940.2891</b>	<b>1,940.2891</b>	<b>0.6040</b>		<b>1,952.9739</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2223	0.2178	2.6323	7.3200e-003	0.5257	3.8200e-003	0.5296	0.1395	3.5400e-003	0.1430		556.0144	556.0144	0.0234		556.5054
<b>Total</b>	<b>0.2223</b>	<b>0.2178</b>	<b>2.6323</b>	<b>7.3200e-003</b>	<b>0.5257</b>	<b>3.8200e-003</b>	<b>0.5296</b>	<b>0.1395</b>	<b>3.5400e-003</b>	<b>0.1430</b>		<b>556.0144</b>	<b>556.0144</b>	<b>0.0234</b>		<b>556.5054</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8564	17.9976	14.5914	0.0193		0.6761	0.6761		0.6761	0.6761	0.0000	1,940.2891	1,940.2891	0.6040		1,952.9739
<b>Total</b>	<b>0.8564</b>	<b>17.9976</b>	<b>14.5914</b>	<b>0.0193</b>		<b>0.6761</b>	<b>0.6761</b>		<b>0.6761</b>	<b>0.6761</b>	<b>0.0000</b>	<b>1,940.2891</b>	<b>1,940.2891</b>	<b>0.6040</b>		<b>1,952.9739</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2223	0.2178	2.6323	7.3200e-003	0.5257	3.8200e-003	0.5296	0.1395	3.5400e-003	0.1430		556.0144	556.0144	0.0234		556.5054
<b>Total</b>	<b>0.2223</b>	<b>0.2178</b>	<b>2.6323</b>	<b>7.3200e-003</b>	<b>0.5257</b>	<b>3.8200e-003</b>	<b>0.5296</b>	<b>0.1395</b>	<b>3.5400e-003</b>	<b>0.1430</b>		<b>556.0144</b>	<b>556.0144</b>	<b>0.0234</b>		<b>556.5054</b>



### 3.5 Building Construction - Residential - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0686	21.6175	13.6374	0.0192		1.2911	1.2911		1.1890	1.1890		1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>2.0686</b>	<b>21.6175</b>	<b>13.6374</b>	<b>0.0192</b>		<b>1.2911</b>	<b>1.2911</b>		<b>1.1890</b>	<b>1.1890</b>		<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.6065	13.9254	16.8018	0.0342	0.9605	0.2535	1.2140	0.2745	0.2331	0.5076		3,432.1639	3,432.1639	0.0293		3,432.7786
Worker	0.9759	0.9405	11.5996	0.0253	1.8073	0.0140	1.8212	0.4794	0.0128	0.4922		2,074.3227	2,074.3227	0.0961		2,076.3417
<b>Total</b>	<b>2.5823</b>	<b>14.8659</b>	<b>28.4014</b>	<b>0.0595</b>	<b>2.7677</b>	<b>0.2675</b>	<b>3.0352</b>	<b>0.7539</b>	<b>0.2460</b>	<b>0.9998</b>		<b>5,506.4866</b>	<b>5,506.4866</b>	<b>0.1254</b>		<b>5,509.1203</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8314	16.9468	14.3660	0.0192		0.5822	0.5822		0.5822	0.5822	0.0000	1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>0.8314</b>	<b>16.9468</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5822</b>	<b>0.5822</b>		<b>0.5822</b>	<b>0.5822</b>	<b>0.0000</b>	<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.6065	13.9254	16.8018	0.0342	0.9605	0.2535	1.2140	0.2745	0.2331	0.5076		3,432.1639	3,432.1639	0.0293		3,432.7786
Worker	0.9759	0.9405	11.5996	0.0253	1.8073	0.0140	1.8212	0.4794	0.0128	0.4922		2,074.3227	2,074.3227	0.0961		2,076.3417
<b>Total</b>	<b>2.5823</b>	<b>14.8659</b>	<b>28.4014</b>	<b>0.0595</b>	<b>2.7677</b>	<b>0.2675</b>	<b>3.0352</b>	<b>0.7539</b>	<b>0.2460</b>	<b>0.9998</b>		<b>5,506.4866</b>	<b>5,506.4866</b>	<b>0.1254</b>		<b>5,509.1203</b>

### 3.5 Building Construction - Residential - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159

Total	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.4231	12.2880	15.3888	0.0342	0.9606	0.2131	1.1737	0.2746	0.1959	0.4705		3,373.8687	3,373.8687	0.0271		3,374.4376
Worker	0.8617	0.8370	10.2139	0.0252	1.8073	0.0135	1.8207	0.4794	0.0124	0.4918		1,992.2035	1,992.2035	0.0877		1,994.0444
Total	2.2848	13.1251	25.6027	0.0594	2.7679	0.2265	2.9944	0.7539	0.2083	0.9623		5,366.0721	5,366.0721	0.1148		5,368.4820

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.4261	1,943.4261	0.5852		1,955.7159
Total	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.4261	1,943.4261	0.5852		1,955.7159

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.4231	12.2880	15.3888	0.0342	0.9606	0.2131	1.1737	0.2746	0.1959	0.4705		3,373.8687	3,373.8687	0.0271		3,374.4376
Worker	0.8617	0.8370	10.2139	0.0252	1.8073	0.0135	1.8207	0.4794	0.0124	0.4918		1,992.2035	1,992.2035	0.0877		1,994.0444
<b>Total</b>	<b>2.2848</b>	<b>13.1251</b>	<b>25.6027</b>	<b>0.0594</b>	<b>2.7679</b>	<b>0.2265</b>	<b>2.9944</b>	<b>0.7539</b>	<b>0.2083</b>	<b>0.9623</b>		<b>5,366.0721</b>	<b>5,366.0721</b>	<b>0.1148</b>		<b>5,368.4820</b>

### 3.5 Building Construction - Residential - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>1.6966</b>	<b>17.6738</b>	<b>13.2494</b>	<b>0.0192</b>		<b>1.0209</b>	<b>1.0209</b>		<b>0.9404</b>	<b>0.9404</b>		<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3171	11.0313	14.5015	0.0341	0.9605	0.1953	1.1558	0.2745	0.1796	0.4541		3,315.008 2	3,315.0082	0.0263		3,315.5606
Worker	0.7641	0.7486	9.0484	0.0252	1.8073	0.0131	1.8204	0.4794	0.0122	0.4915		1,911.299 7	1,911.2997	0.0804		1,912.9873
<b>Total</b>	<b>2.0812</b>	<b>11.7799</b>	<b>23.5500</b>	<b>0.0593</b>	<b>2.7678</b>	<b>0.2085</b>	<b>2.9762</b>	<b>0.7539</b>	<b>0.1918</b>	<b>0.9456</b>		<b>5,226.307 8</b>	<b>5,226.3078</b>	<b>0.1067</b>		<b>5,228.5479</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.319 9	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5818</b>	<b>0.5818</b>		<b>0.5818</b>	<b>0.5818</b>	<b>0.0000</b>	<b>1,912.319 9</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	1.3171	11.0313	14.5015	0.0341	0.9605	0.1953	1.1558	0.2745	0.1796	0.4541		3,315.008 2	3,315.0082	0.0263		3,315.5606
Worker	0.7641	0.7486	9.0484	0.0252	1.8073	0.0131	1.8204	0.4794	0.0122	0.4915		1,911.299 7	1,911.2997	0.0804		1,912.9873
<b>Total</b>	<b>2.0812</b>	<b>11.7799</b>	<b>23.5500</b>	<b>0.0593</b>	<b>2.7678</b>	<b>0.2085</b>	<b>2.9762</b>	<b>0.7539</b>	<b>0.1918</b>	<b>0.9456</b>		<b>5,226.307 8</b>	<b>5,226.3078</b>	<b>0.1067</b>		<b>5,228.5479</b>

### 3.6 Building Construction - Village Commercial - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0686	21.6175	13.6374	0.0192		1.2911	1.2911		1.1890	1.1890		1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>2.0686</b>	<b>21.6175</b>	<b>13.6374</b>	<b>0.0192</b>		<b>1.2911</b>	<b>1.2911</b>		<b>1.1890</b>	<b>1.1890</b>		<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2454	2.1275	2.5669	5.2300e-003	0.1467	0.0387	0.1855	0.0419	0.0356	0.0776		524.3584	524.3584	4.4700e-003		524.4523
Worker	0.8872	0.8550	10.5451	0.0230	1.6430	0.0127	1.6557	0.4358	0.0117	0.4475		1,885.7479	1,885.7479	0.0874		1,887.5833
<b>Total</b>	<b>1.1326</b>	<b>2.9825</b>	<b>13.1121</b>	<b>0.0282</b>	<b>1.7897</b>	<b>0.0514</b>	<b>1.8411</b>	<b>0.4777</b>	<b>0.0473</b>	<b>0.5250</b>		<b>2,410.1063</b>	<b>2,410.1063</b>	<b>0.0919</b>		<b>2,412.0356</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8314	16.9468	14.3660	0.0192		0.5822	0.5822		0.5822	0.5822	0.0000	1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>0.8314</b>	<b>16.9468</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5822</b>	<b>0.5822</b>		<b>0.5822</b>	<b>0.5822</b>	<b>0.0000</b>	<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2454	2.1275	2.5669	5.2300e-003	0.1467	0.0387	0.1855	0.0419	0.0356	0.0776		524.3584	524.3584	4.4700e-003		524.4523
Worker	0.8872	0.8550	10.5451	0.0230	1.6430	0.0127	1.6557	0.4358	0.0117	0.4475		1,885.7479	1,885.7479	0.0874		1,887.5833
<b>Total</b>	<b>1.1326</b>	<b>2.9825</b>	<b>13.1121</b>	<b>0.0282</b>	<b>1.7897</b>	<b>0.0514</b>	<b>1.8411</b>	<b>0.4777</b>	<b>0.0473</b>	<b>0.5250</b>		<b>2,410.1063</b>	<b>2,410.1063</b>	<b>0.0919</b>		<b>2,412.0356</b>

### **3.6 Building Construction - Village Commercial - 2017**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159

Total	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.426 1	1,943.4261	0.5852		1,955.7159
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2174	1.8773	2.3511	5.2200e-003	0.1468	0.0326	0.1793	0.0420	0.0299	0.0719		515.4522	515.4522	4.1400e-003		515.5391
Worker	0.7834	0.7609	9.2854	0.0229	1.6430	0.0123	1.6552	0.4358	0.0113	0.4471		1,811.094 1	1,811.0941	0.0797		1,812.7676
Total	1.0008	2.6383	11.6364	0.0282	1.7897	0.0448	1.8345	0.4777	0.0412	0.5190		2,326.546 2	2,326.5462	0.0838		2,328.3067

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.426 1	1,943.4261	0.5852		1,955.7159
Total	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.426 1	1,943.4261	0.5852		1,955.7159

### Mitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2174	1.8773	2.3511	5.2200e-003	0.1468	0.0326	0.1793	0.0420	0.0299	0.0719		515.4522	515.4522	4.1400e-003		515.5391
Worker	0.7834	0.7609	9.2854	0.0229	1.6430	0.0123	1.6552	0.4358	0.0113	0.4471		1,811.0941	1,811.0941	0.0797		1,812.7676
<b>Total</b>	<b>1.0008</b>	<b>2.6383</b>	<b>11.6364</b>	<b>0.0282</b>	<b>1.7897</b>	<b>0.0448</b>	<b>1.8345</b>	<b>0.4777</b>	<b>0.0412</b>	<b>0.5190</b>		<b>2,326.5462</b>	<b>2,326.5462</b>	<b>0.0838</b>		<b>2,328.3067</b>

### 3.6 Building Construction - Village Commercial - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>1.6966</b>	<b>17.6738</b>	<b>13.2494</b>	<b>0.0192</b>		<b>1.0209</b>	<b>1.0209</b>		<b>0.9404</b>	<b>0.9404</b>		<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2012	1.6853	2.2155	5.2100e-003	0.1467	0.0298	0.1766	0.0419	0.0274	0.0694		506.4596	506.4596	4.0200e-003		506.5440
Worker	0.6946	0.6806	8.2258	0.0229	1.6430	0.0120	1.6549	0.4358	0.0111	0.4468		1,737.5451	1,737.5451	0.0731		1,739.0793
<b>Total</b>	<b>0.8959</b>	<b>2.3659</b>	<b>10.4414</b>	<b>0.0281</b>	<b>1.7897</b>	<b>0.0418</b>	<b>1.8315</b>	<b>0.4777</b>	<b>0.0385</b>	<b>0.5162</b>		<b>2,244.0047</b>	<b>2,244.0047</b>	<b>0.0771</b>		<b>2,245.6233</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5818</b>	<b>0.5818</b>		<b>0.5818</b>	<b>0.5818</b>	<b>0.0000</b>	<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2012	1.6853	2.2155	5.2100e-003	0.1467	0.0298	0.1766	0.0419	0.0274	0.0694		506.4596	506.4596	4.0200e-003		506.5440
Worker	0.6946	0.6806	8.2258	0.0229	1.6430	0.0120	1.6549	0.4358	0.0111	0.4468		1,737.5451	1,737.5451	0.0731		1,739.0793
<b>Total</b>	<b>0.8959</b>	<b>2.3659</b>	<b>10.4414</b>	<b>0.0281</b>	<b>1.7897</b>	<b>0.0418</b>	<b>1.8315</b>	<b>0.4777</b>	<b>0.0385</b>	<b>0.5162</b>		<b>2,244.0047</b>	<b>2,244.0047</b>	<b>0.0771</b>		<b>2,245.6233</b>

### 3.7 Building Construction - Industrial - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0686	21.6175	13.6374	0.0192		1.2911	1.2911		1.1890	1.1890		1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>2.0686</b>	<b>21.6175</b>	<b>13.6374</b>	<b>0.0192</b>		<b>1.2911</b>	<b>1.2911</b>		<b>1.1890</b>	<b>1.1890</b>		<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.7788	50.0928	60.4397	0.1231	3.4551	0.9120	4.3671	0.9874	0.8386	1.8260		12,346.2563	12,346.2563	0.1053		12,348.4675
Worker	1.9961	1.9238	23.7265	0.0516	3.6966	0.0286	3.7253	0.9805	0.0262	1.0068		4,242.9328	4,242.9328	0.1967		4,247.0625
<b>Total</b>	<b>7.7749</b>	<b>52.0166</b>	<b>84.1662</b>	<b>0.1748</b>	<b>7.1517</b>	<b>0.9406</b>	<b>8.0923</b>	<b>1.9679</b>	<b>0.8648</b>	<b>2.8327</b>		<b>16,589.1891</b>	<b>16,589.1891</b>	<b>0.3020</b>		<b>16,595.5300</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8314	16.9468	14.3660	0.0192		0.5822	0.5822		0.5822	0.5822	0.0000	1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>0.8314</b>	<b>16.9468</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5822</b>	<b>0.5822</b>		<b>0.5822</b>	<b>0.5822</b>	<b>0.0000</b>	<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.7788	50.0928	60.4397	0.1231	3.4551	0.9120	4.3671	0.9874	0.8386	1.8260		12,346.2563	12,346.2563	0.1053		12,348.4675
Worker	1.9961	1.9238	23.7265	0.0516	3.6966	0.0286	3.7253	0.9805	0.0262	1.0068		4,242.9328	4,242.9328	0.1967		4,247.0625
<b>Total</b>	<b>7.7749</b>	<b>52.0166</b>	<b>84.1662</b>	<b>0.1748</b>	<b>7.1517</b>	<b>0.9406</b>	<b>8.0923</b>	<b>1.9679</b>	<b>0.8648</b>	<b>2.8327</b>		<b>16,589.1891</b>	<b>16,589.1891</b>	<b>0.3020</b>		<b>16,595.5300</b>

### 3.7 Building Construction - Industrial - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159

Total	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.426 1	1,943.4261	0.5852		1,955.7159
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.1192	44.2028	55.3568	0.1229	3.4556	0.7664	4.2221	0.9876	0.7048	1.6924		12,136.55 53	12,136.555 3	0.0975		12,138.601 9
Worker	1.7626	1.7121	20.8921	0.0516	3.6966	0.0276	3.7242	0.9805	0.0254	1.0059		4,074.961 7	4,074.9617	0.1793		4,078.7271
Total	6.8818	45.9149	76.2488	0.1745	7.1523	0.7940	7.9463	1.9681	0.7302	2.6984		16,211.51 70	16,211.517 0	0.2768		16,217.329 0

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.426 1	1,943.4261	0.5852		1,955.7159
Total	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.426 1	1,943.4261	0.5852		1,955.7159

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	5.1192	44.2028	55.3568	0.1229	3.4556	0.7664	4.2221	0.9876	0.7048	1.6924		12,136.5553	12,136.5553	0.0975		12,138.6019
Worker	1.7626	1.7121	20.8921	0.0516	3.6966	0.0276	3.7242	0.9805	0.0254	1.0059		4,074.9617	4,074.9617	0.1793		4,078.7271
<b>Total</b>	<b>6.8818</b>	<b>45.9149</b>	<b>76.2488</b>	<b>0.1745</b>	<b>7.1523</b>	<b>0.7940</b>	<b>7.9463</b>	<b>1.9681</b>	<b>0.7302</b>	<b>2.6984</b>		<b>16,211.5170</b>	<b>16,211.5170</b>	<b>0.2768</b>		<b>16,217.3290</b>

### 3.7 Building Construction - Industrial - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>1.6966</b>	<b>17.6738</b>	<b>13.2494</b>	<b>0.0192</b>		<b>1.0209</b>	<b>1.0209</b>		<b>0.9404</b>	<b>0.9404</b>		<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.7379	39.6819	52.1653	0.1226	3.4552	0.7026	4.1577	0.9874	0.6462	1.6336		11,924.8210	11,924.8210	0.0946		11,926.8084
Worker	1.5629	1.5313	18.5081	0.0515	3.6966	0.0269	3.7235	0.9805	0.0249	1.0054		3,909.4766	3,909.4766	0.1644		3,912.9285
<b>Total</b>	<b>6.3008</b>	<b>41.2132</b>	<b>70.6734</b>	<b>0.1741</b>	<b>7.1518</b>	<b>0.7295</b>	<b>7.8813</b>	<b>1.9679</b>	<b>0.6710</b>	<b>2.6390</b>		<b>15,834.2976</b>	<b>15,834.2976</b>	<b>0.2590</b>		<b>15,839.7369</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5818</b>	<b>0.5818</b>		<b>0.5818</b>	<b>0.5818</b>	<b>0.0000</b>	<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	4.7379	39.6819	52.1653	0.1226	3.4552	0.7026	4.1577	0.9874	0.6462	1.6336		11,924.8210	11,924.8210	0.0946		11,926.8084
Worker	1.5629	1.5313	18.5081	0.0515	3.6966	0.0269	3.7235	0.9805	0.0249	1.0054		3,909.4766	3,909.4766	0.1644		3,912.9285
<b>Total</b>	<b>6.3008</b>	<b>41.2132</b>	<b>70.6734</b>	<b>0.1741</b>	<b>7.1518</b>	<b>0.7295</b>	<b>7.8813</b>	<b>1.9679</b>	<b>0.6710</b>	<b>2.6390</b>		<b>15,834.2976</b>	<b>15,834.2976</b>	<b>0.2590</b>		<b>15,839.7369</b>

### 3.8 Building Construction - Office/R&D - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0686	21.6175	13.6374	0.0192		1.2911	1.2911		1.1890	1.1890		1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>2.0686</b>	<b>21.6175</b>	<b>13.6374</b>	<b>0.0192</b>		<b>1.2911</b>	<b>1.2911</b>		<b>1.1890</b>	<b>1.1890</b>		<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4909	4.2550	5.1339	0.0105	0.2935	0.0775	0.3710	0.0839	0.0712	0.1551		1,048.7168	1,048.7168	8.9400e-003		1,048.9046
Worker	0.7097	0.6840	8.4361	0.0184	1.3144	0.0102	1.3245	0.3486	9.3300e-003	0.3580		1,508.5983	1,508.5983	0.0699		1,510.0667
<b>Total</b>	<b>1.2006</b>	<b>4.9390</b>	<b>13.5700</b>	<b>0.0288</b>	<b>1.6078</b>	<b>0.0876</b>	<b>1.6955</b>	<b>0.4325</b>	<b>0.0806</b>	<b>0.5131</b>		<b>2,557.3151</b>	<b>2,557.3151</b>	<b>0.0789</b>		<b>2,558.9712</b>

#### Mitigated Construction On-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8314	16.9468	14.3660	0.0192		0.5822	0.5822		0.5822	0.5822	0.0000	1,974.6014	1,974.6014	0.5856		1,986.8994
<b>Total</b>	<b>0.8314</b>	<b>16.9468</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5822</b>	<b>0.5822</b>		<b>0.5822</b>	<b>0.5822</b>	<b>0.0000</b>	<b>1,974.6014</b>	<b>1,974.6014</b>	<b>0.5856</b>		<b>1,986.8994</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4909	4.2550	5.1339	0.0105	0.2935	0.0775	0.3710	0.0839	0.0712	0.1551		1,048.7168	1,048.7168	8.9400e-003		1,048.9046
Worker	0.7097	0.6840	8.4361	0.0184	1.3144	0.0102	1.3245	0.3486	9.3300e-003	0.3580		1,508.5983	1,508.5983	0.0699		1,510.0667
<b>Total</b>	<b>1.2006</b>	<b>4.9390</b>	<b>13.5700</b>	<b>0.0288</b>	<b>1.6078</b>	<b>0.0876</b>	<b>1.6955</b>	<b>0.4325</b>	<b>0.0806</b>	<b>0.5131</b>		<b>2,557.3151</b>	<b>2,557.3151</b>	<b>0.0789</b>		<b>2,558.9712</b>

### 3.8 Building Construction - Office/R&D - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159

<b>Total</b>	<b>1.9601</b>	<b>20.3752</b>	<b>13.5516</b>	<b>0.0192</b>		<b>1.2079</b>	<b>1.2079</b>		<b>1.1124</b>	<b>1.1124</b>		<b>1,943.4261</b>	<b>1,943.4261</b>	<b>0.5852</b>		<b>1,955.7159</b>
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4348	3.7547	4.7021	0.0104	0.2935	0.0651	0.3586	0.0839	0.0599	0.1438		1,030.9043	1,030.9043	8.2800e-003		1,031.0782
Worker	0.6267	0.6088	7.4283	0.0184	1.3144	9.8000e-003	1.3242	0.3486	9.0300e-003	0.3577		1,448.8753	1,448.8753	0.0638		1,450.2141
<b>Total</b>	<b>1.0615</b>	<b>4.3634</b>	<b>12.1304</b>	<b>0.0288</b>	<b>1.6079</b>	<b>0.0749</b>	<b>1.6828</b>	<b>0.4325</b>	<b>0.0689</b>	<b>0.5014</b>		<b>2,479.7796</b>	<b>2,479.7796</b>	<b>0.0720</b>		<b>2,481.2922</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.4261	1,943.4261	0.5852		1,955.7159
<b>Total</b>	<b>0.8313</b>	<b>16.9461</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5820</b>	<b>0.5820</b>		<b>0.5820</b>	<b>0.5820</b>	<b>0.0000</b>	<b>1,943.4261</b>	<b>1,943.4261</b>	<b>0.5852</b>		<b>1,955.7159</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4348	3.7547	4.7021	0.0104	0.2935	0.0651	0.3586	0.0839	0.0599	0.1438		1,030.9043	1,030.9043	8.2800e-003		1,031.0782
Worker	0.6267	0.6088	7.4283	0.0184	1.3144	9.8000e-003	1.3242	0.3486	9.0300e-003	0.3577		1,448.8753	1,448.8753	0.0638		1,450.2141
<b>Total</b>	<b>1.0615</b>	<b>4.3634</b>	<b>12.1304</b>	<b>0.0288</b>	<b>1.6079</b>	<b>0.0749</b>	<b>1.6828</b>	<b>0.4325</b>	<b>0.0689</b>	<b>0.5014</b>		<b>2,479.7796</b>	<b>2,479.7796</b>	<b>0.0720</b>		<b>2,481.2922</b>

### 3.8 Building Construction - Office/R&D - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>1.6966</b>	<b>17.6738</b>	<b>13.2494</b>	<b>0.0192</b>		<b>1.0209</b>	<b>1.0209</b>		<b>0.9404</b>	<b>0.9404</b>		<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4025	3.3707	4.4310	0.0104	0.2935	0.0597	0.3532	0.0839	0.0549	0.1388		1,012.919 2	1,012.9192	8.0400e- 003		1,013.0880
Worker	0.5557	0.5445	6.5807	0.0183	1.3144	9.5600e- 003	1.3239	0.3486	8.8400e- 003	0.3575		1,390.036 1	1,390.0361	0.0585		1,391.2635
<b>Total</b>	<b>0.9582</b>	<b>3.9151</b>	<b>11.0117</b>	<b>0.0287</b>	<b>1.6079</b>	<b>0.0692</b>	<b>1.6771</b>	<b>0.4325</b>	<b>0.0637</b>	<b>0.4962</b>		<b>2,402.955 3</b>	<b>2,402.9553</b>	<b>0.0665</b>		<b>2,404.3514</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.319 9	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5818</b>	<b>0.5818</b>		<b>0.5818</b>	<b>0.5818</b>	<b>0.0000</b>	<b>1,912.319 9</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.4025	3.3707	4.4310	0.0104	0.2935	0.0597	0.3532	0.0839	0.0549	0.1388		1,012.919 2	1,012.9192	8.0400e- 003		1,013.0880
Worker	0.5557	0.5445	6.5807	0.0183	1.3144	9.5600e- 003	1.3239	0.3486	8.8400e- 003	0.3575		1,390.036 1	1,390.0361	0.0585		1,391.2635
<b>Total</b>	<b>0.9582</b>	<b>3.9151</b>	<b>11.0117</b>	<b>0.0287</b>	<b>1.6079</b>	<b>0.0692</b>	<b>1.6771</b>	<b>0.4325</b>	<b>0.0637</b>	<b>0.4962</b>		<b>2,402.955 3</b>	<b>2,402.9553</b>	<b>0.0665</b>		<b>2,404.3514</b>

### 3.9 Paving - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.7747	30.4442	18.7648	0.0279		1.6298	1.6298		1.4994	1.4994		2,903.9453	2,903.9453	0.8759		2,922.3399
Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.9902</b>	<b>30.4442</b>	<b>18.7648</b>	<b>0.0279</b>		<b>1.6298</b>	<b>1.6298</b>		<b>1.4994</b>	<b>1.4994</b>		<b>2,903.9453</b>	<b>2,903.9453</b>	<b>0.8759</b>		<b>2,922.3399</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0710	0.0684	0.8436	1.8400e-003	0.1314	1.0200e-003	0.1325	0.0349	9.3000e-004	0.0358		150.8598	150.8598	6.9900e-003		151.0067
<b>Total</b>	<b>0.0710</b>	<b>0.0684</b>	<b>0.8436</b>	<b>1.8400e-003</b>	<b>0.1314</b>	<b>1.0200e-003</b>	<b>0.1325</b>	<b>0.0349</b>	<b>9.3000e-004</b>	<b>0.0358</b>		<b>150.8598</b>	<b>150.8598</b>	<b>6.9900e-003</b>		<b>151.0067</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0279		0.7699	0.7699		0.7699	0.7699	0.0000	2,903.9453	2,903.9453	0.8759		2,922.3399
Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3289</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0279</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,903.9453</b>	<b>2,903.9453</b>	<b>0.8759</b>		<b>2,922.3399</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0710	0.0684	0.8436	1.8400e-003	0.1314	1.0200e-003	0.1325	0.0349	9.3000e-004	0.0358		150.8598	150.8598	6.9900e-003		151.0067
<b>Total</b>	<b>0.0710</b>	<b>0.0684</b>	<b>0.8436</b>	<b>1.8400e-003</b>	<b>0.1314</b>	<b>1.0200e-003</b>	<b>0.1325</b>	<b>0.0349</b>	<b>9.3000e-004</b>	<b>0.0358</b>		<b>150.8598</b>	<b>150.8598</b>	<b>6.9900e-003</b>		<b>151.0067</b>

### **3.9 Paving - 2017**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.5816	28.0979	18.6551	0.0280		1.5029	1.5029		1.3827	1.3827		2,858.9236	2,858.9236	0.8760		2,877.3189

Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.7972</b>	<b>28.0979</b>	<b>18.6551</b>	<b>0.0280</b>		<b>1.5029</b>	<b>1.5029</b>		<b>1.3827</b>	<b>1.3827</b>		<b>2,858.9236</b>	<b>2,858.9236</b>	<b>0.8760</b>		<b>2,877.3189</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0627	0.0609	0.7428	1.8400e-003	0.1314	9.8000e-004	0.1324	0.0349	9.0000e-004	0.0358		144.8875	144.8875	6.3800e-003		145.0214
<b>Total</b>	<b>0.0627</b>	<b>0.0609</b>	<b>0.7428</b>	<b>1.8400e-003</b>	<b>0.1314</b>	<b>9.8000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>9.0000e-004</b>	<b>0.0358</b>		<b>144.8875</b>	<b>144.8875</b>	<b>6.3800e-003</b>		<b>145.0214</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,858.9236	2,858.9236	0.8760		2,877.3189
Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3289</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,858.9236</b>	<b>2,858.9236</b>	<b>0.8760</b>		<b>2,877.3189</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0627	0.0609	0.7428	1.8400e-003	0.1314	9.8000e-004	0.1324	0.0349	9.0000e-004	0.0358		144.8875	144.8875	6.3800e-003		145.0214
<b>Total</b>	<b>0.0627</b>	<b>0.0609</b>	<b>0.7428</b>	<b>1.8400e-003</b>	<b>0.1314</b>	<b>9.8000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>9.0000e-004</b>	<b>0.0358</b>		<b>144.8875</b>	<b>144.8875</b>	<b>6.3800e-003</b>		<b>145.0214</b>

### 3.9 Paving - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.2250	24.0973	18.3288	0.0280		1.2727	1.2727		1.1709	1.1709		2,813.8218	2,813.8218	0.8760		2,832.2174
Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.4406</b>	<b>24.0973</b>	<b>18.3288</b>	<b>0.0280</b>		<b>1.2727</b>	<b>1.2727</b>		<b>1.1709</b>	<b>1.1709</b>		<b>2,813.8218</b>	<b>2,813.8218</b>	<b>0.8760</b>		<b>2,832.2174</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					



Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0556	0.0545	0.6581	1.8300e-003	0.1314	9.6000e-004	0.1324	0.0349	8.8000e-004	0.0358		139.0036	139.0036	5.8400e-003		139.1264
<b>Total</b>	<b>0.0556</b>	<b>0.0545</b>	<b>0.6581</b>	<b>1.8300e-003</b>	<b>0.1314</b>	<b>9.6000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0358</b>		<b>139.0036</b>	<b>139.0036</b>	<b>5.8400e-003</b>		<b>139.1264</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,813.8218	2,813.8218	0.8760		2,832.2174
Paving	0.2156					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3289</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,813.8218</b>	<b>2,813.8218</b>	<b>0.8760</b>		<b>2,832.2174</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0556	0.0545	0.6581	1.8300e-003	0.1314	9.6000e-004	0.1324	0.0349	8.8000e-004	0.0358		139.0036	139.0036	5.8400e-003		139.1264
<b>Total</b>	<b>0.0556</b>	<b>0.0545</b>	<b>0.6581</b>	<b>1.8300e-003</b>	<b>0.1314</b>	<b>9.6000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0358</b>		<b>139.0036</b>	<b>139.0036</b>	<b>5.8400e-003</b>		<b>139.1264</b>

### 3.10 Architectural Coating - 2016

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	2.2108	14.2334	11.3035	0.0178		1.1797	1.1797		1.1797	1.1797		1,688.6883	1,688.6883	0.1991		1,692.8692
<b>Total</b>	<b>87.9389</b>	<b>14.2334</b>	<b>11.3035</b>	<b>0.0178</b>		<b>1.1797</b>	<b>1.1797</b>		<b>1.1797</b>	<b>1.1797</b>		<b>1,688.6883</b>	<b>1,688.6883</b>	<b>0.1991</b>		<b>1,692.8692</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.2509	1.2056	14.8686	0.0324	2.3166	0.0179	2.3345	0.6145	0.0164	0.6309		2,658.9045	2,658.9045	0.1232		2,661.4925
<b>Total</b>	<b>1.2509</b>	<b>1.2056</b>	<b>14.8686</b>	<b>0.0324</b>	<b>2.3166</b>	<b>0.0179</b>	<b>2.3345</b>	<b>0.6145</b>	<b>0.0164</b>	<b>0.6309</b>		<b>2,658.9045</b>	<b>2,658.9045</b>	<b>0.1232</b>		<b>2,661.4925</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6834	14.1145	10.9945	0.0178		0.5705	0.5705		0.5705	0.5705	0.0000	1,688.6883	1,688.6883	0.1991		1,692.8692
<b>Total</b>	<b>86.4115</b>	<b>14.1145</b>	<b>10.9945</b>	<b>0.0178</b>		<b>0.5705</b>	<b>0.5705</b>		<b>0.5705</b>	<b>0.5705</b>	<b>0.0000</b>	<b>1,688.6883</b>	<b>1,688.6883</b>	<b>0.1991</b>		<b>1,692.8692</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.2509	1.2056	14.8686	0.0324	2.3166	0.0179	2.3345	0.6145	0.0164	0.6309		2,658.9045	2,658.9045	0.1232		2,661.4925
<b>Total</b>	<b>1.2509</b>	<b>1.2056</b>	<b>14.8686</b>	<b>0.0324</b>	<b>2.3166</b>	<b>0.0179</b>	<b>2.3345</b>	<b>0.6145</b>	<b>0.0164</b>	<b>0.6309</b>		<b>2,658.9045</b>	<b>2,658.9045</b>	<b>0.1232</b>		<b>2,661.4925</b>

### **3.10 Architectural Coating - 2017**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Off-Road	1.9939	13.1102	11.2084	0.0178		1.0400	1.0400		1.0400	1.0400		1,688.6883	1,688.6883	0.1783		1,692.4324
<b>Total</b>	<b>87.7220</b>	<b>13.1102</b>	<b>11.2084</b>	<b>0.0178</b>		<b>1.0400</b>	<b>1.0400</b>		<b>1.0400</b>	<b>1.0400</b>		<b>1,688.6883</b>	<b>1,688.6883</b>	<b>0.1783</b>		<b>1,692.4324</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.1046	1.0729	13.0924	0.0324	2.3166	0.0173	2.3338	0.6145	0.0159	0.6304		2,553.6426	2,553.6426	0.1124		2,556.0023
<b>Total</b>	<b>1.1046</b>	<b>1.0729</b>	<b>13.0924</b>	<b>0.0324</b>	<b>2.3166</b>	<b>0.0173</b>	<b>2.3338</b>	<b>0.6145</b>	<b>0.0159</b>	<b>0.6304</b>		<b>2,553.6426</b>	<b>2,553.6426</b>	<b>0.1124</b>		<b>2,556.0023</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6834	14.1145	10.9945	0.0178		0.5705	0.5705		0.5705	0.5705	0.0000	1,688.6883	1,688.6883	0.1783		1,692.4324
<b>Total</b>	<b>86.4115</b>	<b>14.1145</b>	<b>10.9945</b>	<b>0.0178</b>		<b>0.5705</b>	<b>0.5705</b>		<b>0.5705</b>	<b>0.5705</b>	<b>0.0000</b>	<b>1,688.6883</b>	<b>1,688.6883</b>	<b>0.1783</b>		<b>1,692.4324</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.1046	1.0729	13.0924	0.0324	2.3166	0.0173	2.3338	0.6145	0.0159	0.6304		2,553.6426	2,553.6426	0.1124		2,556.0023
<b>Total</b>	<b>1.1046</b>	<b>1.0729</b>	<b>13.0924</b>	<b>0.0324</b>	<b>2.3166</b>	<b>0.0173</b>	<b>2.3338</b>	<b>0.6145</b>	<b>0.0159</b>	<b>0.6304</b>		<b>2,553.6426</b>	<b>2,553.6426</b>	<b>0.1124</b>		<b>2,556.0023</b>

### 3.10 Architectural Coating - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.7918	12.0345	11.1252	0.0178		0.9033	0.9033		0.9033	0.9033		1,688.6913	1,688.6913	0.1605		1,692.0609
<b>Total</b>	<b>87.5199</b>	<b>12.0345</b>	<b>11.1252</b>	<b>0.0178</b>		<b>0.9033</b>	<b>0.9033</b>		<b>0.9033</b>	<b>0.9033</b>		<b>1,688.6913</b>	<b>1,688.6913</b>	<b>0.1605</b>		<b>1,692.0609</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.9794	0.9596	11.5984	0.0323	2.3166	0.0169	2.3334	0.6145	0.0156	0.6300		2,449.9386	2,449.9386	0.1030		2,452.1018
<b>Total</b>	<b>0.9794</b>	<b>0.9596</b>	<b>11.5984</b>	<b>0.0323</b>	<b>2.3166</b>	<b>0.0169</b>	<b>2.3334</b>	<b>0.6145</b>	<b>0.0156</b>	<b>0.6300</b>		<b>2,449.9386</b>	<b>2,449.9386</b>	<b>0.1030</b>		<b>2,452.1018</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	85.7281					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.6834	14.1145	10.9945	0.0178		0.5705	0.5705		0.5705	0.5705	0.0000	1,688.6913	1,688.6913	0.1605		1,692.0609
<b>Total</b>	<b>86.4115</b>	<b>14.1145</b>	<b>10.9945</b>	<b>0.0178</b>		<b>0.5705</b>	<b>0.5705</b>		<b>0.5705</b>	<b>0.5705</b>	<b>0.0000</b>	<b>1,688.6913</b>	<b>1,688.6913</b>	<b>0.1605</b>		<b>1,692.0609</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.9794	0.9596	11.5984	0.0323	2.3166	0.0169	2.3334	0.6145	0.0156	0.6300		2,449.9386	2,449.9386	0.1030		2,452.1018
<b>Total</b>	<b>0.9794</b>	<b>0.9596</b>	<b>11.5984</b>	<b>0.0323</b>	<b>2.3166</b>	<b>0.0169</b>	<b>2.3334</b>	<b>0.6145</b>	<b>0.0156</b>	<b>0.6300</b>		<b>2,449.9386</b>	<b>2,449.9386</b>	<b>0.1030</b>		<b>2,452.1018</b>

### 3.11 Building Construction - School - 2017

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9601	20.3752	13.5516	0.0192		1.2079	1.2079		1.1124	1.1124		1,943.4261	1,943.4261	0.5852		1,955.7159
<b>Total</b>	<b>1.9601</b>	<b>20.3752</b>	<b>13.5516</b>	<b>0.0192</b>		<b>1.2079</b>	<b>1.2079</b>		<b>1.1124</b>	<b>1.1124</b>		<b>1,943.4261</b>	<b>1,943.4261</b>	<b>0.5852</b>		<b>1,955.7159</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1384	1.1947	1.4961	3.3200e-003	0.0934	0.0207	0.1141	0.0267	0.0191	0.0457		328.0150	328.0150	2.6300e-003		328.0703
Worker	1.1751	1.1414	13.9281	0.0344	2.4644	0.0184	2.4828	0.6537	0.0169	0.6706		2,716.6411	2,716.6411	0.1195		2,719.1514
<b>Total</b>	<b>1.3134</b>	<b>2.3361</b>	<b>15.4242</b>	<b>0.0377</b>	<b>2.5578</b>	<b>0.0391</b>	<b>2.5969</b>	<b>0.6804</b>	<b>0.0360</b>	<b>0.7163</b>		<b>3,044.6561</b>	<b>3,044.6561</b>	<b>0.1222</b>		<b>3,047.2217</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9461	14.3660	0.0192		0.5820	0.5820		0.5820	0.5820	0.0000	1,943.4261	1,943.4261	0.5852		1,955.7159
<b>Total</b>	<b>0.8313</b>	<b>16.9461</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5820</b>	<b>0.5820</b>		<b>0.5820</b>	<b>0.5820</b>	<b>0.0000</b>	<b>1,943.4261</b>	<b>1,943.4261</b>	<b>0.5852</b>		<b>1,955.7159</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1384	1.1947	1.4961	3.3200e-003	0.0934	0.0207	0.1141	0.0267	0.0191	0.0457		328.0150	328.0150	2.6300e-003		328.0703
Worker	1.1751	1.1414	13.9281	0.0344	2.4644	0.0184	2.4828	0.6537	0.0169	0.6706		2,716.6411	2,716.6411	0.1195		2,719.1514
<b>Total</b>	<b>1.3134</b>	<b>2.3361</b>	<b>15.4242</b>	<b>0.0377</b>	<b>2.5578</b>	<b>0.0391</b>	<b>2.5969</b>	<b>0.6804</b>	<b>0.0360</b>	<b>0.7163</b>		<b>3,044.6561</b>	<b>3,044.6561</b>	<b>0.1222</b>		<b>3,047.2217</b>

### 3.11 Building Construction - School - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017



Total	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1281	1.0725	1.4099	3.3100e-003	0.0934	0.0190	0.1124	0.0267	0.0175	0.0442		322.2925	322.2925	2.5600e-003		322.3462
Worker	1.0420	1.0209	12.3388	0.0343	2.4644	0.0179	2.4824	0.6537	0.0166	0.6703		2,606.3177	2,606.3177	0.1096		2,608.6190
Total	1.1700	2.0933	13.7486	0.0376	2.5578	0.0369	2.5947	0.6804	0.0340	0.7144		2,928.6102	2,928.6102	0.1121		2,930.9652

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017
Total	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1281	1.0725	1.4099	3.3100e-003	0.0934	0.0190	0.1124	0.0267	0.0175	0.0442		322.2925	322.2925	2.5600e-003		322.3462
Worker	1.0420	1.0209	12.3388	0.0343	2.4644	0.0179	2.4824	0.6537	0.0166	0.6703		2,606.3177	2,606.3177	0.1096		2,608.6190
<b>Total</b>	<b>1.1700</b>	<b>2.0933</b>	<b>13.7486</b>	<b>0.0376</b>	<b>2.5578</b>	<b>0.0369</b>	<b>2.5947</b>	<b>0.6804</b>	<b>0.0340</b>	<b>0.7144</b>		<b>2,928.6102</b>	<b>2,928.6102</b>	<b>0.1121</b>		<b>2,930.9652</b>

### 3.12 Building Construction - Parks - 2018

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6966	17.6738	13.2494	0.0192		1.0209	1.0209		0.9404	0.9404		1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>1.6966</b>	<b>17.6738</b>	<b>13.2494</b>	<b>0.0192</b>		<b>1.0209</b>	<b>1.0209</b>		<b>0.9404</b>	<b>0.9404</b>		<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2927	2.4514	3.2226	7.5800e-003	0.2135	0.0434	0.2569	0.0610	0.0399	0.1009		736.6685	736.6685	5.8500e-003		736.7913
Worker	0.2779	0.2722	3.2903	9.1500e-003	0.6572	4.7800e-003	0.6620	0.1743	4.4200e-003	0.1787		695.0181	695.0181	0.0292		695.6317
<b>Total</b>	<b>0.5705</b>	<b>2.7236</b>	<b>6.5129</b>	<b>0.0167</b>	<b>0.8706</b>	<b>0.0482</b>	<b>0.9188</b>	<b>0.2353</b>	<b>0.0443</b>	<b>0.2797</b>		<b>1,431.6865</b>	<b>1,431.6865</b>	<b>0.0351</b>		<b>1,432.4230</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5818	0.5818		0.5818	0.5818	0.0000	1,912.3199	1,912.3199	0.5849		1,924.6017
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5818</b>	<b>0.5818</b>		<b>0.5818</b>	<b>0.5818</b>	<b>0.0000</b>	<b>1,912.3199</b>	<b>1,912.3199</b>	<b>0.5849</b>		<b>1,924.6017</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2927	2.4514	3.2226	7.5800e-003	0.2135	0.0434	0.2569	0.0610	0.0399	0.1009		736.6685	736.6685	5.8500e-003		736.7913
Worker	0.2779	0.2722	3.2903	9.1500e-003	0.6572	4.7800e-003	0.6620	0.1743	4.4200e-003	0.1787		695.0181	695.0181	0.0292		695.6317
<b>Total</b>	<b>0.5705</b>	<b>2.7236</b>	<b>6.5129</b>	<b>0.0167</b>	<b>0.8706</b>	<b>0.0482</b>	<b>0.9188</b>	<b>0.2353</b>	<b>0.0443</b>	<b>0.2797</b>		<b>1,431.6865</b>	<b>1,431.6865</b>	<b>0.0351</b>		<b>1,432.4230</b>

## Grapevine Construction - Planning Area 6A

### Kern-San Joaquin County, Mitigation Report

#### Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.01	-0.08	0.01	0.00	0.44	0.44	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - Industrial	0.12	0.04	-0.01	0.00	0.29	0.27	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - Office/R&D	0.37	0.11	-0.03	0.00	0.47	0.43	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - Parks	0.39	0.04	-0.06	0.00	0.41	0.36	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - Residential	0.26	0.08	-0.02	0.00	0.42	0.38	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - School	0.34	0.09	-0.04	0.00	0.46	0.41	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - Village Commercial	0.38	0.12	-0.04	0.00	0.48	0.44	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.68	0.32	0.15	0.00	0.61	0.58	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.50	0.11	-0.14	0.00	0.47	0.42	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.75	0.48	0.05	0.00	0.71	0.69	0.00	0.00	0.00	0.00	0.00	0.00
Trenching	0.58	0.19	-0.00	0.00	0.56	0.52	0.00	0.00	0.00	0.00	0.00	0.00

#### OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	Tier 2	6	6	No Change	0.00
Cement and Mortar Mixers	Diesel	No Change	0	6	No Change	0.00

Cranes	Diesel	No Change	0	0	No Change	0.00
Excavators	Diesel	No Change	0	0	No Change	0.00
Forklifts	Diesel	No Change	0	0	No Change	0.00
Generator Sets	Diesel	No Change	0	0	No Change	0.00
Graders	Diesel	Tier 2	3	3	No Change	0.00
Other Construction Equipment	Diesel	Tier 2	19	19	No Change	0.00
Pavers	Diesel	Tier 2	2	2	No Change	0.00
Paving Equipment	Diesel	Tier 2	1	1	No Change	0.00
Rollers	Diesel	Tier 2	3	3	No Change	0.00
Rubber Tired Dozers	Diesel	No Change	0	0	No Change	0.00
Rubber Tired Loaders	Diesel	Tier 2	1	1	No Change	0.00
Scrapers	Diesel	Tier 2	3	3	No Change	0.00
Tractors/Loaders/Backhoes	Diesel	Tier 2	22	22	No Change	0.00
Trenchers	Diesel	Tier 2	10	10	No Change	0.00
Welders	Diesel	No Change	0	0	No Change	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Unmitigated tons/yr							Unmitigated mt/yr					
Air Compressors	7.09690E-001	4.66969E+000	4.01668E+000	6.39000E-003	3.68700E-001	3.68700E-001	0.00000E+000	5.49205E+002	5.49205E+002	5.77200E-002	0.00000E+000	5.50417E+002
Cement and Mortar Mixers	9.89800E-002	6.20580E-001	5.19280E-001	1.20000E-003	2.46500E-002	2.46500E-002	0.00000E+000	7.71738E+001	7.71738E+001	8.01000E-003	0.00000E+000	7.73420E+001
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Graders	7.09980E-001	7.19923E+000	3.56154E+000	4.57000E-003	4.04450E-001	3.72090E-001	0.00000E+000	4.26603E+002	4.26603E+002	1.30020E-001	0.00000E+000	4.29334E+002
Other Construction Equipment	2.67891E+000	2.94172E+001	1.84254E+001	2.69500E-002	1.54999E+000	1.42599E+000	0.00000E+000	2.49630E+003	2.49630E+003	7.66470E-001	0.00000E+000	2.51240E+003

Pavers	2.54110E-001	2.83813E+000	2.03084E+000	3.24000E-003	1.39770E-001	1.28590E-001	0.00000E+000	3.00089E+002	3.00089E+002	9.20800E-002	0.00000E+000	3.02022E+002
Paving Equipment	9.73800E-002	1.10936E+000	9.04950E-001	1.44000E-003	5.49600E-002	5.05600E-002	0.00000E+000	1.33243E+002	1.33243E+002	4.08800E-002	0.00000E+000	1.34102E+002
Rollers	2.05520E-001	1.92692E+000	1.33577E+000	1.76000E-003	1.38770E-001	1.27670E-001	0.00000E+000	1.64025E+002	1.64025E+002	5.02100E-002	0.00000E+000	1.65079E+002
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rubber Tired Loaders	3.72600E-002	4.77230E-001	1.41240E-001	4.80000E-004	1.62500E-002	1.49500E-002	0.00000E+000	4.49300E+001	4.49300E+001	1.37100E-002	0.00000E+000	4.52180E+001
Scrapers	1.23234E+000	1.55352E+001	9.70537E+000	1.40700E-002	6.22990E-001	5.73150E-001	0.00000E+000	1.31104E+003	1.31104E+003	4.00180E-001	0.00000E+000	1.31944E+003
Tractors/Loaders/B ackhoes	1.20830E+000	1.17014E+001	9.45395E+000	1.23700E-002	8.68790E-001	7.99280E-001	0.00000E+000	1.14583E+003	1.14583E+003	3.51740E-001	0.00000E+000	1.15322E+003
Trenchers	3.21780E-001	2.83394E+000	1.69760E+000	2.10000E-003	2.20870E-001	2.03200E-001	0.00000E+000	1.96076E+002	1.96076E+002	5.99400E-002	0.00000E+000	1.97335E+002
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated tons/yr							Mitigated mt/yr					
Air Compressors	2.45010E-001	5.06005E+000	3.94151E+000	6.39000E-003	2.04530E-001	2.04530E-001	0.00000E+000	5.49205E+002	5.49205E+002	5.77200E-002	0.00000E+000	5.50417E+002
Cement and Mortar Mixers	9.89800E-002	6.20570E-001	5.19280E-001	1.20000E-003	2.46500E-002	2.46500E-002	0.00000E+000	7.71737E+001	7.71737E+001	8.01000E-003	0.00000E+000	7.73419E+001
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Graders	1.75230E-001	3.84589E+000	3.41242E+000	4.57000E-003	1.18050E-001	1.18050E-001	0.00000E+000	4.26603E+002	4.26603E+002	1.30020E-001	0.00000E+000	4.29333E+002
Other Construction Equipment	1.05642E+000	2.31857E+001	2.05724E+001	2.69500E-002	7.11700E-001	7.11700E-001	0.00000E+000	2.49630E+003	2.49630E+003	7.66460E-001	0.00000E+000	2.51239E+003
Pavers	1.26140E-001	2.76846E+000	2.45643E+000	3.24000E-003	8.49800E-002	8.49800E-002	0.00000E+000	3.00088E+002	3.00088E+002	9.20800E-002	0.00000E+000	3.02022E+002
Paving Equipment	5.62200E-002	1.23394E+000	1.09486E+000	1.44000E-003	3.78800E-002	3.78800E-002	0.00000E+000	1.33243E+002	1.33243E+002	4.08800E-002	0.00000E+000	1.34102E+002
Rollers	8.30500E-002	1.71525E+000	1.33609E+000	1.76000E-003	6.93300E-002	6.93300E-002	0.00000E+000	1.64025E+002	1.64025E+002	5.02100E-002	0.00000E+000	1.65079E+002
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rubber Tired Loaders	1.19400E-002	4.12930E-001	2.58700E-001	4.80000E-004	8.76000E-003	8.76000E-003	0.00000E+000	4.49300E+001	4.49300E+001	1.37100E-002	0.00000E+000	4.52180E+001
Scrapers	3.46570E-001	1.09457E+001	7.50892E+000	1.40700E-002	2.54150E-001	2.54150E-001	0.00000E+000	1.31104E+003	1.31104E+003	4.00180E-001	0.00000E+000	1.31944E+003

Tractors/Loaders/Bac khoes	5.79000E-001	1.19577E+001	9.31439E+000	1.23700E-002	4.83340E-001	4.83340E-001	0.00000E+000	1.14583E+003	1.14583E+003	3.51740E-001	0.00000E+000	1.15322E+003
Trenchers	9.88200E-002	2.04077E+000	1.58965E+000	2.10000E-003	8.24900E-002	8.24900E-002	0.00000E+000	1.96076E+002	1.96076E+002	5.99400E-002	0.00000E+000	1.97335E+002
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	6.54765E-001	-8.35944E-002	1.87145E-002	0.00000E+000	4.45267E-001	4.45267E-001	0.00000E+000	1.18353E-006	1.18353E-006	0.00000E+000	0.00000E+000	1.19909E-006
Cement and Mortar Mixers	0.00000E+000	1.61140E-005	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	1.16620E-006	1.16620E-006	0.00000E+000	0.00000E+000	1.16366E-006
Cranes	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Excavators	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Forklifts	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Generator Sets	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Graders	7.53190E-001	4.65791E-001	4.18695E-002	0.00000E+000	7.08122E-001	6.82738E-001	0.00000E+000	1.17205E-006	1.17205E-006	0.00000E+000	0.00000E+000	1.18789E-006
Other Construction Equipment	6.05653E-001	2.11832E-001	-1.16528E-001	0.00000E+000	5.40836E-001	5.00908E-001	0.00000E+000	1.18976E-006	1.18976E-006	1.30468E-005	0.00000E+000	1.19010E-006
Pavers	5.03601E-001	2.45479E-002	-2.09564E-001	0.00000E+000	3.92001E-001	3.39140E-001	0.00000E+000	1.16632E-006	1.16632E-006	0.00000E+000	0.00000E+000	1.19197E-006
Paving Equipment	4.22674E-001	-1.12299E-001	-2.09857E-001	0.00000E+000	3.10771E-001	2.50791E-001	0.00000E+000	1.12576E-006	1.12576E-006	0.00000E+000	0.00000E+000	1.19312E-006
Rollers	5.95903E-001	1.09849E-001	-2.39562E-004	0.00000E+000	5.00396E-001	4.56959E-001	0.00000E+000	1.21933E-006	1.21933E-006	0.00000E+000	0.00000E+000	1.15096E-006
Rubber Tired Dozers	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Rubber Tired Loaders	6.79549E-001	1.34736E-001	-8.31634E-001	0.00000E+000	4.60923E-001	4.14047E-001	0.00000E+000	1.11284E-006	1.11284E-006	0.00000E+000	0.00000E+000	1.32690E-006
Scrapers	7.18771E-001	2.95427E-001	2.26313E-001	0.00000E+000	5.92048E-001	5.56573E-001	0.00000E+000	1.18227E-006	1.18227E-006	0.00000E+000	0.00000E+000	1.18990E-006
Tractors/Loaders/Bac khoes	5.20814E-001	-2.19052E-002	1.47621E-002	0.00000E+000	4.43663E-001	3.95281E-001	0.00000E+000	1.18691E-006	1.18691E-006	0.00000E+000	0.00000E+000	1.18798E-006
Trenchers	6.92896E-001	2.79882E-001	6.35898E-002	0.00000E+000	6.26522E-001	5.94045E-001	0.00000E+000	1.17301E-006	1.17301E-006	0.00000E+000	0.00000E+000	1.21620E-006
Welders	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000

## Fugitive Dust Mitigation

Yes/No    Mitigation Measure                      Mitigation Input                      Mitigation Input                      Mitigation Input

No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	0.00	PM2.5 Reduction	0.00		
Yes	Water Exposed Area	PM10 Reduction	61.00	PM2.5 Reduction	61.00	Frequency (per day)	3.00
No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	15.00		
Yes	Clean Paved Road	% PM Reduction	0.00				

		Unmitigated		Mitigated		Percent Reduction	
Phase	Source	PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.81	0.22	0.81	0.22	0.00	0.00
Building Construction - Industrial	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - Industrial	Roads	2.52	0.69	2.52	0.69	0.00	0.00
Building Construction - Office/R&D	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - Office/R&D	Roads	0.57	0.15	0.57	0.15	0.00	0.00
Building Construction - Parks	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - Parks	Roads	0.06	0.02	0.06	0.02	0.00	0.00
Building Construction - Residential	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - Residential	Roads	1.01	0.27	1.01	0.27	0.00	0.00
Building Construction - School	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - School	Roads	0.44	0.12	0.44	0.12	0.00	0.00
Building Construction - Village Commercial	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction - Village Commercial	Roads	0.63	0.17	0.63	0.17	0.00	0.00
Grading	Fugitive Dust	0.96	0.11	0.38	0.04	0.61	0.61
Grading	Roads	18.50	1.86	11.35	1.14	0.39	0.39



Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.05	0.01	0.05	0.01	0.00	0.00
Site Preparation	Fugitive Dust	0.62	0.07	0.24	0.03	0.61	0.61
Site Preparation	Roads	0.01	0.00	0.01	0.00	0.00	0.00
Trenching	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Trenching	Roads	0.16	0.04	0.16	0.04	0.00	0.00

## Grapevine Construction - Planning Area 2

### Kern-San Joaquin County, Annual

## 1.0 Project Characteristics

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	780.00	1000sqft	59.00	780,000.00	0
Elementary School	994.00	Student	5.00	83,101.75	0
High School	840.00	Student	20.00	111,435.22	0
Junior High School	1,500.00	Student	5.00	176,342.53	0
Other Asphalt Surfaces	92.00	Acre	92.00	4,007,520.00	0
City Park	58.00	Acre	58.00	2,526,480.00	0
Apartments Low Rise	980.00	Dwelling Unit	98.00	980,000.00	2803
Single Family Housing	1,780.00	Dwelling Unit	455.00	3,204,000.00	5091
Regional Shopping Center	210.00	1000sqft	27.00	210,000.00	0
Strip Mall	270.00	1000sqft	35.00	270,000.00	0

### 1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.7	Precipitation Freq (Days)	32
Climate Zone	7			Operational Year	2023
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Area 2. Kern County, San Joaquin Valley Air Basin.

Land Use - See 1.1 Land Usage.

Construction Phase - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Trips and VMT - See 3.0 Construction Detail.

On-road Fugitive Dust - Worker and Vendor Percent Paved: Default CalEEMod values. Hauling Percent Paved: 50%

Demolition - None.

Grading - See 3.0 Construction Detail.

Architectural Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and an adjustment for parking/asphalt surface and park land uses. See 3.0 Construction Detail.

Area Coating - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Construction Off-road Equipment Mitigation - Tier 2 for construction equipment > 75 HP.

On-road Fugitive Dust - Water Exposed Area, Frequency: 3 times per day. Unpaved Road Mitigation, Vehicle Speed: 15 miles per hour.

**Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report:** Exhaust PM10 and PM2.5 emissions presented in the Technical Report; no Fugitive Dust PM10 and PM2.5 emissions presented in the Technical Report.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	4,082,440.00	1,212,463.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	12,247,319.00	2,461,268.00
tblAreaCoating	Area_Nonresidential_Interior	12247320	13144342
tblAreaCoating	Area_Residential_Exterior	2824200	2909250
tblAreaCoating	Area_Residential_Interior	8472600	8727750
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	21.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	19.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	990.00	958.00
tblConstructionPhase	NumDays	13,950.00	415.00
tblConstructionPhase	NumDays	13,950.00	522.00
tblConstructionPhase	NumDays	13,950.00	261.00
tblConstructionPhase	NumDays	13,950.00	1,001.00
tblConstructionPhase	NumDays	13,950.00	1,001.00
tblConstructionPhase	NumDays	13,950.00	980.00
tblConstructionPhase	NumDays	13,950.00	892.00
tblConstructionPhase	NumDays	1,395.00	891.00
tblConstructionPhase	NumDays	990.00	1,001.00
tblConstructionPhase	NumDays	540.00	784.00
tblConstructionPhase	PhaseEndDate	9/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	8/2/2024	12/31/2021
tblConstructionPhase	PhaseEndDate	1/2/2024	5/31/2022
tblConstructionPhase	PhaseEndDate	5/31/2023	5/31/2022

tblConstructionPhase	PhaseEndDate	4/1/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	11/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	10/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	6/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	6/2/2025	5/31/2022
tblConstructionPhase	PhaseEndDate	11/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	8/29/2025	5/31/2022
tblConstructionPhase	PhaseStartDate	1/1/2023	5/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	6/1/2020
tblConstructionPhase	PhaseStartDate	1/1/2022	6/1/2020
tblConstructionPhase	PhaseStartDate	6/1/2022	6/1/2021
tblConstructionPhase	PhaseStartDate	6/1/2022	3/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	3/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	4/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	8/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2022	1/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	3/1/2019
tblConstructionPhase	PhaseStartDate	6/1/2022	3/1/2019
tblFireplaces	NumberGas	979.00	1,017.50
tblFireplaces	NumberNoFireplace	801.00	832.50
tblGrading	AcresOfGrading	3,341.25	930.00
tblGrading	AcresOfGrading	392.00	930.00
tblGrading	AcresOfGrading	392.00	0.00
tblGrading	MaterialExported	0.00	232,500.00
tblLandUse	LotAcreage	17.91	59.00
tblLandUse	LotAcreage	1.91	5.00
tblLandUse	LotAcreage	2.56	20.00
tblLandUse	LotAcreage	4.05	5.00
tblLandUse	LotAcreage	61.25	98.00
tblLandUse	LotAcreage	577.92	455.00
tblLandUse	LotAcreage	4.82	27.00
tblLandUse	LotAcreage	6.20	35.00



tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	HaulingPercentPave	100.00	50.00
tblProjectCharacteristics	OperationalYear	2014	2023
tblSolidWaste	SolidWasteGenerationRate	725.40	558.00
tblSolidWaste	SolidWasteGenerationRate	153.30	273.75
tblSolidWaste	SolidWasteGenerationRate	273.75	153.30
tblSolidWaste	SolidWasteGenerationRate	220.50	210.00
tblSolidWaste	SolidWasteGenerationRate	2,087.31	2,169.31
tblSolidWaste	SolidWasteGenerationRate	283.50	178.50
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	VendorTripNumber	1,633.00	30.00
tblTripsAndVMT	VendorTripNumber	1,633.00	34.00

tblTripsAndVMT	VendorTripNumber	1,633.00	32.00
tblTripsAndVMT	VendorTripNumber	1,633.00	304.00
tblTripsAndVMT	VendorTripNumber	1,633.00	34.00
tblTripsAndVMT	VendorTripNumber	1,633.00	98.00
tblTripsAndVMT	VendorTripNumber	1,633.00	28.00
tblTripsAndVMT	WorkerTripNumber	3.00	4.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	240.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	400.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	140.00
tblTripsAndVMT	WorkerTripNumber	38.00	64.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	600.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	170.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	350.00
tblTripsAndVMT	WorkerTripNumber	930.00	454.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	170.00
tblWater	IndoorWaterUseRate	138,632,323.43	106,640,248.80
tblWater	IndoorWaterUseRate	3,700,166.40	6,607,440.00
tblWater	IndoorWaterUseRate	3,636,360.00	2,036,361.60
tblWater	IndoorWaterUseRate	15,555,229.51	14,814,504.30
tblWater	IndoorWaterUseRate	115,974,165.61	120,534,947.40
tblWater	IndoorWaterUseRate	19,999,580.80	12,592,328.65
tblWater	OutdoorWaterUseRate	84,968,198.23	65,360,152.49
tblWater	OutdoorWaterUseRate	9,514,713.60	16,990,560.00
tblWater	OutdoorWaterUseRate	9,350,640.00	5,236,358.40
tblWater	OutdoorWaterUseRate	9,533,850.35	9,079,857.47



tblWater	OutdoorWaterUseRate	73,114,147.88	75,989,423.36
tblWater	OutdoorWaterUseRate	12,257,807.59	7,717,878.85
tblWoodstoves	NumberCatalytic	455.00	475.00
tblWoodstoves	NumberNoncatalytic	455.00	475.00

## 2.0 Emissions Summary

### 2.1 Overall Construction

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	12.3064	23.3842	26.4636	0.0525	12.5468	1.0873	13.6341	1.5634	1.0081	2.5715	0.0000	4,230.6113	4,230.6113	0.6501	0.0000	4,244.2638
2020	17.8484	28.6206	35.9965	0.0762	13.5665	1.3481	14.9147	1.8367	1.2505	3.0872	0.0000	5,901.4865	5,901.4865	0.8788	0.0000	5,919.9416
2021	17.8410	27.6160	39.0021	0.0854	13.9589	1.2917	15.2506	1.9417	1.1974	3.1391	0.0000	6,563.2729	6,563.2729	0.9805	0.0000	6,583.8639
2022	16.5575	16.5875	28.0518	0.0649	12.8035	0.7524	13.5559	1.7119	0.6999	2.4118	0.0000	4,935.6087	4,935.6087	0.6459	0.0000	4,949.1732
Total	64.5533	96.2083	129.5140	0.2790	52.8757	4.4796	57.3553	7.0538	4.1558	11.2095	0.0000	21,630.9794	21,630.9794	3.1554	0.0000	21,697.2426

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	11.2773	23.0922	27.3920	0.0525	8.1520	0.6700	8.8221	1.1186	0.6643	1.7830	0.0000	4,230.6090	4,230.6090	0.6501	0.0000	4,244.2614
2020	16.6762	30.8122	37.7172	0.0762	9.1718	0.9295	10.1012	1.3919	0.9224	2.3143	0.0000	5,901.4834	5,901.4834	0.8788	0.0000	5,919.9385
2021	16.8492	33.4201	41.3576	0.0854	9.5642	1.0331	10.5973	1.4969	1.0261	2.5230	0.0000	6,563.2694	6,563.2694	0.9805	0.0000	6,583.8604
2022	16.0996	23.0107	29.8728	0.0649	8.7095	0.7313	9.4408	1.2996	0.7253	2.0248	0.0000	4,935.6063	4,935.6063	0.6459	0.0000	4,949.1709
Total	60.9022	110.3352	136.3395	0.2790	35.5975	3.3639	38.9614	5.3070	3.3381	8.6450	0.0000	21,630.9680	21,630.9680	3.1554	0.0000	21,697.2312

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	5.66	-14.68	-5.27	0.00	32.68	24.91	32.07	24.76	19.68	22.88	0.00	0.00	0.00	0.00	0.00	0.00

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	12/31/2021	5	784	
2	Grading	Grading	1/1/2019	5/31/2022	5	891	
3	Trenching	Trenching	3/1/2019	5/31/2022	5	848	
4	Building Construction - Residential	Building Construction	3/1/2019	12/31/2022	5	1001	
5	Building Construction - Village Commercial	Building Construction	3/1/2019	12/31/2022	5	1001	
6	Paving	Paving	3/1/2019	12/31/2022	5	1001	
7	Building Construction - Office/R&D	Building Construction	4/1/2019	12/31/2022	5	980	
8	Architectural Coating	Architectural Coating	5/1/2019	12/31/2022	5	958	
9	Building Construction - Freeway Commercial	Building Construction	8/1/2019	12/31/2022	5	892	
10	Building Construction - Elem. & Middle School	Building Construction	6/1/2020	12/31/2021	5	415	
11	Building Construction - High School	Building Construction	6/1/2020	5/31/2022	5	522	
12	Building Construction - Parks	Building Construction	6/1/2021	5/31/2022	5	261	

**Acres of Grading (Site Preparation Phase): 930**

**Acres of Grading (Grading Phase): 930**

**Acres of Paving: 0**

**Residential Indoor: 8,472,600; Residential Outdoor: 2,824,200; Non-Residential Indoor: 2,461,268; Non-Residential Outdoor: 1,212,463**

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	0	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	2	6.00	174	0.41
Grading	Rollers	2	4.00	80	0.38
Grading	Rubber Tired Dozers	0	8.00	255	0.40

Grading	Rubber Tired Loaders	1	2.00	199	0.36
Grading	Scrapers	3	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Trenching	Other Construction Equipment	5	2.00	171	0.42
Trenching	Other Construction Equipment	0	1.00	171	0.42
Trenching	Tractors/Loaders/Backhoes	5	2.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	0	1.00	97	0.37
Trenching	Trenchers	5	2.00	80	0.50
Trenching	Trenchers	0	1.00	80	0.50
Building Construction - Residential	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Residential	Cranes	0	7.00	226	0.29
Building Construction - Residential	Forklifts	0	8.00	89	0.20
Building Construction - Residential	Generator Sets	0	8.00	84	0.74
Building Construction - Residential	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Residential	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Residential	Welders	0	8.00	46	0.45
Building Construction - Village	Cement and Mortar Mixers	1	8.00	9	0.56
Commercial Building Construction - Village	Cranes	0	7.00	226	0.29
Commercial Building Construction - Village	Forklifts	0	8.00	89	0.20
Commercial Building Construction - Village	Generator Sets	0	8.00	84	0.74
Commercial Building Construction - Village	Other Construction Equipment	2	8.00	171	0.42
Commercial Building Construction - Village	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Commercial Building Construction - Village	Welders	0	8.00	46	0.45
Commercial Paving	Other Construction Equipment	2	8.00	171	0.42
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38
Building Construction - Office/R&D	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Office/R&D	Cranes	0	7.00	226	0.29
Building Construction - Office/R&D	Forklifts	0	8.00	89	0.20
Building Construction - Office/R&D	Generator Sets	0	8.00	84	0.74
Building Construction - Office/R&D	Other Construction Equipment	2	8.00	171	0.42

Building Construction - Office/R&D	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Office/R&D	Welders	0	8.00	46	0.45
Architectural Coating	Air Compressors	8	6.00	78	0.48
Building Construction - Freeway	Cement and Mortar Mixers	1	8.00	9	0.56
Commercial Building Construction - Freeway	Cranes	0	7.00	226	0.29
Commercial Building Construction - Freeway	Forklifts	0	8.00	89	0.20
Commercial Building Construction - Freeway	Generator Sets	0	8.00	84	0.74
Commercial Building Construction - Freeway	Other Construction Equipment	2	8.00	171	0.42
Commercial Building Construction - Freeway	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Commercial Building Construction - Freeway	Welders	0	8.00	46	0.45
Building Construction - Elem. & Middle School	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Elem. & Middle School	Cranes	0	7.00	226	0.29
Building Construction - Elem. & Middle School	Forklifts	0	8.00	89	0.20
Building Construction - Elem. & Middle School	Generator Sets	0	8.00	84	0.74
Building Construction - Elem. & Middle School	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Elem. & Middle School	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Elem. & Middle School	Welders	0	8.00	46	0.45
Building Construction - High School	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - High School	Cranes	0	7.00	226	0.29
Building Construction - High School	Forklifts	0	8.00	89	0.20
Building Construction - High School	Generator Sets	0	8.00	84	0.74
Building Construction - High School	Other Construction Equipment	2	8.00	171	0.42
Building Construction - High School	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - High School	Welders	0	8.00	46	0.45
Building Construction - Parks	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Parks	Cranes	0	7.00	226	0.29
Building Construction - Parks	Forklifts	0	8.00	89	0.20
Building Construction - Parks	Generator Sets	0	8.00	84	0.74
Building Construction - Parks	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Parks	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Parks	Welders	0	8.00	46	0.45

## Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	29,063.00	10.80	7.30	1.00	LD_Mix	HDT_Mix	HHDT
Trenching	15	64.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Residential	5	600.00	304.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Village Commercial	5	170.00	34.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Office/R&D	5	350.00	98.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	8	454.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Freeway Commercial	5	170.00	28.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Elem. & Middle School	5	240.00	30.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - High School	5	400.00	34.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Parks	5	140.00	32.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

### 3.2 Site Preparation - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4931	0.0000	0.4931	0.0533	0.0000	0.0533	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1000	0.9874	0.6003	8.1000e-004		0.0553	0.0553		0.0508	0.0508	0.0000	72.8467	72.8467	0.0231	0.0000	73.3307
<b>Total</b>	<b>0.1000</b>	<b>0.9874</b>	<b>0.6003</b>	<b>8.1000e-004</b>	<b>0.4931</b>	<b>0.0553</b>	<b>0.5484</b>	<b>0.0533</b>	<b>0.0508</b>	<b>0.1041</b>	<b>0.0000</b>	<b>72.8467</b>	<b>72.8467</b>	<b>0.0231</b>	<b>0.0000</b>	<b>73.3307</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3400e-003	1.7200e-003	0.0166	5.0000e-005	0.0261	3.0000e-005	0.0261	6.4900e-003	3.0000e-005	6.5100e-003	0.0000	3.5875	3.5875	1.6000e-004	0.0000	3.5908
<b>Total</b>	<b>1.3400e-003</b>	<b>1.7200e-003</b>	<b>0.0166</b>	<b>5.0000e-005</b>	<b>0.0261</b>	<b>3.0000e-005</b>	<b>0.0261</b>	<b>6.4900e-003</b>	<b>3.0000e-005</b>	<b>6.5100e-003</b>	<b>0.0000</b>	<b>3.5875</b>	<b>3.5875</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>3.5908</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1923	0.0000	0.1923	0.0208	0.0000	0.0208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.0312	0.6847	0.6075	8.1000e-004		0.0210	0.0210		0.0210	0.0210	0.0000	72.8466	72.8466	0.0231	0.0000	73.3306
<b>Total</b>	<b>0.0312</b>	<b>0.6847</b>	<b>0.6075</b>	<b>8.1000e-004</b>	<b>0.1923</b>	<b>0.0210</b>	<b>0.2133</b>	<b>0.0208</b>	<b>0.0210</b>	<b>0.0418</b>	<b>0.0000</b>	<b>72.8466</b>	<b>72.8466</b>	<b>0.0231</b>	<b>0.0000</b>	<b>73.3306</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.3400e-003	1.7200e-003	0.0166	5.0000e-005	0.0261	3.0000e-005	0.0261	6.4900e-003	3.0000e-005	6.5100e-003	0.0000	3.5875	3.5875	1.6000e-004	0.0000	3.5908
<b>Total</b>	<b>1.3400e-003</b>	<b>1.7200e-003</b>	<b>0.0166</b>	<b>5.0000e-005</b>	<b>0.0261</b>	<b>3.0000e-005</b>	<b>0.0261</b>	<b>6.4900e-003</b>	<b>3.0000e-005</b>	<b>6.5100e-003</b>	<b>0.0000</b>	<b>3.5875</b>	<b>3.5875</b>	<b>1.6000e-004</b>	<b>0.0000</b>	<b>3.5908</b>

## 3.2 Site Preparation - 2020

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4931	0.0000	0.4931	0.0533	0.0000	0.0533	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0934	0.9116	0.5968	8.1000e-004		0.0509	0.0509		0.0468	0.0468	0.0000	71.4807	71.4807	0.0231	0.0000	71.9662
<b>Total</b>	<b>0.0934</b>	<b>0.9116</b>	<b>0.5968</b>	<b>8.1000e-004</b>	<b>0.4931</b>	<b>0.0509</b>	<b>0.5440</b>	<b>0.0533</b>	<b>0.0468</b>	<b>0.1000</b>	<b>0.0000</b>	<b>71.4807</b>	<b>71.4807</b>	<b>0.0231</b>	<b>0.0000</b>	<b>71.9662</b>

### Unmitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2500e-003	1.5900e-003	0.0153	5.0000e-005	0.0262	3.0000e-005	0.0262	6.5100e-003	3.0000e-005	6.5400e-003	0.0000	3.4566	3.4566	1.5000e-004	0.0000	3.4598
<b>Total</b>	<b>1.2500e-003</b>	<b>1.5900e-003</b>	<b>0.0153</b>	<b>5.0000e-005</b>	<b>0.0262</b>	<b>3.0000e-005</b>	<b>0.0262</b>	<b>6.5100e-003</b>	<b>3.0000e-005</b>	<b>6.5400e-003</b>	<b>0.0000</b>	<b>3.4566</b>	<b>3.4566</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>3.4598</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1923	0.0000	0.1923	0.0208	0.0000	0.0208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0313	0.6873	0.6099	8.1000e-004		0.0211	0.0211		0.0211	0.0211	0.0000	71.4806	71.4806	0.0231	0.0000	71.9661
<b>Total</b>	<b>0.0313</b>	<b>0.6873</b>	<b>0.6099</b>	<b>8.1000e-004</b>	<b>0.1923</b>	<b>0.0211</b>	<b>0.2134</b>	<b>0.0208</b>	<b>0.0211</b>	<b>0.0419</b>	<b>0.0000</b>	<b>71.4806</b>	<b>71.4806</b>	<b>0.0231</b>	<b>0.0000</b>	<b>71.9661</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.2500e-003	1.5900e-003	0.0153	5.0000e-005	0.0262	3.0000e-005	0.0262	6.5100e-003	3.0000e-005	6.5400e-003	0.0000	3.4566	3.4566	1.5000e-004	0.0000	3.4598
<b>Total</b>	<b>1.2500e-003</b>	<b>1.5900e-003</b>	<b>0.0153</b>	<b>5.0000e-005</b>	<b>0.0262</b>	<b>3.0000e-005</b>	<b>0.0262</b>	<b>6.5100e-003</b>	<b>3.0000e-005</b>	<b>6.5400e-003</b>	<b>0.0000</b>	<b>3.4566</b>	<b>3.4566</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>3.4598</b>

### 3.2 Site Preparation - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.4931	0.0000	0.4931	0.0533	0.0000	0.0533	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0830	0.7946	0.5844	8.1000e-004		0.0443	0.0443		0.0408	0.0408	0.0000	71.2807	71.2807	0.0231	0.0000	71.7648
<b>Total</b>	<b>0.0830</b>	<b>0.7946</b>	<b>0.5844</b>	<b>8.1000e-004</b>	<b>0.4931</b>	<b>0.0443</b>	<b>0.5375</b>	<b>0.0533</b>	<b>0.0408</b>	<b>0.0940</b>	<b>0.0000</b>	<b>71.2807</b>	<b>71.2807</b>	<b>0.0231</b>	<b>0.0000</b>	<b>71.7648</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1700e-003	1.4800e-003	0.0143	5.0000e-005	0.0261	3.0000e-005	0.0261	6.4900e-003	3.0000e-005	6.5100e-003	0.0000	3.3838	3.3838	1.5000e-004	0.0000	3.3869
<b>Total</b>	<b>1.1700e-003</b>	<b>1.4800e-003</b>	<b>0.0143</b>	<b>5.0000e-005</b>	<b>0.0261</b>	<b>3.0000e-005</b>	<b>0.0261</b>	<b>6.4900e-003</b>	<b>3.0000e-005</b>	<b>6.5100e-003</b>	<b>0.0000</b>	<b>3.3838</b>	<b>3.3838</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>3.3869</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1923	0.0000	0.1923	0.0208	0.0000	0.0208	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0312	0.6847	0.6075	8.1000e-004		0.0210	0.0210		0.0210	0.0210	0.0000	71.2806	71.2806	0.0231	0.0000	71.7647
<b>Total</b>	<b>0.0312</b>	<b>0.6847</b>	<b>0.6075</b>	<b>8.1000e-004</b>	<b>0.1923</b>	<b>0.0210</b>	<b>0.2133</b>	<b>0.0208</b>	<b>0.0210</b>	<b>0.0418</b>	<b>0.0000</b>	<b>71.2806</b>	<b>71.2806</b>	<b>0.0231</b>	<b>0.0000</b>	<b>71.7647</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.1700e-003	1.4800e-003	0.0143	5.0000e-005	0.0261	3.0000e-005	0.0261	6.4900e-003	3.0000e-005	6.5100e-003	0.0000	3.3838	3.3838	1.5000e-004	0.0000	3.3869
<b>Total</b>	<b>1.1700e-003</b>	<b>1.4800e-003</b>	<b>0.0143</b>	<b>5.0000e-005</b>	<b>0.0261</b>	<b>3.0000e-005</b>	<b>0.0261</b>	<b>6.4900e-003</b>	<b>3.0000e-005</b>	<b>6.5100e-003</b>	<b>0.0000</b>	<b>3.3838</b>	<b>3.3838</b>	<b>1.5000e-004</b>	<b>0.0000</b>	<b>3.3869</b>

### 3.3 Grading - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5103	0.0000	0.5103	0.0558	0.0000	0.0558	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.6025	6.9010	4.3075	7.5900e-003		0.3021	0.3021		0.2780	0.2780	0.0000	681.9369	681.9369	0.2158	0.0000	686.4678
<b>Total</b>	<b>0.6025</b>	<b>6.9010</b>	<b>4.3075</b>	<b>7.5900e-003</b>	<b>0.5103</b>	<b>0.3021</b>	<b>0.8124</b>	<b>0.0558</b>	<b>0.2780</b>	<b>0.3338</b>	<b>0.0000</b>	<b>681.9369</b>	<b>681.9369</b>	<b>0.2158</b>	<b>0.0000</b>	<b>686.4678</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0326	0.1154	0.7043	2.4000e-004	9.7618	9.2000e-004	9.7627	0.9750	8.5000e-004	0.9758	0.0000	19.7899	19.7899	3.2000e-004	0.0000	19.7967
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7200e-003	8.6100e-003	0.0829	2.7000e-004	0.0210	1.5000e-004	0.0212	5.5900e-003	1.4000e-004	5.7300e-003	0.0000	17.9373	17.9373	8.1000e-004	0.0000	17.9542
<b>Total</b>	<b>0.0393</b>	<b>0.1240</b>	<b>0.7873</b>	<b>5.1000e-004</b>	<b>9.7829</b>	<b>1.0700e-003</b>	<b>9.7839</b>	<b>0.9806</b>	<b>9.9000e-004</b>	<b>0.9816</b>	<b>0.0000</b>	<b>37.7272</b>	<b>37.7272</b>	<b>1.1300e-003</b>	<b>0.0000</b>	<b>37.7509</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1990	0.0000	0.1990	0.0218	0.0000	0.0218	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2114	6.0651	4.3882	7.5900e-003		0.1539	0.1539		0.1539	0.1539	0.0000	681.9361	681.9361	0.2158	0.0000	686.4670
<b>Total</b>	<b>0.2114</b>	<b>6.0651</b>	<b>4.3882</b>	<b>7.5900e-003</b>	<b>0.1990</b>	<b>0.1539</b>	<b>0.3529</b>	<b>0.0218</b>	<b>0.1539</b>	<b>0.1757</b>	<b>0.0000</b>	<b>681.9361</b>	<b>681.9361</b>	<b>0.2158</b>	<b>0.0000</b>	<b>686.4670</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0326	0.1154	0.7043	2.4000e-004	5.9792	9.2000e-004	5.9801	0.5967	8.5000e-004	0.5976	0.0000	19.7899	19.7899	3.2000e-004	0.0000	19.7967
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7200e-003	8.6100e-003	0.0829	2.7000e-004	0.0210	1.5000e-004	0.0212	5.5900e-003	1.4000e-004	5.7300e-003	0.0000	17.9373	17.9373	8.1000e-004	0.0000	17.9542
<b>Total</b>	<b>0.0393</b>	<b>0.1240</b>	<b>0.7873</b>	<b>5.1000e-004</b>	<b>6.0002</b>	<b>1.0700e-003</b>	<b>6.0013</b>	<b>0.6023</b>	<b>9.9000e-004</b>	<b>0.6033</b>	<b>0.0000</b>	<b>37.7272</b>	<b>37.7272</b>	<b>1.1300e-003</b>	<b>0.0000</b>	<b>37.7509</b>

### 3.3 Grading - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5103	0.0000	0.5103	0.0558	0.0000	0.0558	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5632	6.3246	4.0791	7.6200e-003		0.2756	0.2756		0.2535	0.2535	0.0000	669.5145	669.5145	0.2165	0.0000	674.0618
<b>Total</b>	<b>0.5632</b>	<b>6.3246</b>	<b>4.0791</b>	<b>7.6200e-003</b>	<b>0.5103</b>	<b>0.2756</b>	<b>0.7858</b>	<b>0.0558</b>	<b>0.2535</b>	<b>0.3094</b>	<b>0.0000</b>	<b>669.5145</b>	<b>669.5145</b>	<b>0.2165</b>	<b>0.0000</b>	<b>674.0618</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0295	0.1073	0.6807	2.4000e-004	9.7618	9.0000e-004	9.7627	0.9750	8.3000e-004	0.9758	0.0000	19.4039	19.4039	3.3000e-004	0.0000	19.4108

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2500e-003	7.9500e-003	0.0766	2.7000e-004	0.0211	1.6000e-004	0.0213	5.6100e-003	1.4000e-004	5.7500e-003	0.0000	17.2829	17.2829	7.6000e-004	0.0000	17.2989
<b>Total</b>	<b>0.0357</b>	<b>0.1152</b>	<b>0.7573</b>	<b>5.1000e-004</b>	<b>9.7829</b>	<b>1.0600e-003</b>	<b>9.7840</b>	<b>0.9806</b>	<b>9.7000e-004</b>	<b>0.9816</b>	<b>0.0000</b>	<b>36.6868</b>	<b>36.6868</b>	<b>1.0900e-003</b>	<b>0.0000</b>	<b>36.7097</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1990	0.0000	0.1990	0.0218	0.0000	0.0218	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2122	6.0884	4.4050	7.6200e-003		0.1545	0.1545		0.1545	0.1545	0.0000	669.5137	669.5137	0.2165	0.0000	674.0610
<b>Total</b>	<b>0.2122</b>	<b>6.0884</b>	<b>4.4050</b>	<b>7.6200e-003</b>	<b>0.1990</b>	<b>0.1545</b>	<b>0.3535</b>	<b>0.0218</b>	<b>0.1545</b>	<b>0.1763</b>	<b>0.0000</b>	<b>669.5137</b>	<b>669.5137</b>	<b>0.2165</b>	<b>0.0000</b>	<b>674.0610</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0295	0.1073	0.6807	2.4000e-004	5.9792	9.0000e-004	5.9801	0.5967	8.3000e-004	0.5976	0.0000	19.4039	19.4039	3.3000e-004	0.0000	19.4108
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.2500e-003	7.9500e-003	0.0766	2.7000e-004	0.0211	1.6000e-004	0.0213	5.6100e-003	1.4000e-004	5.7500e-003	0.0000	17.2829	17.2829	7.6000e-004	0.0000	17.2989
<b>Total</b>	<b>0.0357</b>	<b>0.1152</b>	<b>0.7573</b>	<b>5.1000e-004</b>	<b>6.0003</b>	<b>1.0600e-003</b>	<b>6.0013</b>	<b>0.6023</b>	<b>9.7000e-004</b>	<b>0.6033</b>	<b>0.0000</b>	<b>36.6868</b>	<b>36.6868</b>	<b>1.0900e-003</b>	<b>0.0000</b>	<b>36.7097</b>

## 3.3 Grading - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5103	0.0000	0.5103	0.0558	0.0000	0.0558	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5181	5.6883	3.8706	7.6000e-003		0.2463	0.2463		0.2266	0.2266	0.0000	667.3861	667.3861	0.2159	0.0000	671.9188
<b>Total</b>	<b>0.5181</b>	<b>5.6883</b>	<b>3.8706</b>	<b>7.6000e-003</b>	<b>0.5103</b>	<b>0.2463</b>	<b>0.7566</b>	<b>0.0558</b>	<b>0.2266</b>	<b>0.2825</b>	<b>0.0000</b>	<b>667.3861</b>	<b>667.3861</b>	<b>0.2159</b>	<b>0.0000</b>	<b>671.9188</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0285	0.0983	0.6700	2.4000e-004	9.7618	8.8000e-004	9.7627	0.9750	8.1000e-004	0.9758	0.0000	19.3065	19.3065	3.3000e-004	0.0000	19.3135
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8500e-003	7.3900e-003	0.0713	2.7000e-004	0.0210	1.6000e-004	0.0212	5.5900e-003	1.4000e-004	5.7300e-003	0.0000	16.9191	16.9191	7.3000e-004	0.0000	16.9344
<b>Total</b>	<b>0.0344</b>	<b>0.1057</b>	<b>0.7413</b>	<b>5.1000e-004</b>	<b>9.7829</b>	<b>1.0400e-003</b>	<b>9.7839</b>	<b>0.9806</b>	<b>9.5000e-004</b>	<b>0.9815</b>	<b>0.0000</b>	<b>36.2256</b>	<b>36.2256</b>	<b>1.0600e-003</b>	<b>0.0000</b>	<b>36.2479</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1990	0.0000	0.1990	0.0218	0.0000	0.0218	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.2114	6.0651	4.3882	7.6000e-003		0.1539	0.1539		0.1539	0.1539	0.0000	667.3853	667.3853	0.2159	0.0000	671.9180
<b>Total</b>	<b>0.2114</b>	<b>6.0651</b>	<b>4.3882</b>	<b>7.6000e-003</b>	<b>0.1990</b>	<b>0.1539</b>	<b>0.3529</b>	<b>0.0218</b>	<b>0.1539</b>	<b>0.1757</b>	<b>0.0000</b>	<b>667.3853</b>	<b>667.3853</b>	<b>0.2159</b>	<b>0.0000</b>	<b>671.9180</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0285	0.0983	0.6700	2.4000e-004	5.9792	8.8000e-004	5.9800	0.5967	8.1000e-004	0.5975	0.0000	19.3065	19.3065	3.3000e-004	0.0000	19.3135
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.8500e-003	7.3900e-003	0.0713	2.7000e-004	0.0210	1.6000e-004	0.0212	5.5900e-003	1.4000e-004	5.7300e-003	0.0000	16.9191	16.9191	7.3000e-004	0.0000	16.9344
<b>Total</b>	<b>0.0344</b>	<b>0.1057</b>	<b>0.7413</b>	<b>5.1000e-004</b>	<b>6.0002</b>	<b>1.0400e-003</b>	<b>6.0012</b>	<b>0.6023</b>	<b>9.5000e-004</b>	<b>0.6033</b>	<b>0.0000</b>	<b>36.2256</b>	<b>36.2256</b>	<b>1.0600e-003</b>	<b>0.0000</b>	<b>36.2479</b>

### 3.3 Grading - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.5103	0.0000	0.5103	0.0558	0.0000	0.0558	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1865	1.9605	1.4789	3.1200e-003		0.0849	0.0849		0.0781	0.0781	0.0000	273.9533	273.9533	0.0886	0.0000	275.8139
<b>Total</b>	<b>0.1865</b>	<b>1.9605</b>	<b>1.4789</b>	<b>3.1200e-003</b>	<b>0.5103</b>	<b>0.0849</b>	<b>0.5952</b>	<b>0.0558</b>	<b>0.0781</b>	<b>0.1340</b>	<b>0.0000</b>	<b>273.9533</b>	<b>273.9533</b>	<b>0.0886</b>	<b>0.0000</b>	<b>275.8139</b>

#### Unmitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0110	0.0374	0.2635	1.0000e-004	9.7612	3.5000e-004	9.7616	0.9748	3.3000e-004	0.9751	0.0000	7.9072	7.9072	1.4000e-004	0.0000	7.9101
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2700e-003	2.8400e-003	0.0274	1.1000e-004	8.6200e-003	6.0000e-005	8.6900e-003	2.2900e-003	6.0000e-005	2.3500e-003	0.0000	6.8297	6.8297	2.9000e-004	0.0000	6.8357
<b>Total</b>	<b>0.0133</b>	<b>0.0403</b>	<b>0.2910</b>	<b>2.1000e-004</b>	<b>9.7699</b>	<b>4.1000e-004</b>	<b>9.7703</b>	<b>0.9771</b>	<b>3.9000e-004</b>	<b>0.9774</b>	<b>0.0000</b>	<b>14.7369</b>	<b>14.7369</b>	<b>4.3000e-004</b>	<b>0.0000</b>	<b>14.7458</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1990	0.0000	0.1990	0.0218	0.0000	0.0218	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0867	2.4865	1.7990	3.1200e-003		0.0631	0.0631		0.0631	0.0631	0.0000	273.9530	273.9530	0.0886	0.0000	275.8136
<b>Total</b>	<b>0.0867</b>	<b>2.4865</b>	<b>1.7990</b>	<b>3.1200e-003</b>	<b>0.1990</b>	<b>0.0631</b>	<b>0.2621</b>	<b>0.0218</b>	<b>0.0631</b>	<b>0.0849</b>	<b>0.0000</b>	<b>273.9530</b>	<b>273.9530</b>	<b>0.0886</b>	<b>0.0000</b>	<b>275.8136</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0110	0.0374	0.2635	1.0000e-004	5.9786	3.5000e-004	5.9789	0.5965	3.3000e-004	0.5968	0.0000	7.9072	7.9072	1.4000e-004	0.0000	7.9101

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2700e-003	2.8400e-003	0.0274	1.1000e-004	8.6200e-003	6.0000e-005	8.6900e-003	2.2900e-003	6.0000e-005	2.3500e-003	0.0000	6.8297	6.8297	2.9000e-004	0.0000	6.8357
<b>Total</b>	<b>0.0133</b>	<b>0.0403</b>	<b>0.2910</b>	<b>2.1000e-004</b>	<b>5.9872</b>	<b>4.1000e-004</b>	<b>5.9876</b>	<b>0.5988</b>	<b>3.9000e-004</b>	<b>0.5992</b>	<b>0.0000</b>	<b>14.7369</b>	<b>14.7369</b>	<b>4.3000e-004</b>	<b>0.0000</b>	<b>14.7458</b>

### 3.4 Trenching - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1635	1.6310	1.2445	1.7300e-003		0.1029	0.1029		0.0947	0.0947	0.0000	155.5603	155.5603	0.0492	0.0000	156.5938
<b>Total</b>	<b>0.1635</b>	<b>1.6310</b>	<b>1.2445</b>	<b>1.7300e-003</b>		<b>0.1029</b>	<b>0.1029</b>		<b>0.0947</b>	<b>0.0947</b>	<b>0.0000</b>	<b>155.5603</b>	<b>155.5603</b>	<b>0.0492</b>	<b>0.0000</b>	<b>156.5938</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0180	0.0230	0.2216	7.2000e-004	0.0562	4.1000e-004	0.0566	0.0149	3.8000e-004	0.0153	0.0000	47.9427	47.9427	2.1600e-003	0.0000	47.9879
<b>Total</b>	<b>0.0180</b>	<b>0.0230</b>	<b>0.2216</b>	<b>7.2000e-004</b>	<b>0.0562</b>	<b>4.1000e-004</b>	<b>0.0566</b>	<b>0.0149</b>	<b>3.8000e-004</b>	<b>0.0153</b>	<b>0.0000</b>	<b>47.9427</b>	<b>47.9427</b>	<b>2.1600e-003</b>	<b>0.0000</b>	<b>47.9879</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0747	1.5859	1.3133	1.7300e-003		0.0571	0.0571		0.0571	0.0571	0.0000	155.5601	155.5601	0.0492	0.0000	156.5936
<b>Total</b>	<b>0.0747</b>	<b>1.5859</b>	<b>1.3133</b>	<b>1.7300e-003</b>		<b>0.0571</b>	<b>0.0571</b>		<b>0.0571</b>	<b>0.0571</b>	<b>0.0000</b>	<b>155.5601</b>	<b>155.5601</b>	<b>0.0492</b>	<b>0.0000</b>	<b>156.5936</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0180	0.0230	0.2216	7.2000e-004	0.0562	4.1000e-004	0.0566	0.0149	3.8000e-004	0.0153	0.0000	47.9427	47.9427	2.1600e-003	0.0000	47.9879
<b>Total</b>	<b>0.0180</b>	<b>0.0230</b>	<b>0.2216</b>	<b>7.2000e-004</b>	<b>0.0562</b>	<b>4.1000e-004</b>	<b>0.0566</b>	<b>0.0149</b>	<b>3.8000e-004</b>	<b>0.0153</b>	<b>0.0000</b>	<b>47.9427</b>	<b>47.9427</b>	<b>2.1600e-003</b>	<b>0.0000</b>	<b>47.9879</b>

### 3.4 Trenching - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1852	1.8353	1.4871	2.0800e-003		0.1145	0.1145		0.1054	0.1054	0.0000	182.9090	182.9090	0.0592	0.0000	184.1512

Total	0.1852	1.8353	1.4871	2.0800e-003		0.1145	0.1145		0.1054	0.1054	0.0000	182.9090	182.9090	0.0592	0.0000	184.1512
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0200	0.0255	0.2451	8.7000e-004	0.0676	5.0000e-004	0.0681	0.0180	4.6000e-004	0.0184	0.0000	55.3051	55.3051	2.4500e-003	0.0000	55.3565
Total	0.0200	0.0255	0.2451	8.7000e-004	0.0676	5.0000e-004	0.0681	0.0180	4.6000e-004	0.0184	0.0000	55.3051	55.3051	2.4500e-003	0.0000	55.3565

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0898	1.9060	1.5784	2.0800e-003		0.0686	0.0686		0.0686	0.0686	0.0000	182.9087	182.9087	0.0592	0.0000	184.1510
Total	0.0898	1.9060	1.5784	2.0800e-003		0.0686	0.0686		0.0686	0.0686	0.0000	182.9087	182.9087	0.0592	0.0000	184.1510

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0200	0.0255	0.2451	8.7000e-004	0.0676	5.0000e-004	0.0681	0.0180	4.6000e-004	0.0184	0.0000	55.3051	55.3051	2.4500e-003	0.0000	55.3565
<b>Total</b>	<b>0.0200</b>	<b>0.0255</b>	<b>0.2451</b>	<b>8.7000e-004</b>	<b>0.0676</b>	<b>5.0000e-004</b>	<b>0.0681</b>	<b>0.0180</b>	<b>4.6000e-004</b>	<b>0.0184</b>	<b>0.0000</b>	<b>55.3051</b>	<b>55.3051</b>	<b>2.4500e-003</b>	<b>0.0000</b>	<b>55.3565</b>

### 3.4 Trenching - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1626	1.6073	1.4624	2.0700e-003		0.0981	0.0981		0.0902	0.0902	0.0000	182.2059	182.2059	0.0589	0.0000	183.4434
<b>Total</b>	<b>0.1626</b>	<b>1.6073</b>	<b>1.4624</b>	<b>2.0700e-003</b>		<b>0.0981</b>	<b>0.0981</b>		<b>0.0902</b>	<b>0.0902</b>	<b>0.0000</b>	<b>182.2059</b>	<b>182.2059</b>	<b>0.0589</b>	<b>0.0000</b>	<b>183.4434</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0187	0.0237	0.2282	8.6000e-004	0.0673	5.0000e-004	0.0678	0.0179	4.6000e-004	0.0183	0.0000	54.1412	54.1412	2.3200e-003	0.0000	54.1900
<b>Total</b>	<b>0.0187</b>	<b>0.0237</b>	<b>0.2282</b>	<b>8.6000e-004</b>	<b>0.0673</b>	<b>5.0000e-004</b>	<b>0.0678</b>	<b>0.0179</b>	<b>4.6000e-004</b>	<b>0.0183</b>	<b>0.0000</b>	<b>54.1412</b>	<b>54.1412</b>	<b>2.3200e-003</b>	<b>0.0000</b>	<b>54.1900</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0895	1.8987	1.5724	2.0700e-003		0.0684	0.0684		0.0684	0.0684	0.0000	182.2057	182.2057	0.0589	0.0000	183.4432
<b>Total</b>	<b>0.0895</b>	<b>1.8987</b>	<b>1.5724</b>	<b>2.0700e-003</b>		<b>0.0684</b>	<b>0.0684</b>		<b>0.0684</b>	<b>0.0684</b>	<b>0.0000</b>	<b>182.2057</b>	<b>182.2057</b>	<b>0.0589</b>	<b>0.0000</b>	<b>183.4432</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0187	0.0237	0.2282	8.6000e-004	0.0673	5.0000e-004	0.0678	0.0179	4.6000e-004	0.0183	0.0000	54.1412	54.1412	2.3200e-003	0.0000	54.1900
<b>Total</b>	<b>0.0187</b>	<b>0.0237</b>	<b>0.2282</b>	<b>8.6000e-004</b>	<b>0.0673</b>	<b>5.0000e-004</b>	<b>0.0678</b>	<b>0.0179</b>	<b>4.6000e-004</b>	<b>0.0183</b>	<b>0.0000</b>	<b>54.1412</b>	<b>54.1412</b>	<b>2.3200e-003</b>	<b>0.0000</b>	<b>54.1900</b>

## 3.4 Trenching - 2022

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0610	0.5975	0.5952	8.5000e-004		0.0357	0.0357		0.0328	0.0328	0.0000	74.7080	74.7080	0.0242	0.0000	75.2154
<b>Total</b>	<b>0.0610</b>	<b>0.5975</b>	<b>0.5952</b>	<b>8.5000e-004</b>		<b>0.0357</b>	<b>0.0357</b>		<b>0.0328</b>	<b>0.0328</b>	<b>0.0000</b>	<b>74.7080</b>	<b>74.7080</b>	<b>0.0242</b>	<b>0.0000</b>	<b>75.2154</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2500e-003	9.0900e-003	0.0877	3.5000e-004	0.0276	2.0000e-004	0.0278	7.3300e-003	1.9000e-004	7.5200e-003	0.0000	21.8551	21.8551	9.1000e-004	0.0000	21.8743
<b>Total</b>	<b>7.2500e-003</b>	<b>9.0900e-003</b>	<b>0.0877</b>	<b>3.5000e-004</b>	<b>0.0276</b>	<b>2.0000e-004</b>	<b>0.0278</b>	<b>7.3300e-003</b>	<b>1.9000e-004</b>	<b>7.5200e-003</b>	<b>0.0000</b>	<b>21.8551</b>	<b>21.8551</b>	<b>9.1000e-004</b>	<b>0.0000</b>	<b>21.8743</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0367	0.7784	0.6446	8.5000e-004		0.0280	0.0280		0.0280	0.0280	0.0000	74.7079	74.7079	0.0242	0.0000	75.2153

Total	0.0367	0.7784	0.6446	8.5000e-004		0.0280	0.0280		0.0280	0.0280	0.0000	74.7079	74.7079	0.0242	0.0000	75.2153
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.2500e-003	9.0900e-003	0.0877	3.5000e-004	0.0276	2.0000e-004	0.0278	7.3300e-003	1.9000e-004	7.5200e-003	0.0000	21.8551	21.8551	9.1000e-004	0.0000	21.8743
Total	7.2500e-003	9.0900e-003	0.0877	3.5000e-004	0.0276	2.0000e-004	0.0278	7.3300e-003	1.9000e-004	7.5200e-003	0.0000	21.8551	21.8551	9.1000e-004	0.0000	21.8743

## 3.5 Building Construction - Residential - 2019

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1709	1.7738	1.4348	2.0900e-003		0.1001	0.1001		0.0922	0.0922	0.0000	186.1737	186.1737	0.0578	0.0000	187.3884
Total	0.1709	1.7738	1.4348	2.0900e-003		0.1001	0.1001		0.0922	0.0922	0.0000	186.1737	186.1737	0.0578	0.0000	187.3884

### Unmitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2923	2.3948	3.9705	7.8200e-003	0.2175	0.0415	0.2591	0.0623	0.0382	0.1005	0.0000	677.8641	677.8641	5.3700e-003	0.0000	677.9768
Worker	0.1684	0.2156	2.0776	6.7600e-003	0.5270	3.8700e-003	0.5309	0.1400	3.5900e-003	0.1436	0.0000	449.4623	449.4623	0.0202	0.0000	449.8868
<b>Total</b>	<b>0.4607</b>	<b>2.6104</b>	<b>6.0481</b>	<b>0.0146</b>	<b>0.7445</b>	<b>0.0454</b>	<b>0.7899</b>	<b>0.2023</b>	<b>0.0418</b>	<b>0.2441</b>	<b>0.0000</b>	<b>1,127.3264</b>	<b>1,127.3264</b>	<b>0.0256</b>	<b>0.0000</b>	<b>1,127.8635</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0906	1.8471	1.5659	2.0900e-003		0.0634	0.0634		0.0634	0.0634	0.0000	186.1735	186.1735	0.0578	0.0000	187.3882
<b>Total</b>	<b>0.0906</b>	<b>1.8471</b>	<b>1.5659</b>	<b>2.0900e-003</b>		<b>0.0634</b>	<b>0.0634</b>		<b>0.0634</b>	<b>0.0634</b>	<b>0.0000</b>	<b>186.1735</b>	<b>186.1735</b>	<b>0.0578</b>	<b>0.0000</b>	<b>187.3882</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.2923	2.3948	3.9705	7.8200e-003	0.2175	0.0415	0.2591	0.0623	0.0382	0.1005	0.0000	677.8641	677.8641	5.3700e-003	0.0000	677.9768
Worker	0.1684	0.2156	2.0776	6.7600e-003	0.5270	3.8700e-003	0.5309	0.1400	3.5900e-003	0.1436	0.0000	449.4623	449.4623	0.0202	0.0000	449.8868
<b>Total</b>	<b>0.4607</b>	<b>2.6104</b>	<b>6.0481</b>	<b>0.0146</b>	<b>0.7445</b>	<b>0.0454</b>	<b>0.7899</b>	<b>0.2023</b>	<b>0.0418</b>	<b>0.2441</b>	<b>0.0000</b>	<b>1,127.3264</b>	<b>1,127.3264</b>	<b>0.0256</b>	<b>0.0000</b>	<b>1,127.8635</b>

### 3.5 Building Construction - Residential - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1913	1.9645	1.7114	2.5200e-003		0.1088	0.1088		0.1002	0.1002	0.0000	218.9885	218.9885	0.0695	0.0000	220.4482
<b>Total</b>	<b>0.1913</b>	<b>1.9645</b>	<b>1.7114</b>	<b>2.5200e-003</b>		<b>0.1088</b>	<b>0.1088</b>		<b>0.1002</b>	<b>0.1002</b>	<b>0.0000</b>	<b>218.9885</b>	<b>218.9885</b>	<b>0.0695</b>	<b>0.0000</b>	<b>220.4482</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3187	2.4267	4.5322	9.3800e-003	0.2614	0.0438	0.3052	0.0749	0.0403	0.1152	0.0000	795.8980	795.8980	6.1300e-003	0.0000	796.0268
Worker	0.1874	0.2386	2.2980	8.1200e-003	0.6334	4.6500e-003	0.6380	0.1683	4.3200e-003	0.1726	0.0000	518.4856	518.4856	0.0229	0.0000	518.9670
<b>Total</b>	<b>0.5061</b>	<b>2.6653</b>	<b>6.8302</b>	<b>0.0175</b>	<b>0.8948</b>	<b>0.0484</b>	<b>0.9433</b>	<b>0.2431</b>	<b>0.0446</b>	<b>0.2877</b>	<b>0.0000</b>	<b>1,314.3836</b>	<b>1,314.3836</b>	<b>0.0291</b>	<b>0.0000</b>	<b>1,314.9938</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1089	2.2199	1.8820	2.5200e-003		0.0762	0.0762		0.0762	0.0762	0.0000	218.9883	218.9883	0.0695	0.0000	220.4479
<b>Total</b>	<b>0.1089</b>	<b>2.2199</b>	<b>1.8820</b>	<b>2.5200e-003</b>		<b>0.0762</b>	<b>0.0762</b>		<b>0.0762</b>	<b>0.0762</b>	<b>0.0000</b>	<b>218.9883</b>	<b>218.9883</b>	<b>0.0695</b>	<b>0.0000</b>	<b>220.4479</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3187	2.4267	4.5322	9.3800e-003	0.2614	0.0438	0.3052	0.0749	0.0403	0.1152	0.0000	795.8980	795.8980	6.1300e-003	0.0000	796.0268
Worker	0.1874	0.2386	2.2980	8.1200e-003	0.6334	4.6500e-003	0.6380	0.1683	4.3200e-003	0.1726	0.0000	518.4856	518.4856	0.0229	0.0000	518.9670
<b>Total</b>	<b>0.5061</b>	<b>2.6653</b>	<b>6.8302</b>	<b>0.0175</b>	<b>0.8948</b>	<b>0.0484</b>	<b>0.9433</b>	<b>0.2431</b>	<b>0.0446</b>	<b>0.2877</b>	<b>0.0000</b>	<b>1,314.3836</b>	<b>1,314.3836</b>	<b>0.0291</b>	<b>0.0000</b>	<b>1,314.9938</b>

## 3.5 Building Construction - Residential - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1655	1.6796	1.6824	2.5100e-003		0.0905	0.0905		0.0834	0.0834	0.0000	218.1180	218.1180	0.0692	0.0000	219.5719

Total	0.1655	1.6796	1.6824	2.5100e-003		0.0905	0.0905		0.0834	0.0834	0.0000	218.1180	218.1180	0.0692	0.0000	219.5719
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3044	1.9602	4.3977	9.3300e-003	0.2605	0.0384	0.2988	0.0746	0.0353	0.1099	0.0000	791.5394	791.5394	6.0100e-003	0.0000	791.6656
Worker	0.1756	0.2217	2.1394	8.0900e-003	0.6310	4.6600e-003	0.6356	0.1676	4.3200e-003	0.1719	0.0000	507.5739	507.5739	0.0218	0.0000	508.0314
Total	0.4800	2.1819	6.5370	0.0174	0.8914	0.0430	0.9345	0.2422	0.0396	0.2818	0.0000	1,299.1132	1,299.1132	0.0278	0.0000	1,299.6970

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	218.1178	218.1178	0.0692	0.0000	219.5716
Total	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	218.1178	218.1178	0.0692	0.0000	219.5716

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.3044	1.9602	4.3977	9.3300e-003	0.2605	0.0384	0.2988	0.0746	0.0353	0.1099	0.0000	791.5394	791.5394	6.0100e-003	0.0000	791.6656
Worker	0.1756	0.2217	2.1394	8.0900e-003	0.6310	4.6600e-003	0.6356	0.1676	4.3200e-003	0.1719	0.0000	507.5739	507.5739	0.0218	0.0000	508.0314
<b>Total</b>	<b>0.4800</b>	<b>2.1819</b>	<b>6.5370</b>	<b>0.0174</b>	<b>0.8914</b>	<b>0.0430</b>	<b>0.9345</b>	<b>0.2422</b>	<b>0.0396</b>	<b>0.2818</b>	<b>0.0000</b>	<b>1,299.1132</b>	<b>1,299.1132</b>	<b>0.0278</b>	<b>0.0000</b>	<b>1,299.6970</b>

### 3.5 Building Construction - Residential - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1477	1.4697	1.6612	2.5000e-003		0.0768	0.0768		0.0708	0.0708	0.0000	217.3169	217.3169	0.0690	0.0000	218.7654
<b>Total</b>	<b>0.1477</b>	<b>1.4697</b>	<b>1.6612</b>	<b>2.5000e-003</b>		<b>0.0768</b>	<b>0.0768</b>		<b>0.0708</b>	<b>0.0708</b>	<b>0.0000</b>	<b>217.3169</b>	<b>217.3169</b>	<b>0.0690</b>	<b>0.0000</b>	<b>218.7654</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.2911	1.7237	4.1905	9.2800e-003	0.2595	0.0374	0.2969	0.0743	0.0344	0.1087	0.0000	787.6206	787.6206	6.0700e-003	0.0000	787.7481
Worker	0.1652	0.2071	1.9985	8.0600e-003	0.6286	4.6700e-003	0.6332	0.1670	4.3300e-003	0.1713	0.0000	497.8664	497.8664	0.0208	0.0000	498.3035
<b>Total</b>	<b>0.4563</b>	<b>1.9308</b>	<b>6.1890</b>	<b>0.0173</b>	<b>0.8880</b>	<b>0.0421</b>	<b>0.9301</b>	<b>0.2413</b>	<b>0.0388</b>	<b>0.2800</b>	<b>0.0000</b>	<b>1,285.4869</b>	<b>1,285.4869</b>	<b>0.0269</b>	<b>0.0000</b>	<b>1,286.0516</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1081	2.2030	1.8676	2.5000e-003		0.0756	0.0756		0.0756	0.0756	0.0000	217.3167	217.3167	0.0690	0.0000	218.7652
<b>Total</b>	<b>0.1081</b>	<b>2.2030</b>	<b>1.8676</b>	<b>2.5000e-003</b>		<b>0.0756</b>	<b>0.0756</b>		<b>0.0756</b>	<b>0.0756</b>	<b>0.0000</b>	<b>217.3167</b>	<b>217.3167</b>	<b>0.0690</b>	<b>0.0000</b>	<b>218.7652</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.2911	1.7237	4.1905	9.2800e-003	0.2595	0.0374	0.2969	0.0743	0.0344	0.1087	0.0000	787.6206	787.6206	6.0700e-003	0.0000	787.7481
Worker	0.1652	0.2071	1.9985	8.0600e-003	0.6286	4.6700e-003	0.6332	0.1670	4.3300e-003	0.1713	0.0000	497.8664	497.8664	0.0208	0.0000	498.3035
<b>Total</b>	<b>0.4563</b>	<b>1.9308</b>	<b>6.1890</b>	<b>0.0173</b>	<b>0.8880</b>	<b>0.0421</b>	<b>0.9301</b>	<b>0.2413</b>	<b>0.0388</b>	<b>0.2800</b>	<b>0.0000</b>	<b>1,285.4869</b>	<b>1,285.4869</b>	<b>0.0269</b>	<b>0.0000</b>	<b>1,286.0516</b>

## 3.6 Building Construction - Village Commercial - 2019

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1709	1.7738	1.4348	2.0900e-003		0.1001	0.1001		0.0922	0.0922	0.0000	186.1737	186.1737	0.0578	0.0000	187.3884
<b>Total</b>	<b>0.1709</b>	<b>1.7738</b>	<b>1.4348</b>	<b>2.0900e-003</b>		<b>0.1001</b>	<b>0.1001</b>		<b>0.0922</b>	<b>0.0922</b>	<b>0.0000</b>	<b>186.1737</b>	<b>186.1737</b>	<b>0.0578</b>	<b>0.0000</b>	<b>187.3884</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0327	0.2678	0.4441	8.7000e-004	0.0243	4.6400e-003	0.0290	6.9700e-003	4.2700e-003	0.0112	0.0000	75.8138	75.8138	6.0000e-004	0.0000	75.8264
Worker	0.0477	0.0611	0.5887	1.9200e-003	0.1493	1.1000e-003	0.1504	0.0397	1.0200e-003	0.0407	0.0000	127.3477	127.3477	5.7300e-003	0.0000	127.4679
<b>Total</b>	<b>0.0804</b>	<b>0.3289</b>	<b>1.0327</b>	<b>2.7900e-003</b>	<b>0.1737</b>	<b>5.7400e-003</b>	<b>0.1794</b>	<b>0.0466</b>	<b>5.2900e-003</b>	<b>0.0519</b>	<b>0.0000</b>	<b>203.1614</b>	<b>203.1614</b>	<b>6.3300e-003</b>	<b>0.0000</b>	<b>203.2943</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0906	1.8471	1.5659	2.0900e-003		0.0634	0.0634		0.0634	0.0634	0.0000	186.1735	186.1735	0.0578	0.0000	187.3882

Total	0.0906	1.8471	1.5659	2.0900e-003		0.0634	0.0634		0.0634	0.0634	0.0000	186.1735	186.1735	0.0578	0.0000	187.3882
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0327	0.2678	0.4441	8.7000e-004	0.0243	4.6400e-003	0.0290	6.9700e-003	4.2700e-003	0.0112	0.0000	75.8138	75.8138	6.0000e-004	0.0000	75.8264
Worker	0.0477	0.0611	0.5887	1.9200e-003	0.1493	1.1000e-003	0.1504	0.0397	1.0200e-003	0.0407	0.0000	127.3477	127.3477	5.7300e-003	0.0000	127.4679
Total	0.0804	0.3289	1.0327	2.7900e-003	0.1737	5.7400e-003	0.1794	0.0466	5.2900e-003	0.0519	0.0000	203.1614	203.1614	6.3300e-003	0.0000	203.2943

### 3.6 Building Construction - Village Commercial - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1913	1.9645	1.7114	2.5200e-003		0.1088	0.1088		0.1002	0.1002	0.0000	218.9885	218.9885	0.0695	0.0000	220.4482
Total	0.1913	1.9645	1.7114	2.5200e-003		0.1088	0.1088		0.1002	0.1002	0.0000	218.9885	218.9885	0.0695	0.0000	220.4482

#### Unmitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0356	0.2714	0.5069	1.0500e-003	0.0292	4.9000e-003	0.0341	8.3800e-003	4.5100e-003	0.0129	0.0000	89.0149	89.0149	6.9000e-004	0.0000	89.0293
Worker	0.0531	0.0676	0.6511	2.3000e-003	0.1795	1.3200e-003	0.1808	0.0477	1.2200e-003	0.0489	0.0000	146.9042	146.9042	6.5000e-003	0.0000	147.0407
<b>Total</b>	<b>0.0887</b>	<b>0.3390</b>	<b>1.1580</b>	<b>3.3500e-003</b>	<b>0.2087</b>	<b>6.2200e-003</b>	<b>0.2149</b>	<b>0.0561</b>	<b>5.7300e-003</b>	<b>0.0618</b>	<b>0.0000</b>	<b>235.9192</b>	<b>235.9192</b>	<b>7.1900e-003</b>	<b>0.0000</b>	<b>236.0700</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1089	2.2199	1.8820	2.5200e-003		0.0762	0.0762		0.0762	0.0762	0.0000	218.9883	218.9883	0.0695	0.0000	220.4479
<b>Total</b>	<b>0.1089</b>	<b>2.2199</b>	<b>1.8820</b>	<b>2.5200e-003</b>		<b>0.0762</b>	<b>0.0762</b>		<b>0.0762</b>	<b>0.0762</b>	<b>0.0000</b>	<b>218.9883</b>	<b>218.9883</b>	<b>0.0695</b>	<b>0.0000</b>	<b>220.4479</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0356	0.2714	0.5069	1.0500e-003	0.0292	4.9000e-003	0.0341	8.3800e-003	4.5100e-003	0.0129	0.0000	89.0149	89.0149	6.9000e-004	0.0000	89.0293
Worker	0.0531	0.0676	0.6511	2.3000e-003	0.1795	1.3200e-003	0.1808	0.0477	1.2200e-003	0.0489	0.0000	146.9042	146.9042	6.5000e-003	0.0000	147.0407
<b>Total</b>	<b>0.0887</b>	<b>0.3390</b>	<b>1.1580</b>	<b>3.3500e-003</b>	<b>0.2087</b>	<b>6.2200e-003</b>	<b>0.2149</b>	<b>0.0561</b>	<b>5.7300e-003</b>	<b>0.0618</b>	<b>0.0000</b>	<b>235.9192</b>	<b>235.9192</b>	<b>7.1900e-003</b>	<b>0.0000</b>	<b>236.0700</b>

### 3.6 Building Construction - Village Commercial - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1655	1.6796	1.6824	2.5100e-003		0.0905	0.0905		0.0834	0.0834	0.0000	218.1180	218.1180	0.0692	0.0000	219.5719
<b>Total</b>	<b>0.1655</b>	<b>1.6796</b>	<b>1.6824</b>	<b>2.5100e-003</b>		<b>0.0905</b>	<b>0.0905</b>		<b>0.0834</b>	<b>0.0834</b>	<b>0.0000</b>	<b>218.1180</b>	<b>218.1180</b>	<b>0.0692</b>	<b>0.0000</b>	<b>219.5719</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0341	0.2192	0.4919	1.0400e-003	0.0291	4.2900e-003	0.0334	8.3400e-003	3.9500e-003	0.0123	0.0000	88.5274	88.5274	6.7000e-004	0.0000	88.5416
Worker	0.0497	0.0628	0.6062	2.2900e-003	0.1788	1.3200e-003	0.1801	0.0475	1.2200e-003	0.0487	0.0000	143.8126	143.8126	6.1700e-003	0.0000	143.9422
<b>Total</b>	<b>0.0838</b>	<b>0.2820</b>	<b>1.0980</b>	<b>3.3300e-003</b>	<b>0.2079</b>	<b>5.6100e-003</b>	<b>0.2135</b>	<b>0.0558</b>	<b>5.1700e-003</b>	<b>0.0610</b>	<b>0.0000</b>	<b>232.3400</b>	<b>232.3400</b>	<b>6.8400e-003</b>	<b>0.0000</b>	<b>232.4838</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	218.1178	218.1178	0.0692	0.0000	219.5716
<b>Total</b>	<b>0.1085</b>	<b>2.2114</b>	<b>1.8748</b>	<b>2.5100e-003</b>		<b>0.0759</b>	<b>0.0759</b>		<b>0.0759</b>	<b>0.0759</b>	<b>0.0000</b>	<b>218.1178</b>	<b>218.1178</b>	<b>0.0692</b>	<b>0.0000</b>	<b>219.5716</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0341	0.2192	0.4919	1.0400e-003	0.0291	4.2900e-003	0.0334	8.3400e-003	3.9500e-003	0.0123	0.0000	88.5274	88.5274	6.7000e-004	0.0000	88.5416
Worker	0.0497	0.0628	0.6062	2.2900e-003	0.1788	1.3200e-003	0.1801	0.0475	1.2200e-003	0.0487	0.0000	143.8126	143.8126	6.1700e-003	0.0000	143.9422
<b>Total</b>	<b>0.0838</b>	<b>0.2820</b>	<b>1.0980</b>	<b>3.3300e-003</b>	<b>0.2079</b>	<b>5.6100e-003</b>	<b>0.2135</b>	<b>0.0558</b>	<b>5.1700e-003</b>	<b>0.0610</b>	<b>0.0000</b>	<b>232.3400</b>	<b>232.3400</b>	<b>6.8400e-003</b>	<b>0.0000</b>	<b>232.4838</b>

### 3.6 Building Construction - Village Commercial - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1477	1.4697	1.6612	2.5000e-003		0.0768	0.0768		0.0708	0.0708	0.0000	217.3169	217.3169	0.0690	0.0000	218.7654

Total	0.1477	1.4697	1.6612	2.5000e-003		0.0768	0.0768		0.0708	0.0708	0.0000	217.3169	217.3169	0.0690	0.0000	218.7654
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0326	0.1928	0.4687	1.0400e-003	0.0290	4.1800e-003	0.0332	8.3100e-003	3.8500e-003	0.0122	0.0000	88.0891	88.0891	6.8000e-004	0.0000	88.1034
Worker	0.0468	0.0587	0.5663	2.2800e-003	0.1781	1.3200e-003	0.1794	0.0473	1.2300e-003	0.0485	0.0000	141.0621	141.0621	5.9000e-003	0.0000	141.1860
Total	0.0794	0.2515	1.0349	3.3200e-003	0.2071	5.5000e-003	0.2126	0.0556	5.0800e-003	0.0607	0.0000	229.1513	229.1513	6.5800e-003	0.0000	229.2894

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1081	2.2030	1.8676	2.5000e-003		0.0756	0.0756		0.0756	0.0756	0.0000	217.3167	217.3167	0.0690	0.0000	218.7652
Total	0.1081	2.2030	1.8676	2.5000e-003		0.0756	0.0756		0.0756	0.0756	0.0000	217.3167	217.3167	0.0690	0.0000	218.7652

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0326	0.1928	0.4687	1.0400e-003	0.0290	4.1800e-003	0.0332	8.3100e-003	3.8500e-003	0.0122	0.0000	88.0891	88.0891	6.8000e-004	0.0000	88.1034
Worker	0.0468	0.0587	0.5663	2.2800e-003	0.1781	1.3200e-003	0.1794	0.0473	1.2300e-003	0.0485	0.0000	141.0621	141.0621	5.9000e-003	0.0000	141.1860
<b>Total</b>	<b>0.0794</b>	<b>0.2515</b>	<b>1.0349</b>	<b>3.3200e-003</b>	<b>0.2071</b>	<b>5.5000e-003</b>	<b>0.2126</b>	<b>0.0556</b>	<b>5.0800e-003</b>	<b>0.0607</b>	<b>0.0000</b>	<b>229.1513</b>	<b>229.1513</b>	<b>6.5800e-003</b>	<b>0.0000</b>	<b>229.2894</b>

### 3.7 Paving - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2217	2.3656	1.9862	3.0500e-003		0.1246	0.1246		0.1147	0.1147	0.0000	273.8317	273.8317	0.0866	0.0000	275.6511
Paving	0.0263					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.2479</b>	<b>2.3656</b>	<b>1.9862</b>	<b>3.0500e-003</b>		<b>0.1246</b>	<b>0.1246</b>		<b>0.1147</b>	<b>0.1147</b>	<b>0.0000</b>	<b>273.8317</b>	<b>273.8317</b>	<b>0.0866</b>	<b>0.0000</b>	<b>275.6511</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4900e-003	5.7500e-003	0.0554	1.8000e-004	0.0141	1.0000e-004	0.0142	3.7300e-003	1.0000e-004	3.8300e-003	0.0000	11.9857	11.9857	5.4000e-004	0.0000	11.9970
<b>Total</b>	<b>4.4900e-003</b>	<b>5.7500e-003</b>	<b>0.0554</b>	<b>1.8000e-004</b>	<b>0.0141</b>	<b>1.0000e-004</b>	<b>0.0142</b>	<b>3.7300e-003</b>	<b>1.0000e-004</b>	<b>3.8300e-003</b>	<b>0.0000</b>	<b>11.9857</b>	<b>11.9857</b>	<b>5.4000e-004</b>	<b>0.0000</b>	<b>11.9970</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1214	2.6460	2.3177	3.0500e-003		0.0839	0.0839		0.0839	0.0839	0.0000	273.8314	273.8314	0.0866	0.0000	275.6508
Paving	0.0263					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.1476</b>	<b>2.6460</b>	<b>2.3177</b>	<b>3.0500e-003</b>		<b>0.0839</b>	<b>0.0839</b>		<b>0.0839</b>	<b>0.0839</b>	<b>0.0000</b>	<b>273.8314</b>	<b>273.8314</b>	<b>0.0866</b>	<b>0.0000</b>	<b>275.6508</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4900e-003	5.7500e-003	0.0554	1.8000e-004	0.0141	1.0000e-004	0.0142	3.7300e-003	1.0000e-004	3.8300e-003	0.0000	11.9857	11.9857	5.4000e-004	0.0000	11.9970
<b>Total</b>	<b>4.4900e-003</b>	<b>5.7500e-003</b>	<b>0.0554</b>	<b>1.8000e-004</b>	<b>0.0141</b>	<b>1.0000e-004</b>	<b>0.0142</b>	<b>3.7300e-003</b>	<b>1.0000e-004</b>	<b>3.8300e-003</b>	<b>0.0000</b>	<b>11.9857</b>	<b>11.9857</b>	<b>5.4000e-004</b>	<b>0.0000</b>	<b>11.9970</b>

## 3.7 Paving - 2020

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2489	2.6215	2.3789	3.6600e-003		0.1376	0.1376		0.1266	0.1266	0.0000	321.9153	321.9153	0.1041	0.0000	324.1017
Paving	0.0315					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.2804</b>	<b>2.6215</b>	<b>2.3789</b>	<b>3.6600e-003</b>		<b>0.1376</b>	<b>0.1376</b>		<b>0.1266</b>	<b>0.1266</b>	<b>0.0000</b>	<b>321.9153</b>	<b>321.9153</b>	<b>0.1041</b>	<b>0.0000</b>	<b>324.1017</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-003	6.3600e-003	0.0613	2.2000e-004	0.0169	1.2000e-004	0.0170	4.4900e-003	1.2000e-004	4.6000e-003	0.0000	13.8263	13.8263	6.1000e-004	0.0000	13.8391
<b>Total</b>	<b>5.0000e-003</b>	<b>6.3600e-003</b>	<b>0.0613</b>	<b>2.2000e-004</b>	<b>0.0169</b>	<b>1.2000e-004</b>	<b>0.0170</b>	<b>4.4900e-003</b>	<b>1.2000e-004</b>	<b>4.6000e-003</b>	<b>0.0000</b>	<b>13.8263</b>	<b>13.8263</b>	<b>6.1000e-004</b>	<b>0.0000</b>	<b>13.8391</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1459	3.1801	2.7855	3.6600e-003		0.1009	0.1009		0.1009	0.1009	0.0000	321.9149	321.9149	0.1041	0.0000	324.1013

Paving	0.0315					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.1774</b>	<b>3.1801</b>	<b>2.7855</b>	<b>3.6600e-003</b>		<b>0.1009</b>	<b>0.1009</b>		<b>0.1009</b>	<b>0.1009</b>	<b>0.0000</b>	<b>321.9149</b>	<b>321.9149</b>	<b>0.1041</b>	<b>0.0000</b>	<b>324.1013</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.0000e-003	6.3600e-003	0.0613	2.2000e-004	0.0169	1.2000e-004	0.0170	4.4900e-003	1.2000e-004	4.6000e-003	0.0000	13.8263	13.8263	6.1000e-004	0.0000	13.8391
<b>Total</b>	<b>5.0000e-003</b>	<b>6.3600e-003</b>	<b>0.0613</b>	<b>2.2000e-004</b>	<b>0.0169</b>	<b>1.2000e-004</b>	<b>0.0170</b>	<b>4.4900e-003</b>	<b>1.2000e-004</b>	<b>4.6000e-003</b>	<b>0.0000</b>	<b>13.8263</b>	<b>13.8263</b>	<b>6.1000e-004</b>	<b>0.0000</b>	<b>13.8391</b>

### 3.7 Paving - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2202	2.2885	2.3533	3.6500e-003		0.1186	0.1186		0.1091	0.1091	0.0000	320.5669	320.5669	0.1037	0.0000	322.7442
Paving	0.0314					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.2516</b>	<b>2.2885</b>	<b>2.3533</b>	<b>3.6500e-003</b>		<b>0.1186</b>	<b>0.1186</b>		<b>0.1091</b>	<b>0.1091</b>	<b>0.0000</b>	<b>320.5669</b>	<b>320.5669</b>	<b>0.1037</b>	<b>0.0000</b>	<b>322.7442</b>

#### Unmitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6800e-003	5.9100e-003	0.0571	2.2000e-004	0.0168	1.2000e-004	0.0170	4.4700e-003	1.2000e-004	4.5800e-003	0.0000	13.5353	13.5353	5.8000e-004	0.0000	13.5475
<b>Total</b>	<b>4.6800e-003</b>	<b>5.9100e-003</b>	<b>0.0571</b>	<b>2.2000e-004</b>	<b>0.0168</b>	<b>1.2000e-004</b>	<b>0.0170</b>	<b>4.4700e-003</b>	<b>1.2000e-004</b>	<b>4.5800e-003</b>	<b>0.0000</b>	<b>13.5353</b>	<b>13.5353</b>	<b>5.8000e-004</b>	<b>0.0000</b>	<b>13.5475</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1453	3.1679	2.7749	3.6500e-003		0.1005	0.1005		0.1005	0.1005	0.0000	320.5665	320.5665	0.1037	0.0000	322.7438
Paving	0.0314					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.1767</b>	<b>3.1679</b>	<b>2.7749</b>	<b>3.6500e-003</b>		<b>0.1005</b>	<b>0.1005</b>		<b>0.1005</b>	<b>0.1005</b>	<b>0.0000</b>	<b>320.5665</b>	<b>320.5665</b>	<b>0.1037</b>	<b>0.0000</b>	<b>322.7438</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.6800e-003	5.9100e-003	0.0571	2.2000e-004	0.0168	1.2000e-004	0.0170	4.4700e-003	1.2000e-004	4.5800e-003	0.0000	13.5353	13.5353	5.8000e-004	0.0000	13.5475
<b>Total</b>	<b>4.6800e-003</b>	<b>5.9100e-003</b>	<b>0.0571</b>	<b>2.2000e-004</b>	<b>0.0168</b>	<b>1.2000e-004</b>	<b>0.0170</b>	<b>4.4700e-003</b>	<b>1.2000e-004</b>	<b>4.5800e-003</b>	<b>0.0000</b>	<b>13.5353</b>	<b>13.5353</b>	<b>5.8000e-004</b>	<b>0.0000</b>	<b>13.5475</b>

### 3.7 Paving - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1934	1.9577	2.3280	3.6400e-003		0.1002	0.1002		0.0922	0.0922	0.0000	319.3413	319.3413	0.1033	0.0000	321.5102
Paving	0.0313					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.2247</b>	<b>1.9577</b>	<b>2.3280</b>	<b>3.6400e-003</b>		<b>0.1002</b>	<b>0.1002</b>		<b>0.0922</b>	<b>0.0922</b>	<b>0.0000</b>	<b>319.3413</b>	<b>319.3413</b>	<b>0.1033</b>	<b>0.0000</b>	<b>321.5102</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-003	5.5200e-003	0.0533	2.1000e-004	0.0168	1.2000e-004	0.0169	4.4500e-003	1.2000e-004	4.5700e-003	0.0000	13.2764	13.2764	5.6000e-004	0.0000	13.2881
<b>Total</b>	<b>4.4000e-003</b>	<b>5.5200e-003</b>	<b>0.0533</b>	<b>2.1000e-004</b>	<b>0.0168</b>	<b>1.2000e-004</b>	<b>0.0169</b>	<b>4.4500e-003</b>	<b>1.2000e-004</b>	<b>4.5700e-003</b>	<b>0.0000</b>	<b>13.2764</b>	<b>13.2764</b>	<b>5.6000e-004</b>	<b>0.0000</b>	<b>13.2881</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1447	3.1558	2.7642	3.6400e-003		0.1001	0.1001		0.1001	0.1001	0.0000	319.3410	319.3410	0.1033	0.0000	321.5099
Paving	0.0313					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<b>Total</b>	<b>0.1760</b>	<b>3.1558</b>	<b>2.7642</b>	<b>3.6400e-003</b>		<b>0.1001</b>	<b>0.1001</b>		<b>0.1001</b>	<b>0.1001</b>	<b>0.0000</b>	<b>319.3410</b>	<b>319.3410</b>	<b>0.1033</b>	<b>0.0000</b>	<b>321.5099</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.4000e-003	5.5200e-003	0.0533	2.1000e-004	0.0168	1.2000e-004	0.0169	4.4500e-003	1.2000e-004	4.5700e-003	0.0000	13.2764	13.2764	5.6000e-004	0.0000	13.2881
<b>Total</b>	<b>4.4000e-003</b>	<b>5.5200e-003</b>	<b>0.0533</b>	<b>2.1000e-004</b>	<b>0.0168</b>	<b>1.2000e-004</b>	<b>0.0169</b>	<b>4.4500e-003</b>	<b>1.2000e-004</b>	<b>4.5700e-003</b>	<b>0.0000</b>	<b>13.2764</b>	<b>13.2764</b>	<b>5.6000e-004</b>	<b>0.0000</b>	<b>13.2881</b>

### 3.8 Building Construction - Office/R&D - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1545	1.6030	1.2965	1.8900e-003		0.0904	0.0904		0.0833	0.0833	0.0000	168.2395	168.2395	0.0523	0.0000	169.3372

Total	0.1545	1.6030	1.2965	1.8900e-003		0.0904	0.0904		0.0833	0.0833	0.0000	168.2395	168.2395	0.0523	0.0000	169.3372
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0852	0.6976	1.1567	2.2800e-003	0.0634	0.0121	0.0755	0.0182	0.0111	0.0293	0.0000	197.4717	197.4717	1.5600e-003	0.0000	197.5045
Worker	0.0888	0.1137	1.0952	3.5600e-003	0.2778	2.0400e-003	0.2799	0.0738	1.8900e-003	0.0757	0.0000	236.9299	236.9299	0.0107	0.0000	237.1536
Total	0.1739	0.8113	2.2519	5.8400e-003	0.3412	0.0141	0.3553	0.0919	0.0130	0.1050	0.0000	434.4016	434.4016	0.0122	0.0000	434.6581

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0819	1.6692	1.4151	1.8900e-003		0.0573	0.0573		0.0573	0.0573	0.0000	168.2393	168.2393	0.0523	0.0000	169.3370
Total	0.0819	1.6692	1.4151	1.8900e-003		0.0573	0.0573		0.0573	0.0573	0.0000	168.2393	168.2393	0.0523	0.0000	169.3370

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0852	0.6976	1.1567	2.2800e-003	0.0634	0.0121	0.0755	0.0182	0.0111	0.0293	0.0000	197.4717	197.4717	1.5600e-003	0.0000	197.5045
Worker	0.0888	0.1137	1.0952	3.5600e-003	0.2778	2.0400e-003	0.2799	0.0738	1.8900e-003	0.0757	0.0000	236.9299	236.9299	0.0107	0.0000	237.1536
<b>Total</b>	<b>0.1739</b>	<b>0.8113</b>	<b>2.2519</b>	<b>5.8400e-003</b>	<b>0.3412</b>	<b>0.0141</b>	<b>0.3553</b>	<b>0.0919</b>	<b>0.0130</b>	<b>0.1050</b>	<b>0.0000</b>	<b>434.4016</b>	<b>434.4016</b>	<b>0.0122</b>	<b>0.0000</b>	<b>434.6581</b>

### 3.8 Building Construction - Office/R&D - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1913	1.9645	1.7114	2.5200e-003		0.1088	0.1088		0.1002	0.1002	0.0000	218.9885	218.9885	0.0695	0.0000	220.4482
<b>Total</b>	<b>0.1913</b>	<b>1.9645</b>	<b>1.7114</b>	<b>2.5200e-003</b>		<b>0.1088</b>	<b>0.1088</b>		<b>0.1002</b>	<b>0.1002</b>	<b>0.0000</b>	<b>218.9885</b>	<b>218.9885</b>	<b>0.0695</b>	<b>0.0000</b>	<b>220.4482</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.1027	0.7823	1.4610	3.0200e-003	0.0843	0.0141	0.0984	0.0241	0.0130	0.0371	0.0000	256.5724	256.5724	1.9800e-003	0.0000	256.6139
Worker	0.1093	0.1392	1.3405	4.7400e-003	0.3695	2.7200e-003	0.3722	0.0981	2.5200e-003	0.1007	0.0000	302.4499	302.4499	0.0134	0.0000	302.7308
<b>Total</b>	<b>0.2120</b>	<b>0.9215</b>	<b>2.8016</b>	<b>7.7600e-003</b>	<b>0.4538</b>	<b>0.0168</b>	<b>0.4706</b>	<b>0.1223</b>	<b>0.0155</b>	<b>0.1378</b>	<b>0.0000</b>	<b>559.0223</b>	<b>559.0223</b>	<b>0.0154</b>	<b>0.0000</b>	<b>559.3447</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1089	2.2199	1.8820	2.5200e-003		0.0762	0.0762		0.0762	0.0762	0.0000	218.9883	218.9883	0.0695	0.0000	220.4479
<b>Total</b>	<b>0.1089</b>	<b>2.2199</b>	<b>1.8820</b>	<b>2.5200e-003</b>		<b>0.0762</b>	<b>0.0762</b>		<b>0.0762</b>	<b>0.0762</b>	<b>0.0000</b>	<b>218.9883</b>	<b>218.9883</b>	<b>0.0695</b>	<b>0.0000</b>	<b>220.4479</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.1027	0.7823	1.4610	3.0200e-003	0.0843	0.0141	0.0984	0.0241	0.0130	0.0371	0.0000	256.5724	256.5724	1.9800e-003	0.0000	256.6139
Worker	0.1093	0.1392	1.3405	4.7400e-003	0.3695	2.7200e-003	0.3722	0.0981	2.5200e-003	0.1007	0.0000	302.4499	302.4499	0.0134	0.0000	302.7308
<b>Total</b>	<b>0.2120</b>	<b>0.9215</b>	<b>2.8016</b>	<b>7.7600e-003</b>	<b>0.4538</b>	<b>0.0168</b>	<b>0.4706</b>	<b>0.1223</b>	<b>0.0155</b>	<b>0.1378</b>	<b>0.0000</b>	<b>559.0223</b>	<b>559.0223</b>	<b>0.0154</b>	<b>0.0000</b>	<b>559.3447</b>

## 3.8 Building Construction - Office/R&D - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1655	1.6796	1.6824	2.5100e-003		0.0905	0.0905		0.0834	0.0834	0.0000	218.1180	218.1180	0.0692	0.0000	219.5719
<b>Total</b>	<b>0.1655</b>	<b>1.6796</b>	<b>1.6824</b>	<b>2.5100e-003</b>		<b>0.0905</b>	<b>0.0905</b>		<b>0.0834</b>	<b>0.0834</b>	<b>0.0000</b>	<b>218.1180</b>	<b>218.1180</b>	<b>0.0692</b>	<b>0.0000</b>	<b>219.5719</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0981	0.6319	1.4177	3.0100e-003	0.0840	0.0124	0.0963	0.0241	0.0114	0.0354	0.0000	255.1673	255.1673	1.9400e-003	0.0000	255.2080
Worker	0.1024	0.1293	1.2480	4.7200e-003	0.3681	2.7200e-003	0.3708	0.0978	2.5200e-003	0.1003	0.0000	296.0848	296.0848	0.0127	0.0000	296.3517
<b>Total</b>	<b>0.2005</b>	<b>0.7612</b>	<b>2.6656</b>	<b>7.7300e-003</b>	<b>0.4520</b>	<b>0.0151</b>	<b>0.4671</b>	<b>0.1218</b>	<b>0.0139</b>	<b>0.1357</b>	<b>0.0000</b>	<b>551.2521</b>	<b>551.2521</b>	<b>0.0147</b>	<b>0.0000</b>	<b>551.5597</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	218.1178	218.1178	0.0692	0.0000	219.5716

Total	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	218.1178	218.1178	0.0692	0.0000	219.5716
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0981	0.6319	1.4177	3.0100e-003	0.0840	0.0124	0.0963	0.0241	0.0114	0.0354	0.0000	255.1673	255.1673	1.9400e-003	0.0000	255.2080
Worker	0.1024	0.1293	1.2480	4.7200e-003	0.3681	2.7200e-003	0.3708	0.0978	2.5200e-003	0.1003	0.0000	296.0848	296.0848	0.0127	0.0000	296.3517
Total	0.2005	0.7612	2.6656	7.7300e-003	0.4520	0.0151	0.4671	0.1218	0.0139	0.1357	0.0000	551.2521	551.2521	0.0147	0.0000	551.5597

### 3.8 Building Construction - Office/R&D - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1477	1.4697	1.6612	2.5000e-003		0.0768	0.0768		0.0708	0.0708	0.0000	217.3169	217.3169	0.0690	0.0000	218.7654
Total	0.1477	1.4697	1.6612	2.5000e-003		0.0768	0.0768		0.0708	0.0708	0.0000	217.3169	217.3169	0.0690	0.0000	218.7654

#### Unmitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0939	0.5557	1.3509	2.9900e-003	0.0836	0.0121	0.0957	0.0240	0.0111	0.0351	0.0000	253.9040	253.9040	1.9600e-003	0.0000	253.9451
Worker	0.0964	0.1208	1.1658	4.7000e-003	0.3667	2.7200e-003	0.3694	0.0974	2.5200e-003	0.0999	0.0000	290.4220	290.4220	0.0121	0.0000	290.6770
<b>Total</b>	<b>0.1902</b>	<b>0.6765</b>	<b>2.5167</b>	<b>7.6900e-003</b>	<b>0.4503</b>	<b>0.0148</b>	<b>0.4651</b>	<b>0.1214</b>	<b>0.0136</b>	<b>0.1350</b>	<b>0.0000</b>	<b>544.3260</b>	<b>544.3260</b>	<b>0.0141</b>	<b>0.0000</b>	<b>544.6221</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1081	2.2030	1.8676	2.5000e-003		0.0756	0.0756		0.0756	0.0756	0.0000	217.3167	217.3167	0.0690	0.0000	218.7652
<b>Total</b>	<b>0.1081</b>	<b>2.2030</b>	<b>1.8676</b>	<b>2.5000e-003</b>		<b>0.0756</b>	<b>0.0756</b>		<b>0.0756</b>	<b>0.0756</b>	<b>0.0000</b>	<b>217.3167</b>	<b>217.3167</b>	<b>0.0690</b>	<b>0.0000</b>	<b>218.7652</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0939	0.5557	1.3509	2.9900e-003	0.0836	0.0121	0.0957	0.0240	0.0111	0.0351	0.0000	253.9040	253.9040	1.9600e-003	0.0000	253.9451
Worker	0.0964	0.1208	1.1658	4.7000e-003	0.3667	2.7200e-003	0.3694	0.0974	2.5200e-003	0.0999	0.0000	290.4220	290.4220	0.0121	0.0000	290.6770
<b>Total</b>	<b>0.1902</b>	<b>0.6765</b>	<b>2.5167</b>	<b>7.6900e-003</b>	<b>0.4503</b>	<b>0.0148</b>	<b>0.4651</b>	<b>0.1214</b>	<b>0.0136</b>	<b>0.1350</b>	<b>0.0000</b>	<b>544.3260</b>	<b>544.3260</b>	<b>0.0141</b>	<b>0.0000</b>	<b>544.6221</b>

### 3.9 Architectural Coating - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	9.5065					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1865	1.2848	1.2889	2.0800e-003		0.0901	0.0901		0.0901	0.0901	0.0000	178.7278	178.7278	0.0151	0.0000	179.0448
<b>Total</b>	<b>9.6930</b>	<b>1.2848</b>	<b>1.2889</b>	<b>2.0800e-003</b>		<b>0.0901</b>	<b>0.0901</b>		<b>0.0901</b>	<b>0.0901</b>	<b>0.0000</b>	<b>178.7278</b>	<b>178.7278</b>	<b>0.0151</b>	<b>0.0000</b>	<b>179.0448</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1023	0.1310	1.2620	4.1100e-003	0.3201	2.3500e-003	0.3225	0.0850	2.1800e-003	0.0872	0.0000	273.0106	273.0106	0.0123	0.0000	273.2684
<b>Total</b>	<b>0.1023</b>	<b>0.1310</b>	<b>1.2620</b>	<b>4.1100e-003</b>	<b>0.3201</b>	<b>2.3500e-003</b>	<b>0.3225</b>	<b>0.0850</b>	<b>2.1800e-003</b>	<b>0.0872</b>	<b>0.0000</b>	<b>273.0106</b>	<b>273.0106</b>	<b>0.0123</b>	<b>0.0000</b>	<b>273.2684</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	9.5065					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0797	1.6467	1.2827	2.0800e-003		0.0666	0.0666		0.0666	0.0666	0.0000	178.7276	178.7276	0.0151	0.0000	179.0446
<b>Total</b>	<b>9.5862</b>	<b>1.6467</b>	<b>1.2827</b>	<b>2.0800e-003</b>		<b>0.0666</b>	<b>0.0666</b>		<b>0.0666</b>	<b>0.0666</b>	<b>0.0000</b>	<b>178.7276</b>	<b>178.7276</b>	<b>0.0151</b>	<b>0.0000</b>	<b>179.0446</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1023	0.1310	1.2620	4.1100e-003	0.3201	2.3500e-003	0.3225	0.0850	2.1800e-003	0.0872	0.0000	273.0106	273.0106	0.0123	0.0000	273.2684
<b>Total</b>	<b>0.1023</b>	<b>0.1310</b>	<b>1.2620</b>	<b>4.1100e-003</b>	<b>0.3201</b>	<b>2.3500e-003</b>	<b>0.3225</b>	<b>0.0850</b>	<b>2.1800e-003</b>	<b>0.0872</b>	<b>0.0000</b>	<b>273.0106</b>	<b>273.0106</b>	<b>0.0123</b>	<b>0.0000</b>	<b>273.2684</b>

### 3.9 Architectural Coating - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	14.2326					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.2538	1.7647	1.9193	3.1100e-003		0.1163	0.1163		0.1163	0.1163	0.0000	267.5810	267.5810	0.0207	0.0000	268.0161
<b>Total</b>	<b>14.4864</b>	<b>1.7647</b>	<b>1.9193</b>	<b>3.1100e-003</b>		<b>0.1163</b>	<b>0.1163</b>		<b>0.1163</b>	<b>0.1163</b>	<b>0.0000</b>	<b>267.5810</b>	<b>267.5810</b>	<b>0.0207</b>	<b>0.0000</b>	<b>268.0161</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1418	0.1805	1.7388	6.1500e-003	0.4793	3.5200e-003	0.4828	0.1273	3.2700e-003	0.1306	0.0000	392.3207	392.3207	0.0174	0.0000	392.6851
<b>Total</b>	<b>0.1418</b>	<b>0.1805</b>	<b>1.7388</b>	<b>6.1500e-003</b>	<b>0.4793</b>	<b>3.5200e-003</b>	<b>0.4828</b>	<b>0.1273</b>	<b>3.2700e-003</b>	<b>0.1306</b>	<b>0.0000</b>	<b>392.3207</b>	<b>392.3207</b>	<b>0.0174</b>	<b>0.0000</b>	<b>392.6851</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	14.2326					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1194	2.4653	1.9204	3.1100e-003		0.0997	0.0997		0.0997	0.0997	0.0000	267.5807	267.5807	0.0207	0.0000	268.0157
<b>Total</b>	<b>14.3520</b>	<b>2.4653</b>	<b>1.9204</b>	<b>3.1100e-003</b>		<b>0.0997</b>	<b>0.0997</b>		<b>0.0997</b>	<b>0.0997</b>	<b>0.0000</b>	<b>267.5807</b>	<b>267.5807</b>	<b>0.0207</b>	<b>0.0000</b>	<b>268.0157</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1418	0.1805	1.7388	6.1500e-003	0.4793	3.5200e-003	0.4828	0.1273	3.2700e-003	0.1306	0.0000	392.3207	392.3207	0.0174	0.0000	392.6851
<b>Total</b>	<b>0.1418</b>	<b>0.1805</b>	<b>1.7388</b>	<b>6.1500e-003</b>	<b>0.4793</b>	<b>3.5200e-003</b>	<b>0.4828</b>	<b>0.1273</b>	<b>3.2700e-003</b>	<b>0.1306</b>	<b>0.0000</b>	<b>392.3207</b>	<b>392.3207</b>	<b>0.0174</b>	<b>0.0000</b>	<b>392.6851</b>

### 3.9 Architectural Coating - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	14.1783					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2285	1.5940	1.8975	3.1000e-003		0.0982	0.0982		0.0982	0.0982	0.0000	266.5597	266.5597	0.0183	0.0000	266.9438
<b>Total</b>	<b>14.4068</b>	<b>1.5940</b>	<b>1.8975</b>	<b>3.1000e-003</b>		<b>0.0982</b>	<b>0.0982</b>		<b>0.0982</b>	<b>0.0982</b>	<b>0.0000</b>	<b>266.5597</b>	<b>266.5597</b>	<b>0.0183</b>	<b>0.0000</b>	<b>266.9438</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1328	0.1678	1.6188	6.1200e-003	0.4774	3.5200e-003	0.4810	0.1268	3.2700e-003	0.1301	0.0000	384.0642	384.0642	0.0165	0.0000	384.4104
<b>Total</b>	<b>0.1328</b>	<b>0.1678</b>	<b>1.6188</b>	<b>6.1200e-003</b>	<b>0.4774</b>	<b>3.5200e-003</b>	<b>0.4810</b>	<b>0.1268</b>	<b>3.2700e-003</b>	<b>0.1301</b>	<b>0.0000</b>	<b>384.0642</b>	<b>384.0642</b>	<b>0.0165</b>	<b>0.0000</b>	<b>384.4104</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	14.1783					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.1189	2.4559	1.9130	3.1000e-003		0.0993	0.0993		0.0993	0.0993	0.0000	266.5594	266.5594	0.0183	0.0000	266.9435
<b>Total</b>	<b>14.2972</b>	<b>2.4559</b>	<b>1.9130</b>	<b>3.1000e-003</b>		<b>0.0993</b>	<b>0.0993</b>		<b>0.0993</b>	<b>0.0993</b>	<b>0.0000</b>	<b>266.5594</b>	<b>266.5594</b>	<b>0.0183</b>	<b>0.0000</b>	<b>266.9435</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1328	0.1678	1.6188	6.1200e-003	0.4774	3.5200e-003	0.4810	0.1268	3.2700e-003	0.1301	0.0000	384.0642	384.0642	0.0165	0.0000	384.4104
<b>Total</b>	<b>0.1328</b>	<b>0.1678</b>	<b>1.6188</b>	<b>6.1200e-003</b>	<b>0.4774</b>	<b>3.5200e-003</b>	<b>0.4810</b>	<b>0.1268</b>	<b>3.2700e-003</b>	<b>0.1301</b>	<b>0.0000</b>	<b>384.0642</b>	<b>384.0642</b>	<b>0.0165</b>	<b>0.0000</b>	<b>384.4104</b>

### 3.9 Architectural Coating - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	14.1240					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.2127	1.4648	1.8861	3.0900e-003		0.0850	0.0850		0.0850	0.0850	0.0000	265.5384	265.5384	0.0173	0.0000	265.9014
<b>Total</b>	<b>14.3367</b>	<b>1.4648</b>	<b>1.8861</b>	<b>3.0900e-003</b>		<b>0.0850</b>	<b>0.0850</b>		<b>0.0850</b>	<b>0.0850</b>	<b>0.0000</b>	<b>265.5384</b>	<b>265.5384</b>	<b>0.0173</b>	<b>0.0000</b>	<b>265.9014</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1250	0.1567	1.5122	6.1000e-003	0.4756	3.5300e-003	0.4791	0.1263	3.2800e-003	0.1296	0.0000	376.7189	376.7189	0.0158	0.0000	377.0496
<b>Total</b>	<b>0.1250</b>	<b>0.1567</b>	<b>1.5122</b>	<b>6.1000e-003</b>	<b>0.4756</b>	<b>3.5300e-003</b>	<b>0.4791</b>	<b>0.1263</b>	<b>3.2800e-003</b>	<b>0.1296</b>	<b>0.0000</b>	<b>376.7189</b>	<b>376.7189</b>	<b>0.0158</b>	<b>0.0000</b>	<b>377.0496</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	14.1240					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Off-Road	0.1185	2.4465	1.9057	3.0900e-003		0.0989	0.0989		0.0989	0.0989	0.0000	265.5381	265.5381	0.0173	0.0000	265.9011
<b>Total</b>	<b>14.2424</b>	<b>2.4465</b>	<b>1.9057</b>	<b>3.0900e-003</b>		<b>0.0989</b>	<b>0.0989</b>		<b>0.0989</b>	<b>0.0989</b>	<b>0.0000</b>	<b>265.5381</b>	<b>265.5381</b>	<b>0.0173</b>	<b>0.0000</b>	<b>265.9011</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.1250	0.1567	1.5122	6.1000e-003	0.4756	3.5300e-003	0.4791	0.1263	3.2800e-003	0.1296	0.0000	376.7189	376.7189	0.0158	0.0000	377.0496
<b>Total</b>	<b>0.1250</b>	<b>0.1567</b>	<b>1.5122</b>	<b>6.1000e-003</b>	<b>0.4756</b>	<b>3.5300e-003</b>	<b>0.4791</b>	<b>0.1263</b>	<b>3.2800e-003</b>	<b>0.1296</b>	<b>0.0000</b>	<b>376.7189</b>	<b>376.7189</b>	<b>0.0158</b>	<b>0.0000</b>	<b>377.0496</b>

### 3.10 Building Construction - Freeway Commercial - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0855	0.8869	0.7174	1.0500e-003		0.0500	0.0500		0.0461	0.0461	0.0000	93.0869	93.0869	0.0289	0.0000	93.6942
<b>Total</b>	<b>0.0855</b>	<b>0.8869</b>	<b>0.7174</b>	<b>1.0500e-003</b>		<b>0.0500</b>	<b>0.0500</b>		<b>0.0461</b>	<b>0.0461</b>	<b>0.0000</b>	<b>93.0869</b>	<b>93.0869</b>	<b>0.0289</b>	<b>0.0000</b>	<b>93.6942</b>

#### Unmitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0135	0.1103	0.1829	3.6000e-004	0.0100	1.9100e-003	0.0119	2.8700e-003	1.7600e-003	4.6300e-003	0.0000	31.2174	31.2174	2.5000e-004	0.0000	31.2226
Worker	0.0239	0.0306	0.2943	9.6000e-004	0.0747	5.5000e-004	0.0752	0.0198	5.1000e-004	0.0203	0.0000	63.6738	63.6738	2.8600e-003	0.0000	63.7340
<b>Total</b>	<b>0.0373</b>	<b>0.1408</b>	<b>0.4772</b>	<b>1.3200e-003</b>	<b>0.0847</b>	<b>2.4600e-003</b>	<b>0.0871</b>	<b>0.0227</b>	<b>2.2700e-003</b>	<b>0.0250</b>	<b>0.0000</b>	<b>94.8913</b>	<b>94.8913</b>	<b>3.1100e-003</b>	<b>0.0000</b>	<b>94.9566</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0453	0.9235	0.7830	1.0500e-003		0.0317	0.0317		0.0317	0.0317	0.0000	93.0867	93.0867	0.0289	0.0000	93.6941
<b>Total</b>	<b>0.0453</b>	<b>0.9235</b>	<b>0.7830</b>	<b>1.0500e-003</b>		<b>0.0317</b>	<b>0.0317</b>		<b>0.0317</b>	<b>0.0317</b>	<b>0.0000</b>	<b>93.0867</b>	<b>93.0867</b>	<b>0.0289</b>	<b>0.0000</b>	<b>93.6941</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0135	0.1103	0.1829	3.6000e-004	0.0100	1.9100e-003	0.0119	2.8700e-003	1.7600e-003	4.6300e-003	0.0000	31.2174	31.2174	2.5000e-004	0.0000	31.2226
Worker	0.0239	0.0306	0.2943	9.6000e-004	0.0747	5.5000e-004	0.0752	0.0198	5.1000e-004	0.0203	0.0000	63.6738	63.6738	2.8600e-003	0.0000	63.7340
<b>Total</b>	<b>0.0373</b>	<b>0.1408</b>	<b>0.4772</b>	<b>1.3200e-003</b>	<b>0.0847</b>	<b>2.4600e-003</b>	<b>0.0871</b>	<b>0.0227</b>	<b>2.2700e-003</b>	<b>0.0250</b>	<b>0.0000</b>	<b>94.8913</b>	<b>94.8913</b>	<b>3.1100e-003</b>	<b>0.0000</b>	<b>94.9566</b>

### 3.10 Building Construction - Freeway Commercial - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1913	1.9645	1.7114	2.5200e-003		0.1088	0.1088		0.1002	0.1002	0.0000	218.9885	218.9885	0.0695	0.0000	220.4482
<b>Total</b>	<b>0.1913</b>	<b>1.9645</b>	<b>1.7114</b>	<b>2.5200e-003</b>		<b>0.1088</b>	<b>0.1088</b>		<b>0.1002</b>	<b>0.1002</b>	<b>0.0000</b>	<b>218.9885</b>	<b>218.9885</b>	<b>0.0695</b>	<b>0.0000</b>	<b>220.4482</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0294	0.2235	0.4174	8.6000e-004	0.0241	4.0300e-003	0.0281	6.9000e-003	3.7100e-003	0.0106	0.0000	73.3064	73.3064	5.6000e-004	0.0000	73.3183
Worker	0.0531	0.0676	0.6511	2.3000e-003	0.1795	1.3200e-003	0.1808	0.0477	1.2200e-003	0.0489	0.0000	146.9042	146.9042	6.5000e-003	0.0000	147.0407
<b>Total</b>	<b>0.0824</b>	<b>0.2911</b>	<b>1.0686</b>	<b>3.1600e-003</b>	<b>0.2035</b>	<b>5.3500e-003</b>	<b>0.2089</b>	<b>0.0546</b>	<b>4.9300e-003</b>	<b>0.0595</b>	<b>0.0000</b>	<b>220.2106</b>	<b>220.2106</b>	<b>7.0600e-003</b>	<b>0.0000</b>	<b>220.3589</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1089	2.2199	1.8820	2.5200e-003		0.0762	0.0762		0.0762	0.0762	0.0000	218.9883	218.9883	0.0695	0.0000	220.4479
<b>Total</b>	<b>0.1089</b>	<b>2.2199</b>	<b>1.8820</b>	<b>2.5200e-003</b>		<b>0.0762</b>	<b>0.0762</b>		<b>0.0762</b>	<b>0.0762</b>	<b>0.0000</b>	<b>218.9883</b>	<b>218.9883</b>	<b>0.0695</b>	<b>0.0000</b>	<b>220.4479</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0294	0.2235	0.4174	8.6000e-004	0.0241	4.0300e-003	0.0281	6.9000e-003	3.7100e-003	0.0106	0.0000	73.3064	73.3064	5.6000e-004	0.0000	73.3183
Worker	0.0531	0.0676	0.6511	2.3000e-003	0.1795	1.3200e-003	0.1808	0.0477	1.2200e-003	0.0489	0.0000	146.9042	146.9042	6.5000e-003	0.0000	147.0407
<b>Total</b>	<b>0.0824</b>	<b>0.2911</b>	<b>1.0686</b>	<b>3.1600e-003</b>	<b>0.2035</b>	<b>5.3500e-003</b>	<b>0.2089</b>	<b>0.0546</b>	<b>4.9300e-003</b>	<b>0.0595</b>	<b>0.0000</b>	<b>220.2106</b>	<b>220.2106</b>	<b>7.0600e-003</b>	<b>0.0000</b>	<b>220.3589</b>

### 3.10 Building Construction - Freeway Commercial - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1655	1.6796	1.6824	2.5100e-003		0.0905	0.0905		0.0834	0.0834	0.0000	218.1180	218.1180	0.0692	0.0000	219.5719

Total	0.1655	1.6796	1.6824	2.5100e-003		0.0905	0.0905		0.0834	0.0834	0.0000	218.1180	218.1180	0.0692	0.0000	219.5719
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0280	0.1805	0.4051	8.6000e-004	0.0240	3.5300e-003	0.0275	6.8700e-003	3.2500e-003	0.0101	0.0000	72.9049	72.9049	5.5000e-004	0.0000	72.9166
Worker	0.0497	0.0628	0.6062	2.2900e-003	0.1788	1.3200e-003	0.1801	0.0475	1.2200e-003	0.0487	0.0000	143.8126	143.8126	6.1700e-003	0.0000	143.9422
Total	0.0778	0.2434	1.0112	3.1500e-003	0.2028	4.8500e-003	0.2076	0.0544	4.4700e-003	0.0588	0.0000	216.7175	216.7175	6.7200e-003	0.0000	216.8588

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	218.1178	218.1178	0.0692	0.0000	219.5716
Total	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	218.1178	218.1178	0.0692	0.0000	219.5716

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0280	0.1805	0.4051	8.6000e-004	0.0240	3.5300e-003	0.0275	6.8700e-003	3.2500e-003	0.0101	0.0000	72.9049	72.9049	5.5000e-004	0.0000	72.9166
Worker	0.0497	0.0628	0.6062	2.2900e-003	0.1788	1.3200e-003	0.1801	0.0475	1.2200e-003	0.0487	0.0000	143.8126	143.8126	6.1700e-003	0.0000	143.9422
<b>Total</b>	<b>0.0778</b>	<b>0.2434</b>	<b>1.0112</b>	<b>3.1500e-003</b>	<b>0.2028</b>	<b>4.8500e-003</b>	<b>0.2076</b>	<b>0.0544</b>	<b>4.4700e-003</b>	<b>0.0588</b>	<b>0.0000</b>	<b>216.7175</b>	<b>216.7175</b>	<b>6.7200e-003</b>	<b>0.0000</b>	<b>216.8588</b>

### 3.10 Building Construction - Freeway Commercial - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1477	1.4697	1.6612	2.5000e-003		0.0768	0.0768		0.0708	0.0708	0.0000	217.3169	217.3169	0.0690	0.0000	218.7654
<b>Total</b>	<b>0.1477</b>	<b>1.4697</b>	<b>1.6612</b>	<b>2.5000e-003</b>		<b>0.0768</b>	<b>0.0768</b>		<b>0.0708</b>	<b>0.0708</b>	<b>0.0000</b>	<b>217.3169</b>	<b>217.3169</b>	<b>0.0690</b>	<b>0.0000</b>	<b>218.7654</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0268	0.1588	0.3860	8.5000e-004	0.0239	3.4500e-003	0.0273	6.8500e-003	3.1700e-003	0.0100	0.0000	72.5440	72.5440	5.6000e-004	0.0000	72.5557
Worker	0.0468	0.0587	0.5663	2.2800e-003	0.1781	1.3200e-003	0.1794	0.0473	1.2300e-003	0.0485	0.0000	141.0621	141.0621	5.9000e-003	0.0000	141.1860
<b>Total</b>	<b>0.0736</b>	<b>0.2175</b>	<b>0.9522</b>	<b>3.1300e-003</b>	<b>0.2020</b>	<b>4.7700e-003</b>	<b>0.2068</b>	<b>0.0542</b>	<b>4.4000e-003</b>	<b>0.0586</b>	<b>0.0000</b>	<b>213.6061</b>	<b>213.6061</b>	<b>6.4600e-003</b>	<b>0.0000</b>	<b>213.7417</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1081	2.2030	1.8676	2.5000e-003		0.0756	0.0756		0.0756	0.0756	0.0000	217.3167	217.3167	0.0690	0.0000	218.7652
<b>Total</b>	<b>0.1081</b>	<b>2.2030</b>	<b>1.8676</b>	<b>2.5000e-003</b>		<b>0.0756</b>	<b>0.0756</b>		<b>0.0756</b>	<b>0.0756</b>	<b>0.0000</b>	<b>217.3167</b>	<b>217.3167</b>	<b>0.0690</b>	<b>0.0000</b>	<b>218.7652</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0268	0.1588	0.3860	8.5000e-004	0.0239	3.4500e-003	0.0273	6.8500e-003	3.1700e-003	0.0100	0.0000	72.5440	72.5440	5.6000e-004	0.0000	72.5557
Worker	0.0468	0.0587	0.5663	2.2800e-003	0.1781	1.3200e-003	0.1794	0.0473	1.2300e-003	0.0485	0.0000	141.0621	141.0621	5.9000e-003	0.0000	141.1860
<b>Total</b>	<b>0.0736</b>	<b>0.2175</b>	<b>0.9522</b>	<b>3.1300e-003</b>	<b>0.2020</b>	<b>4.7700e-003</b>	<b>0.2068</b>	<b>0.0542</b>	<b>4.4000e-003</b>	<b>0.0586</b>	<b>0.0000</b>	<b>213.6061</b>	<b>213.6061</b>	<b>6.4600e-003</b>	<b>0.0000</b>	<b>213.7417</b>

## 3.11 Building Construction - Elem. & Middle School - 2020

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1124	1.1547	1.0059	1.4800e-003		0.0639	0.0639		0.0589	0.0589	0.0000	128.7185	128.7185	0.0409	0.0000	129.5764
<b>Total</b>	<b>0.1124</b>	<b>1.1547</b>	<b>1.0059</b>	<b>1.4800e-003</b>		<b>0.0639</b>	<b>0.0639</b>		<b>0.0589</b>	<b>0.0589</b>	<b>0.0000</b>	<b>128.7185</b>	<b>128.7185</b>	<b>0.0409</b>	<b>0.0000</b>	<b>129.5764</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0185	0.1408	0.2629	5.4000e-004	0.0152	2.5400e-003	0.0177	4.3400e-003	2.3400e-003	6.6800e-003	0.0000	46.1662	46.1662	3.6000e-004	0.0000	46.1737
Worker	0.0441	0.0561	0.5403	1.9100e-003	0.1489	1.0900e-003	0.1500	0.0396	1.0100e-003	0.0406	0.0000	121.9035	121.9035	5.3900e-003	0.0000	122.0167
<b>Total</b>	<b>0.0625</b>	<b>0.1969</b>	<b>0.8032</b>	<b>2.4500e-003</b>	<b>0.1641</b>	<b>3.6300e-003</b>	<b>0.1677</b>	<b>0.0439</b>	<b>3.3500e-003</b>	<b>0.0473</b>	<b>0.0000</b>	<b>168.0697</b>	<b>168.0697</b>	<b>5.7500e-003</b>	<b>0.0000</b>	<b>168.1904</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0640	1.3048	1.1062	1.4800e-003		0.0448	0.0448		0.0448	0.0448	0.0000	128.7183	128.7183	0.0409	0.0000	129.5763

Total	0.0640	1.3048	1.1062	1.4800e-003		0.0448	0.0448		0.0448	0.0448	0.0000	128.7183	128.7183	0.0409	0.0000	129.5763
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0185	0.1408	0.2629	5.4000e-004	0.0152	2.5400e-003	0.0177	4.3400e-003	2.3400e-003	6.6800e-003	0.0000	46.1662	46.1662	3.6000e-004	0.0000	46.1737
Worker	0.0441	0.0561	0.5403	1.9100e-003	0.1489	1.0900e-003	0.1500	0.0396	1.0100e-003	0.0406	0.0000	121.9035	121.9035	5.3900e-003	0.0000	122.0167
Total	0.0625	0.1969	0.8032	2.4500e-003	0.1641	3.6300e-003	0.1677	0.0439	3.3500e-003	0.0473	0.0000	168.0697	168.0697	5.7500e-003	0.0000	168.1904

### 3.11 Building Construction - Elem. & Middle School - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1655	1.6796	1.6824	2.5100e-003		0.0905	0.0905		0.0834	0.0834	0.0000	218.1180	218.1180	0.0692	0.0000	219.5719
Total	0.1655	1.6796	1.6824	2.5100e-003		0.0905	0.0905		0.0834	0.0834	0.0000	218.1180	218.1180	0.0692	0.0000	219.5719

#### Unmitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0300	0.1934	0.4340	9.2000e-004	0.0257	3.7900e-003	0.0295	7.3600e-003	3.4800e-003	0.0109	0.0000	78.1124	78.1124	5.9000e-004	0.0000	78.1249
Worker	0.0702	0.0887	0.8557	3.2400e-003	0.2524	1.8600e-003	0.2543	0.0670	1.7300e-003	0.0688	0.0000	203.0296	203.0296	8.7100e-003	0.0000	203.2126
<b>Total</b>	<b>0.1003</b>	<b>0.2821</b>	<b>1.2897</b>	<b>4.1600e-003</b>	<b>0.2781</b>	<b>5.6500e-003</b>	<b>0.2837</b>	<b>0.0744</b>	<b>5.2100e-003</b>	<b>0.0796</b>	<b>0.0000</b>	<b>281.1420</b>	<b>281.1420</b>	<b>9.3000e-003</b>	<b>0.0000</b>	<b>281.3375</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	218.1178	218.1178	0.0692	0.0000	219.5716
<b>Total</b>	<b>0.1085</b>	<b>2.2114</b>	<b>1.8748</b>	<b>2.5100e-003</b>		<b>0.0759</b>	<b>0.0759</b>		<b>0.0759</b>	<b>0.0759</b>	<b>0.0000</b>	<b>218.1178</b>	<b>218.1178</b>	<b>0.0692</b>	<b>0.0000</b>	<b>219.5716</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0300	0.1934	0.4340	9.2000e-004	0.0257	3.7900e-003	0.0295	7.3600e-003	3.4800e-003	0.0109	0.0000	78.1124	78.1124	5.9000e-004	0.0000	78.1249
Worker	0.0702	0.0887	0.8557	3.2400e-003	0.2524	1.8600e-003	0.2543	0.0670	1.7300e-003	0.0688	0.0000	203.0296	203.0296	8.7100e-003	0.0000	203.2126
<b>Total</b>	<b>0.1003</b>	<b>0.2821</b>	<b>1.2897</b>	<b>4.1600e-003</b>	<b>0.2781</b>	<b>5.6500e-003</b>	<b>0.2837</b>	<b>0.0744</b>	<b>5.2100e-003</b>	<b>0.0796</b>	<b>0.0000</b>	<b>281.1420</b>	<b>281.1420</b>	<b>9.3000e-003</b>	<b>0.0000</b>	<b>281.3375</b>

### 3.12 Building Construction - High School - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1124	1.1547	1.0059	1.4800e-003		0.0639	0.0639		0.0589	0.0589	0.0000	128.7185	128.7185	0.0409	0.0000	129.5764
<b>Total</b>	<b>0.1124</b>	<b>1.1547</b>	<b>1.0059</b>	<b>1.4800e-003</b>		<b>0.0639</b>	<b>0.0639</b>		<b>0.0589</b>	<b>0.0589</b>	<b>0.0000</b>	<b>128.7185</b>	<b>128.7185</b>	<b>0.0409</b>	<b>0.0000</b>	<b>129.5764</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0210	0.1595	0.2979	6.2000e-004	0.0172	2.8800e-003	0.0201	4.9200e-003	2.6500e-003	7.5700e-003	0.0000	52.3217	52.3217	4.0000e-004	0.0000	52.3302
Worker	0.0734	0.0935	0.9005	3.1800e-003	0.2482	1.8200e-003	0.2500	0.0659	1.6900e-003	0.0676	0.0000	203.1725	203.1725	8.9800e-003	0.0000	203.3611
<b>Total</b>	<b>0.0944</b>	<b>0.2530</b>	<b>1.1984</b>	<b>3.8000e-003</b>	<b>0.2654</b>	<b>4.7000e-003</b>	<b>0.2701</b>	<b>0.0709</b>	<b>4.3400e-003</b>	<b>0.0752</b>	<b>0.0000</b>	<b>255.4942</b>	<b>255.4942</b>	<b>9.3800e-003</b>	<b>0.0000</b>	<b>255.6913</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0640	1.3048	1.1062	1.4800e-003		0.0448	0.0448		0.0448	0.0448	0.0000	128.7183	128.7183	0.0409	0.0000	129.5763
<b>Total</b>	<b>0.0640</b>	<b>1.3048</b>	<b>1.1062</b>	<b>1.4800e-003</b>		<b>0.0448</b>	<b>0.0448</b>		<b>0.0448</b>	<b>0.0448</b>	<b>0.0000</b>	<b>128.7183</b>	<b>128.7183</b>	<b>0.0409</b>	<b>0.0000</b>	<b>129.5763</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0210	0.1595	0.2979	6.2000e-004	0.0172	2.8800e-003	0.0201	4.9200e-003	2.6500e-003	7.5700e-003	0.0000	52.3217	52.3217	4.0000e-004	0.0000	52.3302
Worker	0.0734	0.0935	0.9005	3.1800e-003	0.2482	1.8200e-003	0.2500	0.0659	1.6900e-003	0.0676	0.0000	203.1725	203.1725	8.9800e-003	0.0000	203.3611
<b>Total</b>	<b>0.0944</b>	<b>0.2530</b>	<b>1.1984</b>	<b>3.8000e-003</b>	<b>0.2654</b>	<b>4.7000e-003</b>	<b>0.2701</b>	<b>0.0709</b>	<b>4.3400e-003</b>	<b>0.0752</b>	<b>0.0000</b>	<b>255.4942</b>	<b>255.4942</b>	<b>9.3800e-003</b>	<b>0.0000</b>	<b>255.6913</b>

### 3.12 Building Construction - High School - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1655	1.6796	1.6824	2.5100e-003		0.0905	0.0905		0.0834	0.0834	0.0000	218.1180	218.1180	0.0692	0.0000	219.5719

Total	0.1655	1.6796	1.6824	2.5100e-003		0.0905	0.0905		0.0834	0.0834	0.0000	218.1180	218.1180	0.0692	0.0000	219.5719
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0341	0.2192	0.4919	1.0400e-003	0.0291	4.2900e-003	0.0334	8.3400e-003	3.9500e-003	0.0123	0.0000	88.5274	88.5274	6.7000e-004	0.0000	88.5416
Worker	0.1170	0.1478	1.4262	5.3900e-003	0.4206	3.1100e-003	0.4238	0.1117	2.8800e-003	0.1146	0.0000	338.3826	338.3826	0.0145	0.0000	338.6876
Total	0.1511	0.3670	1.9181	6.4300e-003	0.4498	7.4000e-003	0.4572	0.1201	6.8300e-003	0.1269	0.0000	426.9100	426.9100	0.0152	0.0000	427.2292

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	218.1178	218.1178	0.0692	0.0000	219.5716
Total	0.1085	2.2114	1.8748	2.5100e-003		0.0759	0.0759		0.0759	0.0759	0.0000	218.1178	218.1178	0.0692	0.0000	219.5716

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0341	0.2192	0.4919	1.0400e-003	0.0291	4.2900e-003	0.0334	8.3400e-003	3.9500e-003	0.0123	0.0000	88.5274	88.5274	6.7000e-004	0.0000	88.5416
Worker	0.1170	0.1478	1.4262	5.3900e-003	0.4206	3.1100e-003	0.4238	0.1117	2.8800e-003	0.1146	0.0000	338.3826	338.3826	0.0145	0.0000	338.6876
<b>Total</b>	<b>0.1511</b>	<b>0.3670</b>	<b>1.9181</b>	<b>6.4300e-003</b>	<b>0.4498</b>	<b>7.4000e-003</b>	<b>0.4572</b>	<b>0.1201</b>	<b>6.8300e-003</b>	<b>0.1269</b>	<b>0.0000</b>	<b>426.9100</b>	<b>426.9100</b>	<b>0.0152</b>	<b>0.0000</b>	<b>427.2292</b>

### 3.12 Building Construction - High School - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0608	0.6048	0.6836	1.0300e-003		0.0316	0.0316		0.0291	0.0291	0.0000	89.4343	89.4343	0.0284	0.0000	90.0304
<b>Total</b>	<b>0.0608</b>	<b>0.6048</b>	<b>0.6836</b>	<b>1.0300e-003</b>		<b>0.0316</b>	<b>0.0316</b>		<b>0.0291</b>	<b>0.0291</b>	<b>0.0000</b>	<b>89.4343</b>	<b>89.4343</b>	<b>0.0284</b>	<b>0.0000</b>	<b>90.0304</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0134	0.0793	0.1929	4.3000e-004	0.0119	1.7200e-003	0.0137	3.4200e-003	1.5800e-003	5.0100e-003	0.0000	36.2521	36.2521	2.8000e-004	0.0000	36.2579
Worker	0.0453	0.0568	0.5483	2.2100e-003	0.1725	1.2800e-003	0.1737	0.0458	1.1900e-003	0.0470	0.0000	136.5941	136.5941	5.7100e-003	0.0000	136.7140
<b>Total</b>	<b>0.0587</b>	<b>0.1362</b>	<b>0.7412</b>	<b>2.6400e-003</b>	<b>0.1844</b>	<b>3.0000e-003</b>	<b>0.1874</b>	<b>0.0492</b>	<b>2.7700e-003</b>	<b>0.0520</b>	<b>0.0000</b>	<b>172.8462</b>	<b>172.8462</b>	<b>5.9900e-003</b>	<b>0.0000</b>	<b>172.9720</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0445	0.9066	0.7686	1.0300e-003		0.0311	0.0311		0.0311	0.0311	0.0000	89.4342	89.4342	0.0284	0.0000	90.0303
<b>Total</b>	<b>0.0445</b>	<b>0.9066</b>	<b>0.7686</b>	<b>1.0300e-003</b>		<b>0.0311</b>	<b>0.0311</b>		<b>0.0311</b>	<b>0.0311</b>	<b>0.0000</b>	<b>89.4342</b>	<b>89.4342</b>	<b>0.0284</b>	<b>0.0000</b>	<b>90.0303</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0134	0.0793	0.1929	4.3000e-004	0.0119	1.7200e-003	0.0137	3.4200e-003	1.5800e-003	5.0100e-003	0.0000	36.2521	36.2521	2.8000e-004	0.0000	36.2579
Worker	0.0453	0.0568	0.5483	2.2100e-003	0.1725	1.2800e-003	0.1737	0.0458	1.1900e-003	0.0470	0.0000	136.5941	136.5941	5.7100e-003	0.0000	136.7140
<b>Total</b>	<b>0.0587</b>	<b>0.1362</b>	<b>0.7412</b>	<b>2.6400e-003</b>	<b>0.1844</b>	<b>3.0000e-003</b>	<b>0.1874</b>	<b>0.0492</b>	<b>2.7700e-003</b>	<b>0.0520</b>	<b>0.0000</b>	<b>172.8462</b>	<b>172.8462</b>	<b>5.9900e-003</b>	<b>0.0000</b>	<b>172.9720</b>

## 3.13 Building Construction - Parks - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0977	0.9911	0.9927	1.4800e-003		0.0534	0.0534		0.0492	0.0492	0.0000	128.6980	128.6980	0.0409	0.0000	129.5558
<b>Total</b>	<b>0.0977</b>	<b>0.9911</b>	<b>0.9927</b>	<b>1.4800e-003</b>		<b>0.0534</b>	<b>0.0534</b>		<b>0.0492</b>	<b>0.0492</b>	<b>0.0000</b>	<b>128.6980</b>	<b>128.6980</b>	<b>0.0409</b>	<b>0.0000</b>	<b>129.5558</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0189	0.1217	0.2731	5.8000e-004	0.0162	2.3800e-003	0.0186	4.6300e-003	2.1900e-003	6.8300e-003	0.0000	49.1620	49.1620	3.7000e-004	0.0000	49.1698
Worker	0.0242	0.0305	0.2945	1.1100e-003	0.0869	6.4000e-004	0.0875	0.0231	5.9000e-004	0.0237	0.0000	69.8805	69.8805	3.0000e-003	0.0000	69.9435
<b>Total</b>	<b>0.0431</b>	<b>0.1523</b>	<b>0.5677</b>	<b>1.6900e-003</b>	<b>0.1031</b>	<b>3.0200e-003</b>	<b>0.1061</b>	<b>0.0277</b>	<b>2.7800e-003</b>	<b>0.0305</b>	<b>0.0000</b>	<b>119.0425</b>	<b>119.0425</b>	<b>3.3700e-003</b>	<b>0.0000</b>	<b>119.1133</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0640	1.3048	1.1062	1.4800e-003		0.0448	0.0448		0.0448	0.0448	0.0000	128.6978	128.6978	0.0409	0.0000	129.5557

Total	0.0640	1.3048	1.1062	1.4800e-003		0.0448	0.0448		0.0448	0.0448	0.0000	128.6978	128.6978	0.0409	0.0000	129.5557
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0189	0.1217	0.2731	5.8000e-004	0.0162	2.3800e-003	0.0186	4.6300e-003	2.1900e-003	6.8300e-003	0.0000	49.1620	49.1620	3.7000e-004	0.0000	49.1698
Worker	0.0242	0.0305	0.2945	1.1100e-003	0.0869	6.4000e-004	0.0875	0.0231	5.9000e-004	0.0237	0.0000	69.8805	69.8805	3.0000e-003	0.0000	69.9435
Total	0.0431	0.1523	0.5677	1.6900e-003	0.1031	3.0200e-003	0.1061	0.0277	2.7800e-003	0.0305	0.0000	119.0425	119.0425	3.3700e-003	0.0000	119.1133

### 3.13 Building Construction - Parks - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0608	0.6048	0.6836	1.0300e-003		0.0316	0.0316		0.0291	0.0291	0.0000	89.4343	89.4343	0.0284	0.0000	90.0304
Total	0.0608	0.6048	0.6836	1.0300e-003		0.0316	0.0316		0.0291	0.0291	0.0000	89.4343	89.4343	0.0284	0.0000	90.0304

#### Unmitigated Construction Off-Site



	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0126	0.0747	0.1815	4.0000e-004	0.0112	1.6200e-003	0.0129	3.2200e-003	1.4900e-003	4.7100e-003	0.0000	34.1196	34.1196	2.6000e-004	0.0000	34.1251
Worker	0.0159	0.0199	0.1919	7.7000e-004	0.0604	4.5000e-004	0.0608	0.0160	4.2000e-004	0.0165	0.0000	47.8079	47.8079	2.0000e-003	0.0000	47.8499
<b>Total</b>	<b>0.0285</b>	<b>0.0946</b>	<b>0.3734</b>	<b>1.1700e-003</b>	<b>0.0716</b>	<b>2.0700e-003</b>	<b>0.0737</b>	<b>0.0193</b>	<b>1.9100e-003</b>	<b>0.0212</b>	<b>0.0000</b>	<b>81.9275</b>	<b>81.9275</b>	<b>2.2600e-003</b>	<b>0.0000</b>	<b>81.9750</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0445	0.9066	0.7686	1.0300e-003		0.0311	0.0311		0.0311	0.0311	0.0000	89.4342	89.4342	0.0284	0.0000	90.0303
<b>Total</b>	<b>0.0445</b>	<b>0.9066</b>	<b>0.7686</b>	<b>1.0300e-003</b>		<b>0.0311</b>	<b>0.0311</b>		<b>0.0311</b>	<b>0.0311</b>	<b>0.0000</b>	<b>89.4342</b>	<b>89.4342</b>	<b>0.0284</b>	<b>0.0000</b>	<b>90.0303</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Vendor	0.0126	0.0747	0.1815	4.0000e-004	0.0112	1.6200e-003	0.0129	3.2200e-003	1.4900e-003	4.7100e-003	0.0000	34.1196	34.1196	2.6000e-004	0.0000	34.1251
Worker	0.0159	0.0199	0.1919	7.7000e-004	0.0604	4.5000e-004	0.0608	0.0160	4.2000e-004	0.0165	0.0000	47.8079	47.8079	2.0000e-003	0.0000	47.8499
Total	0.0285	0.0946	0.3734	1.1700e-003	0.0716	2.0700e-003	0.0737	0.0193	1.9100e-003	0.0212	0.0000	81.9275	81.9275	2.2600e-003	0.0000	81.9750

## Grapevine Construction - Planning Area 2

Kern-San Joaquin County, Winter

### 1.0 Project Characteristics

#### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	780.00	1000sqft	59.00	780,000.00	0
Elementary School	994.00	Student	5.00	83,101.75	0
High School	840.00	Student	20.00	111,435.22	0
Junior High School	1,500.00	Student	5.00	176,342.53	0
Other Asphalt Surfaces	92.00	Acre	92.00	4,007,520.00	0
City Park	58.00	Acre	58.00	2,526,480.00	0
Apartments Low Rise	980.00	Dwelling Unit	98.00	980,000.00	2803
Single Family Housing	1,780.00	Dwelling Unit	455.00	3,204,000.00	5091
Regional Shopping Center	210.00	1000sqft	27.00	210,000.00	0
Strip Mall	270.00	1000sqft	35.00	270,000.00	0

#### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

#### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Area 2. Kern County (San Joaquin Air Basin).

Land Use - See 1.1 Land Usage.

Construction Phase - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Trips and VMT - See 3.0 Construction Detail.

On-road Fugitive Dust - Worker and Vendor Percent Paved: Default CalEEMod values. Hauling Percent Paved: 50%

Demolition - None.

Grading - See 3.0 Construction Detail.

Architectural Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and an adjustment for parking/asphalt surface and park land uses. See 3.0 Construction Detail.

Area Coating - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Construction Off-road Equipment Mitigation - Tier 2 for construction equipment > 75 HP.

On-road Fugitive Dust - Water Exposed Area, Frequency: 3 times per day. Unpaved Road Mitigation, Vehicle Speed: 15 miles per hour.

**Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report:** Exhaust PM10 and PM2.5 emissions presented in the Technical Report; no Fugitive Dust PM10 and PM2.5 emissions presented in the Technical Report.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	4,082,440.00	1,212,463.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	12,247,319.00	2,461,268.00
tblAreaCoating	Area_Nonresidential_Interior	12247320	13144342
tblAreaCoating	Area_Residential_Exterior	2824200	2909250
tblAreaCoating	Area_Residential_Interior	8472600	8727750
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	21.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	19.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	990.00	958.00
tblConstructionPhase	NumDays	13,950.00	415.00
tblConstructionPhase	NumDays	13,950.00	522.00
tblConstructionPhase	NumDays	13,950.00	261.00
tblConstructionPhase	NumDays	13,950.00	1,001.00
tblConstructionPhase	NumDays	13,950.00	1,001.00
tblConstructionPhase	NumDays	13,950.00	980.00
tblConstructionPhase	NumDays	13,950.00	892.00
tblConstructionPhase	NumDays	1,395.00	891.00
tblConstructionPhase	NumDays	990.00	1,001.00
tblConstructionPhase	NumDays	540.00	784.00
tblConstructionPhase	PhaseEndDate	9/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	8/2/2024	12/31/2021
tblConstructionPhase	PhaseEndDate	1/2/2024	5/31/2022
tblConstructionPhase	PhaseEndDate	5/31/2023	5/31/2022

tblConstructionPhase	PhaseEndDate	4/1/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	11/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	10/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	6/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	6/2/2025	5/31/2022
tblConstructionPhase	PhaseEndDate	11/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	8/29/2025	5/31/2022
tblConstructionPhase	PhaseStartDate	1/1/2023	5/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	6/1/2020
tblConstructionPhase	PhaseStartDate	1/1/2022	6/1/2020
tblConstructionPhase	PhaseStartDate	6/1/2022	6/1/2021
tblConstructionPhase	PhaseStartDate	6/1/2022	3/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	3/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	4/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	8/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2022	1/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	3/1/2019
tblConstructionPhase	PhaseStartDate	6/1/2022	3/1/2019
tblFireplaces	NumberGas	979.00	1,017.50
tblFireplaces	NumberNoFireplace	801.00	832.50
tblGrading	AcresOfGrading	3,341.25	930.00
tblGrading	AcresOfGrading	392.00	930.00
tblGrading	AcresOfGrading	392.00	0.00
tblGrading	MaterialExported	0.00	232,500.00
tblLandUse	LotAcreage	17.91	59.00
tblLandUse	LotAcreage	1.91	5.00
tblLandUse	LotAcreage	2.56	20.00
tblLandUse	LotAcreage	4.05	5.00
tblLandUse	LotAcreage	61.25	98.00
tblLandUse	LotAcreage	577.92	455.00
tblLandUse	LotAcreage	4.82	27.00
tblLandUse	LotAcreage	6.20	35.00



tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	HaulingPercentPave	100.00	50.00
tblProjectCharacteristics	OperationalYear	2014	2023
tblSolidWaste	SolidWasteGenerationRate	725.40	558.00
tblSolidWaste	SolidWasteGenerationRate	153.30	273.75
tblSolidWaste	SolidWasteGenerationRate	273.75	153.30
tblSolidWaste	SolidWasteGenerationRate	220.50	210.00
tblSolidWaste	SolidWasteGenerationRate	2,087.31	2,169.31
tblSolidWaste	SolidWasteGenerationRate	283.50	178.50
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	VendorTripNumber	1,633.00	30.00
tblTripsAndVMT	VendorTripNumber	1,633.00	34.00



tblTripsAndVMT	VendorTripNumber	1,633.00	32.00
tblTripsAndVMT	VendorTripNumber	1,633.00	304.00
tblTripsAndVMT	VendorTripNumber	1,633.00	34.00
tblTripsAndVMT	VendorTripNumber	1,633.00	98.00
tblTripsAndVMT	VendorTripNumber	1,633.00	28.00
tblTripsAndVMT	WorkerTripNumber	3.00	4.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	240.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	400.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	140.00
tblTripsAndVMT	WorkerTripNumber	38.00	64.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	600.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	170.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	350.00
tblTripsAndVMT	WorkerTripNumber	930.00	454.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	170.00
tblWater	IndoorWaterUseRate	138,632,323.43	106,640,248.80
tblWater	IndoorWaterUseRate	3,700,166.40	6,607,440.00
tblWater	IndoorWaterUseRate	3,636,360.00	2,036,361.60
tblWater	IndoorWaterUseRate	15,555,229.51	14,814,504.30
tblWater	IndoorWaterUseRate	115,974,165.61	120,534,947.40
tblWater	IndoorWaterUseRate	19,999,580.80	12,592,328.65
tblWater	OutdoorWaterUseRate	84,968,198.23	65,360,152.49
tblWater	OutdoorWaterUseRate	9,514,713.60	16,990,560.00
tblWater	OutdoorWaterUseRate	9,350,640.00	5,236,358.40
tblWater	OutdoorWaterUseRate	9,533,850.35	9,079,857.47

tblWater	OutdoorWaterUseRate	73,114,147.88	75,989,423.36
tblWater	OutdoorWaterUseRate	12,257,807.59	7,717,878.85
tblWoodstoves	NumberCatalytic	455.00	475.00
tblWoodstoves	NumberNoncatalytic	455.00	475.00

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	135.8524	218.4765	272.2661	0.5031	102.8390	10.2305	113.0695	13.4026	9.4998	22.9024	0.0000	44,509.4403	44,509.4403	6.6376	0.0000	44,648.8305
2020	138.8171	234.4346	315.5612	0.6198	108.2105	11.0245	119.2349	14.8879	10.2214	25.1094	0.0000	52,882.8529	52,882.8529	7.9682	0.0000	53,050.1843
2021	137.9779	218.8233	326.8506	0.6600	109.8870	10.2025	120.0894	15.2853	9.4557	24.7410	0.0000	56,066.6454	56,066.6454	8.5438	0.0000	56,246.0656
2022	133.0449	173.0667	287.4811	0.6033	224.2437	7.8753	232.1190	26.2993	7.3055	33.6049	0.0000	51,037.5770	51,037.5770	7.6509	0.0000	51,198.2449
<b>Total</b>	<b>545.6923</b>	<b>844.8011</b>	<b>1,202.1590</b>	<b>2.3862</b>	<b>545.1801</b>	<b>39.3327</b>	<b>584.5129</b>	<b>69.8752</b>	<b>36.4824</b>	<b>106.3576</b>	<b>0.0000</b>	<b>204,496.5155</b>	<b>204,496.5155</b>	<b>30.8005</b>	<b>0.0000</b>	<b>205,143.3252</b>

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	126.4256	218.7357	281.3542	0.5031	69.6015	6.4240	76.0255	10.0662	6.3685	16.4347	0.0000	44,509.4402	44,509.4402	6.6376	0.0000	44,648.8305
2020	129.3501	252.7718	329.7695	0.6198	75.0943	7.6237	82.7180	11.5636	7.5657	19.1293	0.0000	52,882.8528	52,882.8528	7.9682	0.0000	53,050.1843
2021	130.1987	264.9706	345.5051	0.6600	76.6495	8.1750	84.8245	11.9488	8.1195	20.0683	0.0000	56,066.6453	56,066.6453	8.5438	0.0000	56,246.0655
2022	127.7988	236.8900	307.4221	0.6033	146.0466	7.3781	153.4247	18.4730	7.3269	25.7999	0.0000	51,037.5770	51,037.5770	7.6509	0.0000	51,198.2449
<b>Total</b>	<b>513.7732</b>	<b>973.3680</b>	<b>1,264.0508</b>	<b>2.3862</b>	<b>367.3918</b>	<b>29.6009</b>	<b>396.9927</b>	<b>52.0516</b>	<b>29.3805</b>	<b>81.4321</b>	<b>0.0000</b>	<b>204,496.5154</b>	<b>204,496.5154</b>	<b>30.8005</b>	<b>0.0000</b>	<b>205,143.3251</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>5.85</b>	<b>-15.22</b>	<b>-5.15</b>	<b>0.00</b>	<b>32.61</b>	<b>24.74</b>	<b>32.08</b>	<b>25.51</b>	<b>19.47</b>	<b>23.44</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	12/31/2021	5	784	
2	Grading	Grading	1/1/2019	5/31/2022	5	891	
3	Trenching	Trenching	3/1/2019	5/31/2022	5	848	
4	Building Construction - Residential	Building Construction	3/1/2019	12/31/2022	5	1001	
5	Building Construction - Village Commercial	Building Construction	3/1/2019	12/31/2022	5	1001	
6	Paving	Paving	3/1/2019	12/31/2022	5	1001	
7	Building Construction - Office/R&D	Building Construction	4/1/2019	12/31/2022	5	980	
8	Architectural Coating	Architectural Coating	5/1/2019	12/31/2022	5	958	
9	Building Construction - Freeway Commercial	Building Construction	8/1/2019	12/31/2022	5	892	
10	Building Construction - Elem. & Middle School	Building Construction	6/1/2020	12/31/2021	5	415	
11	Building Construction - High School	Building Construction	6/1/2020	5/31/2022	5	522	
12	Building Construction - Parks	Building Construction	6/1/2021	5/31/2022	5	261	

**Acres of Grading (Site Preparation Phase): 930**

**Acres of Grading (Grading Phase): 930**

**Acres of Paving: 0**

**Residential Indoor: 8,472,600; Residential Outdoor: 2,824,200; Non-Residential Indoor: 2,461,268; Non-Residential Outdoor: 1,212,463**

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	0	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	2	6.00	174	0.41
Grading	Rollers	2	4.00	80	0.38
Grading	Rubber Tired Dozers	0	8.00	255	0.40

Grading	Rubber Tired Loaders	1	2.00	199	0.36
Grading	Scrapers	3	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Trenching	Other Construction Equipment	5	2.00	171	0.42
Trenching	Other Construction Equipment	0	1.00	171	0.42
Trenching	Tractors/Loaders/Backhoes	5	2.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	0	1.00	97	0.37
Trenching	Trenchers	5	2.00	80	0.50
Trenching	Trenchers	0	1.00	80	0.50
Building Construction - Residential	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Residential	Cranes	0	7.00	226	0.29
Building Construction - Residential	Forklifts	0	8.00	89	0.20
Building Construction - Residential	Generator Sets	0	8.00	84	0.74
Building Construction - Residential	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Residential	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Residential	Welders	0	8.00	46	0.45
Building Construction - Village	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Village	Cranes	0	7.00	226	0.29
Building Construction - Village	Forklifts	0	8.00	89	0.20
Building Construction - Village	Generator Sets	0	8.00	84	0.74
Building Construction - Village	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Village	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Village	Welders	0	8.00	46	0.45
Paving	Other Construction Equipment	2	8.00	171	0.42
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38
Building Construction - Office/R&D	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Office/R&D	Cranes	0	7.00	226	0.29
Building Construction - Office/R&D	Forklifts	0	8.00	89	0.20
Building Construction - Office/R&D	Generator Sets	0	8.00	84	0.74
Building Construction - Office/R&D	Other Construction Equipment	2	8.00	171	0.42

Building Construction - Office/R&D	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Office/R&D	Welders	0	8.00	46	0.45
Architectural Coating	Air Compressors	8	6.00	78	0.48
Building Construction - Freeway	Cement and Mortar Mixers	1	8.00	9	0.56
Commercial Building Construction - Freeway	Cranes	0	7.00	226	0.29
Commercial Building Construction - Freeway	Forklifts	0	8.00	89	0.20
Commercial Building Construction - Freeway	Generator Sets	0	8.00	84	0.74
Commercial Building Construction - Freeway	Other Construction Equipment	2	8.00	171	0.42
Commercial Building Construction - Freeway	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Commercial Building Construction - Freeway	Welders	0	8.00	46	0.45
Building Construction - Elem. & Middle School	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Elem. & Middle School	Cranes	0	7.00	226	0.29
Building Construction - Elem. & Middle School	Forklifts	0	8.00	89	0.20
Building Construction - Elem. & Middle School	Generator Sets	0	8.00	84	0.74
Building Construction - Elem. & Middle School	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Elem. & Middle School	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Elem. & Middle School	Welders	0	8.00	46	0.45
Building Construction - High School	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - High School	Cranes	0	7.00	226	0.29
Building Construction - High School	Forklifts	0	8.00	89	0.20
Building Construction - High School	Generator Sets	0	8.00	84	0.74
Building Construction - High School	Other Construction Equipment	2	8.00	171	0.42
Building Construction - High School	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - High School	Welders	0	8.00	46	0.45
Building Construction - Parks	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Parks	Cranes	0	7.00	226	0.29
Building Construction - Parks	Forklifts	0	8.00	89	0.20
Building Construction - Parks	Generator Sets	0	8.00	84	0.74
Building Construction - Parks	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Parks	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Parks	Welders	0	8.00	46	0.45

## Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	29,063.00	10.80	7.30	1.00	LD_Mix	HDT_Mix	HHDT
Trenching	15	64.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Residential	5	600.00	304.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Village Commercial	5	170.00	34.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Office/R&D	5	350.00	98.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	8	454.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Freeway Commercial	5	170.00	28.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Elem. & Middle School	5	240.00	30.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - High School	5	400.00	34.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Parks	5	140.00	32.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

### 3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

### 3.2 Site Preparation - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2580	0.0000	1.2580	0.1358	0.0000	0.1358			0.0000			0.0000
Off-Road	0.7660	7.5664	4.5999	6.2100e-003		0.4234	0.4234		0.3895	0.3895		615.3234	615.3234	0.1947		619.4117
<b>Total</b>	<b>0.7660</b>	<b>7.5664</b>	<b>4.5999</b>	<b>6.2100e-003</b>	<b>1.2580</b>	<b>0.4234</b>	<b>1.6814</b>	<b>0.1358</b>	<b>0.3895</b>	<b>0.5254</b>		<b>615.3234</b>	<b>615.3234</b>	<b>0.1947</b>		<b>619.4117</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0103	0.0145	0.1255	4.0000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		29.0661	29.0661	1.3600e-003		29.0947
<b>Total</b>	<b>0.0103</b>	<b>0.0145</b>	<b>0.1255</b>	<b>4.0000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>29.0661</b>	<b>29.0661</b>	<b>1.3600e-003</b>		<b>29.0947</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4906	0.0000	0.4906	0.0530	0.0000	0.0530			0.0000			0.0000



Off-Road	0.2391	5.2468	4.6554	6.2100e-003		0.1611	0.1611		0.1611	0.1611	0.0000	615.3234	615.3234	0.1947		619.4117
<b>Total</b>	<b>0.2391</b>	<b>5.2468</b>	<b>4.6554</b>	<b>6.2100e-003</b>	<b>0.4906</b>	<b>0.1611</b>	<b>0.6517</b>	<b>0.0530</b>	<b>0.1611</b>	<b>0.2140</b>	<b>0.0000</b>	<b>615.3234</b>	<b>615.3234</b>	<b>0.1947</b>		<b>619.4117</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0103	0.0145	0.1255	4.0000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		29.0661	29.0661	1.3600e-003		29.0947
<b>Total</b>	<b>0.0103</b>	<b>0.0145</b>	<b>0.1255</b>	<b>4.0000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>29.0661</b>	<b>29.0661</b>	<b>1.3600e-003</b>		<b>29.0947</b>

## 3.2 Site Preparation - 2020

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2580	0.0000	1.2580	0.1358	0.0000	0.1358			0.0000			0.0000
Off-Road	0.7130	6.9585	4.5560	6.2000e-003		0.3882	0.3882		0.3571	0.3571		601.4809	601.4809	0.1945		605.5661
<b>Total</b>	<b>0.7130</b>	<b>6.9585</b>	<b>4.5560</b>	<b>6.2000e-003</b>	<b>1.2580</b>	<b>0.3882</b>	<b>1.6462</b>	<b>0.1358</b>	<b>0.3571</b>	<b>0.4930</b>		<b>601.4809</b>	<b>601.4809</b>	<b>0.1945</b>		<b>605.5661</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.5300e-003	0.0133	0.1152	4.0000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		27.8976	27.8976	1.2900e-003		27.9246
<b>Total</b>	<b>9.5300e-003</b>	<b>0.0133</b>	<b>0.1152</b>	<b>4.0000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>27.8976</b>	<b>27.8976</b>	<b>1.2900e-003</b>		<b>27.9246</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4906	0.0000	0.4906	0.0530	0.0000	0.0530			0.0000			0.0000
Off-Road	0.2391	5.2468	4.6554	6.2000e-003		0.1611	0.1611		0.1611	0.1611	0.0000	601.4809	601.4809	0.1945		605.5661
<b>Total</b>	<b>0.2391</b>	<b>5.2468</b>	<b>4.6554</b>	<b>6.2000e-003</b>	<b>0.4906</b>	<b>0.1611</b>	<b>0.6517</b>	<b>0.0530</b>	<b>0.1611</b>	<b>0.2140</b>	<b>0.0000</b>	<b>601.4809</b>	<b>601.4809</b>	<b>0.1945</b>		<b>605.5661</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	9.5300e-003	0.0133	0.1152	4.0000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		27.8976	27.8976	1.2900e-003		27.9246
<b>Total</b>	<b>9.5300e-003</b>	<b>0.0133</b>	<b>0.1152</b>	<b>4.0000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>27.8976</b>	<b>27.8976</b>	<b>1.2900e-003</b>		<b>27.9246</b>

### 3.2 Site Preparation - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2580	0.0000	1.2580	0.1358	0.0000	0.1358			0.0000			0.0000
Off-Road	0.6358	6.0891	4.4780	6.2100e-003		0.3397	0.3397		0.3125	0.3125		602.0957	602.0957	0.1947		606.1850
<b>Total</b>	<b>0.6358</b>	<b>6.0891</b>	<b>4.4780</b>	<b>6.2100e-003</b>	<b>1.2580</b>	<b>0.3397</b>	<b>1.5977</b>	<b>0.1358</b>	<b>0.3125</b>	<b>0.4484</b>		<b>602.0957</b>	<b>602.0957</b>	<b>0.1947</b>		<b>606.1850</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.9600e-003	0.0124	0.1075	4.0000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		27.4144	27.4144	1.2300e-003		27.4402
<b>Total</b>	<b>8.9600e-003</b>	<b>0.0124</b>	<b>0.1075</b>	<b>4.0000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>27.4144</b>	<b>27.4144</b>	<b>1.2300e-003</b>		<b>27.4402</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4906	0.0000	0.4906	0.0530	0.0000	0.0530			0.0000			0.0000
Off-Road	0.2391	5.2468	4.6554	6.2100e-003		0.1611	0.1611		0.1611	0.1611	0.0000	602.0957	602.0957	0.1947		606.1850
<b>Total</b>	<b>0.2391</b>	<b>5.2468</b>	<b>4.6554</b>	<b>6.2100e-003</b>	<b>0.4906</b>	<b>0.1611</b>	<b>0.6517</b>	<b>0.0530</b>	<b>0.1611</b>	<b>0.2140</b>	<b>0.0000</b>	<b>602.0957</b>	<b>602.0957</b>	<b>0.1947</b>		<b>606.1850</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	8.9600e-003	0.0124	0.1075	4.0000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		27.4144	27.4144	1.2300e-003		27.4402
<b>Total</b>	<b>8.9600e-003</b>	<b>0.0124</b>	<b>0.1075</b>	<b>4.0000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>27.4144</b>	<b>27.4144</b>	<b>1.2300e-003</b>		<b>27.4402</b>

### 3.3 Grading - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1454	0.0000	1.1454	0.1254	0.0000	0.1254			0.0000			0.0000

Off-Road	4.6169	52.8814	33.0074	0.0582		2.3153	2.3153		2.1300	2.1300		5,760.2051	5,760.2051	1.8225		5,798.4769
<b>Total</b>	<b>4.6169</b>	<b>52.8814</b>	<b>33.0074</b>	<b>0.0582</b>	<b>1.1454</b>	<b>2.3153</b>	<b>3.4607</b>	<b>0.1254</b>	<b>2.1300</b>	<b>2.2554</b>		<b>5,760.2051</b>	<b>5,760.2051</b>	<b>1.8225</b>		<b>5,798.4769</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2970	0.8957	7.2611	1.8200e-003	81.9881	7.2400e-003	81.9954	8.1882	6.6500e-003	8.1948		163.9778	163.9778	2.8600e-003		164.0378
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0516	0.0723	0.6277	1.9800e-003	0.1643	1.1800e-003	0.1655	0.0436	1.1000e-003	0.0447		145.3306	145.3306	6.8100e-003		145.4737
<b>Total</b>	<b>0.3486</b>	<b>0.9680</b>	<b>7.8888</b>	<b>3.8000e-003</b>	<b>82.1524</b>	<b>8.4200e-003</b>	<b>82.1609</b>	<b>8.2317</b>	<b>7.7500e-003</b>	<b>8.2395</b>		<b>309.3084</b>	<b>309.3084</b>	<b>9.6700e-003</b>		<b>309.5115</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4467	0.0000	0.4467	0.0489	0.0000	0.0489			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	5,760.2051	5,760.2051	1.8225		5,798.4769
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.4467</b>	<b>1.1791</b>	<b>1.6259</b>	<b>0.0489</b>	<b>1.1791</b>	<b>1.2280</b>	<b>0.0000</b>	<b>5,760.2051</b>	<b>5,760.2051</b>	<b>1.8225</b>		<b>5,798.4769</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2970	0.8957	7.2611	1.8200e-003	50.2168	7.2400e-003	50.2240	5.0110	6.6500e-003	5.0177		163.9778	163.9778	2.8600e-003		164.0378
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0516	0.0723	0.6277	1.9800e-003	0.1643	1.1800e-003	0.1655	0.0436	1.1000e-003	0.0447		145.3306	145.3306	6.8100e-003		145.4737
<b>Total</b>	<b>0.3486</b>	<b>0.9680</b>	<b>7.8888</b>	<b>3.8000e-003</b>	<b>50.3811</b>	<b>8.4200e-003</b>	<b>50.3895</b>	<b>5.0546</b>	<b>7.7500e-003</b>	<b>5.0623</b>		<b>309.3084</b>	<b>309.3084</b>	<b>9.6700e-003</b>		<b>309.5115</b>

### 3.3 Grading - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1454	0.0000	1.1454	0.1254	0.0000	0.1254			0.0000			0.0000
Off-Road	4.2994	48.2794	31.1382	0.0582		2.1034	2.1034		1.9352	1.9352		5,633.6903	5,633.6903	1.8221		5,671.9534
<b>Total</b>	<b>4.2994</b>	<b>48.2794</b>	<b>31.1382</b>	<b>0.0582</b>	<b>1.1454</b>	<b>2.1034</b>	<b>3.2489</b>	<b>0.1254</b>	<b>1.9352</b>	<b>2.0605</b>		<b>5,633.6903</b>	<b>5,633.6903</b>	<b>1.8221</b>		<b>5,671.9534</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2659	0.8301	7.0225	1.8100e-003	81.6752	7.0600e-003	81.6823	8.1569	6.5000e-003	8.1634		160.1609	160.1609	2.9000e-003		160.2218

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0477	0.0665	0.5762	1.9800e-003	0.1643	1.1800e-003	0.1655	0.0436	1.1000e-003	0.0447		139.4878	139.4878	6.4300e-003		139.6229
<b>Total</b>	<b>0.3136</b>	<b>0.8966</b>	<b>7.5987</b>	<b>3.7900e-003</b>	<b>81.8395</b>	<b>8.2400e-003</b>	<b>81.8478</b>	<b>8.2005</b>	<b>7.6000e-003</b>	<b>8.2081</b>		<b>299.6488</b>	<b>299.6488</b>	<b>9.3300e-003</b>		<b>299.8447</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4467	0.0000	0.4467	0.0489	0.0000	0.0489			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	5,633.6903	5,633.6903	1.8221		5,671.9534
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.4467</b>	<b>1.1791</b>	<b>1.6259</b>	<b>0.0489</b>	<b>1.1791</b>	<b>1.2280</b>	<b>0.0000</b>	<b>5,633.6903</b>	<b>5,633.6903</b>	<b>1.8221</b>		<b>5,671.9534</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2659	0.8301	7.0225	1.8100e-003	50.0251	7.0600e-003	50.0322	4.9919	6.5000e-003	4.9984		160.1609	160.1609	2.9000e-003		160.2218
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0477	0.0665	0.5762	1.9800e-003	0.1643	1.1800e-003	0.1655	0.0436	1.1000e-003	0.0447		139.4878	139.4878	6.4300e-003		139.6229
<b>Total</b>	<b>0.3136</b>	<b>0.8966</b>	<b>7.5987</b>	<b>3.7900e-003</b>	<b>50.1894</b>	<b>8.2400e-003</b>	<b>50.1977</b>	<b>5.0355</b>	<b>7.6000e-003</b>	<b>5.0431</b>		<b>299.6488</b>	<b>299.6488</b>	<b>9.3300e-003</b>		<b>299.8447</b>

## 3.3 Grading - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1454	0.0000	1.1454	0.1254	0.0000	0.1254			0.0000			0.0000
Off-Road	3.9701	43.5883	29.6597	0.0582		1.8875	1.8875		1.7365	1.7365		5,637.2965	5,637.2965	1.8232		5,675.5840
<b>Total</b>	<b>3.9701</b>	<b>43.5883</b>	<b>29.6597</b>	<b>0.0582</b>	<b>1.1454</b>	<b>1.8875</b>	<b>3.0329</b>	<b>0.1254</b>	<b>1.7365</b>	<b>1.8618</b>		<b>5,637.2965</b>	<b>5,637.2965</b>	<b>1.8232</b>		<b>5,675.5840</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2576	0.7642	6.9212	1.8000e-003	81.9881	6.9300e-003	81.9951	8.1882	6.3700e-003	8.1945		159.9649	159.9649	2.9700e-003		160.0272
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0448	0.0620	0.5373	1.9800e-003	0.1643	1.1900e-003	0.1655	0.0436	1.1000e-003	0.0447		137.0720	137.0720	6.1300e-003		137.2008
<b>Total</b>	<b>0.3024</b>	<b>0.8262</b>	<b>7.4586</b>	<b>3.7800e-003</b>	<b>82.1524</b>	<b>8.1200e-003</b>	<b>82.1606</b>	<b>8.2317</b>	<b>7.4700e-003</b>	<b>8.2392</b>		<b>297.0369</b>	<b>297.0369</b>	<b>9.1000e-003</b>		<b>297.2280</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4467	0.0000	0.4467	0.0489	0.0000	0.0489			0.0000			0.0000



Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	5,637.2965	5,637.2965	1.8232		5,675.5840
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.4467</b>	<b>1.1791</b>	<b>1.6259</b>	<b>0.0489</b>	<b>1.1791</b>	<b>1.2280</b>	<b>0.0000</b>	<b>5,637.2965</b>	<b>5,637.2965</b>	<b>1.8232</b>		<b>5,675.5840</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2576	0.7642	6.9212	1.8000e-003	50.2168	6.9300e-003	50.2237	5.0110	6.3700e-003	5.0174		159.9649	159.9649	2.9700e-003		160.0272
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0448	0.0620	0.5373	1.9800e-003	0.1643	1.1900e-003	0.1655	0.0436	1.1000e-003	0.0447		137.0720	137.0720	6.1300e-003		137.2008
<b>Total</b>	<b>0.3024</b>	<b>0.8262</b>	<b>7.4586</b>	<b>3.7800e-003</b>	<b>50.3811</b>	<b>8.1200e-003</b>	<b>50.3892</b>	<b>5.0546</b>	<b>7.4700e-003</b>	<b>5.0621</b>		<b>297.0369</b>	<b>297.0369</b>	<b>9.1000e-003</b>		<b>297.2280</b>

### 3.3 Grading - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1454	0.0000	1.1454	0.1254	0.0000	0.1254			0.0000			0.0000
Off-Road	3.4863	36.6441	27.6424	0.0583		1.5873	1.5873		1.4603	1.4603		5,644.5198	5,644.5198	1.8256		5,682.8564
<b>Total</b>	<b>3.4863</b>	<b>36.6441</b>	<b>27.6424</b>	<b>0.0583</b>	<b>1.1454</b>	<b>1.5873</b>	<b>2.7327</b>	<b>0.1254</b>	<b>1.4603</b>	<b>1.5857</b>		<b>5,644.5198</b>	<b>5,644.5198</b>	<b>1.8256</b>		<b>5,682.8564</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2402	0.7100	6.6042	1.8000e-003	199.9787	6.8000e-003	199.9855	19.9690	6.2500e-003	19.9752		159.8074	159.8074	3.0400e-003		159.8713
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0423	0.0581	0.5028	1.9800e-003	0.1643	1.2000e-003	0.1655	0.0436	1.1100e-003	0.0447		134.9625	134.9625	5.8800e-003		135.0860
<b>Total</b>	<b>0.2825</b>	<b>0.7681</b>	<b>7.1070</b>	<b>3.7800e-003</b>	<b>200.1430</b>	<b>8.0000e-003</b>	<b>200.1510</b>	<b>20.0125</b>	<b>7.3600e-003</b>	<b>20.0199</b>		<b>294.7699</b>	<b>294.7699</b>	<b>8.9200e-003</b>		<b>294.9573</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4467	0.0000	0.4467	0.0489	0.0000	0.0489			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0583		1.1791	1.1791		1.1791	1.1791	0.0000	5,644.5198	5,644.5198	1.8256		5,682.8564
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0583</b>	<b>0.4467</b>	<b>1.1791</b>	<b>1.6259</b>	<b>0.0489</b>	<b>1.1791</b>	<b>1.2280</b>	<b>0.0000</b>	<b>5,644.5198</b>	<b>5,644.5198</b>	<b>1.8256</b>		<b>5,682.8564</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2402	0.7100	6.6042	1.8000e-003	122.4803	6.8000e-003	122.4871	12.2191	6.2500e-003	12.2254		159.8074	159.8074	3.0400e-003		159.8713

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0423	0.0581	0.5028	1.9800e-003	0.1643	1.2000e-003	0.1655	0.0436	1.1100e-003	0.0447		134.9625	134.9625	5.8800e-003		135.0860
<b>Total</b>	<b>0.2825</b>	<b>0.7681</b>	<b>7.1070</b>	<b>3.7800e-003</b>	<b>122.6446</b>	<b>8.0000e-003</b>	<b>122.6526</b>	<b>12.2627</b>	<b>7.3600e-003</b>	<b>12.2701</b>		<b>294.7699</b>	<b>294.7699</b>	<b>8.9200e-003</b>		<b>294.9573</b>

### 3.4 Trenching - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5003	14.9631	11.4175	0.0159		0.9444	0.9444		0.8689	0.8689		1,573.1728	1,573.1728	0.4977		1,583.6252
<b>Total</b>	<b>1.5003</b>	<b>14.9631</b>	<b>11.4175</b>	<b>0.0159</b>		<b>0.9444</b>	<b>0.9444</b>		<b>0.8689</b>	<b>0.8689</b>		<b>1,573.1728</b>	<b>1,573.1728</b>	<b>0.4977</b>		<b>1,583.6252</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1650	0.2312	2.0087	6.3400e-003	0.5257	3.7900e-003	0.5295	0.1395	3.5100e-003	0.1430		465.0579	465.0579	0.0218		465.5158
<b>Total</b>	<b>0.1650</b>	<b>0.2312</b>	<b>2.0087</b>	<b>6.3400e-003</b>	<b>0.5257</b>	<b>3.7900e-003</b>	<b>0.5295</b>	<b>0.1395</b>	<b>3.5100e-003</b>	<b>0.1430</b>		<b>465.0579</b>	<b>465.0579</b>	<b>0.0218</b>		<b>465.5158</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,573.1728	1,573.1728	0.4977		1,583.6252
<b>Total</b>	<b>0.6857</b>	<b>14.5498</b>	<b>12.0489</b>	<b>0.0159</b>		<b>0.5239</b>	<b>0.5239</b>		<b>0.5239</b>	<b>0.5239</b>	<b>0.0000</b>	<b>1,573.1728</b>	<b>1,573.1728</b>	<b>0.4977</b>		<b>1,583.6252</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1650	0.2312	2.0087	6.3400e-003	0.5257	3.7900e-003	0.5295	0.1395	3.5100e-003	0.1430		465.0579	465.0579	0.0218		465.5158
<b>Total</b>	<b>0.1650</b>	<b>0.2312</b>	<b>2.0087</b>	<b>6.3400e-003</b>	<b>0.5257</b>	<b>3.7900e-003</b>	<b>0.5295</b>	<b>0.1395</b>	<b>3.5100e-003</b>	<b>0.1430</b>		<b>465.0579</b>	<b>465.0579</b>	<b>0.0218</b>		<b>465.5158</b>

### 3.4 Trenching - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4139	14.0096	11.3521	0.0159		0.8744	0.8744		0.8044	0.8044		1,539.1038	1,539.1038	0.4978		1,549.5572

Total	1.4139	14.0096	11.3521	0.0159		0.8744	0.8744		0.8044	0.8044		1,539.1038	1,539.1038	0.4978		1,549.5572
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1526	0.2128	1.8438	6.3400e-003	0.5257	3.7900e-003	0.5295	0.1395	3.5100e-003	0.1430		446.3611	446.3611	0.0206		446.7932
Total	0.1526	0.2128	1.8438	6.3400e-003	0.5257	3.7900e-003	0.5295	0.1395	3.5100e-003	0.1430		446.3611	446.3611	0.0206		446.7932

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,539.1038	1,539.1038	0.4978		1,549.5571
Total	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,539.1038	1,539.1038	0.4978		1,549.5571

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1526	0.2128	1.8438	6.3400e-003	0.5257	3.7900e-003	0.5295	0.1395	3.5100e-003	0.1430		446.3611	446.3611	0.0206		446.7932
<b>Total</b>	<b>0.1526</b>	<b>0.2128</b>	<b>1.8438</b>	<b>6.3400e-003</b>	<b>0.5257</b>	<b>3.7900e-003</b>	<b>0.5295</b>	<b>0.1395</b>	<b>3.5100e-003</b>	<b>0.1430</b>		<b>446.3611</b>	<b>446.3611</b>	<b>0.0206</b>		<b>446.7932</b>

### 3.4 Trenching - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2462	12.3168	11.2062	0.0159		0.7514	0.7514		0.6913	0.6913		1,539.0623	1,539.0623	0.4978		1,549.5154
<b>Total</b>	<b>1.2462</b>	<b>12.3168</b>	<b>11.2062</b>	<b>0.0159</b>		<b>0.7514</b>	<b>0.7514</b>		<b>0.6913</b>	<b>0.6913</b>		<b>1,539.0623</b>	<b>1,539.0623</b>	<b>0.4978</b>		<b>1,549.5154</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1434	0.1984	1.7195	6.3400e-003	0.5257	3.8100e-003	0.5296	0.1395	3.5300e-003	0.1430		438.6302	438.6302	0.0196		439.0425
<b>Total</b>	<b>0.1434</b>	<b>0.1984</b>	<b>1.7195</b>	<b>6.3400e-003</b>	<b>0.5257</b>	<b>3.8100e-003</b>	<b>0.5296</b>	<b>0.1395</b>	<b>3.5300e-003</b>	<b>0.1430</b>		<b>438.6302</b>	<b>438.6302</b>	<b>0.0196</b>		<b>439.0425</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,539.0623	1,539.0623	0.4978		1,549.5154
<b>Total</b>	<b>0.6857</b>	<b>14.5498</b>	<b>12.0489</b>	<b>0.0159</b>		<b>0.5239</b>	<b>0.5239</b>		<b>0.5239</b>	<b>0.5239</b>	<b>0.0000</b>	<b>1,539.0623</b>	<b>1,539.0623</b>	<b>0.4978</b>		<b>1,549.5154</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1434	0.1984	1.7195	6.3400e-003	0.5257	3.8100e-003	0.5296	0.1395	3.5300e-003	0.1430		438.6302	438.6302	0.0196		439.0425
<b>Total</b>	<b>0.1434</b>	<b>0.1984</b>	<b>1.7195</b>	<b>6.3400e-003</b>	<b>0.5257</b>	<b>3.8100e-003</b>	<b>0.5296</b>	<b>0.1395</b>	<b>3.5300e-003</b>	<b>0.1430</b>		<b>438.6302</b>	<b>438.6302</b>	<b>0.0196</b>		<b>439.0425</b>

## 3.4 Trenching - 2022

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1396	11.1686	11.1256	0.0159		0.6670	0.6670		0.6137	0.6137		1,539.2804	1,539.2804	0.4978		1,549.7349
<b>Total</b>	<b>1.1396</b>	<b>11.1686</b>	<b>11.1256</b>	<b>0.0159</b>		<b>0.6670</b>	<b>0.6670</b>		<b>0.6137</b>	<b>0.6137</b>		<b>1,539.2804</b>	<b>1,539.2804</b>	<b>0.4978</b>		<b>1,549.7349</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1355	0.1860	1.6091	6.3400e-003	0.5257	3.8300e-003	0.5296	0.1395	3.5500e-003	0.1430		431.8799	431.8799	0.0188		432.2753
<b>Total</b>	<b>0.1355</b>	<b>0.1860</b>	<b>1.6091</b>	<b>6.3400e-003</b>	<b>0.5257</b>	<b>3.8300e-003</b>	<b>0.5296</b>	<b>0.1395</b>	<b>3.5500e-003</b>	<b>0.1430</b>		<b>431.8799</b>	<b>431.8799</b>	<b>0.0188</b>		<b>432.2753</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,539.2804	1,539.2804	0.4978		1,549.7349



Total	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,539.2804	1,539.2804	0.4978		1,549.7349
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1355	0.1860	1.6091	6.3400e-003	0.5257	3.8300e-003	0.5296	0.1395	3.5500e-003	0.1430		431.8799	431.8799	0.0188		432.2753
Total	0.1355	0.1860	1.6091	6.3400e-003	0.5257	3.8300e-003	0.5296	0.1395	3.5500e-003	0.1430		431.8799	431.8799	0.0188		432.2753

## 3.5 Building Construction - Residential - 2019

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5683	16.2736	13.1629	0.0192		0.9179	0.9179		0.8456	0.8456		1,882.7650	1,882.7650	0.5850		1,895.0489
Total	1.5683	16.2736	13.1629	0.0192		0.9179	0.9179		0.8456	0.8456		1,882.7650	1,882.7650	0.5850		1,895.0489

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	3.0029	22.2842	47.4190	0.0716	2.0279	0.3837	2.4116	0.5795	0.3530	0.9325		6,824.4880	6,824.4880	0.0552		6,825.6470
Worker	1.5468	2.1678	18.8311	0.0595	4.9289	0.0355	4.9644	1.3074	0.0329	1.3403		4,359.9180	4,359.9180	0.2044		4,364.2101
<b>Total</b>	<b>4.5497</b>	<b>24.4520</b>	<b>66.2501</b>	<b>0.1311</b>	<b>6.9567</b>	<b>0.4193</b>	<b>7.3760</b>	<b>1.8869</b>	<b>0.3859</b>	<b>2.2728</b>		<b>11,184.4059</b>	<b>11,184.4059</b>	<b>0.2596</b>		<b>11,189.8571</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,882.7650	1,882.7650	0.5850		1,895.0489
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,882.7650</b>	<b>1,882.7650</b>	<b>0.5850</b>		<b>1,895.0489</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	3.0029	22.2842	47.4190	0.0716	2.0279	0.3837	2.4116	0.5795	0.3530	0.9325		6,824.4880	6,824.4880	0.0552		6,825.6470
Worker	1.5468	2.1678	18.8311	0.0595	4.9289	0.0355	4.9644	1.3074	0.0329	1.3403		4,359.9180	4,359.9180	0.2044		4,364.2101
<b>Total</b>	<b>4.5497</b>	<b>24.4520</b>	<b>66.2501</b>	<b>0.1311</b>	<b>6.9567</b>	<b>0.4193</b>	<b>7.3760</b>	<b>1.8869</b>	<b>0.3859</b>	<b>2.2728</b>		<b>11,184.4059</b>	<b>11,184.4059</b>	<b>0.2596</b>		<b>11,189.8571</b>

### 3.5 Building Construction - Residential - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>1.4601</b>	<b>14.9958</b>	<b>13.0640</b>	<b>0.0192</b>		<b>0.8302</b>	<b>0.8302</b>		<b>0.7650</b>	<b>0.7650</b>		<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7121	18.7856	45.2658	0.0715	2.0279	0.3366	2.3645	0.5796	0.3097	0.8893		6,667.0238	6,667.0238	0.0526		6,668.1273
Worker	1.4301	1.9949	17.2857	0.0595	4.9289	0.0355	4.9644	1.3074	0.0330	1.3403		4,184.6352	4,184.6352	0.1929		4,188.6866
<b>Total</b>	<b>4.1422</b>	<b>20.7804</b>	<b>62.5515</b>	<b>0.1309</b>	<b>6.9568</b>	<b>0.3722</b>	<b>7.3289</b>	<b>1.8869</b>	<b>0.3427</b>	<b>2.2296</b>		<b>10,851.6590</b>	<b>10,851.6590</b>	<b>0.2455</b>		<b>10,856.8140</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.7121	18.7856	45.2658	0.0715	2.0279	0.3366	2.3645	0.5796	0.3097	0.8893		6,667.0238	6,667.0238	0.0526		6,668.1273
Worker	1.4301	1.9949	17.2857	0.0595	4.9289	0.0355	4.9644	1.3074	0.0330	1.3403		4,184.6352	4,184.6352	0.1929		4,188.6866
<b>Total</b>	<b>4.1422</b>	<b>20.7804</b>	<b>62.5515</b>	<b>0.1309</b>	<b>6.9568</b>	<b>0.3722</b>	<b>7.3289</b>	<b>1.8869</b>	<b>0.3427</b>	<b>2.2296</b>		<b>10,851.6590</b>	<b>10,851.6590</b>	<b>0.2455</b>		<b>10,856.8140</b>

### 3.5 Building Construction - Residential - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861

Total	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.5931	15.2384	44.0605	0.0713	2.0279	0.2961	2.3241	0.5796	0.2725	0.8520		6,655.8480	6,655.8480	0.0518		6,656.9351
Worker	1.3447	1.8602	16.1199	0.0594	4.9289	0.0357	4.9646	1.3074	0.0331	1.3405		4,112.1585	4,112.1585	0.1840		4,116.0232
Total	3.9377	17.0987	60.1803	0.1308	6.9568	0.3318	7.2886	1.8869	0.3056	2.1925		10,768.0065	10,768.0065	0.2358		10,772.9583

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.5931	15.2384	44.0605	0.0713	2.0279	0.2961	2.3241	0.5796	0.2725	0.8520		6,655.8480	6,655.8480	0.0518		6,656.9351
Worker	1.3447	1.8602	16.1199	0.0594	4.9289	0.0357	4.9646	1.3074	0.0331	1.3405		4,112.1585	4,112.1585	0.1840		4,116.0232
<b>Total</b>	<b>3.9377</b>	<b>17.0987</b>	<b>60.1803</b>	<b>0.1308</b>	<b>6.9568</b>	<b>0.3318</b>	<b>7.2886</b>	<b>1.8869</b>	<b>0.3056</b>	<b>2.1925</b>		<b>10,768.0065</b>	<b>10,768.0065</b>	<b>0.2358</b>		<b>10,772.9583</b>

### 3.5 Building Construction - Residential - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>1.1358</b>	<b>11.3053</b>	<b>12.7781</b>	<b>0.0192</b>		<b>0.5904</b>	<b>0.5904</b>		<b>0.5443</b>	<b>0.5443</b>		<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	2.4713	13.4536	41.9216	0.0712	2.0280	0.2897	2.3177	0.5796	0.2666	0.8462		6,648.3454	6,648.3454	0.0525		6,649.4478
Worker	1.2699	1.7440	15.0848	0.0594	4.9289	0.0359	4.9648	1.3074	0.0333	1.3407		4,048.8742	4,048.8742	0.1765		4,052.5808
<b>Total</b>	<b>3.7412</b>	<b>15.1976</b>	<b>57.0064</b>	<b>0.1306</b>	<b>6.9568</b>	<b>0.3256</b>	<b>7.2825</b>	<b>1.8869</b>	<b>0.2999</b>	<b>2.1868</b>		<b>10,697.2196</b>	<b>10,697.2196</b>	<b>0.2290</b>		<b>10,702.0286</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.4713	13.4536	41.9216	0.0712	2.0280	0.2897	2.3177	0.5796	0.2666	0.8462		6,648.3454	6,648.3454	0.0525		6,649.4478
Worker	1.2699	1.7440	15.0848	0.0594	4.9289	0.0359	4.9648	1.3074	0.0333	1.3407		4,048.8742	4,048.8742	0.1765		4,052.5808
<b>Total</b>	<b>3.7412</b>	<b>15.1976</b>	<b>57.0064</b>	<b>0.1306</b>	<b>6.9568</b>	<b>0.3256</b>	<b>7.2825</b>	<b>1.8869</b>	<b>0.2999</b>	<b>2.1868</b>		<b>10,697.2196</b>	<b>10,697.2196</b>	<b>0.2290</b>		<b>10,702.0286</b>

## 3.6 Building Construction - Village Commercial - 2019

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5683	16.2736	13.1629	0.0192		0.9179	0.9179		0.8456	0.8456		1,882.7650	1,882.7650	0.5850		1,895.0489
<b>Total</b>	<b>1.5683</b>	<b>16.2736</b>	<b>13.1629</b>	<b>0.0192</b>		<b>0.9179</b>	<b>0.9179</b>		<b>0.8456</b>	<b>0.8456</b>		<b>1,882.7650</b>	<b>1,882.7650</b>	<b>0.5850</b>		<b>1,895.0489</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3359	2.4923	5.3034	8.0100e-003	0.2268	0.0429	0.2697	0.0648	0.0395	0.1043		763.2651	763.2651	6.1700e-003		763.3947
Worker	0.4383	0.6142	5.3355	0.0169	1.3965	0.0101	1.4066	0.3704	9.3300e-003	0.3798		1,235.3101	1,235.3101	0.0579		1,236.5262
<b>Total</b>	<b>0.7741</b>	<b>3.1065</b>	<b>10.6389</b>	<b>0.0249</b>	<b>1.6233</b>	<b>0.0530</b>	<b>1.6763</b>	<b>0.4352</b>	<b>0.0488</b>	<b>0.4840</b>		<b>1,998.5752</b>	<b>1,998.5752</b>	<b>0.0641</b>		<b>1,999.9209</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,882.7650	1,882.7650	0.5850		1,895.0489



Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,882.7650	1,882.7650	0.5850		1,895.0489
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3359	2.4923	5.3034	8.0100e-003	0.2268	0.0429	0.2697	0.0648	0.0395	0.1043		763.2651	763.2651	6.1700e-003		763.3947
Worker	0.4383	0.6142	5.3355	0.0169	1.3965	0.0101	1.4066	0.3704	9.3300e-003	0.3798		1,235.3101	1,235.3101	0.0579		1,236.5262
Total	0.7741	3.1065	10.6389	0.0249	1.6233	0.0530	1.6763	0.4352	0.0488	0.4840		1,998.5752	1,998.5752	0.0641		1,999.9209

### 3.6 Building Construction - Village Commercial - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
Total	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3033	2.1010	5.0626	7.9900e-003	0.2268	0.0377	0.2645	0.0648	0.0346	0.0995		745.6540	745.6540	5.8800e-003		745.7774
Worker	0.4052	0.5652	4.8976	0.0169	1.3965	0.0101	1.4066	0.3704	9.3400e-003	0.3798		1,185.6466	1,185.6466	0.0547		1,186.7946
<b>Total</b>	<b>0.7085</b>	<b>2.6662</b>	<b>9.9602</b>	<b>0.0248</b>	<b>1.6233</b>	<b>0.0477</b>	<b>1.6710</b>	<b>0.4352</b>	<b>0.0440</b>	<b>0.4792</b>		<b>1,931.3006</b>	<b>1,931.3006</b>	<b>0.0605</b>		<b>1,932.5720</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.3033	2.1010	5.0626	7.9900e-003	0.2268	0.0377	0.2645	0.0648	0.0346	0.0995		745.6540	745.6540	5.8800e-003		745.7774
Worker	0.4052	0.5652	4.8976	0.0169	1.3965	0.0101	1.4066	0.3704	9.3400e-003	0.3798		1,185.6466	1,185.6466	0.0547		1,186.7946
<b>Total</b>	<b>0.7085</b>	<b>2.6662</b>	<b>9.9602</b>	<b>0.0248</b>	<b>1.6233</b>	<b>0.0477</b>	<b>1.6710</b>	<b>0.4352</b>	<b>0.0440</b>	<b>0.4792</b>		<b>1,931.3006</b>	<b>1,931.3006</b>	<b>0.0605</b>		<b>1,932.5720</b>

### 3.6 Building Construction - Village Commercial - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
<b>Total</b>	<b>1.2682</b>	<b>12.8707</b>	<b>12.8919</b>	<b>0.0192</b>		<b>0.6934</b>	<b>0.6934</b>		<b>0.6391</b>	<b>0.6391</b>		<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2900	1.7043	4.9278	7.9800e-003	0.2268	0.0331	0.2599	0.0648	0.0305	0.0953		744.4041	744.4041	5.7900e-003		744.5256
Worker	0.3810	0.5271	4.5673	0.0168	1.3965	0.0101	1.4066	0.3704	9.3800e-003	0.3798		1,165.1116	1,165.1116	0.0521		1,166.2066
<b>Total</b>	<b>0.6710</b>	<b>2.2314</b>	<b>9.4951</b>	<b>0.0248</b>	<b>1.6233</b>	<b>0.0432</b>	<b>1.6666</b>	<b>0.4352</b>	<b>0.0399</b>	<b>0.4751</b>		<b>1,909.5156</b>	<b>1,909.5156</b>	<b>0.0579</b>		<b>1,910.7322</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2900	1.7043	4.9278	7.9800e-003	0.2268	0.0331	0.2599	0.0648	0.0305	0.0953		744.4041	744.4041	5.7900e-003		744.5256
Worker	0.3810	0.5271	4.5673	0.0168	1.3965	0.0101	1.4066	0.3704	9.3800e-003	0.3798		1,165.1116	1,165.1116	0.0521		1,166.2066
<b>Total</b>	<b>0.6710</b>	<b>2.2314</b>	<b>9.4951</b>	<b>0.0248</b>	<b>1.6233</b>	<b>0.0432</b>	<b>1.6666</b>	<b>0.4352</b>	<b>0.0399</b>	<b>0.4751</b>		<b>1,909.5156</b>	<b>1,909.5156</b>	<b>0.0579</b>		<b>1,910.7322</b>

### 3.6 Building Construction - Village Commercial - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817

Total	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2764	1.5047	4.6886	7.9600e-003	0.2268	0.0324	0.2592	0.0648	0.0298	0.0946		743.5650	743.5650	5.8700e-003		743.6882
Worker	0.3598	0.4941	4.2740	0.0168	1.3965	0.0102	1.4067	0.3704	9.4300e-003	0.3799		1,147.1810	1,147.1810	0.0500		1,148.2312
Total	0.6362	1.9988	8.9626	0.0248	1.6233	0.0426	1.6659	0.4352	0.0392	0.4745		1,890.7460	1,890.7460	0.0559		1,891.9195

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
Total	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2764	1.5047	4.6886	7.9600e-003	0.2268	0.0324	0.2592	0.0648	0.0298	0.0946		743.5650	743.5650	5.8700e-003		743.6882
Worker	0.3598	0.4941	4.2740	0.0168	1.3965	0.0102	1.4067	0.3704	9.4300e-003	0.3799		1,147.1810	1,147.1810	0.0500		1,148.2312
<b>Total</b>	<b>0.6362</b>	<b>1.9988</b>	<b>8.9626</b>	<b>0.0248</b>	<b>1.6233</b>	<b>0.0426</b>	<b>1.6659</b>	<b>0.4352</b>	<b>0.0392</b>	<b>0.4745</b>		<b>1,890.7460</b>	<b>1,890.7460</b>	<b>0.0559</b>		<b>1,891.9195</b>

### 3.7 Paving - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0335	21.7028	18.2218	0.0280		1.1433	1.1433		1.0518	1.0518		2,769.2459	2,769.2459	0.8762		2,787.6453
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.2743</b>	<b>21.7028</b>	<b>18.2218</b>	<b>0.0280</b>		<b>1.1433</b>	<b>1.1433</b>		<b>1.0518</b>	<b>1.0518</b>		<b>2,769.2459</b>	<b>2,769.2459</b>	<b>0.8762</b>		<b>2,787.6453</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0413	0.0578	0.5022	1.5900e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0357		116.2645	116.2645	5.4500e-003		116.3789
<b>Total</b>	<b>0.0413</b>	<b>0.0578</b>	<b>0.5022</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0357</b>		<b>116.2645</b>	<b>116.2645</b>	<b>5.4500e-003</b>		<b>116.3789</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,769.2459	2,769.2459	0.8762		2,787.6453
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3542</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,769.2459</b>	<b>2,769.2459</b>	<b>0.8762</b>		<b>2,787.6453</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0413	0.0578	0.5022	1.5900e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0357		116.2645	116.2645	5.4500e-003		116.3789
<b>Total</b>	<b>0.0413</b>	<b>0.0578</b>	<b>0.5022</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0357</b>		<b>116.2645</b>	<b>116.2645</b>	<b>5.4500e-003</b>		<b>116.3789</b>

### 3.7 Paving - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8999	20.0118	18.1592	0.0280		1.0506	1.0506		0.9665	0.9665		2,708.7855	2,708.7855	0.8761		2,727.1831
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.1407</b>	<b>20.0118</b>	<b>18.1592</b>	<b>0.0280</b>		<b>1.0506</b>	<b>1.0506</b>		<b>0.9665</b>	<b>0.9665</b>		<b>2,708.7855</b>	<b>2,708.7855</b>	<b>0.8761</b>		<b>2,727.1831</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0381	0.0532	0.4610	1.5900e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0357		111.5903	111.5903	5.1400e-003		111.6983
<b>Total</b>	<b>0.0381</b>	<b>0.0532</b>	<b>0.4610</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0357</b>		<b>111.5903</b>	<b>111.5903</b>	<b>5.1400e-003</b>		<b>111.6983</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,708.7855	2,708.7855	0.8761		2,727.1831



Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3542</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,708.7855</b>	<b>2,708.7855</b>	<b>0.8761</b>		<b>2,727.1831</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0381	0.0532	0.4610	1.5900e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0357		111.5903	111.5903	5.1400e-003		111.6983
<b>Total</b>	<b>0.0381</b>	<b>0.0532</b>	<b>0.4610</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0357</b>		<b>111.5903</b>	<b>111.5903</b>	<b>5.1400e-003</b>		<b>111.6983</b>

### 3.7 Paving - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6870	17.5365	18.0326	0.0280		0.9087	0.9087		0.8360	0.8360		2,707.7743	2,707.7743	0.8758		2,726.1651
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.9278</b>	<b>17.5365</b>	<b>18.0326</b>	<b>0.0280</b>		<b>0.9087</b>	<b>0.9087</b>		<b>0.8360</b>	<b>0.8360</b>		<b>2,707.7743</b>	<b>2,707.7743</b>	<b>0.8758</b>		<b>2,726.1651</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0359	0.0496	0.4299	1.5900e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0358		109.6576	109.6576	4.9100e-003		109.7606
<b>Total</b>	<b>0.0359</b>	<b>0.0496</b>	<b>0.4299</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0358</b>		<b>109.6576</b>	<b>109.6576</b>	<b>4.9100e-003</b>		<b>109.7606</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,707.7743	2,707.7743	0.8758		2,726.1650
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3542</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,707.7743</b>	<b>2,707.7743</b>	<b>0.8758</b>		<b>2,726.1650</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0359	0.0496	0.4299	1.5900e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0358		109.6576	109.6576	4.9100e-003		109.7606
<b>Total</b>	<b>0.0359</b>	<b>0.0496</b>	<b>0.4299</b>	<b>1.5900e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0358</b>		<b>109.6576</b>	<b>109.6576</b>	<b>4.9100e-003</b>		<b>109.7606</b>

### 3.7 Paving - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4873	15.0594	17.9075	0.0280		0.7705	0.7705		0.7089	0.7089		2,707.7966	2,707.7966	0.8758		2,726.1875
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.7281</b>	<b>15.0594</b>	<b>17.9075</b>	<b>0.0280</b>		<b>0.7705</b>	<b>0.7705</b>		<b>0.7089</b>	<b>0.7089</b>		<b>2,707.7966</b>	<b>2,707.7966</b>	<b>0.8758</b>		<b>2,726.1875</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0339	0.0465	0.4023	1.5800e-003	0.1314	9.6000e-004	0.1324	0.0349	8.9000e-004	0.0358		107.9700	107.9700	4.7100e-003		108.0688
<b>Total</b>	<b>0.0339</b>	<b>0.0465</b>	<b>0.4023</b>	<b>1.5800e-003</b>	<b>0.1314</b>	<b>9.6000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.9000e-004</b>	<b>0.0358</b>		<b>107.9700</b>	<b>107.9700</b>	<b>4.7100e-003</b>		<b>108.0688</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,707.7966	2,707.7966	0.8758		2,726.1875
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3542</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,707.7966</b>	<b>2,707.7966</b>	<b>0.8758</b>		<b>2,726.1875</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0339	0.0465	0.4023	1.5800e-003	0.1314	9.6000e-004	0.1324	0.0349	8.9000e-004	0.0358		107.9700	107.9700	4.7100e-003		108.0688
<b>Total</b>	<b>0.0339</b>	<b>0.0465</b>	<b>0.4023</b>	<b>1.5800e-003</b>	<b>0.1314</b>	<b>9.6000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.9000e-004</b>	<b>0.0358</b>		<b>107.9700</b>	<b>107.9700</b>	<b>4.7100e-003</b>		<b>108.0688</b>

### 3.8 Building Construction - Office/R&D - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5683	16.2736	13.1629	0.0192		0.9179	0.9179		0.8456	0.8456		1,882.7650	1,882.7650	0.5850		1,895.0489

Total	1.5683	16.2736	13.1629	0.0192		0.9179	0.9179		0.8456	0.8456		1,882.7650	1,882.7650	0.5850		1,895.0489
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9680	7.1837	15.2864	0.0231	0.6537	0.1237	0.7774	0.1868	0.1138	0.3006		2,199.9994	2,199.9994	0.0178		2,200.3731
Worker	0.9023	1.2646	10.9848	0.0347	2.8752	0.0207	2.8959	0.7626	0.0192	0.7818		2,543.2855	2,543.2855	0.1192		2,545.7892
Total	1.8704	8.4483	26.2712	0.0578	3.5289	0.1444	3.6733	0.9495	0.1330	1.0825		4,743.2849	4,743.2849	0.1370		4,746.1623

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,882.7650	1,882.7650	0.5850		1,895.0489
Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,882.7650	1,882.7650	0.5850		1,895.0489

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.9680	7.1837	15.2864	0.0231	0.6537	0.1237	0.7774	0.1868	0.1138	0.3006		2,199.9994	2,199.9994	0.0178		2,200.3731
Worker	0.9023	1.2646	10.9848	0.0347	2.8752	0.0207	2.8959	0.7626	0.0192	0.7818		2,543.2855	2,543.2855	0.1192		2,545.7892
<b>Total</b>	<b>1.8704</b>	<b>8.4483</b>	<b>26.2712</b>	<b>0.0578</b>	<b>3.5289</b>	<b>0.1444</b>	<b>3.6733</b>	<b>0.9495</b>	<b>0.1330</b>	<b>1.0825</b>		<b>4,743.2849</b>	<b>4,743.2849</b>	<b>0.1370</b>		<b>4,746.1623</b>

### 3.8 Building Construction - Office/R&D - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>1.4601</b>	<b>14.9958</b>	<b>13.0640</b>	<b>0.0192</b>		<b>0.8302</b>	<b>0.8302</b>		<b>0.7650</b>	<b>0.7650</b>		<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.8743	6.0559	14.5923	0.0230	0.6537	0.1085	0.7623	0.1868	0.0998	0.2867		2,149.2380	2,149.2380	0.0169		2,149.5937
Worker	0.8343	1.1637	10.0833	0.0347	2.8752	0.0207	2.8959	0.7626	0.0192	0.7819		2,441.0372	2,441.0372	0.1125		2,443.4005
<b>Total</b>	<b>1.7085</b>	<b>7.2196</b>	<b>24.6756</b>	<b>0.0577</b>	<b>3.5289</b>	<b>0.1293</b>	<b>3.6581</b>	<b>0.9495</b>	<b>0.1191</b>	<b>1.0685</b>		<b>4,590.2751</b>	<b>4,590.2751</b>	<b>0.1295</b>		<b>4,592.9942</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8743	6.0559	14.5923	0.0230	0.6537	0.1085	0.7623	0.1868	0.0998	0.2867		2,149.2380	2,149.2380	0.0169		2,149.5937
Worker	0.8343	1.1637	10.0833	0.0347	2.8752	0.0207	2.8959	0.7626	0.0192	0.7819		2,441.0372	2,441.0372	0.1125		2,443.4005
<b>Total</b>	<b>1.7085</b>	<b>7.2196</b>	<b>24.6756</b>	<b>0.0577</b>	<b>3.5289</b>	<b>0.1293</b>	<b>3.6581</b>	<b>0.9495</b>	<b>0.1191</b>	<b>1.0685</b>		<b>4,590.2751</b>	<b>4,590.2751</b>	<b>0.1295</b>		<b>4,592.9942</b>

## 3.8 Building Construction - Office/R&D - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
<b>Total</b>	<b>1.2682</b>	<b>12.8707</b>	<b>12.8919</b>	<b>0.0192</b>		<b>0.6934</b>	<b>0.6934</b>		<b>0.6391</b>	<b>0.6391</b>		<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8359	4.9124	14.2037	0.0230	0.6537	0.0955	0.7492	0.1868	0.0878	0.2747		2,145.6352	2,145.6352	0.0167		2,145.9857
Worker	0.7844	1.0851	9.4033	0.0347	2.8752	0.0208	2.8960	0.7626	0.0193	0.7819		2,398.7591	2,398.7591	0.1074		2,401.0135
<b>Total</b>	<b>1.6203</b>	<b>5.9975</b>	<b>23.6070</b>	<b>0.0577</b>	<b>3.5289</b>	<b>0.1163</b>	<b>3.6452</b>	<b>0.9495</b>	<b>0.1071</b>	<b>1.0566</b>		<b>4,544.3943</b>	<b>4,544.3943</b>	<b>0.1240</b>		<b>4,546.9992</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861



Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8359	4.9124	14.2037	0.0230	0.6537	0.0955	0.7492	0.1868	0.0878	0.2747		2,145.6352	2,145.6352	0.0167		2,145.9857
Worker	0.7844	1.0851	9.4033	0.0347	2.8752	0.0208	2.8960	0.7626	0.0193	0.7819		2,398.7591	2,398.7591	0.1074		2,401.0135
Total	1.6203	5.9975	23.6070	0.0577	3.5289	0.1163	3.6452	0.9495	0.1071	1.0566		4,544.3943	4,544.3943	0.1240		4,546.9992

### 3.8 Building Construction - Office/R&D - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
Total	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7967	4.3370	13.5142	0.0230	0.6538	0.0934	0.7472	0.1868	0.0859	0.2728		2,143.2166	2,143.2166	0.0169		2,143.5720
Worker	0.7408	1.0173	8.7995	0.0347	2.8752	0.0209	2.8961	0.7626	0.0194	0.7821		2,361.8433	2,361.8433	0.1030		2,364.0055
<b>Total</b>	<b>1.5374</b>	<b>5.3544</b>	<b>22.3137</b>	<b>0.0576</b>	<b>3.5289</b>	<b>0.1143</b>	<b>3.6433</b>	<b>0.9495</b>	<b>0.1054</b>	<b>1.0548</b>		<b>4,505.0599</b>	<b>4,505.0599</b>	<b>0.1199</b>		<b>4,507.5775</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.7967	4.3370	13.5142	0.0230	0.6538	0.0934	0.7472	0.1868	0.0859	0.2728		2,143.2166	2,143.2166	0.0169		2,143.5720
Worker	0.7408	1.0173	8.7995	0.0347	2.8752	0.0209	2.8961	0.7626	0.0194	0.7821		2,361.8433	2,361.8433	0.1030		2,364.0055
<b>Total</b>	<b>1.5374</b>	<b>5.3544</b>	<b>22.3137</b>	<b>0.0576</b>	<b>3.5289</b>	<b>0.1143</b>	<b>3.6433</b>	<b>0.9495</b>	<b>0.1054</b>	<b>1.0548</b>		<b>4,505.0599</b>	<b>4,505.0599</b>	<b>0.1199</b>		<b>4,507.5775</b>

### 3.9 Architectural Coating - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	2.1315	14.6831	14.7306	0.0238		1.0301	1.0301		1.0301	1.0301		2,251.5844	2,251.5844	0.1902		2,255.5781
<b>Total</b>	<b>110.7773</b>	<b>14.6831</b>	<b>14.7306</b>	<b>0.0238</b>		<b>1.0301</b>	<b>1.0301</b>		<b>1.0301</b>	<b>1.0301</b>		<b>2,251.5844</b>	<b>2,251.5844</b>	<b>0.1902</b>		<b>2,255.5781</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.1704	1.6403	14.2489	0.0450	3.7295	0.0269	3.7564	0.9892	0.0249	1.0142		3,299.0046	3,299.0046	0.1547		3,302.2523
<b>Total</b>	<b>1.1704</b>	<b>1.6403</b>	<b>14.2489</b>	<b>0.0450</b>	<b>3.7295</b>	<b>0.0269</b>	<b>3.7564</b>	<b>0.9892</b>	<b>0.0249</b>	<b>1.0142</b>		<b>3,299.0046</b>	<b>3,299.0046</b>	<b>0.1547</b>		<b>3,302.2523</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.9113	18.8194	14.6593	0.0238		0.7607	0.7607		0.7607	0.7607	0.0000	2,251.5844	2,251.5844	0.1902		2,255.5781
<b>Total</b>	<b>109.5570</b>	<b>18.8194</b>	<b>14.6593</b>	<b>0.0238</b>		<b>0.7607</b>	<b>0.7607</b>		<b>0.7607</b>	<b>0.7607</b>	<b>0.0000</b>	<b>2,251.5844</b>	<b>2,251.5844</b>	<b>0.1902</b>		<b>2,255.5781</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.1704	1.6403	14.2489	0.0450	3.7295	0.0269	3.7564	0.9892	0.0249	1.0142		3,299.0046	3,299.0046	0.1547		3,302.2523
<b>Total</b>	<b>1.1704</b>	<b>1.6403</b>	<b>14.2489</b>	<b>0.0450</b>	<b>3.7295</b>	<b>0.0269</b>	<b>3.7564</b>	<b>0.9892</b>	<b>0.0249</b>	<b>1.0142</b>		<b>3,299.0046</b>	<b>3,299.0046</b>	<b>0.1547</b>		<b>3,302.2523</b>

### 3.9 Architectural Coating - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Off-Road	1.9374	13.4707	14.6514	0.0238		0.8875	0.8875		0.8875	0.8875		2,251.584 4	2,251.5844	0.1743		2,255.245 3
<b>Total</b>	<b>110.5831</b>	<b>13.4707</b>	<b>14.6514</b>	<b>0.0238</b>		<b>0.8875</b>	<b>0.8875</b>		<b>0.8875</b>	<b>0.8875</b>		<b>2,251.584 4</b>	<b>2,251.5844</b>	<b>0.1743</b>		<b>2,255.245 3</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0821	1.5095	13.0795	0.0450	3.7295	0.0269	3.7564	0.9892	0.0249	1.0142		3,166.374 0	3,166.3740	0.1460		3,169.439 6
<b>Total</b>	<b>1.0821</b>	<b>1.5095</b>	<b>13.0795</b>	<b>0.0450</b>	<b>3.7295</b>	<b>0.0269</b>	<b>3.7564</b>	<b>0.9892</b>	<b>0.0249</b>	<b>1.0142</b>		<b>3,166.374 0</b>	<b>3,166.3740</b>	<b>0.1460</b>		<b>3,169.439 6</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.9113	18.8194	14.6593	0.0238		0.7607	0.7607		0.7607	0.7607	0.0000	2,251.584 4	2,251.5844	0.1743		2,255.245 3
<b>Total</b>	<b>109.5570</b>	<b>18.8194</b>	<b>14.6593</b>	<b>0.0238</b>		<b>0.7607</b>	<b>0.7607</b>		<b>0.7607</b>	<b>0.7607</b>	<b>0.0000</b>	<b>2,251.584 4</b>	<b>2,251.5844</b>	<b>0.1743</b>		<b>2,255.245 3</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0821	1.5095	13.0795	0.0450	3.7295	0.0269	3.7564	0.9892	0.0249	1.0142		3,166.3740	3,166.3740	0.1460		3,169.4396
<b>Total</b>	<b>1.0821</b>	<b>1.5095</b>	<b>13.0795</b>	<b>0.0450</b>	<b>3.7295</b>	<b>0.0269</b>	<b>3.7564</b>	<b>0.9892</b>	<b>0.0249</b>	<b>1.0142</b>		<b>3,166.3740</b>	<b>3,166.3740</b>	<b>0.1460</b>		<b>3,169.4396</b>

### 3.9 Architectural Coating - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.7512	12.2148	14.5404	0.0238		0.7528	0.7528		0.7528	0.7528		2,251.5844	2,251.5844	0.1545		2,254.8292
<b>Total</b>	<b>110.3969</b>	<b>12.2148</b>	<b>14.5404</b>	<b>0.0238</b>		<b>0.7528</b>	<b>0.7528</b>		<b>0.7528</b>	<b>0.7528</b>		<b>2,251.5844</b>	<b>2,251.5844</b>	<b>0.1545</b>		<b>2,254.8292</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0175	1.4076	12.1974	0.0450	3.7295	0.0270	3.7565	0.9892	0.0251	1.0143		3,111.5333	3,111.5333	0.1393		3,114.4576
<b>Total</b>	<b>1.0175</b>	<b>1.4076</b>	<b>12.1974</b>	<b>0.0450</b>	<b>3.7295</b>	<b>0.0270</b>	<b>3.7565</b>	<b>0.9892</b>	<b>0.0251</b>	<b>1.0143</b>		<b>3,111.5333</b>	<b>3,111.5333</b>	<b>0.1393</b>		<b>3,114.4576</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.9113	18.8194	14.6593	0.0238		0.7607	0.7607		0.7607	0.7607	0.0000	2,251.5844	2,251.5844	0.1545		2,254.8292
<b>Total</b>	<b>109.5570</b>	<b>18.8194</b>	<b>14.6593</b>	<b>0.0238</b>		<b>0.7607</b>	<b>0.7607</b>		<b>0.7607</b>	<b>0.7607</b>	<b>0.0000</b>	<b>2,251.5844</b>	<b>2,251.5844</b>	<b>0.1545</b>		<b>2,254.8292</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.0175	1.4076	12.1974	0.0450	3.7295	0.0270	3.7565	0.9892	0.0251	1.0143		3,111.5333	3,111.5333	0.1393		3,114.4576
<b>Total</b>	<b>1.0175</b>	<b>1.4076</b>	<b>12.1974</b>	<b>0.0450</b>	<b>3.7295</b>	<b>0.0270</b>	<b>3.7565</b>	<b>0.9892</b>	<b>0.0251</b>	<b>1.0143</b>		<b>3,111.5333</b>	<b>3,111.5333</b>	<b>0.1393</b>		<b>3,114.4576</b>

### **3.9 Architectural Coating - 2022**

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.6363	11.2679	14.5087	0.0238		0.6537	0.6537		0.6537	0.6537		2,251.5844	2,251.5844	0.1466		2,254.6628
<b>Total</b>	<b>110.2820</b>	<b>11.2679</b>	<b>14.5087</b>	<b>0.0238</b>		<b>0.6537</b>	<b>0.6537</b>		<b>0.6537</b>	<b>0.6537</b>		<b>2,251.5844</b>	<b>2,251.5844</b>	<b>0.1466</b>		<b>2,254.6628</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.9609	1.3196	11.4142	0.0450	3.7295	0.0272	3.7567	0.9892	0.0252	1.0144		3,063.6481	3,063.6481	0.1336		3,066.4528
<b>Total</b>	<b>0.9609</b>	<b>1.3196</b>	<b>11.4142</b>	<b>0.0450</b>	<b>3.7295</b>	<b>0.0272</b>	<b>3.7567</b>	<b>0.9892</b>	<b>0.0252</b>	<b>1.0144</b>		<b>3,063.6481</b>	<b>3,063.6481</b>	<b>0.1336</b>		<b>3,066.4528</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000



Off-Road	0.9113	18.8194	14.6593	0.0238		0.7607	0.7607		0.7607	0.7607	0.0000	2,251.5844	2,251.5844	0.1466		2,254.6628
<b>Total</b>	<b>109.5570</b>	<b>18.8194</b>	<b>14.6593</b>	<b>0.0238</b>		<b>0.7607</b>	<b>0.7607</b>		<b>0.7607</b>	<b>0.7607</b>	<b>0.0000</b>	<b>2,251.5844</b>	<b>2,251.5844</b>	<b>0.1466</b>		<b>2,254.6628</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.9609	1.3196	11.4142	0.0450	3.7295	0.0272	3.7567	0.9892	0.0252	1.0144		3,063.6481	3,063.6481	0.1336		3,066.4528
<b>Total</b>	<b>0.9609</b>	<b>1.3196</b>	<b>11.4142</b>	<b>0.0450</b>	<b>3.7295</b>	<b>0.0272</b>	<b>3.7567</b>	<b>0.9892</b>	<b>0.0252</b>	<b>1.0144</b>		<b>3,063.6481</b>	<b>3,063.6481</b>	<b>0.1336</b>		<b>3,066.4528</b>

### 3.10 Building Construction - Freeway Commercial - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5683	16.2736	13.1629	0.0192		0.9179	0.9179		0.8456	0.8456		1,882.7650	1,882.7650	0.5850		1,895.0489
<b>Total</b>	<b>1.5683</b>	<b>16.2736</b>	<b>13.1629</b>	<b>0.0192</b>		<b>0.9179</b>	<b>0.9179</b>		<b>0.8456</b>	<b>0.8456</b>		<b>1,882.7650</b>	<b>1,882.7650</b>	<b>0.5850</b>		<b>1,895.0489</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2766	2.0525	4.3675	6.5900e-003	0.1868	0.0353	0.2221	0.0534	0.0325	0.0859		628.5713	628.5713	5.0800e-003		628.6780
Worker	0.4383	0.6142	5.3355	0.0169	1.3965	0.0101	1.4066	0.3704	9.3300e-003	0.3798		1,235.3101	1,235.3101	0.0579		1,236.5262
<b>Total</b>	<b>0.7148</b>	<b>2.6667</b>	<b>9.7030</b>	<b>0.0234</b>	<b>1.5833</b>	<b>0.0454</b>	<b>1.6287</b>	<b>0.4238</b>	<b>0.0418</b>	<b>0.4656</b>		<b>1,863.8814</b>	<b>1,863.8814</b>	<b>0.0630</b>		<b>1,865.2042</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,882.7650	1,882.7650	0.5850		1,895.0489
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,882.7650</b>	<b>1,882.7650</b>	<b>0.5850</b>		<b>1,895.0489</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.2766	2.0525	4.3675	6.5900e-003	0.1868	0.0353	0.2221	0.0534	0.0325	0.0859		628.5713	628.5713	5.0800e-003		628.6780
Worker	0.4383	0.6142	5.3355	0.0169	1.3965	0.0101	1.4066	0.3704	9.3300e-003	0.3798		1,235.3101	1,235.3101	0.0579		1,236.5262
<b>Total</b>	<b>0.7148</b>	<b>2.6667</b>	<b>9.7030</b>	<b>0.0234</b>	<b>1.5833</b>	<b>0.0454</b>	<b>1.6287</b>	<b>0.4238</b>	<b>0.0418</b>	<b>0.4656</b>		<b>1,863.8814</b>	<b>1,863.8814</b>	<b>0.0630</b>		<b>1,865.2042</b>

### 3.10 Building Construction - Freeway Commercial - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>1.4601</b>	<b>14.9958</b>	<b>13.0640</b>	<b>0.0192</b>		<b>0.8302</b>	<b>0.8302</b>		<b>0.7650</b>	<b>0.7650</b>		<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2498	1.7303	4.1692	6.5800e-003	0.1868	0.0310	0.2178	0.0534	0.0285	0.0819		614.0680	614.0680	4.8400e-003		614.1696
Worker	0.4052	0.5652	4.8976	0.0169	1.3965	0.0101	1.4066	0.3704	9.3400e-003	0.3798		1,185.6466	1,185.6466	0.0547		1,186.7946
<b>Total</b>	<b>0.6550</b>	<b>2.2955</b>	<b>9.0668</b>	<b>0.0234</b>	<b>1.5833</b>	<b>0.0411</b>	<b>1.6244</b>	<b>0.4238</b>	<b>0.0379</b>	<b>0.4617</b>		<b>1,799.7146</b>	<b>1,799.7146</b>	<b>0.0595</b>		<b>1,800.9642</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2498	1.7303	4.1692	6.5800e-003	0.1868	0.0310	0.2178	0.0534	0.0285	0.0819		614.0680	614.0680	4.8400e-003		614.1696
Worker	0.4052	0.5652	4.8976	0.0169	1.3965	0.0101	1.4066	0.3704	9.3400e-003	0.3798		1,185.6466	1,185.6466	0.0547		1,186.7946
<b>Total</b>	<b>0.6550</b>	<b>2.2955</b>	<b>9.0668</b>	<b>0.0234</b>	<b>1.5833</b>	<b>0.0411</b>	<b>1.6244</b>	<b>0.4238</b>	<b>0.0379</b>	<b>0.4617</b>		<b>1,799.7146</b>	<b>1,799.7146</b>	<b>0.0595</b>		<b>1,800.9642</b>

### 3.10 Building Construction - Freeway Commercial - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861

Total	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2388	1.4035	4.0582	6.5700e-003	0.1868	0.0273	0.2141	0.0534	0.0251	0.0785		613.0386	613.0386	4.7700e-003		613.1388
Worker	0.3810	0.5271	4.5673	0.0168	1.3965	0.0101	1.4066	0.3704	9.3800e-003	0.3798		1,165.1116	1,165.1116	0.0521		1,166.2066
Total	0.6198	1.9306	8.6255	0.0234	1.5833	0.0374	1.6207	0.4238	0.0345	0.4583		1,778.1502	1,778.1502	0.0569		1,779.3453

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2388	1.4035	4.0582	6.5700e-003	0.1868	0.0273	0.2141	0.0534	0.0251	0.0785		613.0386	613.0386	4.7700e-003		613.1388
Worker	0.3810	0.5271	4.5673	0.0168	1.3965	0.0101	1.4066	0.3704	9.3800e-003	0.3798		1,165.1116	1,165.1116	0.0521		1,166.2066
<b>Total</b>	<b>0.6198</b>	<b>1.9306</b>	<b>8.6255</b>	<b>0.0234</b>	<b>1.5833</b>	<b>0.0374</b>	<b>1.6207</b>	<b>0.4238</b>	<b>0.0345</b>	<b>0.4583</b>		<b>1,778.1502</b>	<b>1,778.1502</b>	<b>0.0569</b>		<b>1,779.3453</b>

### 3.10 Building Construction - Freeway Commercial - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>1.1358</b>	<b>11.3053</b>	<b>12.7781</b>	<b>0.0192</b>		<b>0.5904</b>	<b>0.5904</b>		<b>0.5443</b>	<b>0.5443</b>		<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.2276	1.2392	3.8612	6.5600e-003	0.1868	0.0267	0.2135	0.0534	0.0246	0.0779		612.3476	612.3476	4.8300e-003		612.4491
Worker	0.3598	0.4941	4.2740	0.0168	1.3965	0.0102	1.4067	0.3704	9.4300e-003	0.3799		1,147.1810	1,147.1810	0.0500		1,148.2312
<b>Total</b>	<b>0.5874</b>	<b>1.7333</b>	<b>8.1352</b>	<b>0.0234</b>	<b>1.5833</b>	<b>0.0369</b>	<b>1.6202</b>	<b>0.4238</b>	<b>0.0340</b>	<b>0.4578</b>		<b>1,759.5286</b>	<b>1,759.5286</b>	<b>0.0548</b>		<b>1,760.6804</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2276	1.2392	3.8612	6.5600e-003	0.1868	0.0267	0.2135	0.0534	0.0246	0.0779		612.3476	612.3476	4.8300e-003		612.4491
Worker	0.3598	0.4941	4.2740	0.0168	1.3965	0.0102	1.4067	0.3704	9.4300e-003	0.3799		1,147.1810	1,147.1810	0.0500		1,148.2312
<b>Total</b>	<b>0.5874</b>	<b>1.7333</b>	<b>8.1352</b>	<b>0.0234</b>	<b>1.5833</b>	<b>0.0369</b>	<b>1.6202</b>	<b>0.4238</b>	<b>0.0340</b>	<b>0.4578</b>		<b>1,759.5286</b>	<b>1,759.5286</b>	<b>0.0548</b>		<b>1,760.6804</b>

## 3.11 Building Construction - Elem. & Middle School - 2020

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>1.4601</b>	<b>14.9958</b>	<b>13.0640</b>	<b>0.0192</b>		<b>0.8302</b>	<b>0.8302</b>		<b>0.7650</b>	<b>0.7650</b>		<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2676	1.8538	4.4670	7.0500e-003	0.2001	0.0332	0.2333	0.0572	0.0306	0.0878		657.9300	657.9300	5.1900e-003		658.0389
Worker	0.5721	0.7980	6.9143	0.0238	1.9715	0.0142	1.9858	0.5230	0.0132	0.5361		1,673.8541	1,673.8541	0.0772		1,675.4747
<b>Total</b>	<b>0.8397</b>	<b>2.6518</b>	<b>11.3813</b>	<b>0.0308</b>	<b>2.1717</b>	<b>0.0474</b>	<b>2.2191</b>	<b>0.5801</b>	<b>0.0437</b>	<b>0.6239</b>		<b>2,331.7841</b>	<b>2,331.7841</b>	<b>0.0824</b>		<b>2,333.5135</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810



Total	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2676	1.8538	4.4670	7.0500e-003	0.2001	0.0332	0.2333	0.0572	0.0306	0.0878		657.9300	657.9300	5.1900e-003		658.0389
Worker	0.5721	0.7980	6.9143	0.0238	1.9715	0.0142	1.9858	0.5230	0.0132	0.5361		1,673.8541	1,673.8541	0.0772		1,675.4747
Total	0.8397	2.6518	11.3813	0.0308	2.1717	0.0474	2.2191	0.5801	0.0437	0.6239		2,331.7841	2,331.7841	0.0824		2,333.5135

### 3.11 Building Construction - Elem. & Middle School - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
Total	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2559	1.5038	4.3481	7.0400e-003	0.2001	0.0292	0.2294	0.0572	0.0269	0.0841		656.8271	656.8271	5.1100e-003		656.9344
Worker	0.5379	0.7441	6.4479	0.0238	1.9715	0.0143	1.9858	0.5230	0.0132	0.5362		1,644.8634	1,644.8634	0.0736		1,646.4093
<b>Total</b>	<b>0.7938</b>	<b>2.2479</b>	<b>10.7960</b>	<b>0.0308</b>	<b>2.1717</b>	<b>0.0435</b>	<b>2.2152</b>	<b>0.5801</b>	<b>0.0401</b>	<b>0.6203</b>		<b>2,301.6905</b>	<b>2,301.6905</b>	<b>0.0787</b>		<b>2,303.3437</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.2559	1.5038	4.3481	7.0400e-003	0.2001	0.0292	0.2294	0.0572	0.0269	0.0841		656.8271	656.8271	5.1100e-003		656.9344
Worker	0.5379	0.7441	6.4479	0.0238	1.9715	0.0143	1.9858	0.5230	0.0132	0.5362		1,644.8634	1,644.8634	0.0736		1,646.4093
<b>Total</b>	<b>0.7938</b>	<b>2.2479</b>	<b>10.7960</b>	<b>0.0308</b>	<b>2.1717</b>	<b>0.0435</b>	<b>2.2152</b>	<b>0.5801</b>	<b>0.0401</b>	<b>0.6203</b>		<b>2,301.6905</b>	<b>2,301.6905</b>	<b>0.0787</b>		<b>2,303.3437</b>

### 3.12 Building Construction - High School - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>1.4601</b>	<b>14.9958</b>	<b>13.0640</b>	<b>0.0192</b>		<b>0.8302</b>	<b>0.8302</b>		<b>0.7650</b>	<b>0.7650</b>		<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3033	2.1010	5.0626	7.9900e-003	0.2268	0.0377	0.2645	0.0648	0.0346	0.0995		745.6540	745.6540	5.8800e-003		745.7774
Worker	0.9534	1.3299	11.5238	0.0397	3.2859	0.0237	3.3096	0.8716	0.0220	0.8935		2,789.7568	2,789.7568	0.1286		2,792.4578
<b>Total</b>	<b>1.2568</b>	<b>3.4309</b>	<b>16.5864</b>	<b>0.0476</b>	<b>3.5127</b>	<b>0.0613</b>	<b>3.5740</b>	<b>0.9364</b>	<b>0.0566</b>	<b>0.9930</b>		<b>3,535.4108</b>	<b>3,535.4108</b>	<b>0.1345</b>		<b>3,538.2352</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3033	2.1010	5.0626	7.9900e-003	0.2268	0.0377	0.2645	0.0648	0.0346	0.0995		745.6540	745.6540	5.8800e-003		745.7774
Worker	0.9534	1.3299	11.5238	0.0397	3.2859	0.0237	3.3096	0.8716	0.0220	0.8935		2,789.7568	2,789.7568	0.1286		2,792.4578
<b>Total</b>	<b>1.2568</b>	<b>3.4309</b>	<b>16.5864</b>	<b>0.0476</b>	<b>3.5127</b>	<b>0.0613</b>	<b>3.5740</b>	<b>0.9364</b>	<b>0.0566</b>	<b>0.9930</b>		<b>3,535.4108</b>	<b>3,535.4108</b>	<b>0.1345</b>		<b>3,538.2352</b>

### 3.12 Building Construction - High School - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861

<b>Total</b>	<b>1.2682</b>	<b>12.8707</b>	<b>12.8919</b>	<b>0.0192</b>		<b>0.6934</b>	<b>0.6934</b>		<b>0.6391</b>	<b>0.6391</b>		<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2900	1.7043	4.9278	7.9800e-003	0.2268	0.0331	0.2599	0.0648	0.0305	0.0953		744.4041	744.4041	5.7900e-003		744.5256
Worker	0.8965	1.2402	10.7466	0.0396	3.2859	0.0238	3.3097	0.8716	0.0221	0.8936		2,741.4390	2,741.4390	0.1227		2,744.0155
<b>Total</b>	<b>1.1865</b>	<b>2.9445</b>	<b>15.6744</b>	<b>0.0476</b>	<b>3.5127</b>	<b>0.0569</b>	<b>3.5696</b>	<b>0.9364</b>	<b>0.0525</b>	<b>0.9889</b>		<b>3,485.8430</b>	<b>3,485.8430</b>	<b>0.1285</b>		<b>3,488.5411</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2900	1.7043	4.9278	7.9800e-003	0.2268	0.0331	0.2599	0.0648	0.0305	0.0953		744.4041	744.4041	5.7900e-003		744.5256
Worker	0.8965	1.2402	10.7466	0.0396	3.2859	0.0238	3.3097	0.8716	0.0221	0.8936		2,741.4390	2,741.4390	0.1227		2,744.0155
<b>Total</b>	<b>1.1865</b>	<b>2.9445</b>	<b>15.6744</b>	<b>0.0476</b>	<b>3.5127</b>	<b>0.0569</b>	<b>3.5696</b>	<b>0.9364</b>	<b>0.0525</b>	<b>0.9889</b>		<b>3,485.8430</b>	<b>3,485.8430</b>	<b>0.1285</b>		<b>3,488.5411</b>

### 3.12 Building Construction - High School - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>1.1358</b>	<b>11.3053</b>	<b>12.7781</b>	<b>0.0192</b>		<b>0.5904</b>	<b>0.5904</b>		<b>0.5443</b>	<b>0.5443</b>		<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.2764	1.5047	4.6886	7.9600e-003	0.2268	0.0324	0.2592	0.0648	0.0298	0.0946		743.5650	743.5650	5.8700e-003		743.6882
Worker	0.8466	1.1627	10.0565	0.0396	3.2859	0.0239	3.3098	0.8716	0.0222	0.8938		2,699.2495	2,699.2495	0.1177		2,701.7206
<b>Total</b>	<b>1.1230</b>	<b>2.6674</b>	<b>14.7451</b>	<b>0.0476</b>	<b>3.5127</b>	<b>0.0563</b>	<b>3.5691</b>	<b>0.9364</b>	<b>0.0520</b>	<b>0.9884</b>		<b>3,442.8144</b>	<b>3,442.8144</b>	<b>0.1235</b>		<b>3,445.4088</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2764	1.5047	4.6886	7.9600e-003	0.2268	0.0324	0.2592	0.0648	0.0298	0.0946		743.5650	743.5650	5.8700e-003		743.6882
Worker	0.8466	1.1627	10.0565	0.0396	3.2859	0.0239	3.3098	0.8716	0.0222	0.8938		2,699.2495	2,699.2495	0.1177		2,701.7206
<b>Total</b>	<b>1.1230</b>	<b>2.6674</b>	<b>14.7451</b>	<b>0.0476</b>	<b>3.5127</b>	<b>0.0563</b>	<b>3.5691</b>	<b>0.9364</b>	<b>0.0520</b>	<b>0.9884</b>		<b>3,442.8144</b>	<b>3,442.8144</b>	<b>0.1235</b>		<b>3,445.4088</b>

## 3.13 Building Construction - Parks - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
<b>Total</b>	<b>1.2682</b>	<b>12.8707</b>	<b>12.8919</b>	<b>0.0192</b>		<b>0.6934</b>	<b>0.6934</b>		<b>0.6391</b>	<b>0.6391</b>		<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2730	1.6040	4.6379	7.5100e-003	0.2135	0.0312	0.2446	0.0610	0.0287	0.0897		700.6156	700.6156	5.4500e-003		700.7300
Worker	0.3138	0.4341	3.7613	0.0139	1.1501	8.3300e-003	1.1584	0.3051	7.7200e-003	0.3128		959.5037	959.5037	0.0429		960.4054
<b>Total</b>	<b>0.5867</b>	<b>2.0381</b>	<b>8.3992</b>	<b>0.0214</b>	<b>1.3635</b>	<b>0.0395</b>	<b>1.4030</b>	<b>0.3661</b>	<b>0.0364</b>	<b>0.4025</b>		<b>1,660.1192</b>	<b>1,660.1192</b>	<b>0.0484</b>		<b>1,661.1354</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861



Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2730	1.6040	4.6379	7.5100e-003	0.2135	0.0312	0.2446	0.0610	0.0287	0.0897		700.6156	700.6156	5.4500e-003		700.7300
Worker	0.3138	0.4341	3.7613	0.0139	1.1501	8.3300e-003	1.1584	0.3051	7.7200e-003	0.3128		959.5037	959.5037	0.0429		960.4054
Total	0.5867	2.0381	8.3992	0.0214	1.3635	0.0395	1.4030	0.3661	0.0364	0.4025		1,660.1192	1,660.1192	0.0484		1,661.1354

### 3.13 Building Construction - Parks - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
Total	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
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Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2601	1.4162	4.4128	7.4900e-003	0.2135	0.0305	0.2440	0.0610	0.0281	0.0891		699.8258	699.8258	5.5300e-003		699.9419
Worker	0.2963	0.4069	3.5198	0.0139	1.1501	8.3800e-003	1.1584	0.3051	7.7700e-003	0.3128		944.7373	944.7373	0.0412		945.6022
<b>Total</b>	<b>0.5564</b>	<b>1.8231</b>	<b>7.9326</b>	<b>0.0214</b>	<b>1.3635</b>	<b>0.0389</b>	<b>1.4024</b>	<b>0.3661</b>	<b>0.0358</b>	<b>0.4019</b>		<b>1,644.5631</b>	<b>1,644.5631</b>	<b>0.0467</b>		<b>1,645.5441</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2601	1.4162	4.4128	7.4900e-003	0.2135	0.0305	0.2440	0.0610	0.0281	0.0891		699.8258	699.8258	5.5300e-003		699.9419
Worker	0.2963	0.4069	3.5198	0.0139	1.1501	8.3800e-003	1.1584	0.3051	7.7700e-003	0.3128		944.7373	944.7373	0.0412		945.6022
<b>Total</b>	<b>0.5564</b>	<b>1.8231</b>	<b>7.9326</b>	<b>0.0214</b>	<b>1.3635</b>	<b>0.0389</b>	<b>1.4024</b>	<b>0.3661</b>	<b>0.0358</b>	<b>0.4019</b>		<b>1,644.5631</b>	<b>1,644.5631</b>	<b>0.0467</b>		<b>1,645.5441</b>

## Grapevine Construction - Planning Area 2

### Kern-San Joaquin County, Summer

## 1.0 Project Characteristics

### 1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
General Office Building	780.00	1000sqft	59.00	780,000.00	0
Elementary School	994.00	Student	5.00	83,101.75	0
High School	840.00	Student	20.00	111,435.22	0
Junior High School	1,500.00	Student	5.00	176,342.53	0
Other Asphalt Surfaces	92.00	Acre	92.00	4,007,520.00	0
City Park	58.00	Acre	58.00	2,526,480.00	0
Apartments Low Rise	980.00	Dwelling Unit	98.00	980,000.00	2803
Single Family Housing	1,780.00	Dwelling Unit	455.00	3,204,000.00	5091
Regional Shopping Center	210.00	1000sqft	27.00	210,000.00	0
Strip Mall	270.00	1000sqft	35.00	270,000.00	0

### 1.2 Other Project Characteristics

<b>Urbanization</b>	Urban	<b>Wind Speed (m/s)</b>	2.7	<b>Precipitation Freq (Days)</b>	32
<b>Climate Zone</b>	7			<b>Operational Year</b>	2023
<b>Utility Company</b>	Pacific Gas & Electric Company				
<b>CO2 Intensity (lb/MW hr)</b>	641.35	<b>CH4 Intensity (lb/MW hr)</b>	0.029	<b>N2O Intensity (lb/MW hr)</b>	0.006

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics - Planning Area 2. Kern County (San Joaquin Air Basin).

Land Use - See 1.1 Land Usage.

Construction Phase - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Off-road Equipment - See 3.0 Construction Detail.

Trips and VMT - See 3.0 Construction Detail.

On-road Fugitive Dust - Worker and Vendor Percent Paved: Default CalEEMod values. Hauling Percent Paved: 50%

Demolition - None.

Grading - See 3.0 Construction Detail.

Architectural Coating - Default CalEEMod VOC content. Modified non-residential interior and exterior area to be coated based on CalEEMod architectural coating surface area equations and an adjustment for parking/asphalt surface and park land uses. See 3.0 Construction Detail.

Area Coating - Operational emissions calculated separately.

Energy Use - Operational emissions calculated separately.

Water And Wastewater - Operational emissions calculated separately.

Construction Off-road Equipment Mitigation - Tier 2 for construction equipment > 75 HP.

On-road Fugitive Dust - Water Exposed Area, Frequency: 3 times per day. Unpaved Road Mitigation, Vehicle Speed: 15 miles per hour.

**Note Regarding Emissions Presented in the Air Quality & Greenhouse Gas Technical Report:** Exhaust PM10 and PM2.5 emissions presented in the Technical Report; no Fugitive Dust PM10 and PM2.5 emissions presented in the Technical Report.

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	ConstArea_Nonresidential_Exterior	4,082,440.00	1,212,463.00
tblArchitecturalCoating	ConstArea_Nonresidential_Interior	12,247,319.00	2,461,268.00
tblAreaCoating	Area_Nonresidential_Interior	12247320	13144342
tblAreaCoating	Area_Residential_Exterior	2824200	2909250
tblAreaCoating	Area_Residential_Interior	8472600	8727750
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	8.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	21.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	19.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	5.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	990.00	958.00
tblConstructionPhase	NumDays	13,950.00	415.00
tblConstructionPhase	NumDays	13,950.00	522.00
tblConstructionPhase	NumDays	13,950.00	261.00
tblConstructionPhase	NumDays	13,950.00	1,001.00
tblConstructionPhase	NumDays	13,950.00	1,001.00
tblConstructionPhase	NumDays	13,950.00	980.00
tblConstructionPhase	NumDays	13,950.00	892.00
tblConstructionPhase	NumDays	1,395.00	891.00
tblConstructionPhase	NumDays	990.00	1,001.00
tblConstructionPhase	NumDays	540.00	784.00
tblConstructionPhase	PhaseEndDate	9/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	8/2/2024	12/31/2021
tblConstructionPhase	PhaseEndDate	1/2/2024	5/31/2022
tblConstructionPhase	PhaseEndDate	5/31/2023	5/31/2022

tblConstructionPhase	PhaseEndDate	4/1/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	11/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	10/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	6/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	6/2/2025	5/31/2022
tblConstructionPhase	PhaseEndDate	11/2/2026	12/31/2022
tblConstructionPhase	PhaseEndDate	8/29/2025	5/31/2022
tblConstructionPhase	PhaseStartDate	1/1/2023	5/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	6/1/2020
tblConstructionPhase	PhaseStartDate	1/1/2022	6/1/2020
tblConstructionPhase	PhaseStartDate	6/1/2022	6/1/2021
tblConstructionPhase	PhaseStartDate	6/1/2022	3/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	3/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	4/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	8/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2022	1/1/2019
tblConstructionPhase	PhaseStartDate	1/1/2023	3/1/2019
tblConstructionPhase	PhaseStartDate	6/1/2022	3/1/2019
tblFireplaces	NumberGas	979.00	1,017.50
tblFireplaces	NumberNoFireplace	801.00	832.50
tblGrading	AcresOfGrading	3,341.25	930.00
tblGrading	AcresOfGrading	392.00	930.00
tblGrading	AcresOfGrading	392.00	0.00
tblGrading	MaterialExported	0.00	232,500.00
tblLandUse	LotAcreage	17.91	59.00
tblLandUse	LotAcreage	1.91	5.00
tblLandUse	LotAcreage	2.56	20.00
tblLandUse	LotAcreage	4.05	5.00
tblLandUse	LotAcreage	61.25	98.00
tblLandUse	LotAcreage	577.92	455.00
tblLandUse	LotAcreage	4.82	27.00
tblLandUse	LotAcreage	6.20	35.00



tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	2.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	UsageHours	8.00	6.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOnRoadDust	HaulingPercentPave	100.00	50.00
tblProjectCharacteristics	OperationalYear	2014	2023
tblSolidWaste	SolidWasteGenerationRate	725.40	558.00
tblSolidWaste	SolidWasteGenerationRate	153.30	273.75
tblSolidWaste	SolidWasteGenerationRate	273.75	153.30
tblSolidWaste	SolidWasteGenerationRate	220.50	210.00
tblSolidWaste	SolidWasteGenerationRate	2,087.31	2,169.31
tblSolidWaste	SolidWasteGenerationRate	283.50	178.50
tblTripsAndVMT	HaulingTripLength	20.00	1.00
tblTripsAndVMT	VendorTripNumber	1,633.00	30.00
tblTripsAndVMT	VendorTripNumber	1,633.00	34.00



tblTripsAndVMT	VendorTripNumber	1,633.00	32.00
tblTripsAndVMT	VendorTripNumber	1,633.00	304.00
tblTripsAndVMT	VendorTripNumber	1,633.00	34.00
tblTripsAndVMT	VendorTripNumber	1,633.00	98.00
tblTripsAndVMT	VendorTripNumber	1,633.00	28.00
tblTripsAndVMT	WorkerTripNumber	3.00	4.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	3.00	0.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	240.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	400.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	140.00
tblTripsAndVMT	WorkerTripNumber	38.00	64.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	600.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	170.00
tblTripsAndVMT	WorkerTripNumber	15.00	16.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	350.00
tblTripsAndVMT	WorkerTripNumber	930.00	454.00
tblTripsAndVMT	WorkerTripNumber	4,650.00	170.00
tblWater	IndoorWaterUseRate	138,632,323.43	106,640,248.80
tblWater	IndoorWaterUseRate	3,700,166.40	6,607,440.00
tblWater	IndoorWaterUseRate	3,636,360.00	2,036,361.60
tblWater	IndoorWaterUseRate	15,555,229.51	14,814,504.30
tblWater	IndoorWaterUseRate	115,974,165.61	120,534,947.40
tblWater	IndoorWaterUseRate	19,999,580.80	12,592,328.65
tblWater	OutdoorWaterUseRate	84,968,198.23	65,360,152.49
tblWater	OutdoorWaterUseRate	9,514,713.60	16,990,560.00
tblWater	OutdoorWaterUseRate	9,350,640.00	5,236,358.40
tblWater	OutdoorWaterUseRate	9,533,850.35	9,079,857.47

tblWater	OutdoorWaterUseRate	73,114,147.88	75,989,423.36
tblWater	OutdoorWaterUseRate	12,257,807.59	7,717,878.85
tblWoodstoves	NumberCatalytic	455.00	475.00
tblWoodstoves	NumberNoncatalytic	455.00	475.00

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

#### Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	136.0580	215.6854	250.4346	0.5317	102.8390	10.2228	113.0618	13.4026	9.4927	22.8953	0.0000	46,639.1064	46,639.1064	6.6349	0.0000	46,778.4396
2020	139.3049	231.5398	293.5692	0.6582	108.2105	11.0170	119.2275	14.8879	10.2146	25.1025	0.0000	55,621.7203	55,621.7203	7.9651	0.0000	55,788.9865
2021	138.4641	216.2010	304.0673	0.7006	109.8870	10.1957	120.0827	15.2853	9.4494	24.7347	0.0000	58,913.3188	58,913.3188	8.5404	0.0000	59,092.6679
2022	133.4664	170.8696	266.9315	0.6402	224.2437	7.8692	232.1129	26.2993	7.2999	33.5992	0.0000	53,588.0833	53,588.0833	7.6475	0.0000	53,748.6817
<b>Total</b>	<b>547.2934</b>	<b>834.2957</b>	<b>1,115.0025</b>	<b>2.5306</b>	<b>545.1801</b>	<b>39.3047</b>	<b>584.4848</b>	<b>69.8752</b>	<b>36.4566</b>	<b>106.3318</b>	<b>0.0000</b>	<b>214,762.287</b>	<b>214,762.287</b>	<b>30.7880</b>	<b>0.0000</b>	<b>215,408.7757</b>

#### Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2019	126.6312	215.9446	259.5227	0.5317	69.6015	6.4163	76.0178	10.0662	6.3614	16.4276	0.0000	46,639.1063	46,639.1063	6.6349	0.0000	46,778.4396
2020	129.8380	249.8769	307.7775	0.6582	75.0943	7.6163	82.7105	11.5636	7.5588	19.1224	0.0000	55,621.7202	55,621.7202	7.9651	0.0000	55,788.9864
2021	130.6849	262.3483	322.7218	0.7006	76.6495	8.1683	84.8178	11.9488	8.1133	20.0621	0.0000	58,913.3187	58,913.3187	8.5404	0.0000	59,092.6679
2022	128.2203	234.6929	286.8724	0.6402	146.0466	7.3720	153.4186	18.4730	7.3212	25.7943	0.0000	53,588.0833	53,588.0833	7.6475	0.0000	53,748.6817
<b>Total</b>	<b>515.3744</b>	<b>962.8627</b>	<b>1,176.8943</b>	<b>2.5306</b>	<b>367.3918</b>	<b>29.5728</b>	<b>396.9646</b>	<b>52.0516</b>	<b>29.3547</b>	<b>81.4063</b>	<b>0.0000</b>	<b>214,762.286</b>	<b>214,762.286</b>	<b>30.7880</b>	<b>0.0000</b>	<b>215,408.7756</b>

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
<b>Percent Reduction</b>	<b>5.83</b>	<b>-15.41</b>	<b>-5.55</b>	<b>0.00</b>	<b>32.61</b>	<b>24.76</b>	<b>32.08</b>	<b>25.51</b>	<b>19.48</b>	<b>23.44</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### 3.0 Construction Detail

#### Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	1/1/2019	12/31/2021	5	784	
2	Grading	Grading	1/1/2019	5/31/2022	5	891	
3	Trenching	Trenching	3/1/2019	5/31/2022	5	848	
4	Building Construction - Residential	Building Construction	3/1/2019	12/31/2022	5	1001	
5	Building Construction - Village Commercial	Building Construction	3/1/2019	12/31/2022	5	1001	
6	Paving	Paving	3/1/2019	12/31/2022	5	1001	
7	Building Construction - Office/R&D	Building Construction	4/1/2019	12/31/2022	5	980	
8	Architectural Coating	Architectural Coating	5/1/2019	12/31/2022	5	958	
9	Building Construction - Freeway Commercial	Building Construction	8/1/2019	12/31/2022	5	892	
10	Building Construction - Elem. & Middle School	Building Construction	6/1/2020	12/31/2021	5	415	
11	Building Construction - High School	Building Construction	6/1/2020	5/31/2022	5	522	
12	Building Construction - Parks	Building Construction	6/1/2021	5/31/2022	5	261	

Acres of Grading (Site Preparation Phase): 930

Acres of Grading (Grading Phase): 930

Acres of Paving: 0

Residential Indoor: 8,472,600; Residential Outdoor: 2,824,200; Non-Residential Indoor: 2,461,268; Non-Residential Outdoor: 1,212,463

#### OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	8.00	174	0.41
Site Preparation	Rubber Tired Dozers	0	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	2	6.00	174	0.41
Grading	Rollers	2	4.00	80	0.38

Grading	Rubber Tired Dozers	0	8.00	255	0.40
Grading	Rubber Tired Loaders	1	2.00	199	0.36
Grading	Scrapers	3	8.00	361	0.48
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Trenching	Other Construction Equipment	5	2.00	171	0.42
Trenching	Other Construction Equipment	0	1.00	171	0.42
Trenching	Tractors/Loaders/Backhoes	5	2.00	97	0.37
Trenching	Tractors/Loaders/Backhoes	0	1.00	97	0.37
Trenching	Trenchers	5	2.00	80	0.50
Trenching	Trenchers	0	1.00	80	0.50
Building Construction - Residential	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Residential	Cranes	0	7.00	226	0.29
Building Construction - Residential	Forklifts	0	8.00	89	0.20
Building Construction - Residential	Generator Sets	0	8.00	84	0.74
Building Construction - Residential	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Residential	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Residential	Welders	0	8.00	46	0.45
Building Construction - Village Commercial	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Village Commercial	Cranes	0	7.00	226	0.29
Building Construction - Village Commercial	Forklifts	0	8.00	89	0.20
Building Construction - Village Commercial	Generator Sets	0	8.00	84	0.74
Building Construction - Village Commercial	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Village Commercial	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Village Commercial	Welders	0	8.00	46	0.45
Paving	Other Construction Equipment	2	8.00	171	0.42
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	1	8.00	130	0.36
Paving	Rollers	1	8.00	80	0.38
Building Construction - Office/R&D	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Office/R&D	Cranes	0	7.00	226	0.29
Building Construction - Office/R&D	Forklifts	0	8.00	89	0.20
Building Construction - Office/R&D	Generator Sets	0	8.00	84	0.74

Building Construction - Office/R&D	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Office/R&D	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Office/R&D	Welders	0	8.00	46	0.45
Architectural Coating	Air Compressors	8	6.00	78	0.48
Building Construction - Freeway	Cement and Mortar Mixers	1	8.00	9	0.56
Commercial Building Construction - Freeway	Cranes	0	7.00	226	0.29
Commercial Building Construction - Freeway	Forklifts	0	8.00	89	0.20
Commercial Building Construction - Freeway	Generator Sets	0	8.00	84	0.74
Commercial Building Construction - Freeway	Other Construction Equipment	2	8.00	171	0.42
Commercial Building Construction - Freeway	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Commercial Building Construction - Freeway	Welders	0	8.00	46	0.45
Commercial Building Construction - Elem. & Middle School	Cement and Mortar Mixers	1	8.00	9	0.56
Commercial Building Construction - Elem. & Middle School	Cranes	0	7.00	226	0.29
Commercial Building Construction - Elem. & Middle School	Forklifts	0	8.00	89	0.20
Commercial Building Construction - Elem. & Middle School	Generator Sets	0	8.00	84	0.74
Commercial Building Construction - Elem. & Middle School	Other Construction Equipment	2	8.00	171	0.42
Commercial Building Construction - Elem. & Middle School	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Commercial Building Construction - Elem. & Middle School	Welders	0	8.00	46	0.45
Building Construction - High School	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - High School	Cranes	0	7.00	226	0.29
Building Construction - High School	Forklifts	0	8.00	89	0.20
Building Construction - High School	Generator Sets	0	8.00	84	0.74
Building Construction - High School	Other Construction Equipment	2	8.00	171	0.42
Building Construction - High School	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - High School	Welders	0	8.00	46	0.45
Building Construction - Parks	Cement and Mortar Mixers	1	8.00	9	0.56
Building Construction - Parks	Cranes	0	7.00	226	0.29
Building Construction - Parks	Forklifts	0	8.00	89	0.20
Building Construction - Parks	Generator Sets	0	8.00	84	0.74
Building Construction - Parks	Other Construction Equipment	2	8.00	171	0.42
Building Construction - Parks	Tractors/Loaders/Backhoes	2	8.00	97	0.37
Building Construction - Parks	Welders	0	8.00	46	0.45

## **Trips and VMT**

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	1	4.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	1	0.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	8	20.00	0.00	29,063.00	10.80	7.30	1.00	LD_Mix	HDT_Mix	HHDT
Trenching	15	64.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Residential	5	600.00	304.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Village Commercial	5	170.00	34.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	16.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Office/R&D	5	350.00	98.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	8	454.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Freeway Commercial	5	170.00	28.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Elem. & Middle School	5	240.00	30.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - High School	5	400.00	34.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction - Parks	5	140.00	32.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

### **3.1 Mitigation Measures Construction**

Use Cleaner Engines for Construction Equipment

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

Clean Paved Roads

### **3.2 Site Preparation - 2019**

#### **Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2580	0.0000	1.2580	0.1358	0.0000	0.1358			0.0000			0.0000
Off-Road	0.7660	7.5664	4.5999	6.2100e-003		0.4234	0.4234		0.3895	0.3895		615.3234	615.3234	0.1947		619.4117
<b>Total</b>	<b>0.7660</b>	<b>7.5664</b>	<b>4.5999</b>	<b>6.2100e-003</b>	<b>1.2580</b>	<b>0.4234</b>	<b>1.6814</b>	<b>0.1358</b>	<b>0.3895</b>	<b>0.5254</b>		<b>615.3234</b>	<b>615.3234</b>	<b>0.1947</b>		<b>619.4117</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0126	0.0124	0.1492	4.6000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		33.4889	33.4889	1.3600e-003		33.5176
<b>Total</b>	<b>0.0126</b>	<b>0.0124</b>	<b>0.1492</b>	<b>4.6000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>33.4889</b>	<b>33.4889</b>	<b>1.3600e-003</b>		<b>33.5176</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4906	0.0000	0.4906	0.0530	0.0000	0.0530			0.0000			0.0000



Off-Road	0.2391	5.2468	4.6554	6.2100e-003		0.1611	0.1611		0.1611	0.1611	0.0000	615.3234	615.3234	0.1947		619.4117
<b>Total</b>	<b>0.2391</b>	<b>5.2468</b>	<b>4.6554</b>	<b>6.2100e-003</b>	<b>0.4906</b>	<b>0.1611</b>	<b>0.6517</b>	<b>0.0530</b>	<b>0.1611</b>	<b>0.2140</b>	<b>0.0000</b>	<b>615.3234</b>	<b>615.3234</b>	<b>0.1947</b>		<b>619.4117</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0126	0.0124	0.1492	4.6000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		33.4889	33.4889	1.3600e-003		33.5176
<b>Total</b>	<b>0.0126</b>	<b>0.0124</b>	<b>0.1492</b>	<b>4.6000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>33.4889</b>	<b>33.4889</b>	<b>1.3600e-003</b>		<b>33.5176</b>

## 3.2 Site Preparation - 2020

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2580	0.0000	1.2580	0.1358	0.0000	0.1358			0.0000			0.0000
Off-Road	0.7130	6.9585	4.5560	6.2000e-003		0.3882	0.3882		0.3571	0.3571		601.4809	601.4809	0.1945		605.5661
<b>Total</b>	<b>0.7130</b>	<b>6.9585</b>	<b>4.5560</b>	<b>6.2000e-003</b>	<b>1.2580</b>	<b>0.3882</b>	<b>1.6462</b>	<b>0.1358</b>	<b>0.3571</b>	<b>0.4930</b>		<b>601.4809</b>	<b>601.4809</b>	<b>0.1945</b>		<b>605.5661</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0117	0.0114	0.1377	4.6000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		32.1472	32.1472	1.2900e-003		32.1742
<b>Total</b>	<b>0.0117</b>	<b>0.0114</b>	<b>0.1377</b>	<b>4.6000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>32.1472</b>	<b>32.1472</b>	<b>1.2900e-003</b>		<b>32.1742</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4906	0.0000	0.4906	0.0530	0.0000	0.0530			0.0000			0.0000
Off-Road	0.2391	5.2468	4.6554	6.2000e-003		0.1611	0.1611		0.1611	0.1611	0.0000	601.4809	601.4809	0.1945		605.5661
<b>Total</b>	<b>0.2391</b>	<b>5.2468</b>	<b>4.6554</b>	<b>6.2000e-003</b>	<b>0.4906</b>	<b>0.1611</b>	<b>0.6517</b>	<b>0.0530</b>	<b>0.1611</b>	<b>0.2140</b>	<b>0.0000</b>	<b>601.4809</b>	<b>601.4809</b>	<b>0.1945</b>		<b>605.5661</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0117	0.0114	0.1377	4.6000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		32.1472	32.1472	1.2900e-003		32.1742
<b>Total</b>	<b>0.0117</b>	<b>0.0114</b>	<b>0.1377</b>	<b>4.6000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>32.1472</b>	<b>32.1472</b>	<b>1.2900e-003</b>		<b>32.1742</b>

### 3.2 Site Preparation - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.2580	0.0000	1.2580	0.1358	0.0000	0.1358			0.0000			0.0000
Off-Road	0.6358	6.0891	4.4780	6.2100e-003		0.3397	0.3397		0.3125	0.3125		602.0957	602.0957	0.1947		606.1850
<b>Total</b>	<b>0.6358</b>	<b>6.0891</b>	<b>4.4780</b>	<b>6.2100e-003</b>	<b>1.2580</b>	<b>0.3397</b>	<b>1.5977</b>	<b>0.1358</b>	<b>0.3125</b>	<b>0.4484</b>		<b>602.0957</b>	<b>602.0957</b>	<b>0.1947</b>		<b>606.1850</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0110	0.0107	0.1289	4.6000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		31.5933	31.5933	1.2300e-003		31.6191
<b>Total</b>	<b>0.0110</b>	<b>0.0107</b>	<b>0.1289</b>	<b>4.6000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>31.5933</b>	<b>31.5933</b>	<b>1.2300e-003</b>		<b>31.6191</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4906	0.0000	0.4906	0.0530	0.0000	0.0530			0.0000			0.0000
Off-Road	0.2391	5.2468	4.6554	6.2100e-003		0.1611	0.1611		0.1611	0.1611	0.0000	602.0957	602.0957	0.1947		606.1850
<b>Total</b>	<b>0.2391</b>	<b>5.2468</b>	<b>4.6554</b>	<b>6.2100e-003</b>	<b>0.4906</b>	<b>0.1611</b>	<b>0.6517</b>	<b>0.0530</b>	<b>0.1611</b>	<b>0.2140</b>	<b>0.0000</b>	<b>602.0957</b>	<b>602.0957</b>	<b>0.1947</b>		<b>606.1850</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0110	0.0107	0.1289	4.6000e-004	0.2042	2.4000e-004	0.2044	0.0508	2.2000e-004	0.0510		31.5933	31.5933	1.2300e-003		31.6191
<b>Total</b>	<b>0.0110</b>	<b>0.0107</b>	<b>0.1289</b>	<b>4.6000e-004</b>	<b>0.2042</b>	<b>2.4000e-004</b>	<b>0.2044</b>	<b>0.0508</b>	<b>2.2000e-004</b>	<b>0.0510</b>		<b>31.5933</b>	<b>31.5933</b>	<b>1.2300e-003</b>		<b>31.6191</b>

### 3.3 Grading - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1454	0.0000	1.1454	0.1254	0.0000	0.1254			0.0000			0.0000

Off-Road	4.6169	52.8814	33.0074	0.0582		2.3153	2.3153		2.1300	2.1300		5,760.2051	5,760.2051	1.8225		5,798.4769
<b>Total</b>	<b>4.6169</b>	<b>52.8814</b>	<b>33.0074</b>	<b>0.0582</b>	<b>1.1454</b>	<b>2.3153</b>	<b>3.4607</b>	<b>0.1254</b>	<b>2.1300</b>	<b>2.2554</b>		<b>5,760.2051</b>	<b>5,760.2051</b>	<b>1.8225</b>		<b>5,798.4769</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2182	0.8625	3.9807	1.8200e-003	81.9881	6.9300e-003	81.9951	8.1882	6.3700e-003	8.1945		169.4682	169.4682	2.6000e-003		169.5228
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0632	0.0620	0.7462	2.2900e-003	0.1643	1.1800e-003	0.1655	0.0436	1.1000e-003	0.0447		167.4447	167.4447	6.8100e-003		167.5878
<b>Total</b>	<b>0.2814</b>	<b>0.9244</b>	<b>4.7268</b>	<b>4.1100e-003</b>	<b>82.1524</b>	<b>8.1100e-003</b>	<b>82.1606</b>	<b>8.2317</b>	<b>7.4700e-003</b>	<b>8.2392</b>		<b>336.9129</b>	<b>336.9129</b>	<b>9.4100e-003</b>		<b>337.1106</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4467	0.0000	0.4467	0.0489	0.0000	0.0489			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	5,760.2051	5,760.2051	1.8225		5,798.4769
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.4467</b>	<b>1.1791</b>	<b>1.6259</b>	<b>0.0489</b>	<b>1.1791</b>	<b>1.2280</b>	<b>0.0000</b>	<b>5,760.2051</b>	<b>5,760.2051</b>	<b>1.8225</b>		<b>5,798.4769</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2182	0.8625	3.9807	1.8200e-003	50.2168	6.9300e-003	50.2237	5.0110	6.3700e-003	5.0174		169.4682	169.4682	2.6000e-003		169.5228
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0632	0.0620	0.7462	2.2900e-003	0.1643	1.1800e-003	0.1655	0.0436	1.1000e-003	0.0447		167.4447	167.4447	6.8100e-003		167.5878
<b>Total</b>	<b>0.2814</b>	<b>0.9244</b>	<b>4.7268</b>	<b>4.1100e-003</b>	<b>50.3811</b>	<b>8.1100e-003</b>	<b>50.3892</b>	<b>5.0546</b>	<b>7.4700e-003</b>	<b>5.0621</b>		<b>336.9129</b>	<b>336.9129</b>	<b>9.4100e-003</b>		<b>337.1106</b>

### 3.3 Grading - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1454	0.0000	1.1454	0.1254	0.0000	0.1254			0.0000			0.0000
Off-Road	4.2994	48.2794	31.1382	0.0582		2.1034	2.1034		1.9352	1.9352		5,633.6903	5,633.6903	1.8221		5,671.9534
<b>Total</b>	<b>4.2994</b>	<b>48.2794</b>	<b>31.1382</b>	<b>0.0582</b>	<b>1.1454</b>	<b>2.1034</b>	<b>3.2489</b>	<b>0.1254</b>	<b>1.9352</b>	<b>2.0605</b>		<b>5,633.6903</b>	<b>5,633.6903</b>	<b>1.8221</b>		<b>5,671.9534</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1967	0.7998	3.7956	1.8200e-003	81.6752	6.7600e-003	81.6820	8.1569	6.2200e-003	8.1631		165.5319	165.5319	2.6300e-003		165.5872

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0585	0.0571	0.6883	2.2900e-003	0.1643	1.1800e-003	0.1655	0.0436	1.1000e-003	0.0447		160.7360	160.7360	6.4300e-003		160.8710
<b>Total</b>	<b>0.2552</b>	<b>0.8569</b>	<b>4.4839</b>	<b>4.1100e-003</b>	<b>81.8395</b>	<b>7.9400e-003</b>	<b>81.8475</b>	<b>8.2005</b>	<b>7.3200e-003</b>	<b>8.2078</b>		<b>326.2678</b>	<b>326.2678</b>	<b>9.0600e-003</b>		<b>326.4582</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4467	0.0000	0.4467	0.0489	0.0000	0.0489			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	5,633.6903	5,633.6903	1.8221		5,671.9534
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.4467</b>	<b>1.1791</b>	<b>1.6259</b>	<b>0.0489</b>	<b>1.1791</b>	<b>1.2280</b>	<b>0.0000</b>	<b>5,633.6903</b>	<b>5,633.6903</b>	<b>1.8221</b>		<b>5,671.9534</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1967	0.7998	3.7956	1.8200e-003	50.0251	6.7600e-003	50.0319	4.9919	6.2200e-003	4.9981		165.5319	165.5319	2.6300e-003		165.5872
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0585	0.0571	0.6883	2.2900e-003	0.1643	1.1800e-003	0.1655	0.0436	1.1000e-003	0.0447		160.7360	160.7360	6.4300e-003		160.8710
<b>Total</b>	<b>0.2552</b>	<b>0.8569</b>	<b>4.4839</b>	<b>4.1100e-003</b>	<b>50.1894</b>	<b>7.9400e-003</b>	<b>50.1974</b>	<b>5.0355</b>	<b>7.3200e-003</b>	<b>5.0428</b>		<b>326.2678</b>	<b>326.2678</b>	<b>9.0600e-003</b>		<b>326.4582</b>

## 3.3 Grading - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1454	0.0000	1.1454	0.1254	0.0000	0.1254			0.0000			0.0000
Off-Road	3.9701	43.5883	29.6597	0.0582		1.8875	1.8875		1.7365	1.7365		5,637.2965	5,637.2965	1.8232		5,675.5840
<b>Total</b>	<b>3.9701</b>	<b>43.5883</b>	<b>29.6597</b>	<b>0.0582</b>	<b>1.1454</b>	<b>1.8875</b>	<b>3.0329</b>	<b>0.1254</b>	<b>1.7365</b>	<b>1.8618</b>		<b>5,637.2965</b>	<b>5,637.2965</b>	<b>1.8232</b>		<b>5,675.5840</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1923	0.7359	3.7621	1.8100e-003	81.9881	6.6400e-003	81.9948	8.1882	6.1100e-003	8.1943		165.3337	165.3337	2.6900e-003		165.3902
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0550	0.0533	0.6446	2.2900e-003	0.1643	1.1900e-003	0.1655	0.0436	1.1000e-003	0.0447		157.9665	157.9665	6.1300e-003		158.0953
<b>Total</b>	<b>0.2473</b>	<b>0.7892</b>	<b>4.4067</b>	<b>4.1000e-003</b>	<b>82.1524</b>	<b>7.8300e-003</b>	<b>82.1603</b>	<b>8.2317</b>	<b>7.2100e-003</b>	<b>8.2389</b>		<b>323.3002</b>	<b>323.3002</b>	<b>8.8200e-003</b>		<b>323.4855</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4467	0.0000	0.4467	0.0489	0.0000	0.0489			0.0000			0.0000



Off-Road	1.6200	46.4761	33.6261	0.0582		1.1791	1.1791		1.1791	1.1791	0.0000	5,637.2965	5,637.2965	1.8232		5,675.5840
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0582</b>	<b>0.4467</b>	<b>1.1791</b>	<b>1.6259</b>	<b>0.0489</b>	<b>1.1791</b>	<b>1.2280</b>	<b>0.0000</b>	<b>5,637.2965</b>	<b>5,637.2965</b>	<b>1.8232</b>		<b>5,675.5840</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1923	0.7359	3.7621	1.8100e-003	50.2168	6.6400e-003	50.2234	5.0110	6.1100e-003	5.0171		165.3337	165.3337	2.6900e-003		165.3902
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0550	0.0533	0.6446	2.2900e-003	0.1643	1.1900e-003	0.1655	0.0436	1.1000e-003	0.0447		157.9665	157.9665	6.1300e-003		158.0953
<b>Total</b>	<b>0.2473</b>	<b>0.7892</b>	<b>4.4067</b>	<b>4.1000e-003</b>	<b>50.3811</b>	<b>7.8300e-003</b>	<b>50.3889</b>	<b>5.0546</b>	<b>7.2100e-003</b>	<b>5.0618</b>		<b>323.3002</b>	<b>323.3002</b>	<b>8.8200e-003</b>		<b>323.4855</b>

### 3.3 Grading - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1454	0.0000	1.1454	0.1254	0.0000	0.1254			0.0000			0.0000
Off-Road	3.4863	36.6441	27.6424	0.0583		1.5873	1.5873		1.4603	1.4603		5,644.5198	5,644.5198	1.8256		5,682.8564
<b>Total</b>	<b>3.4863</b>	<b>36.6441</b>	<b>27.6424</b>	<b>0.0583</b>	<b>1.1454</b>	<b>1.5873</b>	<b>2.7327</b>	<b>0.1254</b>	<b>1.4603</b>	<b>1.5857</b>		<b>5,644.5198</b>	<b>5,644.5198</b>	<b>1.8256</b>		<b>5,682.8564</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1829	0.6832	3.6373	1.8100e-003	199.9787	6.5200e-003	199.9852	19.9690	6.0000e-003	19.9749		165.1727	165.1727	2.7600e-003		165.2306
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0519	0.0500	0.6057	2.2900e-003	0.1643	1.2000e-003	0.1655	0.0436	1.1100e-003	0.0447		155.5543	155.5543	5.8800e-003		155.6778
<b>Total</b>	<b>0.2347</b>	<b>0.7332</b>	<b>4.2429</b>	<b>4.1000e-003</b>	<b>200.1430</b>	<b>7.7200e-003</b>	<b>200.1507</b>	<b>20.0125</b>	<b>7.1100e-003</b>	<b>20.0196</b>		<b>320.7270</b>	<b>320.7270</b>	<b>8.6400e-003</b>		<b>320.9085</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4467	0.0000	0.4467	0.0489	0.0000	0.0489			0.0000			0.0000
Off-Road	1.6200	46.4761	33.6261	0.0583		1.1791	1.1791		1.1791	1.1791	0.0000	5,644.5198	5,644.5198	1.8256		5,682.8564
<b>Total</b>	<b>1.6200</b>	<b>46.4761</b>	<b>33.6261</b>	<b>0.0583</b>	<b>0.4467</b>	<b>1.1791</b>	<b>1.6259</b>	<b>0.0489</b>	<b>1.1791</b>	<b>1.2280</b>	<b>0.0000</b>	<b>5,644.5198</b>	<b>5,644.5198</b>	<b>1.8256</b>		<b>5,682.8564</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1829	0.6832	3.6373	1.8100e-003	122.4803	6.5200e-003	122.4868	12.2191	6.0000e-003	12.2251		165.1727	165.1727	2.7600e-003		165.2306

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0519	0.0500	0.6057	2.2900e-003	0.1643	1.2000e-003	0.1655	0.0436	1.1100e-003	0.0447		155.5543	155.5543	5.8800e-003		155.6778
<b>Total</b>	<b>0.2347</b>	<b>0.7332</b>	<b>4.2429</b>	<b>4.1000e-003</b>	<b>122.6446</b>	<b>7.7200e-003</b>	<b>122.6523</b>	<b>12.2627</b>	<b>7.1100e-003</b>	<b>12.2698</b>		<b>320.7270</b>	<b>320.7270</b>	<b>8.6400e-003</b>		<b>320.9085</b>

### 3.4 Trenching - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5003	14.9631	11.4175	0.0159		0.9444	0.9444		0.8689	0.8689		1,573.1728	1,573.1728	0.4977		1,583.6252
<b>Total</b>	<b>1.5003</b>	<b>14.9631</b>	<b>11.4175</b>	<b>0.0159</b>		<b>0.9444</b>	<b>0.9444</b>		<b>0.8689</b>	<b>0.8689</b>		<b>1,573.1728</b>	<b>1,573.1728</b>	<b>0.4977</b>		<b>1,583.6252</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2023	0.1983	2.3878	7.3200e-003	0.5257	3.7900e-003	0.5295	0.1395	3.5100e-003	0.1430		535.8231	535.8231	0.0218		536.2809
<b>Total</b>	<b>0.2023</b>	<b>0.1983</b>	<b>2.3878</b>	<b>7.3200e-003</b>	<b>0.5257</b>	<b>3.7900e-003</b>	<b>0.5295</b>	<b>0.1395</b>	<b>3.5100e-003</b>	<b>0.1430</b>		<b>535.8231</b>	<b>535.8231</b>	<b>0.0218</b>		<b>536.2809</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,573.1728	1,573.1728	0.4977		1,583.6252
<b>Total</b>	<b>0.6857</b>	<b>14.5498</b>	<b>12.0489</b>	<b>0.0159</b>		<b>0.5239</b>	<b>0.5239</b>		<b>0.5239</b>	<b>0.5239</b>	<b>0.0000</b>	<b>1,573.1728</b>	<b>1,573.1728</b>	<b>0.4977</b>		<b>1,583.6252</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.2023	0.1983	2.3878	7.3200e-003	0.5257	3.7900e-003	0.5295	0.1395	3.5100e-003	0.1430		535.8231	535.8231	0.0218		536.2809
<b>Total</b>	<b>0.2023</b>	<b>0.1983</b>	<b>2.3878</b>	<b>7.3200e-003</b>	<b>0.5257</b>	<b>3.7900e-003</b>	<b>0.5295</b>	<b>0.1395</b>	<b>3.5100e-003</b>	<b>0.1430</b>		<b>535.8231</b>	<b>535.8231</b>	<b>0.0218</b>		<b>536.2809</b>

### 3.4 Trenching - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4139	14.0096	11.3521	0.0159		0.8744	0.8744		0.8044	0.8044		1,539.1038	1,539.1038	0.4978		1,549.5572

Total	1.4139	14.0096	11.3521	0.0159		0.8744	0.8744		0.8044	0.8044		1,539.1038	1,539.1038	0.4978		1,549.5572
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1872	0.1827	2.2027	7.3200e-003	0.5257	3.7900e-003	0.5295	0.1395	3.5100e-003	0.1430		514.3551	514.3551	0.0206		514.7872
Total	0.1872	0.1827	2.2027	7.3200e-003	0.5257	3.7900e-003	0.5295	0.1395	3.5100e-003	0.1430		514.3551	514.3551	0.0206		514.7872

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,539.1038	1,539.1038	0.4978		1,549.5571
Total	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,539.1038	1,539.1038	0.4978		1,549.5571

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1872	0.1827	2.2027	7.3200e-003	0.5257	3.7900e-003	0.5295	0.1395	3.5100e-003	0.1430		514.3551	514.3551	0.0206		514.7872
<b>Total</b>	<b>0.1872</b>	<b>0.1827</b>	<b>2.2027</b>	<b>7.3200e-003</b>	<b>0.5257</b>	<b>3.7900e-003</b>	<b>0.5295</b>	<b>0.1395</b>	<b>3.5100e-003</b>	<b>0.1430</b>		<b>514.3551</b>	<b>514.3551</b>	<b>0.0206</b>		<b>514.7872</b>

### 3.4 Trenching - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2462	12.3168	11.2062	0.0159		0.7514	0.7514		0.6913	0.6913		1,539.0623	1,539.0623	0.4978		1,549.5154
<b>Total</b>	<b>1.2462</b>	<b>12.3168</b>	<b>11.2062</b>	<b>0.0159</b>		<b>0.7514</b>	<b>0.7514</b>		<b>0.6913</b>	<b>0.6913</b>		<b>1,539.0623</b>	<b>1,539.0623</b>	<b>0.4978</b>		<b>1,549.5154</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1759	0.1706	2.0627	7.3200e-003	0.5257	3.8100e-003	0.5296	0.1395	3.5300e-003	0.1430		505.4929	505.4929	0.0196		505.9051
<b>Total</b>	<b>0.1759</b>	<b>0.1706</b>	<b>2.0627</b>	<b>7.3200e-003</b>	<b>0.5257</b>	<b>3.8100e-003</b>	<b>0.5296</b>	<b>0.1395</b>	<b>3.5300e-003</b>	<b>0.1430</b>		<b>505.4929</b>	<b>505.4929</b>	<b>0.0196</b>		<b>505.9051</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,539.0623	1,539.0623	0.4978		1,549.5154
<b>Total</b>	<b>0.6857</b>	<b>14.5498</b>	<b>12.0489</b>	<b>0.0159</b>		<b>0.5239</b>	<b>0.5239</b>		<b>0.5239</b>	<b>0.5239</b>	<b>0.0000</b>	<b>1,539.0623</b>	<b>1,539.0623</b>	<b>0.4978</b>		<b>1,549.5154</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1759	0.1706	2.0627	7.3200e-003	0.5257	3.8100e-003	0.5296	0.1395	3.5300e-003	0.1430		505.4929	505.4929	0.0196		505.9051
<b>Total</b>	<b>0.1759</b>	<b>0.1706</b>	<b>2.0627</b>	<b>7.3200e-003</b>	<b>0.5257</b>	<b>3.8100e-003</b>	<b>0.5296</b>	<b>0.1395</b>	<b>3.5300e-003</b>	<b>0.1430</b>		<b>505.4929</b>	<b>505.4929</b>	<b>0.0196</b>		<b>505.9051</b>

## 3.4 Trenching - 2022

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1396	11.1686	11.1256	0.0159		0.6670	0.6670		0.6137	0.6137		1,539.2804	1,539.2804	0.4978		1,549.7349
<b>Total</b>	<b>1.1396</b>	<b>11.1686</b>	<b>11.1256</b>	<b>0.0159</b>		<b>0.6670</b>	<b>0.6670</b>		<b>0.6137</b>	<b>0.6137</b>		<b>1,539.2804</b>	<b>1,539.2804</b>	<b>0.4978</b>		<b>1,549.7349</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1659	0.1601	1.9381	7.3200e-003	0.5257	3.8300e-003	0.5296	0.1395	3.5500e-003	0.1430		497.7737	497.7737	0.0188		498.1691
<b>Total</b>	<b>0.1659</b>	<b>0.1601</b>	<b>1.9381</b>	<b>7.3200e-003</b>	<b>0.5257</b>	<b>3.8300e-003</b>	<b>0.5296</b>	<b>0.1395</b>	<b>3.5500e-003</b>	<b>0.1430</b>		<b>497.7737</b>	<b>497.7737</b>	<b>0.0188</b>		<b>498.1691</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,539.2804	1,539.2804	0.4978		1,549.7349



Total	0.6857	14.5498	12.0489	0.0159		0.5239	0.5239		0.5239	0.5239	0.0000	1,539.2804	1,539.2804	0.4978		1,549.7349
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1659	0.1601	1.9381	7.3200e-003	0.5257	3.8300e-003	0.5296	0.1395	3.5500e-003	0.1430		497.7737	497.7737	0.0188		498.1691
Total	0.1659	0.1601	1.9381	7.3200e-003	0.5257	3.8300e-003	0.5296	0.1395	3.5500e-003	0.1430		497.7737	497.7737	0.0188		498.1691

### 3.5 Building Construction - Residential - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5683	16.2736	13.1629	0.0192		0.9179	0.9179		0.8456	0.8456		1,882.7650	1,882.7650	0.5850		1,895.0489
Total	1.5683	16.2736	13.1629	0.0192		0.9179	0.9179		0.8456	0.8456		1,882.7650	1,882.7650	0.5850		1,895.0489

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.4840	21.1010	28.0925	0.0718	2.0279	0.3789	2.4067	0.5795	0.3485	0.9280		6,877.4470	6,877.4470	0.0536		6,878.5723
Worker	1.8964	1.8587	22.3854	0.0686	4.9289	0.0355	4.9644	1.3074	0.0329	1.3403		5,023.3412	5,023.3412	0.2044		5,027.6333
<b>Total</b>	<b>4.3803</b>	<b>22.9598</b>	<b>50.4779</b>	<b>0.1405</b>	<b>6.9567</b>	<b>0.4144</b>	<b>7.3711</b>	<b>1.8869</b>	<b>0.3815</b>	<b>2.2683</b>		<b>11,900.7882</b>	<b>11,900.7882</b>	<b>0.2580</b>		<b>11,906.2056</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,882.7650	1,882.7650	0.5850		1,895.0489
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,882.7650</b>	<b>1,882.7650</b>	<b>0.5850</b>		<b>1,895.0489</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	2.4840	21.1010	28.0925	0.0718	2.0279	0.3789	2.4067	0.5795	0.3485	0.9280		6,877.4470	6,877.4470	0.0536		6,878.5723
Worker	1.8964	1.8587	22.3854	0.0686	4.9289	0.0355	4.9644	1.3074	0.0329	1.3403		5,023.3412	5,023.3412	0.2044		5,027.6333
<b>Total</b>	<b>4.3803</b>	<b>22.9598</b>	<b>50.4779</b>	<b>0.1405</b>	<b>6.9567</b>	<b>0.4144</b>	<b>7.3711</b>	<b>1.8869</b>	<b>0.3815</b>	<b>2.2683</b>		<b>11,900.7882</b>	<b>11,900.7882</b>	<b>0.2580</b>		<b>11,906.2056</b>

### 3.5 Building Construction - Residential - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>1.4601</b>	<b>14.9958</b>	<b>13.0640</b>	<b>0.0192</b>		<b>0.8302</b>	<b>0.8302</b>		<b>0.7650</b>	<b>0.7650</b>		<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.2569	17.8095	26.4299	0.0717	2.0279	0.3325	2.3604	0.5796	0.3059	0.8855		6,718.9749	6,718.9749	0.0509		6,720.0441
Worker	1.7551	1.7129	20.6498	0.0686	4.9289	0.0355	4.9644	1.3074	0.0330	1.3403		4,822.0787	4,822.0787	0.1929		4,826.1301
<b>Total</b>	<b>4.0120</b>	<b>19.5224</b>	<b>47.0797</b>	<b>0.1403</b>	<b>6.9568</b>	<b>0.3681</b>	<b>7.3248</b>	<b>1.8869</b>	<b>0.3389</b>	<b>2.2258</b>		<b>11,541.0536</b>	<b>11,541.0536</b>	<b>0.2438</b>		<b>11,546.1742</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.2569	17.8095	26.4299	0.0717	2.0279	0.3325	2.3604	0.5796	0.3059	0.8855		6,718.9749	6,718.9749	0.0509		6,720.0441
Worker	1.7551	1.7129	20.6498	0.0686	4.9289	0.0355	4.9644	1.3074	0.0330	1.3403		4,822.0787	4,822.0787	0.1929		4,826.1301
<b>Total</b>	<b>4.0120</b>	<b>19.5224</b>	<b>47.0797</b>	<b>0.1403</b>	<b>6.9568</b>	<b>0.3681</b>	<b>7.3248</b>	<b>1.8869</b>	<b>0.3389</b>	<b>2.2258</b>		<b>11,541.0536</b>	<b>11,541.0536</b>	<b>0.2438</b>		<b>11,546.1742</b>

### 3.5 Building Construction - Residential - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861

Total	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.1687	14.4511	25.7571	0.0716	2.0279	0.2926	2.3205	0.5796	0.2692	0.8488		6,707.8314	6,707.8314	0.0501		6,708.8831
Worker	1.6491	1.5991	19.3373	0.0686	4.9289	0.0357	4.9646	1.3074	0.0331	1.3405		4,738.9954	4,738.9954	0.1840		4,742.8601
Total	3.8177	16.0502	45.0945	0.1402	6.9568	0.3283	7.2851	1.8869	0.3023	2.1892		11,446.8268	11,446.8268	0.2341		11,451.7432

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.1687	14.4511	25.7571	0.0716	2.0279	0.2926	2.3205	0.5796	0.2692	0.8488		6,707.8314	6,707.8314	0.0501		6,708.8831
Worker	1.6491	1.5991	19.3373	0.0686	4.9289	0.0357	4.9646	1.3074	0.0331	1.3405		4,738.9954	4,738.9954	0.1840		4,742.8601
<b>Total</b>	<b>3.8177</b>	<b>16.0502</b>	<b>45.0945</b>	<b>0.1402</b>	<b>6.9568</b>	<b>0.3283</b>	<b>7.2851</b>	<b>1.8869</b>	<b>0.3023</b>	<b>2.1892</b>		<b>11,446.8268</b>	<b>11,446.8268</b>	<b>0.2341</b>		<b>11,451.7432</b>

### 3.5 Building Construction - Residential - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>1.1358</b>	<b>11.3053</b>	<b>12.7781</b>	<b>0.0192</b>		<b>0.5904</b>	<b>0.5904</b>		<b>0.5443</b>	<b>0.5443</b>		<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	2.0946	12.7626	24.8058	0.0715	2.0280	0.2864	2.3144	0.5796	0.2635	0.8431		6,700.3102	6,700.3102	0.0508		6,701.3761
Worker	1.5557	1.5010	18.1697	0.0686	4.9289	0.0359	4.9648	1.3074	0.0333	1.3407		4,666.6287	4,666.6287	0.1765		4,670.3354
<b>Total</b>	<b>3.6503</b>	<b>14.2636</b>	<b>42.9755</b>	<b>0.1401</b>	<b>6.9568</b>	<b>0.3223</b>	<b>7.2791</b>	<b>1.8869</b>	<b>0.2968</b>	<b>2.1837</b>		<b>11,366.9389</b>	<b>11,366.9389</b>	<b>0.2273</b>		<b>11,371.7114</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	2.0946	12.7626	24.8058	0.0715	2.0280	0.2864	2.3144	0.5796	0.2635	0.8431		6,700.3102	6,700.3102	0.0508		6,701.3761
Worker	1.5557	1.5010	18.1697	0.0686	4.9289	0.0359	4.9648	1.3074	0.0333	1.3407		4,666.6287	4,666.6287	0.1765		4,670.3354
<b>Total</b>	<b>3.6503</b>	<b>14.2636</b>	<b>42.9755</b>	<b>0.1401</b>	<b>6.9568</b>	<b>0.3223</b>	<b>7.2791</b>	<b>1.8869</b>	<b>0.2968</b>	<b>2.1837</b>		<b>11,366.9389</b>	<b>11,366.9389</b>	<b>0.2273</b>		<b>11,371.7114</b>

## 3.6 Building Construction - Village Commercial - 2019

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5683	16.2736	13.1629	0.0192		0.9179	0.9179		0.8456	0.8456		1,882.7650	1,882.7650	0.5850		1,895.0489
<b>Total</b>	<b>1.5683</b>	<b>16.2736</b>	<b>13.1629</b>	<b>0.0192</b>		<b>0.9179</b>	<b>0.9179</b>		<b>0.8456</b>	<b>0.8456</b>		<b>1,882.7650</b>	<b>1,882.7650</b>	<b>0.5850</b>		<b>1,895.0489</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2778	2.3600	3.1419	8.0300e-003	0.2268	0.0424	0.2692	0.0648	0.0390	0.1038		769.1882	769.1882	5.9900e-003		769.3140
Worker	0.5373	0.5266	6.3425	0.0195	1.3965	0.0101	1.4066	0.3704	9.3300e-003	0.3798		1,423.2800	1,423.2800	0.0579		1,424.4961
<b>Total</b>	<b>0.8151</b>	<b>2.8866</b>	<b>9.4845</b>	<b>0.0275</b>	<b>1.6233</b>	<b>0.0524</b>	<b>1.6758</b>	<b>0.4352</b>	<b>0.0483</b>	<b>0.4835</b>		<b>2,192.4682</b>	<b>2,192.4682</b>	<b>0.0639</b>		<b>2,193.8101</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,882.7650	1,882.7650	0.5850		1,895.0489



Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,882.7650	1,882.7650	0.5850		1,895.0489
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2778	2.3600	3.1419	8.0300e-003	0.2268	0.0424	0.2692	0.0648	0.0390	0.1038		769.1882	769.1882	5.9900e-003		769.3140
Worker	0.5373	0.5266	6.3425	0.0195	1.3965	0.0101	1.4066	0.3704	9.3300e-003	0.3798		1,423.2800	1,423.2800	0.0579		1,424.4961
Total	0.8151	2.8866	9.4845	0.0275	1.6233	0.0524	1.6758	0.4352	0.0483	0.4835		2,192.4682	2,192.4682	0.0639		2,193.8101

### 3.6 Building Construction - Village Commercial - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
Total	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2524	1.9919	2.9560	8.0200e-003	0.2268	0.0372	0.2640	0.0648	0.0342	0.0990		751.4643	751.4643	5.6900e-003		751.5839
Worker	0.4973	0.4853	5.8508	0.0194	1.3965	0.0101	1.4066	0.3704	9.3400e-003	0.3798		1,366.2556	1,366.2556	0.0547		1,367.4035
<b>Total</b>	<b>0.7497</b>	<b>2.4772</b>	<b>8.8068</b>	<b>0.0275</b>	<b>1.6233</b>	<b>0.0473</b>	<b>1.6706</b>	<b>0.4352</b>	<b>0.0436</b>	<b>0.4788</b>		<b>2,117.7199</b>	<b>2,117.7199</b>	<b>0.0604</b>		<b>2,118.9874</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.2524	1.9919	2.9560	8.0200e-003	0.2268	0.0372	0.2640	0.0648	0.0342	0.0990		751.4643	751.4643	5.6900e-003		751.5839
Worker	0.4973	0.4853	5.8508	0.0194	1.3965	0.0101	1.4066	0.3704	9.3400e-003	0.3798		1,366.2556	1,366.2556	0.0547		1,367.4035
<b>Total</b>	<b>0.7497</b>	<b>2.4772</b>	<b>8.8068</b>	<b>0.0275</b>	<b>1.6233</b>	<b>0.0473</b>	<b>1.6706</b>	<b>0.4352</b>	<b>0.0436</b>	<b>0.4788</b>		<b>2,117.7199</b>	<b>2,117.7199</b>	<b>0.0604</b>		<b>2,118.9874</b>

### 3.6 Building Construction - Village Commercial - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
<b>Total</b>	<b>1.2682</b>	<b>12.8707</b>	<b>12.8919</b>	<b>0.0192</b>		<b>0.6934</b>	<b>0.6934</b>		<b>0.6391</b>	<b>0.6391</b>		<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2426	1.6162	2.8807	8.0100e-003	0.2268	0.0327	0.2595	0.0648	0.0301	0.0949		750.2180	750.2180	5.6000e-003		750.3356
Worker	0.4672	0.4531	5.4789	0.0194	1.3965	0.0101	1.4066	0.3704	9.3800e-003	0.3798		1,342.7154	1,342.7154	0.0521		1,343.8104
<b>Total</b>	<b>0.7098</b>	<b>2.0693</b>	<b>8.3596</b>	<b>0.0274</b>	<b>1.6233</b>	<b>0.0428</b>	<b>1.6662</b>	<b>0.4352</b>	<b>0.0395</b>	<b>0.4747</b>		<b>2,092.9334</b>	<b>2,092.9334</b>	<b>0.0577</b>		<b>2,094.1460</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2426	1.6162	2.8807	8.0100e-003	0.2268	0.0327	0.2595	0.0648	0.0301	0.0949		750.2180	750.2180	5.6000e-003		750.3356
Worker	0.4672	0.4531	5.4789	0.0194	1.3965	0.0101	1.4066	0.3704	9.3800e-003	0.3798		1,342.7154	1,342.7154	0.0521		1,343.8104
<b>Total</b>	<b>0.7098</b>	<b>2.0693</b>	<b>8.3596</b>	<b>0.0274</b>	<b>1.6233</b>	<b>0.0428</b>	<b>1.6662</b>	<b>0.4352</b>	<b>0.0395</b>	<b>0.4747</b>		<b>2,092.9334</b>	<b>2,092.9334</b>	<b>0.0577</b>		<b>2,094.1460</b>

### 3.6 Building Construction - Village Commercial - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817

Total	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2343	1.4274	2.7743	7.9900e-003	0.2268	0.0320	0.2588	0.0648	0.0295	0.0943		749.3768	749.3768	5.6800e-003		749.4960
Worker	0.4408	0.4253	5.1481	0.0194	1.3965	0.0102	1.4067	0.3704	9.4300e-003	0.3799		1,322.2115	1,322.2115	0.0500		1,323.2617
Total	0.6750	1.8527	7.9224	0.0274	1.6233	0.0422	1.6655	0.4352	0.0389	0.4741		2,071.5883	2,071.5883	0.0557		2,072.7577

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
Total	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2343	1.4274	2.7743	7.9900e-003	0.2268	0.0320	0.2588	0.0648	0.0295	0.0943		749.3768	749.3768	5.6800e-003		749.4960
Worker	0.4408	0.4253	5.1481	0.0194	1.3965	0.0102	1.4067	0.3704	9.4300e-003	0.3799		1,322.2115	1,322.2115	0.0500		1,323.2617
<b>Total</b>	<b>0.6750</b>	<b>1.8527</b>	<b>7.9224</b>	<b>0.0274</b>	<b>1.6233</b>	<b>0.0422</b>	<b>1.6655</b>	<b>0.4352</b>	<b>0.0389</b>	<b>0.4741</b>		<b>2,071.5883</b>	<b>2,071.5883</b>	<b>0.0557</b>		<b>2,072.7577</b>

### 3.7 Paving - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0335	21.7028	18.2218	0.0280		1.1433	1.1433		1.0518	1.0518		2,769.2459	2,769.2459	0.8762		2,787.6453
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.2743</b>	<b>21.7028</b>	<b>18.2218</b>	<b>0.0280</b>		<b>1.1433</b>	<b>1.1433</b>		<b>1.0518</b>	<b>1.0518</b>		<b>2,769.2459</b>	<b>2,769.2459</b>	<b>0.8762</b>		<b>2,787.6453</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0506	0.0496	0.5969	1.8300e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0357		133.9558	133.9558	5.4500e-003		134.0702
<b>Total</b>	<b>0.0506</b>	<b>0.0496</b>	<b>0.5969</b>	<b>1.8300e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0357</b>		<b>133.9558</b>	<b>133.9558</b>	<b>5.4500e-003</b>		<b>134.0702</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,769.2459	2,769.2459	0.8762		2,787.6453
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3542</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,769.2459</b>	<b>2,769.2459</b>	<b>0.8762</b>		<b>2,787.6453</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0506	0.0496	0.5969	1.8300e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0357		133.9558	133.9558	5.4500e-003		134.0702
<b>Total</b>	<b>0.0506</b>	<b>0.0496</b>	<b>0.5969</b>	<b>1.8300e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0357</b>		<b>133.9558</b>	<b>133.9558</b>	<b>5.4500e-003</b>		<b>134.0702</b>

### 3.7 Paving - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8999	20.0118	18.1592	0.0280		1.0506	1.0506		0.9665	0.9665		2,708.7855	2,708.7855	0.8761		2,727.1831
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>2.1407</b>	<b>20.0118</b>	<b>18.1592</b>	<b>0.0280</b>		<b>1.0506</b>	<b>1.0506</b>		<b>0.9665</b>	<b>0.9665</b>		<b>2,708.7855</b>	<b>2,708.7855</b>	<b>0.8761</b>		<b>2,727.1831</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0468	0.0457	0.5507	1.8300e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0357		128.5888	128.5888	5.1400e-003		128.6968
<b>Total</b>	<b>0.0468</b>	<b>0.0457</b>	<b>0.5507</b>	<b>1.8300e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0357</b>		<b>128.5888</b>	<b>128.5888</b>	<b>5.1400e-003</b>		<b>128.6968</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,708.7855	2,708.7855	0.8761		2,727.1831



Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3542</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,708.7855</b>	<b>2,708.7855</b>	<b>0.8761</b>		<b>2,727.1831</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0468	0.0457	0.5507	1.8300e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0357		128.5888	128.5888	5.1400e-003		128.6968
<b>Total</b>	<b>0.0468</b>	<b>0.0457</b>	<b>0.5507</b>	<b>1.8300e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0357</b>		<b>128.5888</b>	<b>128.5888</b>	<b>5.1400e-003</b>		<b>128.6968</b>

## 3.7 Paving - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.6870	17.5365	18.0326	0.0280		0.9087	0.9087		0.8360	0.8360		2,707.7743	2,707.7743	0.8758		2,726.1651
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.9278</b>	<b>17.5365</b>	<b>18.0326</b>	<b>0.0280</b>		<b>0.9087</b>	<b>0.9087</b>		<b>0.8360</b>	<b>0.8360</b>		<b>2,707.7743</b>	<b>2,707.7743</b>	<b>0.8758</b>		<b>2,726.1651</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0440	0.0426	0.5157	1.8300e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0358		126.3732	126.3732	4.9100e-003		126.4763
<b>Total</b>	<b>0.0440</b>	<b>0.0426</b>	<b>0.5157</b>	<b>1.8300e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0358</b>		<b>126.3732</b>	<b>126.3732</b>	<b>4.9100e-003</b>		<b>126.4763</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,707.7743	2,707.7743	0.8758		2,726.1650
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3542</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,707.7743</b>	<b>2,707.7743</b>	<b>0.8758</b>		<b>2,726.1650</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0440	0.0426	0.5157	1.8300e-003	0.1314	9.5000e-004	0.1324	0.0349	8.8000e-004	0.0358		126.3732	126.3732	4.9100e-003		126.4763
<b>Total</b>	<b>0.0440</b>	<b>0.0426</b>	<b>0.5157</b>	<b>1.8300e-003</b>	<b>0.1314</b>	<b>9.5000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.8000e-004</b>	<b>0.0358</b>		<b>126.3732</b>	<b>126.3732</b>	<b>4.9100e-003</b>		<b>126.4763</b>

### 3.7 Paving - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4873	15.0594	17.9075	0.0280		0.7705	0.7705		0.7089	0.7089		2,707.7966	2,707.7966	0.8758		2,726.1875
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.7281</b>	<b>15.0594</b>	<b>17.9075</b>	<b>0.0280</b>		<b>0.7705</b>	<b>0.7705</b>		<b>0.7089</b>	<b>0.7089</b>		<b>2,707.7966</b>	<b>2,707.7966</b>	<b>0.8758</b>		<b>2,726.1875</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0415	0.0400	0.4845	1.8300e-003	0.1314	9.6000e-004	0.1324	0.0349	8.9000e-004	0.0358		124.4434	124.4434	4.7100e-003		124.5423
<b>Total</b>	<b>0.0415</b>	<b>0.0400</b>	<b>0.4845</b>	<b>1.8300e-003</b>	<b>0.1314</b>	<b>9.6000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.9000e-004</b>	<b>0.0358</b>		<b>124.4434</b>	<b>124.4434</b>	<b>4.7100e-003</b>		<b>124.5423</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1134	24.2753	21.2633	0.0280		0.7699	0.7699		0.7699	0.7699	0.0000	2,707.7966	2,707.7966	0.8758		2,726.1875
Paving	0.2408					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
<b>Total</b>	<b>1.3542</b>	<b>24.2753</b>	<b>21.2633</b>	<b>0.0280</b>		<b>0.7699</b>	<b>0.7699</b>		<b>0.7699</b>	<b>0.7699</b>	<b>0.0000</b>	<b>2,707.7966</b>	<b>2,707.7966</b>	<b>0.8758</b>		<b>2,726.1875</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0415	0.0400	0.4845	1.8300e-003	0.1314	9.6000e-004	0.1324	0.0349	8.9000e-004	0.0358		124.4434	124.4434	4.7100e-003		124.5423
<b>Total</b>	<b>0.0415</b>	<b>0.0400</b>	<b>0.4845</b>	<b>1.8300e-003</b>	<b>0.1314</b>	<b>9.6000e-004</b>	<b>0.1324</b>	<b>0.0349</b>	<b>8.9000e-004</b>	<b>0.0358</b>		<b>124.4434</b>	<b>124.4434</b>	<b>4.7100e-003</b>		<b>124.5423</b>

### 3.8 Building Construction - Office/R&D - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5683	16.2736	13.1629	0.0192		0.9179	0.9179		0.8456	0.8456		1,882.7650	1,882.7650	0.5850		1,895.0489

<b>Total</b>	<b>1.5683</b>	<b>16.2736</b>	<b>13.1629</b>	<b>0.0192</b>		<b>0.9179</b>	<b>0.9179</b>		<b>0.8456</b>	<b>0.8456</b>		<b>1,882.7650</b>	<b>1,882.7650</b>	<b>0.5850</b>		<b>1,895.0489</b>
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8008	6.8023	9.0561	0.0232	0.6537	0.1221	0.7759	0.1868	0.1124	0.2992		2,217.0717	2,217.0717	0.0173		2,217.4345
Worker	1.1062	1.0843	13.0582	0.0400	2.8752	0.0207	2.8959	0.7626	0.0192	0.7818		2,930.2824	2,930.2824	0.1192		2,932.7861
<b>Total</b>	<b>1.9070</b>	<b>7.8866</b>	<b>22.1143</b>	<b>0.0632</b>	<b>3.5289</b>	<b>0.1429</b>	<b>3.6718</b>	<b>0.9495</b>	<b>0.1316</b>	<b>1.0810</b>		<b>5,147.3541</b>	<b>5,147.3541</b>	<b>0.1365</b>		<b>5,150.2206</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,882.7650	1,882.7650	0.5850		1,895.0489
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,882.7650</b>	<b>1,882.7650</b>	<b>0.5850</b>		<b>1,895.0489</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.8008	6.8023	9.0561	0.0232	0.6537	0.1221	0.7759	0.1868	0.1124	0.2992		2,217.0717	2,217.0717	0.0173		2,217.4345
Worker	1.1062	1.0843	13.0582	0.0400	2.8752	0.0207	2.8959	0.7626	0.0192	0.7818		2,930.2824	2,930.2824	0.1192		2,932.7861
<b>Total</b>	<b>1.9070</b>	<b>7.8866</b>	<b>22.1143</b>	<b>0.0632</b>	<b>3.5289</b>	<b>0.1429</b>	<b>3.6718</b>	<b>0.9495</b>	<b>0.1316</b>	<b>1.0810</b>		<b>5,147.3541</b>	<b>5,147.3541</b>	<b>0.1365</b>		<b>5,150.2206</b>

### 3.8 Building Construction - Office/R&D - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>1.4601</b>	<b>14.9958</b>	<b>13.0640</b>	<b>0.0192</b>		<b>0.8302</b>	<b>0.8302</b>		<b>0.7650</b>	<b>0.7650</b>		<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.7276	5.7412	8.5202	0.0231	0.6537	0.1072	0.7609	0.1868	0.0986	0.2855		2,165.9853	2,165.9853	0.0164		2,166.3300
Worker	1.0238	0.9992	12.0457	0.0400	2.8752	0.0207	2.8959	0.7626	0.0192	0.7819		2,812.8792	2,812.8792	0.1125		2,815.2426
<b>Total</b>	<b>1.7514</b>	<b>6.7404</b>	<b>20.5659</b>	<b>0.0632</b>	<b>3.5289</b>	<b>0.1279</b>	<b>3.6568</b>	<b>0.9495</b>	<b>0.1178</b>	<b>1.0673</b>		<b>4,978.8645</b>	<b>4,978.8645</b>	<b>0.1290</b>		<b>4,981.5726</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.7276	5.7412	8.5202	0.0231	0.6537	0.1072	0.7609	0.1868	0.0986	0.2855		2,165.9853	2,165.9853	0.0164		2,166.3300
Worker	1.0238	0.9992	12.0457	0.0400	2.8752	0.0207	2.8959	0.7626	0.0192	0.7819		2,812.8792	2,812.8792	0.1125		2,815.2426
<b>Total</b>	<b>1.7514</b>	<b>6.7404</b>	<b>20.5659</b>	<b>0.0632</b>	<b>3.5289</b>	<b>0.1279</b>	<b>3.6568</b>	<b>0.9495</b>	<b>0.1178</b>	<b>1.0673</b>		<b>4,978.8645</b>	<b>4,978.8645</b>	<b>0.1290</b>		<b>4,981.5726</b>

## 3.8 Building Construction - Office/R&D - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
<b>Total</b>	<b>1.2682</b>	<b>12.8707</b>	<b>12.8919</b>	<b>0.0192</b>		<b>0.6934</b>	<b>0.6934</b>		<b>0.6391</b>	<b>0.6391</b>		<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6991	4.6586	8.3033	0.0231	0.6537	0.0943	0.7481	0.1868	0.0868	0.2736		2,162.3930	2,162.3930	0.0161		2,162.7320
Worker	0.9620	0.9328	11.2801	0.0400	2.8752	0.0208	2.8960	0.7626	0.0193	0.7819		2,764.4140	2,764.4140	0.1074		2,766.6684
<b>Total</b>	<b>1.6611</b>	<b>5.5914</b>	<b>19.5834</b>	<b>0.0631</b>	<b>3.5289</b>	<b>0.1152</b>	<b>3.6441</b>	<b>0.9495</b>	<b>0.1061</b>	<b>1.0556</b>		<b>4,926.8070</b>	<b>4,926.8070</b>	<b>0.1235</b>		<b>4,929.4005</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861



Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6991	4.6586	8.3033	0.0231	0.6537	0.0943	0.7481	0.1868	0.0868	0.2736		2,162.3930	2,162.3930	0.0161		2,162.7320
Worker	0.9620	0.9328	11.2801	0.0400	2.8752	0.0208	2.8960	0.7626	0.0193	0.7819		2,764.4140	2,764.4140	0.1074		2,766.6684
Total	1.6611	5.5914	19.5834	0.0631	3.5289	0.1152	3.6441	0.9495	0.1061	1.0556		4,926.8070	4,926.8070	0.1235		4,929.4005

### 3.8 Building Construction - Office/R&D - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
Total	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.6752	4.1143	7.9966	0.0230	0.6538	0.0923	0.7461	0.1868	0.0849	0.2718		2,159.9684	2,159.9684	0.0164		2,160.3120
Worker	0.9075	0.8756	10.5990	0.0400	2.8752	0.0209	2.8961	0.7626	0.0194	0.7821		2,722.2001	2,722.2001	0.1030		2,724.3623
<b>Total</b>	<b>1.5827</b>	<b>4.9898</b>	<b>18.5956</b>	<b>0.0630</b>	<b>3.5289</b>	<b>0.1133</b>	<b>3.6422</b>	<b>0.9495</b>	<b>0.1044</b>	<b>1.0538</b>		<b>4,882.1685</b>	<b>4,882.1685</b>	<b>0.1193</b>		<b>4,884.6743</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.6752	4.1143	7.9966	0.0230	0.6538	0.0923	0.7461	0.1868	0.0849	0.2718		2,159.9684	2,159.9684	0.0164		2,160.3120
Worker	0.9075	0.8756	10.5990	0.0400	2.8752	0.0209	2.8961	0.7626	0.0194	0.7821		2,722.2001	2,722.2001	0.1030		2,724.3623
<b>Total</b>	<b>1.5827</b>	<b>4.9898</b>	<b>18.5956</b>	<b>0.0630</b>	<b>3.5289</b>	<b>0.1133</b>	<b>3.6422</b>	<b>0.9495</b>	<b>0.1044</b>	<b>1.0538</b>		<b>4,882.1685</b>	<b>4,882.1685</b>	<b>0.1193</b>		<b>4,884.6743</b>

### 3.9 Architectural Coating - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	2.1315	14.6831	14.7306	0.0238		1.0301	1.0301		1.0301	1.0301		2,251.5844	2,251.5844	0.1902		2,255.5781
<b>Total</b>	<b>110.7773</b>	<b>14.6831</b>	<b>14.7306</b>	<b>0.0238</b>		<b>1.0301</b>	<b>1.0301</b>		<b>1.0301</b>	<b>1.0301</b>		<b>2,251.5844</b>	<b>2,251.5844</b>	<b>0.1902</b>		<b>2,255.5781</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.4349	1.4064	16.9383	0.0519	3.7295	0.0269	3.7564	0.9892	0.0249	1.0142		3,800.9948	3,800.9948	0.1547		3,804.2425
<b>Total</b>	<b>1.4349</b>	<b>1.4064</b>	<b>16.9383</b>	<b>0.0519</b>	<b>3.7295</b>	<b>0.0269</b>	<b>3.7564</b>	<b>0.9892</b>	<b>0.0249</b>	<b>1.0142</b>		<b>3,800.9948</b>	<b>3,800.9948</b>	<b>0.1547</b>		<b>3,804.2425</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.9113	18.8194	14.6593	0.0238		0.7607	0.7607		0.7607	0.7607	0.0000	2,251.5844	2,251.5844	0.1902		2,255.5781
<b>Total</b>	<b>109.5570</b>	<b>18.8194</b>	<b>14.6593</b>	<b>0.0238</b>		<b>0.7607</b>	<b>0.7607</b>		<b>0.7607</b>	<b>0.7607</b>	<b>0.0000</b>	<b>2,251.5844</b>	<b>2,251.5844</b>	<b>0.1902</b>		<b>2,255.5781</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.4349	1.4064	16.9383	0.0519	3.7295	0.0269	3.7564	0.9892	0.0249	1.0142		3,800.9948	3,800.9948	0.1547		3,804.2425
<b>Total</b>	<b>1.4349</b>	<b>1.4064</b>	<b>16.9383</b>	<b>0.0519</b>	<b>3.7295</b>	<b>0.0269</b>	<b>3.7564</b>	<b>0.9892</b>	<b>0.0249</b>	<b>1.0142</b>		<b>3,800.9948</b>	<b>3,800.9948</b>	<b>0.1547</b>		<b>3,804.2425</b>

### 3.9 Architectural Coating - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000

Off-Road	1.9374	13.4707	14.6514	0.0238		0.8875	0.8875		0.8875	0.8875		2,251.584 4	2,251.5844	0.1743		2,255.245 3
<b>Total</b>	<b>110.5831</b>	<b>13.4707</b>	<b>14.6514</b>	<b>0.0238</b>		<b>0.8875</b>	<b>0.8875</b>		<b>0.8875</b>	<b>0.8875</b>		<b>2,251.584 4</b>	<b>2,251.5844</b>	<b>0.1743</b>		<b>2,255.245 3</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.3280	1.2961	15.6250	0.0519	3.7295	0.0269	3.7564	0.9892	0.0249	1.0142		3,648.706 2	3,648.7062	0.1460		3,651.771 8
<b>Total</b>	<b>1.3280</b>	<b>1.2961</b>	<b>15.6250</b>	<b>0.0519</b>	<b>3.7295</b>	<b>0.0269</b>	<b>3.7564</b>	<b>0.9892</b>	<b>0.0249</b>	<b>1.0142</b>		<b>3,648.706 2</b>	<b>3,648.7062</b>	<b>0.1460</b>		<b>3,651.771 8</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.9113	18.8194	14.6593	0.0238		0.7607	0.7607		0.7607	0.7607	0.0000	2,251.584 4	2,251.5844	0.1743		2,255.245 3
<b>Total</b>	<b>109.5570</b>	<b>18.8194</b>	<b>14.6593</b>	<b>0.0238</b>		<b>0.7607</b>	<b>0.7607</b>		<b>0.7607</b>	<b>0.7607</b>	<b>0.0000</b>	<b>2,251.584 4</b>	<b>2,251.5844</b>	<b>0.1743</b>		<b>2,255.245 3</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.3280	1.2961	15.6250	0.0519	3.7295	0.0269	3.7564	0.9892	0.0249	1.0142		3,648.7062	3,648.7062	0.1460		3,651.7718
<b>Total</b>	<b>1.3280</b>	<b>1.2961</b>	<b>15.6250</b>	<b>0.0519</b>	<b>3.7295</b>	<b>0.0269</b>	<b>3.7564</b>	<b>0.9892</b>	<b>0.0249</b>	<b>1.0142</b>		<b>3,648.7062</b>	<b>3,648.7062</b>	<b>0.1460</b>		<b>3,651.7718</b>

### 3.9 Architectural Coating - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.7512	12.2148	14.5404	0.0238		0.7528	0.7528		0.7528	0.7528		2,251.5844	2,251.5844	0.1545		2,254.8292
<b>Total</b>	<b>110.3969</b>	<b>12.2148</b>	<b>14.5404</b>	<b>0.0238</b>		<b>0.7528</b>	<b>0.7528</b>		<b>0.7528</b>	<b>0.7528</b>		<b>2,251.5844</b>	<b>2,251.5844</b>	<b>0.1545</b>		<b>2,254.8292</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.2478	1.2100	14.6319	0.0519	3.7295	0.0270	3.7565	0.9892	0.0251	1.0143		3,585.839 9	3,585.8399	0.1393		3,588.764 2
<b>Total</b>	<b>1.2478</b>	<b>1.2100</b>	<b>14.6319</b>	<b>0.0519</b>	<b>3.7295</b>	<b>0.0270</b>	<b>3.7565</b>	<b>0.9892</b>	<b>0.0251</b>	<b>1.0143</b>		<b>3,585.839 9</b>	<b>3,585.8399</b>	<b>0.1393</b>		<b>3,588.764 2</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.9113	18.8194	14.6593	0.0238		0.7607	0.7607		0.7607	0.7607	0.0000	2,251.584 4	2,251.5844	0.1545		2,254.829 2
<b>Total</b>	<b>109.5570</b>	<b>18.8194</b>	<b>14.6593</b>	<b>0.0238</b>		<b>0.7607</b>	<b>0.7607</b>		<b>0.7607</b>	<b>0.7607</b>	<b>0.0000</b>	<b>2,251.584 4</b>	<b>2,251.5844</b>	<b>0.1545</b>		<b>2,254.829 2</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.2478	1.2100	14.6319	0.0519	3.7295	0.0270	3.7565	0.9892	0.0251	1.0143		3,585.839 9	3,585.8399	0.1393		3,588.764 2
<b>Total</b>	<b>1.2478</b>	<b>1.2100</b>	<b>14.6319</b>	<b>0.0519</b>	<b>3.7295</b>	<b>0.0270</b>	<b>3.7565</b>	<b>0.9892</b>	<b>0.0251</b>	<b>1.0143</b>		<b>3,585.839 9</b>	<b>3,585.8399</b>	<b>0.1393</b>		<b>3,588.764 2</b>

### 3.9 Architectural Coating - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	1.6363	11.2679	14.5087	0.0238		0.6537	0.6537		0.6537	0.6537		2,251.5844	2,251.5844	0.1466		2,254.6628
<b>Total</b>	<b>110.2820</b>	<b>11.2679</b>	<b>14.5087</b>	<b>0.0238</b>		<b>0.6537</b>	<b>0.6537</b>		<b>0.6537</b>	<b>0.6537</b>		<b>2,251.5844</b>	<b>2,251.5844</b>	<b>0.1466</b>		<b>2,254.6628</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.1771	1.1357	13.7484	0.0519	3.7295	0.0272	3.7567	0.9892	0.0252	1.0144		3,531.0824	3,531.0824	0.1336		3,533.8871
<b>Total</b>	<b>1.1771</b>	<b>1.1357</b>	<b>13.7484</b>	<b>0.0519</b>	<b>3.7295</b>	<b>0.0272</b>	<b>3.7567</b>	<b>0.9892</b>	<b>0.0252</b>	<b>1.0144</b>		<b>3,531.0824</b>	<b>3,531.0824</b>	<b>0.1336</b>		<b>3,533.8871</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	108.6457					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000



Off-Road	0.9113	18.8194	14.6593	0.0238		0.7607	0.7607		0.7607	0.7607	0.0000	2,251.5844	2,251.5844	0.1466		2,254.6628
<b>Total</b>	<b>109.5570</b>	<b>18.8194</b>	<b>14.6593</b>	<b>0.0238</b>		<b>0.7607</b>	<b>0.7607</b>		<b>0.7607</b>	<b>0.7607</b>	<b>0.0000</b>	<b>2,251.5844</b>	<b>2,251.5844</b>	<b>0.1466</b>		<b>2,254.6628</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	1.1771	1.1357	13.7484	0.0519	3.7295	0.0272	3.7567	0.9892	0.0252	1.0144		3,531.0824	3,531.0824	0.1336		3,533.8871
<b>Total</b>	<b>1.1771</b>	<b>1.1357</b>	<b>13.7484</b>	<b>0.0519</b>	<b>3.7295</b>	<b>0.0272</b>	<b>3.7567</b>	<b>0.9892</b>	<b>0.0252</b>	<b>1.0144</b>		<b>3,531.0824</b>	<b>3,531.0824</b>	<b>0.1336</b>		<b>3,533.8871</b>

### 3.10 Building Construction - Freeway Commercial - 2019

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5683	16.2736	13.1629	0.0192		0.9179	0.9179		0.8456	0.8456		1,882.7650	1,882.7650	0.5850		1,895.0489
<b>Total</b>	<b>1.5683</b>	<b>16.2736</b>	<b>13.1629</b>	<b>0.0192</b>		<b>0.9179</b>	<b>0.9179</b>		<b>0.8456</b>	<b>0.8456</b>		<b>1,882.7650</b>	<b>1,882.7650</b>	<b>0.5850</b>		<b>1,895.0489</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2288	1.9435	2.5875	6.6200e-003	0.1868	0.0349	0.2217	0.0534	0.0321	0.0855		633.4491	633.4491	4.9400e-003		633.5527
Worker	0.5373	0.5266	6.3425	0.0195	1.3965	0.0101	1.4066	0.3704	9.3300e-003	0.3798		1,423.2800	1,423.2800	0.0579		1,424.4961
<b>Total</b>	<b>0.7661</b>	<b>2.4702</b>	<b>8.9300</b>	<b>0.0261</b>	<b>1.5833</b>	<b>0.0450</b>	<b>1.6283</b>	<b>0.4238</b>	<b>0.0414</b>	<b>0.4652</b>		<b>2,056.7291</b>	<b>2,056.7291</b>	<b>0.0629</b>		<b>2,058.0488</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,882.7650	1,882.7650	0.5850		1,895.0489
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,882.7650</b>	<b>1,882.7650</b>	<b>0.5850</b>		<b>1,895.0489</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.2288	1.9435	2.5875	6.6200e-003	0.1868	0.0349	0.2217	0.0534	0.0321	0.0855		633.4491	633.4491	4.9400e-003		633.5527
Worker	0.5373	0.5266	6.3425	0.0195	1.3965	0.0101	1.4066	0.3704	9.3300e-003	0.3798		1,423.2800	1,423.2800	0.0579		1,424.4961
<b>Total</b>	<b>0.7661</b>	<b>2.4702</b>	<b>8.9300</b>	<b>0.0261</b>	<b>1.5833</b>	<b>0.0450</b>	<b>1.6283</b>	<b>0.4238</b>	<b>0.0414</b>	<b>0.4652</b>		<b>2,056.7291</b>	<b>2,056.7291</b>	<b>0.0629</b>		<b>2,058.0488</b>

### 3.10 Building Construction - Freeway Commercial - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>1.4601</b>	<b>14.9958</b>	<b>13.0640</b>	<b>0.0192</b>		<b>0.8302</b>	<b>0.8302</b>		<b>0.7650</b>	<b>0.7650</b>		<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2079	1.6404	2.4343	6.6000e-003	0.1868	0.0306	0.2174	0.0534	0.0282	0.0816		618.8530	618.8530	4.6900e-003		618.9514
Worker	0.4973	0.4853	5.8508	0.0194	1.3965	0.0101	1.4066	0.3704	9.3400e-003	0.3798		1,366.2556	1,366.2556	0.0547		1,367.4035
<b>Total</b>	<b>0.7052</b>	<b>2.1257</b>	<b>8.2851</b>	<b>0.0260</b>	<b>1.5833</b>	<b>0.0407</b>	<b>1.6240</b>	<b>0.4238</b>	<b>0.0375</b>	<b>0.4613</b>		<b>1,985.1086</b>	<b>1,985.1086</b>	<b>0.0594</b>		<b>1,986.3550</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2079	1.6404	2.4343	6.6000e-003	0.1868	0.0306	0.2174	0.0534	0.0282	0.0816		618.8530	618.8530	4.6900e-003		618.9514
Worker	0.4973	0.4853	5.8508	0.0194	1.3965	0.0101	1.4066	0.3704	9.3400e-003	0.3798		1,366.2556	1,366.2556	0.0547		1,367.4035
<b>Total</b>	<b>0.7052</b>	<b>2.1257</b>	<b>8.2851</b>	<b>0.0260</b>	<b>1.5833</b>	<b>0.0407</b>	<b>1.6240</b>	<b>0.4238</b>	<b>0.0375</b>	<b>0.4613</b>		<b>1,985.1086</b>	<b>1,985.1086</b>	<b>0.0594</b>		<b>1,986.3550</b>

### 3.10 Building Construction - Freeway Commercial - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861

Total	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1998	1.3310	2.3724	6.5900e-003	0.1868	0.0270	0.2137	0.0534	0.0248	0.0782		617.8266	617.8266	4.6100e-003		617.9234
Worker	0.4672	0.4531	5.4789	0.0194	1.3965	0.0101	1.4066	0.3704	9.3800e-003	0.3798		1,342.7154	1,342.7154	0.0521		1,343.8104
Total	0.6670	1.7841	7.8513	0.0260	1.5833	0.0371	1.6204	0.4238	0.0342	0.4580		1,960.5419	1,960.5419	0.0568		1,961.7338

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1998	1.3310	2.3724	6.5900e-003	0.1868	0.0270	0.2137	0.0534	0.0248	0.0782		617.8266	617.8266	4.6100e-003		617.9234
Worker	0.4672	0.4531	5.4789	0.0194	1.3965	0.0101	1.4066	0.3704	9.3800e-003	0.3798		1,342.7154	1,342.7154	0.0521		1,343.8104
<b>Total</b>	<b>0.6670</b>	<b>1.7841</b>	<b>7.8513</b>	<b>0.0260</b>	<b>1.5833</b>	<b>0.0371</b>	<b>1.6204</b>	<b>0.4238</b>	<b>0.0342</b>	<b>0.4580</b>		<b>1,960.5419</b>	<b>1,960.5419</b>	<b>0.0568</b>		<b>1,961.7338</b>

### 3.10 Building Construction - Freeway Commercial - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>1.1358</b>	<b>11.3053</b>	<b>12.7781</b>	<b>0.0192</b>		<b>0.5904</b>	<b>0.5904</b>		<b>0.5443</b>	<b>0.5443</b>		<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.1929	1.1755	2.2848	6.5800e-003	0.1868	0.0264	0.2132	0.0534	0.0243	0.0777		617.1338	617.1338	4.6700e-003		617.2320
Worker	0.4408	0.4253	5.1481	0.0194	1.3965	0.0102	1.4067	0.3704	9.4300e-003	0.3799		1,322.2115	1,322.2115	0.0500		1,323.2617
<b>Total</b>	<b>0.6337</b>	<b>1.6008</b>	<b>7.4328</b>	<b>0.0260</b>	<b>1.5833</b>	<b>0.0366</b>	<b>1.6198</b>	<b>0.4238</b>	<b>0.0337</b>	<b>0.4575</b>		<b>1,939.3453</b>	<b>1,939.3453</b>	<b>0.0547</b>		<b>1,940.4937</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.1929	1.1755	2.2848	6.5800e-003	0.1868	0.0264	0.2132	0.0534	0.0243	0.0777		617.1338	617.1338	4.6700e-003		617.2320
Worker	0.4408	0.4253	5.1481	0.0194	1.3965	0.0102	1.4067	0.3704	9.4300e-003	0.3799		1,322.2115	1,322.2115	0.0500		1,323.2617
<b>Total</b>	<b>0.6337</b>	<b>1.6008</b>	<b>7.4328</b>	<b>0.0260</b>	<b>1.5833</b>	<b>0.0366</b>	<b>1.6198</b>	<b>0.4238</b>	<b>0.0337</b>	<b>0.4575</b>		<b>1,939.3453</b>	<b>1,939.3453</b>	<b>0.0547</b>		<b>1,940.4937</b>

## 3.11 Building Construction - Elem. & Middle School - 2020

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>1.4601</b>	<b>14.9958</b>	<b>13.0640</b>	<b>0.0192</b>		<b>0.8302</b>	<b>0.8302</b>		<b>0.7650</b>	<b>0.7650</b>		<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2227	1.7575	2.6082	7.0800e-003	0.2001	0.0328	0.2329	0.0572	0.0302	0.0874		663.0567	663.0567	5.0200e-003		663.1622
Worker	0.7020	0.6852	8.2599	0.0275	1.9715	0.0142	1.9858	0.5230	0.0132	0.5361		1,928.8315	1,928.8315	0.0772		1,930.4521
<b>Total</b>	<b>0.9248</b>	<b>2.4427</b>	<b>10.8681</b>	<b>0.0345</b>	<b>2.1717</b>	<b>0.0470</b>	<b>2.2187</b>	<b>0.5801</b>	<b>0.0434</b>	<b>0.6235</b>		<b>2,591.8882</b>	<b>2,591.8882</b>	<b>0.0822</b>		<b>2,593.6143</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810



Total	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2227	1.7575	2.6082	7.0800e-003	0.2001	0.0328	0.2329	0.0572	0.0302	0.0874		663.0567	663.0567	5.0200e-003		663.1622
Worker	0.7020	0.6852	8.2599	0.0275	1.9715	0.0142	1.9858	0.5230	0.0132	0.5361		1,928.8315	1,928.8315	0.0772		1,930.4521
Total	0.9248	2.4427	10.8681	0.0345	2.1717	0.0470	2.2187	0.5801	0.0434	0.6235		2,591.8882	2,591.8882	0.0822		2,593.6143

### 3.11 Building Construction - Elem. & Middle School - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
Total	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2140	1.4261	2.5418	7.0600e-003	0.2001	0.0289	0.2290	0.0572	0.0266	0.0838		661.9570	661.9570	4.9400e-003		662.0608
Worker	0.6596	0.6396	7.7349	0.0274	1.9715	0.0143	1.9858	0.5230	0.0132	0.5362		1,895.5982	1,895.5982	0.0736		1,897.1441
<b>Total</b>	<b>0.8736</b>	<b>2.0657</b>	<b>10.2768</b>	<b>0.0345</b>	<b>2.1717</b>	<b>0.0432</b>	<b>2.2148</b>	<b>0.5801</b>	<b>0.0398</b>	<b>0.6200</b>		<b>2,557.5552</b>	<b>2,557.5552</b>	<b>0.0786</b>		<b>2,559.2049</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3660</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.2140	1.4261	2.5418	7.0600e-003	0.2001	0.0289	0.2290	0.0572	0.0266	0.0838		661.9570	661.9570	4.9400e-003		662.0608
Worker	0.6596	0.6396	7.7349	0.0274	1.9715	0.0143	1.9858	0.5230	0.0132	0.5362		1,895.5982	1,895.5982	0.0736		1,897.1441
<b>Total</b>	<b>0.8736</b>	<b>2.0657</b>	<b>10.2768</b>	<b>0.0345</b>	<b>2.1717</b>	<b>0.0432</b>	<b>2.2148</b>	<b>0.5801</b>	<b>0.0398</b>	<b>0.6200</b>		<b>2,557.5552</b>	<b>2,557.5552</b>	<b>0.0786</b>		<b>2,559.2049</b>

### 3.12 Building Construction - High School - 2020

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4601	14.9958	13.0640	0.0192		0.8302	0.8302		0.7650	0.7650		1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>1.4601</b>	<b>14.9958</b>	<b>13.0640</b>	<b>0.0192</b>		<b>0.8302</b>	<b>0.8302</b>		<b>0.7650</b>	<b>0.7650</b>		<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2524	1.9919	2.9560	8.0200e-003	0.2268	0.0372	0.2640	0.0648	0.0342	0.0990		751.4643	751.4643	5.6900e-003		751.5839
Worker	1.1701	1.1420	13.7665	0.0458	3.2859	0.0237	3.3096	0.8716	0.0220	0.8935		3,214.7191	3,214.7191	0.1286		3,217.4201
<b>Total</b>	<b>1.4225</b>	<b>3.1338</b>	<b>16.7225</b>	<b>0.0538</b>	<b>3.5127</b>	<b>0.0609</b>	<b>3.5736</b>	<b>0.9364</b>	<b>0.0562</b>	<b>0.9926</b>		<b>3,966.1834</b>	<b>3,966.1834</b>	<b>0.1343</b>		<b>3,969.0040</b>

#### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6987	1,842.6987	0.5849		1,854.9810
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6987</b>	<b>1,842.6987</b>	<b>0.5849</b>		<b>1,854.9810</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2524	1.9919	2.9560	8.0200e-003	0.2268	0.0372	0.2640	0.0648	0.0342	0.0990		751.4643	751.4643	5.6900e-003		751.5839
Worker	1.1701	1.1420	13.7665	0.0458	3.2859	0.0237	3.3096	0.8716	0.0220	0.8935		3,214.7191	3,214.7191	0.1286		3,217.4201
<b>Total</b>	<b>1.4225</b>	<b>3.1338</b>	<b>16.7225</b>	<b>0.0538</b>	<b>3.5127</b>	<b>0.0609</b>	<b>3.5736</b>	<b>0.9364</b>	<b>0.0562</b>	<b>0.9926</b>		<b>3,966.1834</b>	<b>3,966.1834</b>	<b>0.1343</b>		<b>3,969.0040</b>

### 3.12 Building Construction - High School - 2021

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861

Total	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
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### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2426	1.6162	2.8807	8.0100e-003	0.2268	0.0327	0.2595	0.0648	0.0301	0.0949		750.2180	750.2180	5.6000e-003		750.3356
Worker	1.0994	1.0661	12.8916	0.0457	3.2859	0.0238	3.3097	0.8716	0.0221	0.8936		3,159.3303	3,159.3303	0.1227		3,161.9068
Total	1.3419	2.6823	15.7723	0.0537	3.5127	0.0565	3.5692	0.9364	0.0522	0.9886		3,909.5483	3,909.5483	0.1283		3,912.2424

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2426	1.6162	2.8807	8.0100e-003	0.2268	0.0327	0.2595	0.0648	0.0301	0.0949		750.2180	750.2180	5.6000e-003		750.3356
Worker	1.0994	1.0661	12.8916	0.0457	3.2859	0.0238	3.3097	0.8716	0.0221	0.8936		3,159.3303	3,159.3303	0.1227		3,161.9068
<b>Total</b>	<b>1.3419</b>	<b>2.6823</b>	<b>15.7723</b>	<b>0.0537</b>	<b>3.5127</b>	<b>0.0565</b>	<b>3.5692</b>	<b>0.9364</b>	<b>0.0522</b>	<b>0.9886</b>		<b>3,909.5483</b>	<b>3,909.5483</b>	<b>0.1283</b>		<b>3,912.2424</b>

### 3.12 Building Construction - High School - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>1.1358</b>	<b>11.3053</b>	<b>12.7781</b>	<b>0.0192</b>		<b>0.5904</b>	<b>0.5904</b>		<b>0.5443</b>	<b>0.5443</b>		<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.2343	1.4274	2.7743	7.9900e-003	0.2268	0.0320	0.2588	0.0648	0.0295	0.0943		749.3768	749.3768	5.6800e-003		749.4960
Worker	1.0371	1.0007	12.1131	0.0457	3.2859	0.0239	3.3098	0.8716	0.0222	0.8938		3,111.0858	3,111.0858	0.1177		3,113.5569
<b>Total</b>	<b>1.2714</b>	<b>2.4281</b>	<b>14.8875</b>	<b>0.0537</b>	<b>3.5127</b>	<b>0.0560</b>	<b>3.5687</b>	<b>0.9364</b>	<b>0.0517</b>	<b>0.9881</b>		<b>3,860.4626</b>	<b>3,860.4626</b>	<b>0.1234</b>		<b>3,863.0529</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2343	1.4274	2.7743	7.9900e-003	0.2268	0.0320	0.2588	0.0648	0.0295	0.0943		749.3768	749.3768	5.6800e-003		749.4960
Worker	1.0371	1.0007	12.1131	0.0457	3.2859	0.0239	3.3098	0.8716	0.0222	0.8938		3,111.0858	3,111.0858	0.1177		3,113.5569
<b>Total</b>	<b>1.2714</b>	<b>2.4281</b>	<b>14.8875</b>	<b>0.0537</b>	<b>3.5127</b>	<b>0.0560</b>	<b>3.5687</b>	<b>0.9364</b>	<b>0.0517</b>	<b>0.9881</b>		<b>3,860.4626</b>	<b>3,860.4626</b>	<b>0.1234</b>		<b>3,863.0529</b>

## 3.13 Building Construction - Parks - 2021

### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.2682	12.8707	12.8919	0.0192		0.6934	0.6934		0.6391	0.6391		1,842.4058	1,842.4058	0.5848		1,854.6861
<b>Total</b>	<b>1.2682</b>	<b>12.8707</b>	<b>12.8919</b>	<b>0.0192</b>		<b>0.6934</b>	<b>0.6934</b>		<b>0.6391</b>	<b>0.6391</b>		<b>1,842.4058</b>	<b>1,842.4058</b>	<b>0.5848</b>		<b>1,854.6861</b>

### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2283	1.5212	2.7113	7.5300e-003	0.2135	0.0308	0.2443	0.0610	0.0283	0.0893		706.0875	706.0875	5.2700e-003		706.1982
Worker	0.3848	0.3731	4.5121	0.0160	1.1501	8.3300e-003	1.1584	0.3051	7.7200e-003	0.3128		1,105.7656	1,105.7656	0.0429		1,106.6674
<b>Total</b>	<b>0.6131</b>	<b>1.8943</b>	<b>7.2233</b>	<b>0.0235</b>	<b>1.3635</b>	<b>0.0391</b>	<b>1.4027</b>	<b>0.3661</b>	<b>0.0361</b>	<b>0.4021</b>		<b>1,811.8531</b>	<b>1,811.8531</b>	<b>0.0482</b>		<b>1,812.8656</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861



Total	0.8313	16.9458	14.3660	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.4058	1,842.4058	0.5848		1,854.6861
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### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2283	1.5212	2.7113	7.5300e-003	0.2135	0.0308	0.2443	0.0610	0.0283	0.0893		706.0875	706.0875	5.2700e-003		706.1982
Worker	0.3848	0.3731	4.5121	0.0160	1.1501	8.3300e-003	1.1584	0.3051	7.7200e-003	0.3128		1,105.7656	1,105.7656	0.0429		1,106.6674
Total	0.6131	1.8943	7.2233	0.0235	1.3635	0.0391	1.4027	0.3661	0.0361	0.4021		1,811.8531	1,811.8531	0.0482		1,812.8656

### 3.13 Building Construction - Parks - 2022

#### Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817
Total	1.1358	11.3053	12.7781	0.0192		0.5904	0.5904		0.5443	0.5443		1,842.6994	1,842.6994	0.5849		1,854.9817

#### Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.2205	1.3434	2.6111	7.5200e-003	0.2135	0.0302	0.2436	0.0610	0.0277	0.0887		705.2958	705.2958	5.3400e-003		705.4080
Worker	0.3630	0.3502	4.2396	0.0160	1.1501	8.3800e-003	1.1584	0.3051	7.7700e-003	0.3128		1,088.8800	1,088.8800	0.0412		1,089.7449
<b>Total</b>	<b>0.5835</b>	<b>1.6937</b>	<b>6.8507</b>	<b>0.0235</b>	<b>1.3635</b>	<b>0.0385</b>	<b>1.4021</b>	<b>0.3661</b>	<b>0.0355</b>	<b>0.4016</b>		<b>1,794.1758</b>	<b>1,794.1758</b>	<b>0.0465</b>		<b>1,795.1529</b>

### Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.8313	16.9458	14.3661	0.0192		0.5817	0.5817		0.5817	0.5817	0.0000	1,842.6994	1,842.6994	0.5849		1,854.9817
<b>Total</b>	<b>0.8313</b>	<b>16.9458</b>	<b>14.3661</b>	<b>0.0192</b>		<b>0.5817</b>	<b>0.5817</b>		<b>0.5817</b>	<b>0.5817</b>	<b>0.0000</b>	<b>1,842.6994</b>	<b>1,842.6994</b>	<b>0.5849</b>		<b>1,854.9817</b>

### Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000

Vendor	0.2205	1.3434	2.6111	7.5200e-003	0.2135	0.0302	0.2436	0.0610	0.0277	0.0887		705.2958	705.2958	5.3400e-003		705.4080
Worker	0.3630	0.3502	4.2396	0.0160	1.1501	8.3800e-003	1.1584	0.3051	7.7700e-003	0.3128		1,088.8800	1,088.8800	0.0412		1,089.7449
Total	0.5835	1.6937	6.8507	0.0235	1.3635	0.0385	1.4021	0.3661	0.0355	0.4016		1,794.1758	1,794.1758	0.0465		1,795.1529