Final
Environmental Impact Report
State Clearinghouse Number 2000011101

for

City in the Hills

Michael Brandman Associates

February 2002
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FINAL
ENVIRONMENTAL IMPACT REPORT
CITY IN THE HILLS
State Clearinghouse No. 2000011101

Originally Certified November 15, 2001
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I

RESOLUTION NO. 11-02

RESOLUTION MAKING ENVIRONMENTAL FINDINGS AND APPROVING THE GRADING PLAN FOR THE PACIFIC GAS AND ELECTRIC SUBSTATION AND POWER LINE.

WHEREAS, the adopted Metropolitan Bakersfield 2010 General Plan designates northeast Bakersfield as a large area to be nearly completely urbanized; and

WHEREAS, it is necessary that any urbanized area have electrical power; and

WHEREAS, northeast Bakersfield does not have the electrical supply facilities in place to adequately service the area; and

WHEREAS, Pacific Gas & Electric needs to extend an aboveground high power line and construct a substation site in order to serve the planned urbanization of northeast Bakersfield; and

WHEREAS, in order to receive approval from the California Public Utility Commission for the construction of a substation and tower line it is necessary to complete an environmental document on the project; and

WHEREAS, the City in the Hills Final Environmental Impact Report specifically analyzed the environmental impacts related to the urbanization of northeast Bakersfield; and

WHEREAS, it is this urbanization which forms the basis for the need to construct a new substation site; and

WHEREAS, the California Public Utility Commission specifically requested that the document utilized for the Pacific Gas & Electric project "tier" off an environmental impact report which analyzed a project which necessitated the extension of electrical supply facilities; and

WHEREAS, the addendum to the City in the Hills Final Environmental Impact Report is a document which tiers off the environmental impact report prepared for a project (City in the Hills) which forms the basis for the need to extend electrical services into northeast Bakersfield; and

WHEREAS, the City in the Hills Final Environmental Impact Report specifically analyzed the environmental impacts of constructing a new substation site, including growth inducing and cumulative environmental impacts; and

WHEREAS, an addendum to the City in the Hills Environmental Impact Report was prepared consistent with the California Environmental Quality Act Guidelines Section 15164; and

WHEREAS, grading approval is not listed as a ministerial project per the City of Bakersfield California Environmental Quality Act guidelines and is the only local discretionary act required for the substation and tower line construction; and

WHEREAS, careful examination of the substation site and the power line leading to the substation site on Morning Drive from the existing power plant on Vista Grande (to the west) reveals no additional significant environmental impacts than those impacts previously analyzed in the City in the Hills Environmental Impact Report; and

WHEREAS, state law specifically permits the tiering of environmental documents in order to avoid repetition and unnecessary delays; and

WHEREAS, the grading plan is consistent with the requirements of the Uniform Building Code and local ordinance; and

WHEREAS, the Director of Development Services has considered the above recitals and hereby makes the following findings:

1. The above recitals and findings are true and correct and are incorporated herein.

2. That Pacific Gas & Electric agrees to comply with all applicable mitigation measures contained within the addendum for the City in the Hills Environmental Impact Report.

3. That the addendum to the City in the Hills Environmental Impact Report (P01-0733) is certified by the Director of Development Services.

4. That the grading approval for the Pacific Gas & Electric substation and ancillary power line tower is approved.

5. That this project was the subject of and final environmental impact report and addendum and the entire environmental record is hereby approved and incorporated by reference.

6. Approved are the necessary environmental findings attached and labeled Exhibit "A".

I HEREBY CERTIFY that the foregoing Resolution was certified by the Director of Development Services on March 1, 2002.

DATED: March 1, 2002

JACK HARDISTY, Director
Development Services

MG:pjt
p:rpge

FINDINGS OF FACT IN SUPPORT OF FINDINGS FOR SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE CITY IN THE HILLS PROJECT AND STATEMENT OF OVERRIDING CONSIDERATIONS (FEBRUARY 13, 2002)

INTRODUCTION

The California Environmental Quality Act (CEQA) Public Resources Code Section 21081, and the CEQA Guidelines Section 15091 provide that:

> "No public agency shall approve or carry out a project for which an environmental impact report has been certified which identifies one or more significant effects on the environment that would occur if the project is approved or carried out unless the public agency makes one or more of the following findings:
>
> a. Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.
>
> b. Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.
>
> c. Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final environmental impact report."

Because the City in the Hills project Environmental Impact Report (EIR), the Addendum to the EIR, identified significant effects that may occur as a result of the project, and in accordance with the provisions of CEQA and CEQA Guidelines, the City of Bakersfield hereby adopts these findings as part of the approval of the City in the Hills project and related applications.

The City of Bakersfield has prepared an EIR, and an Addendum to the EIR, for the proposed project in accordance with CEQA and CEQA Guideline requirements. The EIR was subject to review and approval by the Bakersfield City Council. At a public hearing held on November 15, 2000, the EIR was certified as adequate in accordance with CEQA procedures.

After adopting this Statement of Findings of Fact, the Bakersfield City Council can approve the City in the Hills project. All subsequent tract maps, grading permits, mitigation implementation, and regulatory agreements and permits will be reviewed based on the documentation in the EIR.

MITIGATED ADVERSE IMPACTS

The potential significant adverse impacts that would be mitigated are listed in the following sections. The Bakersfield City Council finds that these potential adverse impacts would be mitigated to a level that is considered less than significant after implementation of the project design features and recommended mitigation measures.

BIOLOGICAL RESOURCES

Special-Status Species

Significant Impact

A direct take of the San Joaquin kit for, burrowing owl, and Bakersfield cactus could possibly occur during the grading and implementation of the proposed project. In the event that a raptor is nesting or perching on existing equipment, installation of the project may potentially impact nesting or perching raptors. Vehicular collisions as well as depredation by domestic dogs and cats could also result in the direct take of special-status wildlife species.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR, and the Addendum to the EIR, and incorporated into the project.

- Prior to the issuance of a grading permit, the project applicant shall pay a development fee in accordance with the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP).

- Prior to the issuance of a grading permit on the 694-acre site, as well as the PG&E Electrical Facilities site, the project proponent shall comply with all appropriate terms and conditions of the MBHCP. The MBHCP requires certain take avoidance measures for the San Joaquin kit fox. MBHCP guidelines regarding tracking and excavation shall be followed to prevent entrapment of kit fox in dens. Specific measures during the construction phase of the project shall be implemented and include the following:

a. A preconstruction survey shall be conducted prior to site grading to search for active kit fox dens. The survey shall be conducted not more than 30 days prior to the onset of

construction activities in areas subject to development to determine the necessity of den excavation.

b. Monitoring and excavation of each known San Joaquin kit fox den that cannot be avoided by construction activities shall occur.

c. Notification of wildlife agencies of relocation opportunity prior to ground disturbance in areas of known kit fox dens shall be provided.

d. Excavations shall either be constructed with escape ramps or covered to prevent kit fox entrapment. All trenches or steep-walled excavations greater than three feet deep shall include escape ramps to allow wildlife to escape. Each excavation shall contain at least one ramp, with long trenches containing at least one ramp every 1/4 mile. Slope of ramps shall be no steeper than 1:1.

e. All pipes, culverts or similar structures with a diameter of four inches or greater shall be kept capped to prevent entry of kit fox. If they are not capped or otherwise covered, they will be inspected prior to burial or closure to ensure no kit foxes, or other protected species, become entrapped.

f. All employees, contractors, or other persons involved in the construction of the project shall attend a "tailgate" session informing them of the biological resource protection measures that will be implemented for the project. The orientation shall be conducted by a qualified biologist and shall include information regarding the life history of the protected species, reasons for special status, a summary of applicable environmental law, and measures intended to reduce impacts.

g. All food, garbage, and plastic shall be disposed of in closed containers and regularly removed from the site to minimize attracting kit fox or other animals.

- The location of the support poles for the proposed PG&E electrical transmission line adjacent to Morning Drive will be designed to avoid the removal of Bakersfield Cactus species.

<u>Raptor Nest Disturbance</u>

Significant Impact

Implementation of the proposed project may disturb active burrowing owl nests, and may potentially impact nesting or perching raptors in the event that a raptor is nesting or perching on existing equipment that would be disturbed during project implementation.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

- Prior to the issuance of a grading permit for the approximately 694-acre site, as well as the PG&E Electrical Facilities site, the project applicant shall comply with the following raptor nest mitigation:

a. If site grading is proposed during the raptor nesting season (February-September), a focused survey for raptor nests shall be conducted by a qualified raptor biologist prior to grading activities in order to identify active nests in areas potentially impacted by project implementation.

b. If construction is proposed to take place during the raptor nesting/breeding season (February - September), no construction activity shall take place within 500 feet of an active nest until the young have fledged (as determined by a qualified raptor biologist). Any nests that must be removed as a result of project implementation shall be removed during the non-breeding season (October-January).

c. Preconstruction surveys shall include a survey for burrowing owl. If active burrowing owl burrows are detected outside of breeding season (September 1 through January 31), passive and/or active relocation efforts may be undertaken if approved by CDFG and USFWS. If active burrowing owl burrows are detected during breeding season (February 1 through August 31), no disturbance to these burrows shall occur without obtaining appropriate permitting through the Migratory Bird Treaty Act.

<u>Sensitive Habitats/Jurisdictional Areas</u>

Significant Impact

Areas under the jurisdiction of USACE or CDFG may be impacted by the project. Impacts to these areas would be considered significant.

Finding

Changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- A formal jurisdictional delineation will be conducted. If project development would impact jurisdictional areas, a Clean Water Act, Section 404 permit from USACE and/or a CDFG Section 1601 Streambed Alteration Agreement will be obtained from USACE and/or CDFG respectively prior to the issuance of a grading permit and/or approval of plans and specifications. USACE and CDFG typically require mitigation plans to be prepared prior to the loss of habitat within jurisdictional areas.

Indirect Impacts

Significant Impact

Following project buildout, increased vehicular traffic, noise, pollutants, and other indirect impacts are expected to adversely affect local wildlife. Wildlife mortality could occur from collisions with motor vehicle traffic. Depredation on native wildlife by dogs and cats is expected to increase. Human related impacts on wildlife such as disturbance of active nests or dens are also expected to increase. The introduction of non-native invasive plant species could occur due to project implementation.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

- The following invasive exotic plants shall not be used in any project residential or commercial landscaping: tamarisk (all species) and pampas grass. In addition, vegetation at any ponds or water features shall be managed in a way such that none of the invasive exotic plants listed by the Department of Agriculture are allowed to become established. Typical invasive exotic plants that can become problematic in this region include: water hyacinth and pampas grass.

- During construction, site boundaries shall be clearly marked with flagging, fencing, or other suitable material to prevent construction equipment and vehicles from impacting adjacent habitat areas potentially occupied by special status species.

TRAFFIC AND CIRCULATION

Project Traffic Volumes

Significant Impact

The proposed project will result in the generation of 60,976 trips of which 51,830 trips will be distributed to roadways in the project vicinity while the remaining 9,146 trips would remain on roadways on the project site. This increase in project traffic as well as traffic from future related growth would result in project and cumulative impacts to 4 intersections and 4 street segments in the year 2010 and 12 intersections and 1 street segment in the year 2020.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

- Prior to the issuance of building permits, the project applicant shall comply with the Metropolitan Bakersfield Transportation Impact Fee Program. These improvement fees shall be used to provide the improvements listed on pages 44 and 45 in Appendix C in the Draft EIR. The following improvements shall be included within the improvement list. Prior to issuance of building permits, the applicant's funding calculations for all improvements associated with the fee program shall be submitted to the City for review and approval.

  The following traffic signals shall be installed prior to full buildout of the project which is expected to occur in the year 2020:

  - Panorama Drive and Morning Drive
  - Morning Drive and Auburn Street
  - Paladino Drive and Fairfax Road

  - Vineland Road and SR 184
  - Paladino Drive and Morning Drive

The following roadway segments shall be installed prior to full buildout of the project which is expected to occur in the year 2020:

- Install 2 lanes of pavement on Paladino Drive from Fairfax Road to Masterson Street.

- Install 2 additional lanes of pavement on Kern Canyon Road from SR 178 to Niles Street.

- Prior to the issuance of building permits, the project applicant shall provide its fair share funding toward the following improvements. The funding for the following improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit.

  Traffic signals shall be installed at the following locations prior to one-half buildout of the project which is expected to occur in the year 2010 and full buildout of the project which is expected to occur in the year 2020:

  Year 2010 (Project One-Half Buildout)

  - Vineland Road and Interior Collector Street
  - Panorama Drive and Interior Collector Street (2 locations)
  - Panorama Drive and Masterson Street
  - Morning Drive and SR 178
  - Masterson Street (SR 184) and Old SR 178
  - Vineland Road and SR 178

  Year 2020 (Full Project Buildout)

  - SR 184 and Chase Avenue
  - Queen Street and Paladino Drive
  - Alfred Harrell Highway/Comanche Drive and SR 178

  The following intersection improvement shall be installed at the following location prior to one-half buildout of the project which is expected to occur in the year 2010:

  Year 2010 (Project One-Half Buildout)

  - Add one left turn lane to eastbound and westbound lanes and re-time traffic signals at the intersection of Fairfax Road and SR 178.

  The following roadway segments shall be installed prior to one-half buildout of the project which is expected to occur in the year 2010:

Year 2010 (Project One-Half Buildout)

- Install Vineland Road between SR 178 and Collector Loop Street.
- Install half width of SR 178 and Masterson Street along the project frontage.
- Install 2 lanes of pavement on Panorama Drive from Morning Drive to Queen Street.
- Install 2 additional lanes of pavement on Old SR 178 from Fairfax Road to Alfred Harrell Highway/Comanche Drive.

- Prior to the issuance of a building permit, the project applicant shall provide funding for the future realigned SR 178 between Fairfax Road and Alfred Harrell Highway/Comanche Drive. The project applicant shall provide a fair share amount of that portion of the future realigned SR 178 that is determined to be the obligation of local development. The project's share of traffic on SR 178 is 7.5 percent. Local funding for the future realignment of SR 178 shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. Local fees shall be paid prior to the issuance of each building permit.

- Prior to the issuance of building permits, the project applicant shall provide the City of Bakersfield with a phasing plan of the onsite roadway segments. The project applicant shall install the following roadway segments that are not part of the Metropolitan Bakersfield Transportation Impact Fee Program:

  - Install Panorama between Queen Street and Masterson Street.
  - Install the onsite Collector Loop Street.
  - Install Valley Lane between Panorama Drive and Paladino Drive.
  - Install Queen Street between Panorama Drive and Paladino Drive.

The project applicant shall provide full funding for all improvements on the project site and provide its fair share funding toward the portion of the improvements that are outside of the project site (i.e., the westerly half-width of Queen Street between Panorama Drive and Paladino Drive). The shared funding for the above improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit.

NOISE

Commercial Noise Sources

Potentially Significant Impact

Proposed commercial land uses would be adjacent to and near proposed residential land uses, which would be exposed to varying amounts of commercial noise impacts from such sources as air conditioning units, trash compactors, fans, compressors, and truck deliveries.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the potential significant effects on the environment.

Facts in supporting Finding

The potential significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- Prior to the issuance of a building permit for the proposed commercial uses, the project applicant shall demonstrate that project commercial noise source impacts on nearby residences are below those indicated in the City's hourly noise level performance standards. To demonstrate that commercial noise source impacts are below the City's standards, the project applicant may need to include project design features such as setbacks, barriers, building location/orientation, acoustical design of buildings, etc.

Project-Related Onsite Traffic Noise

Significant Impact

Development of the proposed land uses would result in a daily traffic volume increase of approximately 60,976 trips. In the year 2010, two onsite street segments along Masterson Street would experience noise levels that exceed 65 dB CNEL, which is considered a significant noise impact. In the year 2020, there would be 6 onsite street segments along Panorama Drive, Vineland Road, SR 178 (future alignment), Masterson Street, and Paladino Drive that would experience noise levels that exceed 65 dB CNEL, which is also considered a significant noise impact.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- Prior to the issuance of building permits, the project applicant shall reduce noise levels on the project residences by setting residential uses back from the roads by a distance equal to or greater than the 65 dB CNEL contour. For the future alignment of SR 178, the minimum setback distance shall be 188 feet; for the remaining roadways mentioned above, the minimum setback shall be 84 feet. As an alternative to setbacks, the project applicant could use sound walls to mitigate traffic noise levels. The exact height and placement of soundwalls would depend on lot design and grading. Walls in the range of 6 to 10 feet probably would suffice for most situations. When lot design and grading are established, an acoustical consultant shall establish necessary wall heights and locations.

AIR QUALITY

Short-Term Emissions – Construction Activity Fugitive Dust

Significant Impact

Construction of the proposed project could have a temporary significant impact on local air quality in the form of fugitive dust (PM10) emissions. Fugitive dust emissions are associated with land clearing, ground excavation, cut and fill operations, and truck travel on unpaved roads.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

Compliance with SJVUAPCD Regulation VIII and the City of Bakersfield air quality regulations would result in no significant fugitive dust emissions. To ensure compliance, the following measure shall be implemented:

- Prior to approval of a grading plan for any residential tract, multiple family project, and commercial project, the project applicant shall submit a letter to the City of Bakersfield Planning Department from the SJVUAPCD stating the dust suppression measures that shall be completed during construction activities to comply with SJVUAPCD Regulation VIII.

In addition to compliance with Regulation VIII, the following measures can further reduce fugitive dust emissions associated with the project. The following shall be incorporated into building plans:

- Cover all access roads and parking areas with asphalt-concrete paving.
- Asphalt-concrete paving shall comply with SJVUAPCD Rule 4641 and restrict the use of cutback, slow-cure and emulsified asphalt paving materials.
- Use water sprays or chemical suppressants on all unpaved areas to control fugitive emissions.
- Enclose, cover or water all stockpiled soils to reduce fugitive dust emissions.
- Cease grading activities during periods of high winds (greater than 20 mph over a one-hour period).
- Limit construction-related vehicle speeds to 15 mph on all unpaved areas at the construction site.
- All haul trucks should be covered when transporting loads of soil.
- Wash off construction and haul trucks to minimize the removal of mud and dirt from the project site.

Short-Term Emissions—Construction Equipment Exhaust Emissions

Significant Impact

Construction activity will also result in exhaust emissions from diesel-powered heavy equipment. Exhaust emissions from construction include emissions associated with the transport of machinery and supplies to and from the site, emissions produced onsite as the equipment is used, and emissions from trucks transporting excavated materials from the site and fill soils to the site. Examples of these emissions include CO, ROG, NO_x, SO_x and PM_{10}.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

The following shall be incorporated into grading and building plans:

- Properly and routinely maintain all construction equipment, as recommended by manufacturer manuals, to control exhaust emissions.
- Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling engines.
- Encourage ride sharing and use of transit transportation for construction employee commuting to the project sites.
- Use electric equipment for construction whenever possible in lieu of fossil fuel-fired equipment.

CULTURAL RESOURCES

<u>Paleontological Resources</u>

Potentially Significant Impact

Grading activities in the southwest portion of the 694-acre site, between elevations 600 feet and 700 feet, could result in impacts to the Sharktooth Hill bonebed that is contained within the Round Mountain Silt Member of the Temblor Formation. Grading in the eastern section of the PG&E Electrical Facilities site footprint could result in impacts to the Kern River Formation and the Round Mountain Silt Member, including the Sharktooth Hill bonebed.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the potential significant effects on the environment.

Facts in Support of Finding

The potential significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

A paleontological monitoring program that includes the following measures shall be implemented to reduce potential impacts on the Kern River Formation and the Round Mountain Silt Member of the Temblor Formation, which contains the particularly sensitive Sharktooth Hill bonebed.

- Prior to grading, a paleontologist shall be retained, attend a pre-grading meeting, and set forth the procedures to be followed during the monitoring program.

- One paleontological monitor shall be provided that is trained and equipped to allow rapid removal of fossils with minimal construction delay. Full-time monitoring of the portions of the project site that have earth-disturbing activities at elevations between 600 feet and 700 feet shall be provided.

- If fossils are found within an area being cleared or graded, earth-disturbing activities shall be diverted elsewhere until the monitor has completed salvage of the fossils. If construction personnel make the discovery, the grading contractor shall immediately divert construction and call the monitor to the site. Major salvage time may be shortened by grading constructor's assistance (e.g., removal of overburden, lifting, and removing large and heavy fossils).

- The project paleontologist shall prepare, identify, and curate all recovered fossils. Upon completion of grading, the project paleontologist shall prepare a summary report documenting mitigation and results, with itemized inventory of collected specimens. The paleontologist shall submit the report to the City of Bakersfield, designated depository, and any other appropriate agency, and transfer fossil collection to a depository within the City of Bakersfield or County of Kern. The summary report shall be submitted to the City. This submittal will signify completion of the program to mitigate impacts on paleontological resources.

PUBLIC SERVICES AND UTILITIES

Fire Protection Services

Significant Impact

Development of the proposed project would result in a substantial increase in population and structures on the project site and require 8.7 additional fire protection personnel to serve the site based on the current City staff levels.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

- Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Fire Department so that fire department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project.

- Prior to the approval of grading plans, the project applicant shall submit emergency fire access plans to the Fire Department for review and approval to assure that service to the site is in accordance with the Bakersfield Fire Department requirements.

- Prior to the commencement of structured framing onsite, the project applicant shall install fire hydrants in accordance with the City-approved building plans.

- Prior to the approval of street improvement plans, the project applicant shall demonstrate to the City Fire Department that the onsite water supply system is designed to provide sufficient fire flow pressure and storage in accordance with City Fire Department requirements.

Police Protection Services

Significant Impact

Development of the proposed project would result in a substantial increase in population and structures on the project site and require 15 additional police protection personnel to serve the site based on the current City staff levels.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Police Department so that police department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project.

School Services

Significant Impact

Implementation of the proposed project would result in the generation of 2,087 K-6th, 821 7-8th, and 1,013 9-12th students.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- Prior to the issuance of building permits, the project applicant shall pay District-adopted development impact school fees that are in effect at the time of issuing each permit. The District-adopted fees are required to be in accordance with State statutes that are in effect at the time of issuing each permit. In lieu of the above, the project applicant may comply with alternative mitigation acceptable to the District.

Stormwater Drainage

Significant Impact

Development of the proposed project would result in substantial increases in stormwater runoff and potential significant impacts on existing drainage facilities.

Finding

Changes or alterations have been required in, or incorporated into the project, which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- Prior to the issuance of a grading permit, the project applicant shall submit drainage plans for the project site for review and approval by the City of Bakersfield. The drainage plans shall identify all necessary onsite and offsite drainage facilities to accommodate project-related as well as cumulative (in accordance with the existing General Plan) drainage volumes and velocities. Modifications to the existing PDA for the Breckenridge area will require an approval of an amendment to the PDA by the City of Bakersfield.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The potential significant adverse impacts associated with the implementation of the City in the Hills project are listed below. The Bakersfield City Council finds that these potential significant adverse impacts would be reduced with the implementation of the project-related design features and recommended mitigation measures; however, the impacts cannot be reduced to a level less than significant. The Bakersfield City Council is adopting a Statement of Overriding Consideration per Section 15093 of the CEQA Guidelines.

LAND USE AND PLANNING

Consistency with Plans, Policies, and Programs

Significant Impact

The proposed project would not conflict with most of the goals of the General Plan and with other regional plans and policy documents including the Metropolitan Bakersfield Habitat Conservation Plan, Air Quality Attainment Plan, and the Regional Transportation Plan. However, the project would not be consistent with the Noise Element of the City's General Plan. The project includes residences in an area that would expose future residents to noise levels from racing events at Mesa Marin Raceway that exceed the City's noise performance standards.

Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts in Support of Finding

No feasible mitigation measures are available for the project applicant to reduce noise levels from the Mesa Marin Raceway to less than the City's L_{50}-L55 dBA standard for affected residences. The No Project/No Development Alternative would avoid significant and unavoidable land use and planning impacts, but would not meet any of the project objectives. The Alternative Design and Less Intense Development Alternative would both result in reduced land use and planning impacts compared to the proposed project, but would not meet many of the project objectives. The No Project/Development in Accordance with Existing General Plan Land Use Designations Alternative would result in greater land use and planning impacts than the proposed project.

The significant and unavoidable adverse impacts on land use and planning by the proposed project are considered to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

NOISE

Project Related Offsite Traffic Noise

Significant Impact

In the year 2010, one offsite roadway segment (along SR 178) would experience a significant adverse project-related traffic noise level, and in the year 2020, there would be 6 offsite roadway segments (along Panorama Drive, Fairfax Road, and Paladino Drive) that would experience significant adverse project-related traffic noise levels.

Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts in Support of Finding

No feasible measures are available for the project applicant to reduce offsite traffic noise. While the No Project/No Development Alternative would avoid significant and unavoidable noise impacts from offsite traffic noise, this alternative would not meet any of the project objectives. The Alternative

Design and Less Intense Development Alternative would both result in reduced noise impacts from project-related offsite traffic noise, but would not meet many of the project objectives. The No Project/Development in Accordance with Existing General Plan Land Use Designations Alternative would result in higher levels of project-related traffic and, therefore, greater project-related offsite traffic noise impacts.

The significant and unavoidable adverse impacts from project-related offsite traffic noise from the proposed project are considered to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

Mesa Marin Raceway Noise

Significant Impact

Development of residential land uses in the southern half of the project site will expose residents to noise levels that exceed L_{50}-55 dBA. These noise levels would be generated by racing events at the adjacent Mesa Marin Raceway.

Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts in Support of Finding

No feasible measures are available for the project applicant to reduce noise levels from the Mesa Marin Raceway to less than L_{50}-55 dBA. While the No Project/No Development Alternative would avoid significant and unavoidable noise impacts from Mesa Marin Raceway by keeping residences out of the southern portion of the site, this alternative would not meet any of the project objectives. The Alternative Design and Less Intense Development Alternative would both result in reduced noise impacts from Mesa Marin Raceway, but would not meet many of the project objectives. The No Project/Development in Accordance with Existing General Plan Land Use Designations Alternative includes residences in the southern portion of the project site so would result in the same noise impacts from Mesa Marin Raceway.

The significant and unavoidable adverse impacts from Mesa Marin Raceway noise are considered to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

Cumulative Offsite Traffic Noise

Significant Impact

In the year 2020, the proposed project and future growth will result in significant adverse cumulative traffic noise levels along Panorama Drive, old SR 178, Fairfax Road, Morning Drive, SR 184, SR 178 (future alignment), Masterson Street, and Paladino Drive.

Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts in Support of Finding

No feasible measures are available for the project applicant or applicants for development of future growth to reduce offsite traffic noise. While the No Project/No Development Alternative would not contribute to cumulative offsite traffic noise, this alternative would not meet any of the project objectives. The Alternative Design and Less Intense Development Alternative would both result in reduced impacts in terms of cumulative offsite traffic, but would not meet many of the project objectives. The No Project/Development in Accordance with Existing General Plan Land Use Designations Alternative would result in higher levels of project-related traffic and, therefore, greater contribution to cumulative offsite traffic noise.

The significant and unavoidable adverse impacts of cumulative offsite traffic noise for the proposed project are considered to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

AIR QUALITY

Long-Term Emissions

Significant Impact

Long-term emissions will be caused by mobile sources (vehicle emissions) and stationary source energy consumption (heating and cooling) emissions. The major long-term impact to air quality will be ROG and NOx emissions caused by motor vehicles traveling to and from the project site, and NOx emissions from stationary source energy consumption.

Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts in Support of Findings

Implementation of the following mitigation measures will serve to lessen project impacts; however, the impacts would remain significant. The No Project/No Development Alternative would completely avoid the significant and unavoidable adverse air quality impacts associated with long-term operational activities, but would not meet any of the project objectives. The Alternative Design and Less Intense Development Alternative would both result in reduced air quality impacts compared to the proposed project, but would not meet many of the project objectives. The No Project/Development in accordance with Existing General Plan Land Use Designation Alternatives would result in greater long-term air quality impacts than the proposed project.

- Prior to issuance of a building permit, transportation control measures and design features shall be incorporated into the project to reduce emissions from mobile sources. A strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling and traffic congestion includes the following:

  a. Improve street and traffic signals for those intersections and street segments that will accommodate traffic from the proposed project.

The project applicant shall incorporate the following into building plans:

- Use low-NO_x emission water heaters.
- Provide shade trees to reduce building cooling requirements.
- Install energy-efficient and automated air conditioners.
- Exterior windows shall all be double-paned glass.
- Energy-efficient (low-sodium) parking lights shall be used.
- Use EPA-approved wood burning stoves, fireplace inserts or pellet stoves in lieu of conventional fireplaces.

Implementation of the above measures will serve to substantially, but not completely, mitigate the potentially significant long-term air quality impacts. The remaining unavoidable adverse impacts are

considered to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

AESTHETICS

Significant Impact

Since the project site does not currently include any development, implementation of the proposed project would substantially alter the existing visual characteristics of the site and substantially alter the existing viewsheds surrounding the site. The proposed project would introduce new sources of light associated with the general commercial land uses, including parking lot lighting, sign lighting, and security lighting. Increased traffic in the area would also create additional sources of light.

Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts In Support of Findings

Implementation of the following mitigation measures would lessen or avoid project impacts; however, the impacts would remain significant. The No Project/No Development Alternative would completely avoid the significant and unavoidable adverse aesthetic impacts associated with development of the project site, but would not meet any of the project objectives. The Alternative Design and Less Intense Development Alternative would both result in reduced aesthetic impacts compared to the proposed project, but would not meet many of the project objectives. The No Project/Development in Accordance with Existing Land Use Designations Alternative would result in an increased development intensity, and therefore greater aesthetic impacts.

- Prior to the issuance of building permits, the project applicant shall outline specifications for outdoor lighting locations and other intensely lighted areas. The specifications shall identify minimum lighting intensity needs and design lights to be directed towards intended uses. Methods to reduce light impacts may include low-intensity light fixtures and hooded shields.

- Prior to the issuance of building permits, the project applicant shall submit and obtain City approval of lighting plans. The lighting plans shall verify that outdoor lighting on private residences is designed so that all direct rays are confined to the site and that adjacent residences are protected from substantial light and glare.

Implementation of the above measures will serve to substantially, but not completely, mitigate the potentially significant aesthetic impacts. The remaining unavoidable adverse impacts are considered

to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

APPENDIX A
STATEMENT OF OVERRIDING CONSIDERATIONS

STATEMENT OF OVERRIDING CONSIDERATIONS

The California Environmental Quality Act (CEQA) requires the lead agency to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve the project. The City of Bakersfield proposes to approve the City in the Hills project although unavoidable adverse land use, noise, air quality, and aesthetic impacts have been identified in the EIR. Even though these adverse impacts are not reduced to a level considered less than significant, the Bakersfield City Council finds that those impacts are outweighed by the benefits of the City in the Hills project. Further, the alternatives which were identified in the EIR would not provide the project benefits, as summarized below, to the same extent as the proposed project:

1. Provide a residential and commercial use community on land that historically has not been used for farming.

2. Provide a residential and commercial use community that includes similar uses as currently identified in the Metropolitan Bakersfield 2010 General Plan Land Use Element for the project site.

3. Provide a mixed use development that would establish residential uses in close proximity to an employment center.

4. Provide substantial additional housing units within the northeast Bakersfield area.

5. Provide substantial commercial uses in the City that would increase sales tax revenue to the City.

6. Provide right-of-way for the future construction of the approved SR 178 Freeway and the Vineland Road interchange.

7. Provide right-of-way for the future construction of the SR 178 and Masterson Street interchange.

Therefore, the Bakersfield City Council, having reviewed and considered the information contained in the EIR and the public record, adopts the Statement of Overriding Considerations, which has been balanced against the unavoidable adverse impacts in reaching a decision on this project.

RESOLUTION NO. 136-00

RESOLUTION OF THE COUNCIL OF THE CITY OF BAKERSFIELD DECLARING IT HAS RECEIVED, REVIEWED, EVALUATED AND CONSIDERED THE INFORMATION CONTAINED IN THE DRAFT AND FINAL PROGRAM EIR FOR THE GPA/ZC NO. P99-0647 PROJECT; MAKING FINDINGS AND CERTIFYING THAT THE FINAL PROGRAM EIR HAS BEEN COMPLETED IN COMPLIANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT, THE STATE EIR GUIDELINES AND THE CITY OF BAKERSFIELD CEQA IMPLEMENTATION PROCEDURES. (RE: GPA/ZC NO. P99-0647)

WHEREAS, the Planning Commission of the City of Bakersfield in accordance with the provisions of Section 65353 of the Government Code, held a public hearing on MONDAY, OCTOBER 2, 2000, and THURSDAY, OCTOBER 5, 2000, on General Plan Amendment/Zone Change P99-0647 of the proposed amendment to the Land Use Element and Circulation Element of the Metropolitan Bakersfield 2010 General Plan and the Zoning Ordinance, notice of the time and place of hearing having been given at least ten (10) calendar days before said hearing by publication in the Bakersfield Californian, a local newspaper of general circulation; and

WHEREAS, such Program Environmental Impact Report (EIR) is for Concurrent General Plan Amendment/Zone Change No. P99-0647 as follows:

General Plan Amendment/Zone Change P99-0647:

Mountain View Bravo, LLC and S & J Alfalfa have applied to amend the Land Use Element and the Circulation Element of the Metropolitan Bakersfield 2010 General Plan and the Zoning Ordinance consisting of changes as follows:

Land Use Element Amendment - consisting of changes from MUC (Mixed Use Commercial), LR (Low Density Residential) and HR (High Density Residential) to GC (General Commercial) on 96.90 acres; and from MUC and LR to HR on 65.50 acres generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended); and

Circulation Element Amendment - an amendment establishing new arterial and collector street alignments within the development site generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended); and

Zone Change - an amendment to the zoning ordinance changing the zoning districts from A (Agriculture) and R-1(One-Family Dwelling) to C-2 (Regional Commercial) on 96.9 acres; from A to R-1 on 500 acres; from A and R-1 to R-3 (Limited Multiple-Family

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Dwelling) on 18.12 acres, and R-2 on 47.38 acres generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended).

WHEREAS, for the above-described projects, an Initial Study and Notice of Preparation (NOP) was conducted and it was determined that the proposed project would have a significant effect on the environment and therefore, a Program Environmental Impact Report was required for the project and was prepared in accordance with the California Environmental Quality Act (CEQA); and

WHEREAS, in order to provide greater public participation, all those property owners within 300 feet and all those who requested notification at a Planning Commission public hearing or requested special notice to the Development Services Department were noticed individually of the availability of the Draft Program Environmental Impact Report (EIR), and this public hearing; and

WHEREAS, the environmental record prepared in conjunction with the project includes the following:

1. The Notice of Preparation, the Draft Program Environmental Impact Report and the Final Program Environmental Impact Report; and

2. All staff reports, memoranda, maps, letters, minutes of meetings, and other documents prepared by the consultants relating to the project; and

3. All testimony, documents, and evidence presented by the City and consultants working with the city relating to the project; and

4. The proceedings before the Planning Commission relating to the project and Draft Program Environmental Impact Report, including testimony and documenting evidence introduced at the public hearings; and

5. Matters of common knowledge to the City Council which it considers including but not limited to, the following:

    1. The City of Bakersfield Metropolitan Bakersfield 2010 General Plan; and

    2. The City of Bakersfield Zoning Ordinance; and

    3. The City of Bakersfield Municipal Code; and

    4. Other formally adopted policies and ordinances of the City of Bakersfield.

WHEREAS, the Draft Program Environmental Impact Report was subject to a forty-five (45) day review period in accordance with Section 15087 of California Code of Regulations; and

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WHEREAS, the public hearing on the Draft Program Environmental Impact Report was held during the latter half of the public review period as is required by the City of Bakersfield, California Environmental Quality Act (CEQA) Implementation Procedures; and

WHEREAS, the Notice of Preparation (NOP) for this project was sent to all agencies having any involvement in this project per Section 15082 of California Code of Regulations; and

WHEREAS, the notice of public hearing was given to all commenting agencies as is required by the City of Bakersfield CEQA Implementation Procedures, State CEQA Guidelines and State Law; and

WHEREAS, the applicant has entered into an agreement with the City of Bakersfield to implement all mitigation measures identified in the environmental analysis contained with the EIR; and

WHEREAS, the project site is a portion of an irregular shaped parcel consisting of 693.90 acres that was annexed to the City of Bakersfield in 1977; and

WHEREAS, the "Findings of Fact in support of Findings for Significant Environmental Effects" for GPA/ZC P99-0647 is attached in Exhibit "A" and incorporated herein by this reference; and

WHEREAS, the "Statement of Overriding Considerations" for GPA/ZC P99-0647 is attached hereto in Exhibit "B" and made a part hereof by this reference; and

WHEREAS, the laws and regulations relating to the preparation and adoption of Environmental Impact Reports as set forth in the City of Bakersfield CEQA Implementation Procedures and State CEQA Guidelines, have been duly followed by the city staff and the City Council; and

WHEREAS, Potentially Significant Impacts have been mitigated, see Exhibit "A", attached hereto and incorporated herein by this reference, and which describes those impacts identified by the Draft Program Environmental Impact Report that will be mitigated to a less than significant level. As to each of said impacts, the City Council hereby finds that mitigation incorporated into the project will avoid impacts or mitigate impacts to a less than significant level. Each of the impacts including the Findings of Fact in support of Findings for Significant Environmental Effects for GPA/ZC P99-0647 is as set forth in Exhibit "A"; and

WHEREAS, as to Significant and Unavoidable Impacts, certain environmental impacts are considered unavoidable and cannot feasiblely be mitigated to a less-than significant level. Moreover, the project alternatives analyzed in the Final Program EIR would not feasiblely mitigate the impacts. These impacts are discussed in Exhibit "A", attached hereto and incorporated herein by this reference. Notwithstanding disclosure of these impacts and their partial mitigation, the Planning Commission elected to recommend approval of the project due to overriding considerations as set forth in the "Statement of Overriding Considerations" attached as Exhibit "B".

WHEREAS, on October 13, 2000, an appeal of the Planning Commission's decisions was filed by Steve Hollis; and

WHEREAS, the City Council has considered the appeal of the Planning Commission's decision filed by Steve Hollis.

NOW THEREFORE, BE IT RESOLVED and found by the City Council of the City of Bakersfield as follows:

1. The above recitals and findings, together with the Statement of Facts/Statement of Overriding Considerations attached hereto as Exhibit "B" and incorporated herein by reference, are true and correct and are incorporated herein.

2. The report of the Planning Commission, including maps and all reports and papers relevant thereto, has been transmitted by the Secretary of the Planning Commission to the City Council.

3. That all required notices have been given.

4. The provisions of the California Environmental Quality Act (CEQA) have been followed.

5. That the applicant by prior written agreement shall comply with all adopted mitigation measures contained within the Draft Program Environmental Impact Report and Final Program Environmental Impact Report.

6. The City Council hereby finds that mitigation incorporated into the project avoids impacts or mitigates impacts to less than significant level. Each of the impacts and the facts substantiating this finding are as set forth in Exhibit "A" attached hereto and made a part hereof by this reference.

7. Significant and Unavoidable Impacts. Certain environmental impacts are considered unavoidable and cannot feasibly be mitigated to a less-than significant level. Moreover, the project alternatives analyzed in the Final EIR would not feasibly mitigate the impacts. These impacts are discussed in Exhibit "A". Notwithstanding disclosure of these impacts and their partial mitigation, the City Council elects to approve the project due to overriding considerations as set forth in the "Statement of Overriding Considerations" as attached as Exhibit "B," and made a part hereof by this reference

8. Filing of Notice of Determination. The Planning Division of the Development Services Department is hereby directed to file a Notice of Determination with the County Clerk of Kern County, pursuant to the provisions of Section 21152 of the Public Resources Code and Section 15094 of the State CEQA Guidelines adopted pursuant thereto.

9. A Mitigation Monitoring Plan describing the monitoring and mitigation is found in the Program Environmental Impact Report and Exhibit "C" and incorporated herein by this reference, and the City Council elects to approve this plan as implementation of the mitigation measures for the General Plan Amendment/Zone Change No. P99-0647.

10. The City Council hereby certifies the Program Environmental Impact Report for General Plan Amendment/Zone Change P99-0647.

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11. The City Council hereby denies the appeal of the Planning Commission decision recommending certification of the EIR.

I HEREBY CERTIFY that the foregoing Resolution was passed and adopted by the Council of the City of Bakersfield at a regular meeting thereof held on November 15, 2000

AYES:	COUNCILMEMBER CARSON, DEMOND, MAGGARD, COUCH, GREEN, SULLIVAN, SALVAGGIO
NOES:	COUNCILMEMBER NONE
ABSTAIN:	COUNCILMEMBER NONE
ABSENT:	COUNCILMEMBER NONE

CITY CLERK and Ex Officio Clerk of the
Council of the City of Bakersfield

APPROVED NOV 15 2000

BOB PRICE
MAYOR of the City of Bakersfield

APPROVED as to form:
BART THILTGEN
City Attorney

By: _____

S:\Dole\P99-0647\CC EIR Certification Resolution.wpd

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EXHIBIT A

FINDINGS OF FACT IN SUPPORT OF FINDINGS FOR SIGNIFICANT ENVIRONMENTAL EFFECTS OF THE CITY IN THE HILLS PROJECT AND STATEMENT OF OVERRIDING CONSIDERATIONS (September 19, 2000)

INTRODUCTION

The California Environmental Quality Act (CEQA) Public Resources Code Section 21081, and the CEQA Guidelines Section I5091 provide that:

> "No public agency shall approve or carry out a project for which an environmental impact report has been certified which identifies one or more significant effects on the environment that would occur if the project is approved or carried out unless the public agency makes one or more of the following findings:
>
> a. Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.
>
> b. Those changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.
>
> c. Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final environmental impact report. "

Because the City in the Hills project Environmental Impact Report (EIR) identified significant effects that may occur as a result of the project, and in accordance with the provisions of CEQA and CEQA Guidelines, the City of Bakersfield hereby adopts these findings as part of the approval of the City in the Hills project and related applications.

The City of Bakersfield has prepared an EIR for the project in accordance with CEQA and CEQA Guideline requirements. The EIR was subject to review and approval by the Bakersfield City Council. At a public hearing held on November 15, 2000, the EIR was certified as adequate in accordance with CEQA procedures.

After adopting this Statement of Findings of Fact, the Bakersfield City Council can approve the City in the Hills project. All subsequent tract maps, grading permits, mitigation implementation, and regulatory agreements and permits will be reviewed based on the documentation in the EIR.

MITIGATED ADVERSE IMPACTS

The potential significant adverse impacts that would be mitigated are listed in the following sections. The Bakersfield City Council finds that these potential adverse impacts would be mitigated to a level

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that is considered less than significant after implementation of the project design features and recommended mitigation measures.

BIOLOGICAL RESOURCES

Special-Status Species

Significant Impact

Direct take of San Joaquin kit fox, blunt-nosed leopard lizard, and burrowing owl could possibly occur during grading of the approximately 694-acre site. Vehicular collisions as well as depredation by domestic dogs and cats could also result in the direct take of special-status wildlife species.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

- Prior to the issuance of a grading permit, the project applicant shall pay a development fee in accordance with the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP).

- Prior to the issuance of a grading permit on the 694-acre site, the project proponent shall comply with all appropriate terms and conditions of the MBHCP. The MBHCP requires certain take avoidance measures for the San Joaquin kit fox. MBHCP guidelines regarding tracking and excavation shall be followed to prevent entrapment of kit fox in dens. Specific measures during the construction phase of the project shall be implemented and include the following:

  a) A preconstruction survey shall be conducted prior to site grading to search for active kit fox dens. The survey shall be conducted not more than 30 days prior to the onset of construction activities in areas subject to development to determine the necessity of den excavation.

  b) Monitoring and excavation of each known San Joaquin kit fox den which cannot be avoided by construction activities shall occur.

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c) Notification of wildlife agencies of relocation opportunity prior to ground disturbance in areas of known kit fox dens shall be provided.

d) Excavations shall either be constructed with escape ramps or covered to prevent kit fox entrapment. All trenches or steep-walled excavations greater than three feet deep shall include escape ramps to allow wildlife to escape. Each excavation shall contain at least one ramp, with long trenches containing at least one ramp every 1/4 mile. Slope of ramps shall be no steeper than 1:1.

e) All pipes, culverts or similar structures with a diameter of four inches or greater shall be kept capped to prevent entry of kit fox. If they are not capped or otherwise covered, they will be inspected prior to burial or closure to ensure no kit foxes, or other protected species, become entrapped.

f) All employees, contractors, or other persons involved in the construction of the project shall attend a "tailgate" session informing them of the biological resource protection measures that will be implemented for the project. The orientation shall be conducted by a qualified biologist and shall include information regarding the life history of the protected species, reasons for special status, a summary of applicable environmental law, and measures intended to reduce impacts.

g) All food, garbage, and plastic shall be disposed of in closed containers and regularly removed from the site to minimize attracting kit fox or other animals.

- Because "take" of blunt-nosed leopard lizards is also currently prohibited by Section 5050 of the California Department of Fish and Game (CDFG) Code, additional mitigations are necessary in addition to those required by the MBHCP. The following measures are recommended to comply with this Section 5050:

a) Surveys for blunt-nosed leopard lizards shall be conducted following CDFG protocols. These surveys should be conducted between April 15 and June 30 under the specified time and temperature conditions. This survey is necessary to determine the current status of blunt-nosed leopard lizards on the project site.

b) If blunt-nosed leopard lizards are detected, the applicant shall submit methods for compliance with Fish and Game Code Section 5050 to CDFG for review and approval.

<u>Raptor Nest Disturbance</u>

Significant Impact

Implementation of the proposed project may disturb active burrowing owl nests. Nests of other raptors are not expected to be impacted.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

- Prior to the issuance of a grading permit for the approximately 694-acre site, the project applicant shall comply with the following raptor nest mitigation:

  a) If site grading is proposed during the raptor nesting season (February-September), a focused survey for raptor nests shall be conducted by a qualified raptor biologist prior to grading activities in order to identify active nests in areas potentially impacted by project implementation.

  b) If construction is proposed to take place during the raptor nesting/breeding season (February -September), no construction activity shall take place within 500 feet of an active nest until the young have fledged (as determined by a qualified raptor biologist). Any nests that must be removed as a result of project implementation shall be removed during the non-breeding season (October-January).

  c) Preconstruction surveys shall include a survey for burrowing owl. If active burrowing owl burrows are detected outside of breeding season (September 1 through January 31), passive and/or active relocation efforts may be undertaken if approved by CDFG and United States Fish and Wildlife Service (USFWS). If active burrowing owl burrows are detected during breeding season (February 1 through August 31), no disturbance to these burrows shall occur without obtaining appropriate permitting through the Migratory Bird Treaty Act.

<u>Sensitive Habitats/Jurisdictional Areas</u>

Significant Impact

Areas under the jurisdiction of United States Amy Corp of Engineers (USACE) or CDFG may be impacted by the project. Impacts to these areas would be considered significant.

Finding

Changes or alterations are within the responsibility and jurisdiction of another public agency and have been, or can and should be, adopted by that other agency.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- A formal jurisdictional delineation will be conducted. If project development would impact jurisdictional areas, a Clean Water Act, Section 404 permit from USACE and/or a CDFG Section 1601 Streambed Alteration Agreement will be obtained from USACE and/or CDFG respectively prior to the issuance of a grading permit and/or approval of plans and specifications. USACE and CDFG typically require mitigation plans to be prepared prior to the loss of habitat within jurisdictional areas.

Indirect Impacts

Significant Impact

Following project buildout, increased vehicular traffic, noise, pollutants, and other indirect impacts are expected to adversely affect local wildlife. Wildlife mortality could occur from collisions with motor vehicle traffic. Depredation on native wildlife by dogs and cats is expected to increase. Human related impacts on wildlife such as disturbance of active nests or dens are also expected to increase. The introduction of non-native invasive plant species could occur due to project implementation.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

- The following invasive exotic plants shall not be used in any project residential or commercial landscaping: tamarisk (all species) and pampas grass. In addition, vegetation at any ponds or water features shall be managed in a way such that none of the invasive exotic plants listed by the Department of Agriculture are allowed to become established. Typical invasive exotic plants that can become problematic in this region include: water hyacinth and pampas grass.
- During construction, site boundaries shall be clearly marked with flagging, fencing, or other suitable material to prevent construction equipment and vehicles from impacting adjacent habitat areas potentially occupied by special status species.

TRAFFIC AND CIRCULATION

Project Traffic Volumes

Significant Impact

The proposed project will result in the generation of 60,976 trips of which 51,830 trips will be distributed to roadways in the project vicinity while the remaining 9,146 trips would remain on roadways on the project site. This increase in project traffic as well as traffic from future related growth would result in project and cumulative impacts to 4 intersections and 4 street segments in the year 2010 and 12 intersections and 1 street segment in the year 2020.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

- Prior to the issuance of building permits, the project applicant shall comply with the Metropolitan Bakersfield Transportation Impact Fee Program. These improvement fees shall be used to provide the improvements listed on pages 44 and 45 in Appendix C in the Draft EIR. The following improvements shall be included within the improvement list. Prior to issuance of building permits, the applicant's funding calculations for all improvements associated with the fee program shall be submitted to the City for review and approval.

  The following traffic signals shall be installed prior to full buildout of the project which is expected to occur in the year 2020:
  - Panorama Drive and Morning Drive
  - Morning Drive and Auburn Street
  - Paladino Drive and Fairfax Road
  - Vineland Road and SR 184
  - Paladino Drive and Morning Drive

  The following roadway segments shall be installed prior to full buildout of the project which is expected to occur in the year 2020:
  - Install 2 lanes of pavement on Paladino Drive from Fairfax Road to Masterson Street.
  - Install 2 additional lanes of pavement on Kern Canyon Road from SR 178 to Niles Street.

- **Prior to the issuance of building permits, the project applicant shall provide its fair share funding toward the following improvements. The funding for the following improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit.**

  Traffic signals shall be installed at the following locations prior to one-half buildout of the project which is expected to occur in the year 2010 and full buildout of the project which is expected to occur in the year 2020:

  Year 2010 (Project One-Half Buildout)

  - Vineland Road and Interior Collector Street
  - Panorama Drive and Interior Collector Street (2 locations)
  - Panorama Drive and Masterson Street
  - Morning Drive and SR 178
  - Masterson Street (SR 184) and Old SR 178
  - Vineland Road and SR 178

  Year 2020 (Full Project Buildout)

  - SR 184 and Chase Avenue
  - Queen Street and Paladino Drive
  - Alfred Harrell Highway/Comanche Drive and SR 178

  The following intersection improvement shall be installed at the following location prior to one-half buildout of the project which is expected to occur in the year 2010:

  Year 2010 (Project One-Half Buildout)

  - Add one left turn lane to eastbound and westbound lanes and re-time traffic signals at the intersection of Fairfax Road and SR 178.

  The following roadway segments shall be installed prior to one-half buildout of the project which is expected to occur in the year 2010:

  Year 2010 (Project One-Half Buildout)

  - Install Vineland Road between SR 178 and Collector Loop Street.
  - Install half width of SR 178 and Masterson Street along the project frontage.
  - Install 2 lanes of pavement on Panorama Drive from Morning Drive to Queen Street.
  - Install 2 additional lanes of pavement on Old SR 178 from Fairfax Road to Alfred Harrell Highway/Comanche Drive.

- Prior to the issuance of a building permit, the project applicant shall provide funding for the future realigned SR 178 between Fairfax Road and Alfred Harrell Highway/Comanche Drive. The project applicant shall provide a fair share amount of that portion of the future realigned SR 178 that is determined to be the obligation of local development. The project's share of traffic on SR 178 is 7.5 percent. Local funding for the future realignment of SR 178 shall be distributed equitably between future land uses through the development of a fee per unit for

residential or per square foot for non-residential. Local fees shall be paid prior to the issuance of each building permit.

- Prior to the issuance of building permits, the project applicant shall provide the City of Bakersfield with a phasing plan of the onsite roadway segments. The project applicant shall install the following roadway segments that are not part of the Metropolitan Bakersfield Transportation Impact Fee Program:

  - Install Panorama between Queen Street and Masterson Street.
  - Install the onsite Collector Loop Street.
  - Install Valley Lane between Panorama Drive and Paladino Drive.
  - Install Queen Street between Panorama Drive and Paladino Drive.

The project applicant shall provide full funding for all improvements on the project site and provide its fair share funding toward the portion of the improvements that are outside of the project site (i.e., the westerly half-width of Queen Street between Panorama Drive and Paladino Drive). The shared funding for the above improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit.

NOISE

Commercial Noise Sources

Potentially Significant Impact

Proposed commercial land uses would be adjacent to and near proposed residential land uses, which would be exposed to varying amounts of commercial noise impacts from such sources as air conditioning units, trash compactors, fans, compressors, and truck deliveries.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the potential significant effects on the environment.

Facts in supporting Finding

The potential significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- Prior to the issuance of a building permit for the proposed commercial uses, the project applicant shall demonstrate that project commercial noise source impacts on nearby residences are below those indicated in the City's hourly noise level performance standards. To demonstrate that commercial noise source impacts are below the City's standards, the project applicant may need to include project design features such as setbacks, barriers, building location/orientation, acoustical design of buildings, etc.

Project-Related Onsite Traffic Noise

Significant Impact

Development of the proposed land uses would result in a daily traffic volume increase of approximately 60,976 trips. In the year 2010, two onsite street segments along Masterson Street would experience noise levels that exceed 65 dB CNEL, which is considered a significant noise impact. In the year 2020, there would be 6 onsite street segments along Panorama Drive, Vineland Road, SR 178 (future alignment), Masterson Street, and Paladino Drive that would experience noise levels that exceed 65 dB CNEL, which is also considered a significant noise impact.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- Prior to the issuance of building permits, the project applicant shall reduce noise levels on the project residences by setting residential uses back from the roads by a distance equal to or greater than the 65 dB CNEL contour. For the future alignment of SR 178, the minimum setback distance shall be 188 feet; for the remaining roadways mentioned above, the minimum setback shall be 84 feet. As an alternative to setbacks, the project applicant could use sound walls to mitigate traffic noise levels. The exact height and placement of soundwalls would depend on lot design and grading. Walls in the range of 6 to 10 feet probably would suffice for most situations. When lot design and grading are established, an acoustical consultant shall establish necessary wall heights and locations.

AIR QUALITY

Short-Term Emissions -Construction Activity Fugitive Dust

Significant Impact

Construction of the proposed project could have a temporary significant impact on local air quality in the form of fugitive dust (PM 10)emissions. Fugitive dust emissions are associated with land clearing, ground excavation, cut and fill operations, and truck travel on unpaved roads.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

Compliance with San Joaquin Valley Air Pollution Control District (SJVUAPCD) Regulation VIII and the City of Bakersfield air quality regulations would result in no significant fugitive dust emissions. To ensure compliance, the following measure shall be implemented:

- Prior to approval of a grading plan for any residential tract, multiple family project, and commercial project, the project applicant shall submit a letter to the City of Bakersfield Planning Department from the SJVUAPCD stating the dust suppression measures that shall be completed during construction activities to comply with SJVUAPCD Regulation VIII.

In addition to compliance with Regulation VIII, the following measures can further reduce fugitive dust emissions associated with the project. The following shall be incorporated into building plans:

- Cover all access roads and parking areas with asphalt-concrete paving.
- Asphalt-concrete paving shall comply with SJVUAPCD Rule 4641 and restrict the use of cutback, slow-cure and emulsified asphalt paving materials.
- Use water sprays or chemical suppressants on all unpaved areas to control fugitive emissions.
- Enclose, cover or water all stockpiled soils to reduce fugitive dust emissions.
- Cease grading activities during periods of high winds (greater than 20 mph over a one-hour period).
- Limit construction-related vehicle speeds to IS mph on all unpaved areas at the construction site.

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- All haul trucks should be covered when transporting loads of soil.
- Wash off construction and haul trucks to minimize the removal of mud and dirt from the project site.

Short-Term Emissions – Construction Equipment Exhaust Emissions

Significant Impact

Construction activity will also result in exhaust emissions from diesel-powered heavy equipment. Exhaust emissions from construction include emissions associated with the transport of machinery and supplies to and from the site, emissions produced onsite as the equipment is used, and emissions from trucks transporting excavated materials from the site and fill soils to the site. Examples of these emissions include CO, ROG, NO_x, SO_x and PM_{10}.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

The following shall be incorporated into grading and building plans:

- Properly and routinely maintain all construction equipment, as recommended by manufacturer manuals, to control exhaust emissions.
- Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling engines.
- Encourage ride sharing and use of transit transportation for construction employee commuting to the project sites.
- Use electric equipment for construction whenever possible in lieu of fossil fuel-fired equipment.

CULTURAL RESOURCES

Paleontological Resources

Potentially Significant Impact

Grading activities in the southwest portion of the project site between elevations 600 feet and 700 feet could result in impacts to the Sharktooth Hill bonebed.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the potential significant effects on the environment.

Facts in Support of Finding

The potential significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

A paleontological monitoring program that includes the following measures shall be implemented to reduce potential impacts on the Sharktooth Hill bonebed.

- Prior to grading, a paleontologist shall be retained, attend a pre-grading meeting, and set forth the procedures to be followed during the monitoring program.
- One paleontological monitor shall be provided that is trained and equipped to allow rapid removal of fossils with minimal construction delay. Full-time monitoring of the portions of the project site that have earth-disturbing activities at elevations between 600 feet and 700 feet shall be provided.
- If fossils are found within an area being cleared or graded, earth-disturbing activities shall be diverted elsewhere until the monitor has completed salvage of the fossils. If construction personnel make the discovery, the grading contractor shall immediately divert construction and call the monitor to the site. Major salvage time may be shortened by grading constructor's assistance (e.g., removal of overburden, lifting, and removing large and heavy fossils).
- The project paleontologist shall prepare, identify, and curate all recovered fossils. Upon completion of grading, the project paleontologist shall prepare a summary report documenting mitigation and results, with itemized inventory of collected specimens. The paleontologist shall submit the report to the City of Bakersfield, designated depository, and any other appropriate agency, and transfer fossil collection to a depository within the City of Bakersfield or County of Kern. The summary report shall be submitted to the City. This submittal will signify completion of the program to mitigate impacts on paleontological resources.

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PUBLIC SERVICES AND UTILITIES

Fire Protection Services

Significant Impact

Development of the proposed project would result in a substantial increase in population and structures on the project site and require 8.7 additional fire protection personnel to serve the site based on the current City staff levels.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measures as identified in the final EIR and incorporated into the project.

- Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Fire Department so that fire department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project.
- Prior to the approval of grading plans, the project applicant shall submit emergency fire access plans to the Fire Department for review and approval to assure that service to the site is in accordance with the Bakersfield Fire Department requirements.
- Prior to the commencement of structured framing onsite, the project applicant shall install fire hydrants in accordance with the City-approved building plans.
- Prior to the approval of street improvement plans, the project applicant shall demonstrate to the City Fire Department that the onsite water supply system is designed to provide sufficient fire flow pressure and storage in accordance with City Fire Department requirements.

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Police Protection Services

Significant Impact

Development of the proposed project would result in a substantial increase in population and structures on the project site and require 15 additional police protection personnel to serve the site based on the current City staff levels.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Police Department so that police department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project.

School Services

Significant Impact

Implementation of the proposed project would result in the generation of 2,087 K-6th, 821 7-8th, and 1,013 9-12th students.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- Prior to the issuance of building permits, the project applicant shall pay District-adopted development impact school fees that are in effect at the time of issuing each permit. The District-adopted fees are required to be in accordance with State statutes that are in effect at the time of issuing each permit. In lieu of the above, the project applicant may comply with alternative mitigation acceptable to the District.

Stormwater Drainage

Significant Impact

Development of the proposed project would result in substantial increases in stormwater runoff and potential significant impacts on existing drainage facilities.

Finding

Changes or alterations have been required in, or incorporated into, the project which mitigate or avoid the significant effects on the environment.

Facts in Support of Finding

The significant effect has been eliminated or substantially lessened to a level that is less than significant by virtue of project design features and the following mitigation measure as identified in the final EIR and incorporated into the project.

- Prior to the issuance of a grading permit, the project applicant shall submit drainage plans for the project site for review and approval by the City of Bakersfield. The drainage plans shall identify all necessary onsite and offsite drainage facilities to accommodate project-related as well as cumulative (in accordance with the existing General Plan) drainage volumes and velocities. Modifications to the existing PDA for the Breckenridge area will require an approval of an amendment to the PDA by the City of Bakersfield.

SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

The potential significant adverse impacts associated with the implementation of the City in the Hills project are listed below. The Bakersfield City Council finds that these potential significant adverse impacts would be reduced with the implementation of the project-related design features and

recommended mitigation measures; however, the impacts cannot be reduced to a level less than significant. The Bakersfield City Council is adopting a Statement of Overriding Consideration per Section 15093 of the CEQA Guidelines.

LAND USE AND PLANNING

Consistency with Plans, Policies, and Programs

Significant Impact

The proposed project would not conflict with most of the goals of the General Plan and with other regional plans and policy documents including the Metropolitan Bakersfield Habitat Conservation Plan, Air Quality Attainment Plan, and the Regional Transportation Plan. However, the project would not be consistent with the Noise Element of the City's General Plan. The project includes residences in an area that would expose future residents to noise levels from racing events at Mesa Marin Raceway that exceed the City's noise performance standards.

Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts in Support of Finding

No feasible mitigation measures are available for the project applicant to reduce noise levels from the Mesa Marin Raceway to less than the City's L_{50}-L55 dBA standard for affected residences. The No Project/No Development Alternative would avoid significant and unavoidable land use and planning impacts, but would not meet any of the project objectives. The Alternative Design and Less Intense Development Alternative would both result in reduced land use and planning impacts compared to the proposed project, but would not meet many of the project objectives. The No Project/Development in Accordance with Existing General Plan Land Use Designations Alternative would result in greater land use and planning impacts than the proposed project.

The significant and unavoidable adverse impacts on land use and planning by the proposed project are considered to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

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NOISE

Project Related Offsite Traffic Noise

Significant Impact

In the year 2010, one offsite roadway segment (along SR 178) would experience a significant adverse project-related traffic noise level, and in the year 2020, there would be 6 offsite roadway segments (along Panorama Drive, Fairfax Road, and Paladino Drive) that would experience significant adverse project-related traffic noise levels.

Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts in Support of Finding

No feasible measures are available for the project applicant to reduce offsite traffic noise. While the No Project/No Development Alternative would avoid significant and unavoidable noise impacts from offsite traffic noise, this alternative would not meet any of the project objectives. The Alternative Design and Less Intense Development Alternative would both result in reduced noise impacts from project-related offsite traffic noise, but would not meet many of the project objectives. The No Project/Development in Accordance with Existing General Plan Land Use Designations Alternative would result in higher levels of project-related traffic and, therefore, greater project-related offsite traffic noise impacts.

The significant and unavoidable adverse impacts from project-related offsite traffic noise from the proposed project are considered to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

Mesa Marin Raceway Noise

Significant Impact

Development of residential land uses in the southern half of the project site will expose residents to noise levels that exceed L_{50}-55 dBA. These noise levels would be generated by racing events at the adjacent Mesa Marin Raceway.

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Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts in Support of Finding

No feasible measures are available for the project applicant to reduce noise levels from the Mesa Marin Raceway to less than L_{50}-55 dBA. While the No Project/No Development Alternative would avoid significant and unavoidable noise impacts from Mesa Marin Raceway by keeping residences out of the southern portion of the site, this alternative would not meet any of the project objectives. The Alternative Design and Less Intense Development Alternative would both result in reduced noise impacts from Mesa Marin Raceway, but would not meet many of the project objectives. The No Project/Development in Accordance with Existing General Plan Land Use Designations Alternative includes residences in the southern portion of the project site so would result in the same noise impacts from Mesa Marin Raceway.

The significant and unavoidable adverse impacts from Mesa Marin Raceway noise are considered to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

Cumulative Offsite Traffic Noise

Significant Impact

In the year 2020, the proposed project and future growth will result in significant adverse cumulative traffic noise levels along Panorama Drive, old SR 178, Fairfax Road, Morning Drive, SR 184, SR 178 (future alignment), Masterson Street, and Paladino Drive.

Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts in Support of Finding

No feasible measures are available for the project applicant or applicants for development of future growth to reduce offsite traffic noise. While the No Project/No Development Alternative would not contribute to cumulative offsite traffic noise, this alternative would not meet any of the project objectives. The Alternative Design and Less Intense Development Alternative would both result in

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reduced impacts in terms of cumulative offsite traffic, but would not meet many of the project objectives. The No Project/Development in Accordance with Existing General Plan Land Use Designations Alternative would result in higher levels of project-related traffic and, therefore, greater contribution to cumulative offsite traffic noise.

The significant and unavoidable adverse impacts of cumulative offsite traffic noise for the proposed project are considered to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

AIR QUALITY

Long-Term Emissions

Significant Impact

Long-term emissions will be caused by mobile sources (vehicle emissions) and stationary source energy consumption (heating and cooling) emissions. The major long-term impact to air quality will be ROG and NOx emissions caused by motor vehicles traveling to and from the project site, and NOx emissions from stationary source energy consumption.

Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts in Support of Findings

Implementation of the following mitigation measures will serve to lessen project impacts; however, the impacts would remain significant. The No Project/No Development Alternative would completely avoid the significant and unavoidable adverse air quality impacts associated with long-term operational activities, but would not meet any of the project objectives. The Alternative Design and Less Intense Development Alternative would both result in reduced air quality impacts compared to the proposed project, but would not meet many of the project objectives. The No Project/Development in accordance with Existing General Plan Land Use Designation Alternatives would result in greater long-term air quality impacts than the proposed project.

- Prior to issuance of a building permit, transportation control measures and design features shall be incorporated into the project to reduce emissions from mobile sources. A strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling and traffic congestion includes the following:

a) Improve street and traffic signals for those intersections and street segments that will accommodate traffic from the proposed project.

The project applicant shall incorporate the following into building plans:

- Use low-NO_x emission water heaters.
- Provide shade trees to reduce building cooling requirements.
- Install energy-efficient and automated air conditioners.
- Exterior windows shall all be double-paned glass.
- Energy-efficient (low-sodium) parking lights shall be used.
- Use EPA-approved wood burning stoves, fireplace inserts or pellet stoves in lieu of conventional fireplaces.

Implementation of the above measures will serve to substantially, but not completely, mitigate the potentially significant long-term air quality impacts. The remaining unavoidable adverse impacts are considered to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

AESTHETICS

Significant Impact

Since the project site does not currently include any development, implementation of the proposed project would substantially alter the existing visual characteristics of the site and substantially alter the existing viewsheds surrounding the site. The proposed project would introduce new sources of light associated with the general commercial land uses, including parking lot lighting, sign lighting, and security lighting. Increased traffic in the area would also create additional sources of light.

Finding

Specific economic, social, or other considerations make infeasible the mitigation measures or project alternatives identified in the final EIR.

Facts In Support of Findings

Implementation of the following mitigation measures would lessen or avoid project impacts; however, the impacts would remain significant. The No Project/No Development Alternative would completely avoid the significant and unavoidable adverse aesthetic impacts associated with development of the project site, but would not meet any of the project objectives. The Alternative Design and Less Intense Development Alternative would both result in reduced aesthetic impacts compared to the proposed project, but would not meet many of the project objectives. The No Project/Development in

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Accordance with Existing Land Use Designations Alternative would result in an increased development intensity, and therefore greater aesthetic impacts.

- Prior to the issuance of building permits, the project applicant shall outline specifications for outdoor lighting locations and other intensely lighted areas. The specifications shall identify minimum lighting intensity needs and design lights to be directed towards intended uses. Methods to reduce light impacts may include low-intensity light fixtures and hooded shields.

- Prior to the issuance of building permits, the project applicant shall submit and obtain City approval of lighting plans. The lighting plans shall verify that outdoor lighting on private residences is designed so that all direct rays are confined to the site and that adjacent residences are protected from substantial light and glare.

Implementation of the above measures will serve to substantially, but not completely, mitigate the potentially significant aesthetic impacts. The remaining unavoidable adverse impacts are considered to be acceptable in light of the Statement of Overriding Considerations provided herein as Attachment A.

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ATTACHMENT A
STATEMENT OF OVERRIDING CONSIDERATIONS

The California Environmental Quality Act (CEQA) requires the lead agency to balance the benefits of a proposed project against its unavoidable environmental risks in determining whether to approve the project. The City of Bakersfield proposes to approve the City in the Hills project although unavoidable adverse land use, noise, air quality, and aesthetic impacts have been identified in the EIR. Even though these adverse impacts are not reduced to a level considered less than significant, the Bakersfield City Council finds that those impacts are outweighed by the benefits of the City in the Hills project. Further, the alternatives which were identified in the EIR would not provide the project benefits, as summarized below, to the same extent as the proposed project:

1. Provide a residential and commercial use community on land that historically has not been used for farming.

2. Provide a residential and commercial use community that includes similar uses as currently identified in the Metropolitan Bakersfield 2010 General Plan Land Use Element for the project site.

3. Provide a mixed use development that would establish residential uses in close proximity to an employment center.

4. Provide substantial additional housing units within the northeast Bakersfield area.

5. Provide substantial commercial uses in the City that would increase sales tax revenue to the City.

6. Provide right-of-way for the future construction of the approved SR 178 Freeway and the Vineland Road interchange.

7. Provide right-of-way for the future construction of the SR 178 and Masterson Street interchange.

Therefore, the Bakersfield City Council, having reviewed and considered the information contained in the EIR and the public record, adopts the Statement of Overriding Considerations which has been balanced against the unavoidable adverse impacts in reaching a decision on this project.

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CITY IN THE HILLS PROJECT
MITIGATION MONITORING PLAN
(September 19, 2000)

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	*Comments*
BIOLOGICAL RESOURCES				
Special Status Species BR-1 Prior to the issuance of a grading permit, the project applicant shall pay a development fee in accordance with the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP).	**Planning** Approved by _____ on_____			
BR-2 Prior to the issuance of a grading permit on the 694-acre site, the project proponent shall comply with all appropriate terms and conditions of the MBHCP. The MBHCP requires certain take avoidance measures for the San Joaquin kit fox. MBHCP guidelines regarding tracking and excavation shall be followed to prevent entrapment of kit fox in dens. Specific measures during the construction phase of the project shall be implemented and include the following: a) A preconstruction survey shall be conducted prior to site grading to search for active kit fox dens. The survey shall be conducted not more than 30 days prior to the onset of construction activities in areas subject to development to determine the necessity of den excavation. b) Monitoring and excavation of each known San Joaquin kit fox den which cannot be avoided by construction activities shall occur. c) Notification of wildlife agencies of relocation	**Planning** Approved by _____ on_____			

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Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
opportunity prior to ground disturbance in areas of known kit fox dens shall be provided.				
d) Excavations shall either be constructed with escape ramps or covered to prevent kit fox entrapment. All trenches or steep-walled excavations greater than three feet deep shall include escape ramps to allow wildlife to escape. Each excavation shall contain at least one ramp, with long trenches containing at least one ramp every 1/4 mile. Slope of ramps shall be no steeper than 1:1.				
e) All pipes, culverts or similar structures with a diameter of four inches or greater shall be kept capped to prevent entry of kit fox. If they are not capped or otherwise covered, they will be inspected prior to burial or closure to ensure no kit foxes, or other protected species, become entrapped.				
f) All employees, contractors, or other persons involved in the construction of the project shall attend a "tailgate" session informing them of the biological resource protection measures that will be implemented for the project. The orientation shall be conducted by a qualified biologist and shall include information regarding the life history of the protected species, reasons for special status, a summary of applicable environmental law, and measures intended to reduce impacts.				
g) All food, garbage, and plastic shall be disposed of in closed containers and regularly removed				

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	**Engineering Services and Traffic Engineering**	**Fire Department**	***Comments***
from the site to minimize attracting kit fox or other animals.				
BR-3 Because "take" of blunt-nosed leopard lizards is also currently prohibited by Section 5050 of the California Fish and Game Code, additional mitigations are necessary in addition to those required by the MBHCP. The following measures are recommended to comply with this Section 5050: a) Surveys for blunt-nosed leopard lizards shall be conducted following CDFG protocols. These surveys should be conducted between April 15 and June 30 under the specified time and temperature conditions. This survey is necessary to determine the current status of blunt-nosed leopard lizards on the project site. b) If blunt-nosed leopard lizards are detected, the applicant shall submit methods for compliance with Fish and Game Code Section 5050 to CDFG for review and approval.	**Planning** Approved by _____ on_____			
Raptor Nest Disturbance **BR-4** Prior to the issuance of a grading permit for the approximately 694-acre site, the project applicant shall comply with the following raptor nest mitigation: a) If site grading is proposed during the raptor nesting season (February-September), a focused survey for raptor nests shall be conducted by a qualified raptor biologist prior to grading activities in order to identify active nests in areas potentially impacted by project implementation.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	**Engineering Services and Traffic Engineering**	**Fire Department**	***Comments***
b) If construction is proposed to take place during the raptor nesting/breeding season (February - September), no construction activity shall take place within 500 feet of an active nest until the young have fledged (as determined by a qualified raptor biologist). Any nests that must be removed as a result of project implementation shall be removed during the non-breeding season (October-January). c) Preconstruction surveys shall include a survey for burrowing owl. If active burrowing owl burrows are detected outside of breeding season (September 1 through January 31), passive and/or active relocation efforts may be undertaken if approved by CDFG and USFWS. If active burrowing owl burrows are detected during breeding season (February 1 through August 31), no disturbance to these burrows shall occur without obtaining appropriate permitting through the Migratory Bird Treaty Act.				
Sensitive Habitats/Jurisdictional Areas BR-5 A formal jurisdictional delineation will be conducted. If project development would impact jurisdictional areas, a Clean Water Act, Section 404 permit from USACE and/or a CDFG Section 1601 Streambed Alteration Agreement will be obtained from USACE and/or CDFG respectively Prior to the issuance of a grading permit and/or approval of plans and specifications. USACE and CDFG typically require mitigation plans to be prepared prior to the	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
loss of habitat within jurisdictional areas.				
Indirect Impacts **BR-6** The following invasive exotic plants shall not be used in any project residential or commercial landscaping: tamarisk (all species) and pampas grass. In addition, vegetation at any ponds or water features shall be managed in a way such that none of the invasive exotic plants listed by the Department of Agriculture allowed to become established. Typical invasive exotic plants that can become problematic in this region include: water hyacinth and pampas grass.	**Planning** Approved by _____ on_____			
BR-7 During construction, site boundaries shall be clearly marked with flagging, fencing, or other suitable material to prevent construction equipment and vehicles from impacting adjacent habitat areas potentially occupied by special status species.	**Planning** Approved by _____ on			
TRAFFIC AND CIRCULATION				
TR-1 Prior to the issuance of building permits, the project applicant shall comply with the Metropolitan Bakersfield Transportation Impact Fee Program. These improvement fees shall be used to provide the improvements listed on pages 44 and 45 in Appendix C in the Draft EIR. The following improvements shall be included within the improvement list. Prior to issuance of building permits, the applicant's funding calculations for all improvements associated with the fee program shall be submitted to the City for review and approval. a) The following traffic signals shall be installed prior to full buildout of the project which is expected to occur in the year 2020.		**Traffic Engineering** Approved by _____ on_____		

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	**Engineering Services and Traffic Engineering**	**Fire Department**	**Comments**
- Panorama Drive and Morning Drive - Morning Drive and Auburn Street - Paladino Drive and Fairfax Road - Vineland Road and SR 184 - Paladino Drive and Morning Drive b) The following roadway segment shall be installed prior to full buildout of the project which is expected to occur in the year 2020. - Install two lanes of pavement on Paladino Drive from Fairfax Road to Masterson Street. - Install 2 additional lanes of pavement on Kern Canyon Road from SR 178 to Niles Street.				
TR-2 Prior to the issuance of building permits, the project applicant shall provide its fair share funding toward the following improvements. The funding for the following improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit. a) Traffic signals shall be installed at the following locations prior to one-half buildout of the project which is expected to occur in the year 2010 and full buildout of the project which is expected to occur in the year 2020: Year 2010 (Project One-Half Buildout) - Vineland Road and Interior Collector Street		**Traffic Engineering** Approved by _____ on_____		

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
- Panorama Drive and Interior Collector Street (2 locations) - Panorama Drive and Masterson Street - Morning Drive and SR 178 - Masterson Street (SR 184) and Old SR 178 - Vineland Road and SR 178 Year 2020 (Full Project Buildout) - SR 184 and Chase Avenue - Queen Street and Paladino Drive - Alfred Harrell Highway/Comanche Drive and SR 178 b) The following intersection improvement shall be installed at the following location prior to one-half buildout of the project which is expected to occur in the year 2010. Year 2010 (Project One-Half Buildout) - Add one left turn lane to eastbound and westbound lanes and re-time traffic signals at the intersection of Fairfax Road and SR 178. c) The following roadway segments shall be installed prior to one-half buildout of the project which is expected to occur in the year 2010. Year 2010 (Project One-Half Buildout) - Install Vineland Road between SR 178 and Collector Loop Street. - Install half width of SR 178 and Masterson				

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
Street along the project frontage. - Install 2 lanes of pavement on Panorama Drive from Morning Drive to Queen Street. - Install 2 additional lanes of pavement on Old SR 178 from Fairfax Road to Alfred Harrell Highway/Comanche Drive.				
TR-3 Prior to the issuance of a building permit, the project applicant shall provide funding for the future realigned SR 178 between Fairfax Road and Alfred Harrell Highway/Comanche Drive. The project applicant shall provide a fair share amount of that portion of the future realigned SR 178 that is determined to be the obligation of local development. The project's share of traffic on SR 178 is 7.5 percent. Local funding for the future realignment of SR 178 shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. Local fees shall be paid prior to the issuance of each building permit.		**Traffic Engineering** Approved by _____ on_____		
TR-4 Prior to the issuance of building permits, the project applicant shall provide the City of Bakersfield with a phasing plan of the onsite roadway segments. The project applicant shall install the following roadway segments that are not part of the Metropolitan Bakersfield Transportation Impact Fee Program. - Install Panorama between Queen Street and Masterson Street. - Install the onsite Collector Loop Street. - Install Valley Lane between Panorama Drive and Paladino Drive.		**Traffic Engineering** Approved by _____ on_____		

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
- Install Queen Street between Panorama Drive and Paladino Drive. The project applicant shall provide full funding for all improvements on the project site and provide its fair share funding toward the portion of the improvements that are outside of the project site (i.e., the westerly half-width of Queen Street between Panorama Drive and Paladino Drive). The shared funding for the above improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit.				
NOISE				
Commercial Noise Sources N-1 Prior to the issuance of a building permit for the proposed commercial uses, the project applicant shall demonstrate that project commercial noise source impacts on nearby residences are below those indicated in the City's hourly noise level performance standards. To demonstrate commercial noise source impacts are below the City's standards, the project applicant may need to include project design features such as setbacks, barriers, building location/ orientation, acoustical design of buildings, etc.	**Planning** Approved by _____ on_____			
Project Related Onsite Traffic Noise N-2 Prior to the issuance of building permits, the project applicant shall reduce noise levels on the project residences by setting residential uses back	**Planning** Approved by _____ on			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
from the roads by a distance equal to or greater than the 65 dB CNEL contour. For the future alignment of SR 178, the minimum setback distance shall be 188 feet; for the remaining roadway mentioned above, the minimum setback shall be 84 feet. As an alternative to setbacks, the project applicant could use sound walls to mitigate traffic noise levels. The exact height and placement of soundwalls would depend on lot design and grading. Walls in the range of 6 to 10 feet probably would suffice for most situations. When lot design and grading are established, an acoustical consultant shall establish necessary wall heights and locations.				
AIR QUALITY				
Short Term Emissions AQ-1 The construction of the proposed project would result in the generation of fugitive dust. Compliance with SJVUAPCD Regulation VIII and the City of Bakersfield air quality regulations would result in no significant fugitive dust emissions. To ensure compliance, the following measure shall be implemented. • Prior to approval of a grading plan for any residential tract, multiple family project, and commercial project, the project applicant shall submit a letter to the City of Bakersfield Planning Department from the SJVUAPCD stating the dust suppression measures that shall be completed during construction activities to comply with SJVUAPCD Regulation VIII.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	**Engineering Services and Traffic Engineering**	**Fire Department**	**Comments**
AQ-2 In addition to compliance with Regulation VIII the following shall be incorporated into building plans. The following measures can further reduce fugitive dust emissions associated with the project. The following shall be incorporated into building plans: a) Cover all access roads and parking areas with asphalt-concrete paving. b) Asphalt-concrete paving shall comply with SJVUAPCD Rule 4641 and restrict the use of *cutback, slow-cure and emulsified* asphalt paving materials. c) Use water sprays or chemical suppressants on all unpaved areas to control fugitive emissions. d) Enclose, cover or water all stockpiled soils to reduce fugitive dust emissions. e) Cease grading activities during periods of high winds (greater than 20 mph over a one-hour period). f) Limit construction-related vehicle speeds to 15 mph on all unpaved areas at the construction site. g) All haul trucks should be covered when transporting loads of soil. h) Wash off construction and haul trucks to minimize the removal of mud and dirt from the project sites.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	**Engineering Services and Traffic Engineering**	***Fire Department***	**Comments**
AQ-3 The following shall be incorporated into grading and building plans. a) Properly and routinely maintain all construction equipment, as recommended by manufacturer manuals, to control exhaust emissions. b) Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling engines. c) Encourage ride sharing and use of transit transportation for construction employee commuting to the project sites. d) Use electric equipment for construction whenever possible in lieu of fossil fuel-fired equipment.	**Planning** Approved by _____ on_____			
Long Term Emissions **AQ-4** Prior to issuance of a building permit, transportation control measures and design features shall be incorporated into the project to reduce emissions from mobile sources. A strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, and traffic congestion includes the following: a) Improve street and traffic signals for those intersections and street segments that the proposed project contributes traffic.		**Traffic Engineering** Approved by _____ on_____		
AQ-5 The project applicant shall incorporate the following into building plans: a) Use low-NO_x emission water heaters.	**Building** Approved by _____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
b) Provide shade trees to reduce building cooling requirements. c) Install energy-efficient and automated air conditioners. d) Exterior windows shall all be double-paned glass. e) Energy-efficient (low-sodium) parking lights shall be used. f) Use EPA-approved wood burning stoves, fireplace inserts or pellet stoves in lieu of conventional fireplaces.	on_____			
CULTURAL RESOURCES				
Archaeological/Historical Resources **CR-1** If cultural resources are unearthed during construction activities, all work shall be halted in the area of the find. A qualified archaeologist shall be called in to evaluate the findings and recommend any necessary mitigation measures. Proof of compliance with any recommendations resulting from such evaluation, if required, shall be submitted to the Southern San Joaquin Valley Archaeological Information Center (AIC) at California State University, Bakersfield, and to the City of Bakersfield Development Services Department.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
Paleontological Resources				
CR-2 A paleontological monitoring program that includes the following measures shall be implemented to reduce potential impacts on the Sharktooth Hill bonebed: a) Prior to grading, a paleontologist shall be retained, attend a pre-grading meeting, and set forth the procedures to be followed during the monitoring program. b) One paleontological monitor that is trained and equipped to allow rapid removal of fossils with minimal construction delay is expected to be sufficient. Full-time monitoring of the portions of the project site that have earth-disturbing activities at elevations between 600 feet and 700 feet shall be provided. c) If fossils are found within an area being cleared or graded, earth-disturbing activities shall be diverted elsewhere until the monitor has completed salvage of the fossils. If construction personnel make the discovery, the grading contractor shall immediately divert construction and call the monitor to the site. Major salvage time may be shortened by grading contractor's assistance (e.g., removal of overburden, lifting and removing large and heavy fossils). d) The project paleontologist shall prepare, identify, and curate all recovered fossils. Upon completion of grading, the project paleontologist shall prepare a summary report documenting				

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
mitigation and results, with itemized inventory of collected specimens. The paleontologist shall submit the report to the City of Bakersfield, designated depository, and any other appropriate agency, and transfer fossil collection to a depository within the City of Bakersfield or County of Kern. The summary report shall be submitted to the City. This submittal will signify completion of the program to mitigate impacts on paleontological resources.				
HAZARDOUS MATERIALS COMPLIANCE				
HMC-1 Prior to the issuance of grading permits, the grading plans shall specify that in the event that hazardous waste is discovered during site preparation or construction, the property owner/developer shall ensure that the identified hazardous waste and/or hazardous material is handled and disposed of in the manner specified by the State of California Hazardous Substances Control Law (Health and Safety Code, Division 20, Chapter 6.5) and according to the California Administrative Code, Title 30, Chapter 22.				
HMC-2 The applicant shall handle and dispose of all hazardous materials and wastes during the operation and maintenance of facilities in accordance with state codes.				

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
HMC-3 Prior to the issuance of grading permits, the grading plans shall specify that in the event that any abandoned or unrecovered oil wells are uncovered or damaged during excavation or grading, remedial plugging operations will be required. HMC-4 No structures are to be located over a previously plugged or abandoned well.				
PUBLIC SERVICES AND UTILITIES				
Fire Protection Services FPS-1 Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Fire Department so that fire department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project.			**Fire Department** Approved by _____ on_____	
FPS-2 Prior to the approval of grading plans, the project applicant shall submit emergency fire access plans to the Fire Department for review and approval to assure that service to the site is in accordance with the Bakersfield Fire Department requirements.			**Fire Department** Approved by _____ on_____	
FPS-3 Prior to the commencement of structured framing onsite, the project applicant shall install fire hydrants in accordance with the City-approved building plans.			**Fire Department** Approved by _____ on	
FPS-4 Prior to the approval of street improvement plans, the project applicant shall demonstrate to the City Fire Department that the onsite water supply system is designed to provide sufficient fire flow			**Fire Department** Approved by	

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	**Engineering Services and Traffic Engineering**	**Fire Department**	**Comments**
pressure and storage in accordance with City Fire Department requirements.			on_____	
Police Protection Services **PPS-1** Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Police Department so that police department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project.	**Planning** Approved by _____ on_____			
School Services **SS-1** Prior to the issuance of building permits, the project applicant shall pay District-adopted development impact school fees that are in effect at the time of issuing each permit. The District-adopted fees are required to be in accordance with State statutes that are in effect at the time of issuing each permit. In lieu of the above, the project applicant may comply with alternative mitigation acceptable to the District.	**Planning** Approved by _____ on_____			
Solid Waste Services **SWS-1** Prior to the issuance of building permits for residential uses, the applicant shall demonstrate how the project would participate in a waste management program, which includes but is not limited to the following: a) A commitment to contract with a recycling business for the collection and repossessing of glass, mixed and newsprint paper, plastics, and aluminum for all residential uses.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
b) A commitment to begin the recycling when solid waste collection begins. c) Provision of onsite receptacles for the collection of glass, mixed and newsprint paper, plastics, and aluminum for recycling purposes shall be provided. Locations of receptacles shall be indicated on building plans. d) Ensuring that hazardous waste disposal complies with federal, state, and city regulations.				
Water W-1 Prior to the issuance of building permits, the project applicant shall coordinate with the California Water Company to establish precise locations for water distribution and storage facilities that would be constructed onsite and offsite to adequately serve each of the residential and non-residential water needs of the proposed project.	**Planning** Approved by _____ on_____			
Stormwater Drainage SD-1 Prior to the issuance of a grading permit, the project applicant shall submit drainage plans for the project site for review and approval by the City of Bakersfield. The drainage plans shall identify all necessary onsite and offsite drainage facilities to accommodate project-related as well as cumulative (in accordance with the existing General Plan) drainage volumes and velocities. Modifications to the existing PDA for the Breckenridge area will require an approval of an amendment to the PDA by the City of Bakersfield.	**Building** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
AESTHETICS				
AES-1 Prior to the issuance of grading permits, the project applicant shall prepare landscape plans for the project area to provide visual relief from project structures. **AES-2** Prior to the issuance of building permits, the project applicant shall outline specifications for outdoor lighting locations and other intensely lighted areas. The specifications shall identify minimum lighting intensity needs and design lights to be directed towards intended uses. Methods to reduce light impacts may include low-intensity light fixtures and hooded shields.	**Planning** Approved by _____ on_____			
AES-3 Prior to the issuance of building permits, the project applicant shall submit and obtain City approval of lighting plans. The lighting plans shall verify that outdoor lighting on private residences is designed so that all direct rays are confined to the site and that adjacent residences are protected from substantial light and glare.	**Planning** Approved by _____ on_____			

RESOLUTION NO. 137-00

RESOLUTION MAKING FINDINGS AND ADOPTING GENERAL PLAN AMENDMENT NO. P99-0647 OF PROPOSED AMENDMENT TO THE LAND USE ELEMENT AND CIRCULATION ELEMENT OF THE METROPOLITAN BAKERSFIELD 2010 GENERAL PLAN.

WHEREAS, the Planning Commission of the City of Bakersfield in accordance with the provisions of Section 65353 of the Government Code, held a public hearing on MONDAY, OCTOBER 2, 2000, and THURSDAY, OCTOBER 5, 2000, on General Plan Amendment No. P99-0647 of a proposed amendment to the Land Use Element and Circulation Element of the General Plan, notice of the time and place of hearing having been given at least ten (10) calendar days before said hearing by publication in the Bakersfield Californian, a local newspaper of general circulation; and

WHEREAS, such GPA P99-0647 of the proposed amendment to the Land Use Element of the Metropolitan Bakersfield 2010 General Plan is as follows:

General Plan Amendment No. P99-0647:

Mountain View Bravo, LLC and S & J Alfalfa have applied to amend the Land Use Element and the Circulation Element of the Metropolitan Bakersfield 2010 General Plan consisting of changes as follows:

Land Use Element Amendment - consisting of changes from MUC (Mixed Use Commercial), LR (Low Density Residential) and HR (High Density Residential) to GC (General Commercial) on 96.90 acres; and from MUC and LR to HR on 65.50 acres generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended); and

Circulation Element Amendment - an amendment establishing new arterial and collector street alignments within the development site generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended);

and,

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WHEREAS, for the above-described project, an Initial Study and Notice of Preparation (NOP) were conducted and it was determined that the proposed project would have a significant effect on the environment and therefore, a Program Environmental Impact Report was required for the project and was prepared in accordance with the California Environmental Quality Act (CEQA); and

WHEREAS, the law and regulations relating to the preparation and adoption of Environmental Impact Reports as set forth in CEQA and City of Bakersfield's CEQA Implementation Procedures, have been duly followed by the city staff and the Planning Commission; and

WHEREAS, by Resolution No. 95-00 on October 5, 2000, the Planning Commission recommended approval and adoption of General Plan Amendment No. P99-0647 subject to conditions, mitigation measures listed in Exhibit "A" and conditions of approval listed on Exhibit "B", both of which are attached hereto and made a part hereof by this reference and this Council has fully considered the findings made by the Planning Commission as set forth in that Resolution; and

WHEREAS, on October 13, 2000, an appeal of the Planning Commission's decisions was filed by Steve Hollis; and

WHEREAS, the City Council, has considered the appeal of the Planning Commission's decisions filed by Steve Hollis; and

WHEREAS, the Council of the City of Bakersfield, in accordance with the provisions of Section 65355 of the Government Code, conducted and held a public hearing on WEDNESDAY, November 15, 2000, on the above described General Plan Amendment No. P99-0647 of the proposed amendment to the Land Use Element and Circulation Element of the Metropolitan Bakersfield 2010 General Plan, notice of time and place of the hearing having been given at least ten (10) calendar days before the hearing by publication in the Bakersfield Californian, a local newspaper of general circulation; and

WHEREAS, the Council has considered and hereby makes the following findings:

1. The above recitals and findings are true and correct and are incorporated herein.

2. That the applicant by prior written agreement agreed to comply with all adopted mitigation measures contained within the Draft Program Environmental Impact Report and Final Program EIR.

3. That the Final Program EIR for General Plan Amendment No. P99-0647 has been certified by the City Council.

4. That this project was the subject of a Program Environmental Impact Report and the entire environmental record is hereby adopted and incorporated herein by reference.

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5. The General Plan Amendment P99-0647 was approved and recommended for approval by the Planning Commission including GC (General Commercial) on 96.90 acres, HR on 18.12 acres and HMR ON 47.38 acres and establishing new arterial and collector street alignments within the project site as requested by the applicant with mitigation measures adopted in the Program EIR and conditions of approval for the project.

6. That the infrastructure exists or can easily be provided to accommodate the types of density and intensity of the development.

7. That the General Plan Amendment site is a 162.40 acre portion of an irregular shaped project site consisting of 693.90 acres that was annexed to the City of Bakersfield in 1977.

8. File the Notice of Determination. Upon approval and adoption of the project, the Planning Division of the Development Services Department is hereby directed to file a Notice of Determination with the County Clerk of Kern County, pursuant to the provisions of Section 21152 of the Public Resources Code and Section 15094 of the State CEQA Guidelines adopted pursuant thereto.

9. As to General Plan Amendment P99-0647 the Planning Commission's recommended amendment to the Land Use Element of the Metropolitan Bakersfield 2010 General Plan, consisting of changes to the land use designations as follows: from MUC (Mixed Use Commercial), LR (Low Density Residential) and HR (High Density Residential) to GC (General Commercial) on 96.90 acres; and from MUC and LR to HR on 18.12 acres and HMR on 47.38 acres as shown on attached map in Exhibit "C", attached hereto and made a part hereof by this reference, generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended), the City Council hereby approves such Land Use Element Amendment of the Metropolitan Bakersfield 2010 General Plan, subject to mitigation shown on Exhibit "A" and conditions of approval shown on Exhibit "B" both of which are attached hereto and made a part hereof by this reference.

10. As to General Plan amendment P99-0647 the Planning Commission's recommended amendment to the Circulation Element of the Metropolitan Bakersfield 2010 General Plan, consisting of changes to the circulation mapestablishing new arterial and collector street alignments within the development site as shown on attached map in Exhibit "C" generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended), the City Council hereby approves such Circulation Element Amendment of the Metropolitan Bakersfield 2010 General Plan, subject to mitigation measures shown on Exhibit "A" and conditions of approval shown on Exhibit "B.

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NOW, THEREFORE, BE IT RESOLVED and found by the Council of the City of Bakersfield as follows:

1. The above recitals and findings incorporated herein, are true and correct.

2. The Program Environmental Impact Report for General Plan Amendment P99-647 is hereby approved and adopted as the environmental determination for approval of the subject property.

3. The report of the Planning Commission, including maps and all reports and papers relevant thereto, transmitted by the Secretary of the Planning Commission to the City Council, is hereby received, accepted and approved.

4. The City Council hereby approves and adopts General Plan Amendment P99-0647 of the proposed amendment to the Land Use Element and Circulation Element of the Metropolitan Bakersfield 2010 General Plan, constituting changes as shown on the maps marked Exhibit "C", attached hereto and incorporated as though fully set forth, for property generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended).

5. That General Plan Amendment No. P99-0647, approved herein, be combined with other approved cases described in separate resolutions, to form a single Amendment to the Metropolitan Bakersfield 2010 General Plan.

6. The City Council hereby denies the appeal of the Planning Commission's decision recommending approval of General Plan Amendment No. P99-0647.

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I HEREBY CERTIFY that the foregoing Resolution was passed and adopted by the Council of the City of Bakersfield at a regular meeting thereof held on November 15, 2000, by the following vote:

AYES:	COUNCILMEMBER CARSON, DEMOND, MAGGARD, COUCH, GREEN, SULLIVAN, SALVAGGIO
NOES:	COUNCILMEMBER NONE
ABSTAIN:	COUNCILMEMBER NONE
ABSENT:	COUNCILMEMBER NONE

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CITY CLERK and Ex Officio Clerk of the
Council of the City of Bakersfield

APPROVED NOV 15 2000

BOB PRICE
MAYOR of the City of Bakersfield

APPROVED as to form:

OFFICE OF THE CITY ATTORNEY

BY: _____
CARL HERNANDEZ III
Deputy City Attorney

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CITY OF BAKERSFIELD
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CITY IN THE HILLS PROJECT
MITIGATION MONITORING PLAN
(September 19, 2000)

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
BIOLOGICAL RESOURCES				
Special Status Species BR-1 Prior to the issuance of a grading permit, the project applicant shall pay a development fee in accordance with the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP).	**Planning** Approved by _____ on_____			
BR-2 Prior to the issuance of a grading permit on the 694-acre site, the project proponent shall comply with all appropriate terms and conditions of the MBHCP. The MBHCP requires certain take avoidance measures for the San Joaquin kit fox. MBHCP guidelines regarding tracking and excavation shall be followed to prevent entrapment of kit fox in dens. Specific measures during the construction phase of the project shall be implemented and include the following: a) A preconstruction survey shall be conducted prior to site grading to search for active kit fox dens. The survey shall be conducted not more than 30 days prior to the onset of construction activities in areas subject to development to determine the necessity of den excavation. b) Monitoring and excavation of each known San Joaquin kit fox den which cannot be avoided by construction activities shall occur. c) Notification of wildlife agencies of relocation	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
opportunity prior to ground disturbance in areas of known kit fox dens shall be provided.				
d) Excavations shall either be constructed with escape ramps or covered to prevent kit fox entrapment. All trenches or steep-walled excavations greater than three feet deep shall include escape ramps to allow wildlife to escape. Each excavation shall contain at least one ramp, with long trenches containing at least one ramp every 1/4 mile. Slope of ramps shall be no steeper than 1:1.				
e) All pipes, culverts or similar structures with a diameter of four inches or greater shall be kept capped to prevent entry of kit fox. If they are not capped or otherwise covered, they will be inspected prior to burial or closure to ensure no kit foxes, or other protected species, become entrapped.				
f) All employees, contractors, or other persons involved in the construction of the project shall attend a "tailgate" session informing them of the biological resource protection measures that will be implemented for the project. The orientation shall be conducted by a qualified biologist and shall include information regarding the life history of the protected species, reasons for special status, a summary of applicable environmental law, and measures intended to reduce impacts.				
g) All food, garbage, and plastic shall be disposed of in closed containers and regularly removed				

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Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
from the site to minimize attracting kit fox or other animals.				
BR-3 Because "take" of blunt-nosed leopard lizards is also currently prohibited by Section 5050 of the California Fish and Game Code, additional mitigations are necessary in addition to those required by the MBHCP. The following measures are recommended to comply with this Section 5050: a) Surveys for blunt-nosed leopard lizards shall be conducted following CDFG protocols. These surveys should be conducted between April 15 and June 30 under the specified time and temperature conditions. This survey is necessary to determine the current status of blunt-nosed leopard lizards on the project site. b) If blunt-nosed leopard lizards are detected, the applicant shall submit methods for compliance with Fish and Game Code Section 5050 to CDFG for review and approval.	Planning Approved by _____ on_____			
<u>Raptor Nest Disturbance</u> BR-4 Prior to the issuance of a grading permit for the approximately 694-acre site, the project applicant shall comply with the following raptor nest mitigation: a) If site grading is proposed during the raptor nesting season (February-September), a focused survey for raptor nests shall be conducted by a qualified raptor biologist prior to grading activities in order to identify active nests in areas potentially impacted by project implementation.	Planning Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
b) If construction is proposed to take place during the raptor nesting/breeding season (February - September), no construction activity shall take place within 500 feet of an active nest until the young have fledged (as determined by a qualified raptor biologist). Any nests that must be removed as a result of project implementation shall be removed during the non-breeding season (October-January). c) Preconstruction surveys shall include a survey for burrowing owl. If active burrowing owl burrows are detected outside of breeding season (September 1 through January 31), passive and/or active relocation efforts may be undertaken if approved by CDFG and USFWS. If active burrowing owl burrows are detected during breeding season (February 1 through August 31), no disturbance to these burrows shall occur without obtaining appropriate permitting through the Migratory Bird Treaty Act.				
<u>Sensitive Habitats/Jurisdictional Areas</u> BR-5 A formal jurisdictional delineation will be conducted. If project development would impact jurisdictional areas, a Clean Water Act, Section 404 permit from USACE and/or a CDFG Section 1601 Streambed Alteration Agreement will be obtained from USACE and/or CDFG respectively Prior to the issuance of a grading permit and/or approval of plans and specifications. USACE and CDFG typically require mitigation plans to be prepared prior to the	**Planning** Approved by _____ on_____			

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CITY CLERK'S FILE

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	**Engineering Services and Traffic Engineering**	**Fire Department**	**Comments**
loss of habitat within jurisdictional areas.				
Indirect Impacts BR-6 The following invasive exotic plants shall not be used in any project residential or commercial landscaping: tamarisk (all species) and pampas grass. In addition, vegetation at any ponds or water features shall be managed in a way such that none of the invasive exotic plants listed by the Department of Agriculture allowed to become established. Typical invasive exotic plants that can become problematic in this region include: water hyacinth and pampas grass.	**Planning** Approved by _____ on_____			
BR-7 During construction, site boundaries shall be clearly marked with flagging, fencing, or other suitable material to prevent construction equipment and vehicles from impacting adjacent habitat areas potentially occupied by special status species.	**Planning** Approved by _____ on			
TRAFFIC AND CIRCULATION				
TR-1 Prior to the issuance of building permits, the project applicant shall comply with the Metropolitan Bakersfield Transportation Impact Fee Program. These improvement fees shall be used to provide the improvements listed on pages 44 and 45 in Appendix C in the Draft EIR. The following improvements shall be included within the improvement list. Prior to issuance of building permits, the applicant's funding calculations for all improvements associated with the fee program shall be submitted to the City for review and approval. a) The following traffic signals shall be installed prior to full buildout of the project which is expected to occur in the year 2020.		**Traffic Engineering** Approved by _____ on_____		

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
- Panorama Drive and Morning Drive - Morning Drive and Auburn Street - Paladino Drive and Fairfax Road - Vineland Road and SR 184 - Paladino Drive and Morning Drive b) The following roadway segment shall be installed prior to full buildout of the project which is expected to occur in the year 2020. - Install two lanes of pavement on Paladino Drive from Fairfax Road to Masterson Street. - Install 2 additional lanes of pavement on Kern Canyon Road from SR 178 to Niles Street.				
TR-2 Prior to the issuance of building permits, the project applicant shall provide its fair share funding toward the following improvements. The funding for the following improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit. a) Traffic signals shall be installed at the following locations prior to one-half buildout of the project which is expected to occur in the year 2010 and full buildout of the project which is expected to occur in the year 2020: Year 2010 (Project One-Half Buildout) - Vineland Road and Interior Collector Street		Traffic Engineering Approved by _____ on_____		

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Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
- Panorama Drive and Interior Collector Street (2 locations) - Panorama Drive and Masterson Street - Morning Drive and SR 178 - Masterson Street (SR 184) and Old SR 178 - Vineland Road and SR 178 Year 2020 (Full Project Buildout) - SR 184 and Chase Avenue - Queen Street and Paladino Drive - Alfred Harrell Highway/Comanche Drive and SR 178 b) The following intersection improvement shall be installed at the following location prior to one-half buildout of the project which is expected to occur in the year 2010. Year 2010 (Project One-Half Buildout) - Add one left turn lane to eastbound and westbound lanes and re-time traffic signals at the intersection of Fairfax Road and SR 178. c) The following roadway segments shall be installed prior to one-half buildout of the project which is expected to occur in the year 2010. Year 2010 (Project One-Half Buildout) - Install Vineland Road between SR 178 and Collector Loop Street. - Install half width of SR 178 and Masterson				

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
Street along the project frontage. - Install 2 lanes of pavement on Panorama Drive from Morning Drive to Queen Street. - Install 2 additional lanes of pavement on Old SR 178 from Fairfax Road to Alfred Harrell Highway/Comanche Drive.				
TR-3 Prior to the issuance of a building permit, the project applicant shall provide funding for the future realigned SR 178 between Fairfax Road and Alfred Harrell Highway/Comanche Drive. The project applicant shall provide a fair share amount of that portion of the future realigned SR 178 that is determined to be the obligation of local development. The project's share of traffic on SR 178 is 7.5 percent. Local funding for the future realignment of SR 178 shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. Local fees shall be paid prior to the issuance of each building permit.		Traffic Engineering Approved by _____ on_____		
TR-4 Prior to the issuance of building permits, the project applicant shall provide the City of Bakersfield with a phasing plan of the onsite roadway segments. The project applicant shall install the following roadway segments that are not part of the Metropolitan Bakersfield Transportation Impact Fee Program. - Install Panorama between Queen Street and Masterson Street. - Install the onsite Collector Loop Street. - Install Valley Lane between Panorama Drive and Paladino Drive.		Traffic Engineering Approved by _____ on_____		

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
- Install Queen Street between Panorama Drive and Paladino Drive. The project applicant shall provide full funding for all improvements on the project site and provide its fair share funding toward the portion of the improvements that are outside of the project site (i.e., the westerly half-width of Queen Street between Panorama Drive and Paladino Drive). The shared funding for the above improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit.				
NOISE				
Commercial Noise Sources N-1 Prior to the issuance of a building permit for the proposed commercial uses, the project applicant shall demonstrate that project commercial noise source impacts on nearby residences are below those indicated in the City's hourly noise level performance standards. To demonstrate commercial noise source impacts are below the City's standards, the project applicant may need to include project design features such as setbacks, barriers, building location/ orientation, acoustical design of buildings, etc.	**Planning** Approved by _____ on_____			
Project Related Onsite Traffic Noise N-2 Prior to the issuance of building permits, the project applicant shall reduce noise levels on the project residences by setting residential uses back	**Planning** Approved by _____ on			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
from the roads by a distance equal to or greater than the 65 dB CNEL contour. For the future alignment of SR 178, the minimum setback distance shall be 188 feet; for the remaining roadway mentioned above, the minimum setback shall be 84 feet. As an alternative to setbacks, the project applicant could use sound walls to mitigate traffic noise levels. The exact height and placement of soundwalls would depend on lot design and grading. Walls in the range of 6 to 10 feet probably would suffice for most situations. When lot design and grading are established, an acoustical consultant shall establish necessary wall heights and locations.				
AIR QUALITY				
Short Term Emissions AQ-1 The construction of the proposed project would result in the generation of fugitive dust. Compliance with SJVUAPCD Regulation VIII and the City of Bakersfield air quality regulations would result in no significant fugitive dust emissions. To ensure compliance, the following measure shall be implemented. • Prior to approval of a grading plan for any residential tract, multiple family project, and commercial project, the project applicant shall submit a letter to the City of Bakersfield Planning Department from the SJVUAPCD stating the dust suppression measures that shall be completed during construction activities to comply with SJVUAPCD Regulation VIII.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
AQ-2 In addition to compliance with Regulation VIII the following shall be incorporated into building plans. The following measures can further reduce fugitive dust emissions associated with the project. The following shall be incorporated into building plans: a) Cover all access roads and parking areas with asphalt-concrete paving. b) Asphalt-concrete paving shall comply with SJVUAPCD Rule 4641 and restrict the use of cutback, slow-cure and emulsified asphalt paving materials. c) Use water sprays or chemical suppressants on all unpaved areas to control fugitive emissions. d) Enclose, cover or water all stockpiled soils to reduce fugitive dust emissions. e) Cease grading activities during periods of high winds (greater than 20 mph over a one-hour period). f) Limit construction-related vehicle speeds to 15 mph on all unpaved areas at the construction site. g) All haul trucks should be covered when transporting loads of soil. h) Wash off construction and haul trucks to minimize the removal of mud and dirt from the project sites.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning [illegible]lding)	**Engineering Services and Traffic Engineering**	**Fire Department**	**Comments**
AQ-3 The following shall be incorporated into grading and building plans. a) Properly and routinely maintain all construction equipment, as recommended by manufacturer *manuals, to control exhaust emissions.* b) Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling engines. c) Encourage ride sharing and use of transit transportation for construction employee commuting to the project sites. d) Use electric equipment for construction whenever possible in lieu of fossil fuel-fired equipment.	[illegible]ng Approved by _____ on_____			
Long Term Emissions **AQ-4** Prior to issuance of a building permit, transportation control measures and design features shall be incorporated into the project to reduce emissions from mobile sources. A strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, and traffic congestion includes the following: a) Improve street and traffic signals for those intersections and street segments that the proposed project contributes traffic.		**Traffic Engineering** Approved by _____ on_____		
AQ-5 The project applicant shall incorporate the following into building plans: a) Use low-NO_x emission water heaters.	**Building** Approved by _____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
b) Provide shade trees to reduce building cooling requirements. c) Install energy-efficient and automated air conditioners. d) Exterior windows shall all be double-paned glass. e) Energy-efficient (low-sodium) parking lights shall be used. f) Use EPA-approved wood burning stoves, fireplace inserts or pellet stoves in lieu of conventional fireplaces.	on_____			
CULTURAL RESOURCES				
Archaeological/Historical Resources CR-1 If cultural resources are unearthed during construction activities, all work shall be halted in the area of the find. A qualified archaeologist shall be called in to evaluate the findings and recommend any necessary mitigation measures. Proof of compliance with any recommendations resulting from such evaluation, if required, shall be submitted to the Southern San Joaquin Valley Archaeological Information Center (AIC) at California State University, Bakersfield, and to the City of Bakersfield Development Services Department.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
Paleontological Resources				
CR-2 A paleontological monitoring program that includes the following measures shall be implemented to reduce potential impacts on the Sharktooth Hill bonebed:				
a) Prior to grading, a paleontologist shall be retained, attend a pre-grading meeting, and set forth the procedures to be followed during the monitoring program.				
b) One paleontological monitor that is trained and equipped to allow rapid removal of fossils with minimal construction delay is expected to be sufficient. Full-time monitoring of the portions of the project site that have earth-disturbing activities at elevations between 600 feet and 700 feet shall be provided.				
c) If fossils are found within an area being cleared or graded, earth-disturbing activities shall be diverted elsewhere until the monitor has completed salvage of the fossils. If construction personnel make the discovery, the grading contractor shall immediately divert construction and call the monitor to the site. Major salvage time may be shortened by grading contractor's assistance (e.g., removal of overburden, lifting and removing large and heavy fossils).				
d) The project paleontologist shall prepare, identify, and curate all recovered fossils. Upon completion of grading, the project paleontologist shall prepare a summary report documenting				

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
mitigation and results, with itemized inventory of collected specimens. The paleontologist shall submit the report to the City of Bakersfield, designated depository, and any other appropriate agency, and transfer fossil collection to a depository within the City of Bakersfield or County of Kern. The summary report shall be submitted to the City. This submittal will signify completion of the program to mitigate impacts on paleontological resources.				
HAZARDOUS MATERIALS COMPLIANCE				
HMC-1 Prior to the issuance of grading permits, the grading plans shall specify that in the event that hazardous waste is discovered during site preparation or construction, the property owner/developer shall ensure that the identified hazardous waste and/or hazardous material is handled and disposed of in the manner specified by the State of California Hazardous Substances Control Law (Health and Safety Code, Division 20, Chapter 6.5) and according to the California Administrative Code, Title 30, Chapter 22.				
HMC-2 The applicant shall handle and dispose of all hazardous materials and wastes during the operation and maintenance of facilities in accordance with state codes.				

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
HMC-3 Prior to the issuance of grading permits, the grading plans shall specify that in the event that any abandoned or unrecovered oil wells are uncovered or damaged during excavation or grading, remedial plugging operations will be required. **HMC-4** No structures are to be located over a previously plugged or abandoned well.				
PUBLIC SERVICES AND UTILITIES				
Fire Protection Services **FPS-1** Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Fire Department so that fire department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project.			**Fire Department** Approved by _____ on_____	
FPS-2 Prior to the approval of grading plans, the project applicant shall submit emergency fire access plans to the Fire Department for review and approval to assure that service to the site is in accordance with the Bakersfield Fire Department requirements.			**Fire Department** Approved by _____ on	
FPS-3 Prior to the commencement of structured framing onsite, the project applicant shall install fire hydrants in accordance with the City-approved building plans.			**Fire Department** Approved by _____ on	
FPS-4 Prior to the approval of street improvement plans, the project applicant shall demonstrate to the City Fire Department that the onsite water supply system is designed to provide sufficient fire flow			**Fire Department** Approved by	

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
pressure and storage in accordance with City Fire Department requirements.			on_____	
Police Protection Services PPS-1 Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Police Department so that police department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project.	**Planning** Approved by _____ on_____			
School Services SS-1 Prior to the issuance of building permits, the project applicant shall pay District-adopted development impact school fees that are in effect at the time of issuing each permit. The District-adopted fees are required to be in accordance with State statutes that are in effect at the time of issuing each permit. In lieu of the above, the project applicant may comply with alternative mitigation acceptable to the District.	**Planning** Approved by _____ on_____			
Solid Waste Services SWS-1 Prior to the issuance of building permits for residential uses, the applicant shall demonstrate how the project would participate in a waste management program, which includes but is not limited to the following: a) A commitment to contract with a recycling business for the collection and repossessing of glass, mixed and newsprint paper, plastics, and aluminum for all residential uses.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
b) A commitment to begin the recycling when solid waste collection begins. c) Provision of onsite receptacles for the collection of glass, mixed and newsprint paper, plastics, and aluminum for recycling purposes shall be provided. Locations of receptacles shall be indicated on building plans. d) Ensuring that hazardous waste disposal complies with federal, state, and city regulations.				
Water W-1 Prior to the issuance of building permits, the project applicant shall coordinate with the California Water Company to establish precise locations for water distribution and storage facilities that would be constructed onsite and offsite to adequately serve each of the residential and non-residential water needs of the proposed project.	**Planning** Approved by _____ on_____			
Stormwater Drainage SD-1 Prior to the issuance of a grading permit, the project applicant shall submit drainage plans for the project site for review and approval by the City of Bakersfield. The drainage plans shall identify all necessary onsite and offsite drainage facilities to accommodate project-related as well as cumulative (in accordance with the existing General Plan) drainage volumes and velocities. Modifications to the existing PDA for the Breckenridge area will require an approval of an amendment to the PDA by the City of Bakersfield.	**Building** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
AESTHETICS				
AES-1 Prior to the issuance of grading permits, the project applicant shall prepare landscape plans for the project area to provide visual relief from project structures. **AES-2** Prior to the issuance of building permits, the project applicant shall outline specifications for outdoor lighting locations and other intensely lighted areas. The specifications shall identify minimum lighting intensity needs and design lights to be directed towards intended uses. Methods to reduce light impacts may include low-intensity light fixtures and hooded shields.	**Planning** Approved by _____ on_____			
AES-3 Prior to the issuance of building permits, the project applicant shall submit and obtain City approval of lighting plans. The lighting plans shall verify that outdoor lighting on private residences is designed so that all direct rays are confined to the site and that adjacent residences are protected from substantial light and glare.	**Planning** Approved by _____ on_____			

EXHIBIT B

Conditions

General Plan Amendment/Zone Change P99-0647

Planning

1. Comply with Safety Element policy numbers 11 and 12:

Policy Number	Fault Rupture Policies
11	*Prohibit development designed for human occupancy within 50 feet of a known active fault and prohibit any building from being placed astride an active fault.* To demonstrate compliance, this setback shall be shown on all tentative tracts and site plans submitted to the City of Bakersfield for approval.
12	*Require site-specific studies to locate and characterize specific fault traces within an Alquist-Priolo Fault Studies Zone for all construction designed for human occupancy.* Any tentative tract/site plan approval process will require site specific studies prior to project approval.

2. Developer shall prepare and submit a "master park plan" to the Planning Director for approval. Such "master park plan" shall be approved by the Planning Director prior to the filing of any tract map or parcel map.

3. The R-3 zoning district is limited to 20.00 dwelling units per net acre.

4. Adjacent to Paladino Drive minimum lot sizes in the first tier of lots shall be 8,400 square feet. This shall be for a distance of 2,000 feet along Paladino Drive west of the center line of Masterson or the last developed lot, whichever is greater.

5. Landscaping for medians and parkways along Paladino Drive shall include meandering sidewalks and a mixture of trees, shrubs, and turf consistent with landscaped strips for consolidated maintenance districts.

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Public Works

1. Along with submittal of any development plan, tentative subdivision map, or application for a lot line adjustment in the project area, the following shall occur:

   a. Provide fully executed dedication for the expanded intersection of Paladino Drive and Masterson Street and for Masterson Street at SR 178 to arterial standards. Also provide dedications for additional areas for landscaping along Paladino Drive and Masterson Street as directed by the City Engineer. Submit a current title report with the dedication documents.

   b. Provide offers of dedication for the other major streets in the approved alignments, including Queen Street (a 110' side arterial).

   c. Modify the Breckenridge Planned Drainage Area to conform with the revised zoning.

   d. A comprehensive drainage study conforming to the Breckenridge Planned Drainage Area is to be submitted to and approved by the City Engineer. Provide percolation tests for any proposed retention site. Any required retention site and necessary easements shall dedicated to the City.

   e. Submit verification to the City Engineer of the existing sewer system's capability to accept the additional flows to be generated through development under the new land use and zoning.

2. All development within the boundary of this amendment shall comply with the traffic mitigation measures detailed in Section 5.3 of the DEIR and summarized in the Executive Summary of the DEIR (Table 2-1).

3. The existing Northeast Trunk Sewer traverses this property. The street and subdivision designs shall accommodate the sewer line easements - the sewer line is not to cross private property.

4. Prior to the issuance of any building permit or the recordation of any subdivision north of the proposed Panorama Street alignment, improve Paladino Drive between the project area boundary and Morning Drive.

5. Prior to the issuance of any building permit or the recordation of any subdivision south of the proposed Panorama Street alignment, construct the intersection connection at the proposed collector and SR 178.

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6. Access to the arterial and collector streets will be limited and determined at time of division or development. Determination of whether a right turn lane is required at the access street(s) will also be made at the time of division or development. A full access opening will only be considered if the developer funds and installs a traffic signal at the site entrance.

7. As described in mitigation measures TR-1 and TR-2, the final traffic impact fee program shall be based upon a fee schedule submitted with cost estimates and share computations, subject to the approval of the City Engineer. It should be noted that the fee schedule referenced from pages 44 and 45 of the Traffic Study in Appendix C is considered preliminary and subject to correction. Several facilities on the fee list within the influence of the project are not shown, but need to be added, and several facilities appear to have incorrect project traffic shares computed.

8. Prior to issuance of a building permit, the project applicant shall provide funding for the future realigned SR 178 between Fairfax Road and Alfred Harrell Highway. The project's share of the traffic on future SR 178 is 7.5 percent. No policy has yet been adopted as to what share of future SR 187 local development is responsible to fund. The Bakersfield City Council and the Kern County Board of Supervisors, in their adoption of the Regional Transportation Impact Fee Program (RTIF), established that the local development's share of the Kern River freeway is 10%. Absent any policy decision to the contrary, we recommend that the developer be required to pay 7.5% of the local share, said local share to be 10% of the construction costs. Fifty percent of the right-of-way costs are already provided for in the RTIF program and shall be included in the RTIF calculations.

9. As noted in mitigation measure TR-4, a phasing plan is required for implementation of various onsite improvements mitigation measures. Since several mitigation improvements are also shown to be needed in at half project build out (TR-2), the phasing plan shall also extend to these as well as any other improvements. For example, any new connections to Hwy 178 requiring signals at half build out should probably require signalization at the time of connection. In addition, the phasing plan shall show how the project connects to the existing roadway network at initial development, half build-out and full build-out. The developer shall provide an appropriate mechanism to assure improvements occur in a timely manner.

10. A requirement of disclosure in any Department of Real Estate filings or sales contracts related to any property sale and an agreement to file a restrictive covenant recorded on the Project Area, which will disclose the possibility of noise

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from Mesa Marin Raceway greater than allowable under applicable city standards and based on that disclosure prevent purchasers of property from instituting administrative or judicial action against Mesa Marin.

11. Prior to the grading, excavation or submittal of any tract or parcel map, applicant shall consult with the Department of Conservation, Division of Oil, Gas and Geothermal Resources to determine if any (1) oil and/or gas lines and (2) abandoned oil and gas wells are located on the project site. If such lines or wells or located on site, the location of such lines or wells shall be shown on the tract or parcel map.

12. Prior to, the grading, excavation or submittal of any tract or parcel map, USA North shall be contacted and assess the map site and/or grading/excavation site. A USA North identification number shall be obtain to identify all above and underground utility facilities in accordance with California Government Code Section 4216. USA North can be contacted at 1(800) 227-2600.

13. Mitigation measure TR-4 requires a phasing plan to address this issue. The following list can be considered an example listing projects expected to be complete with adjacent development, by the half build out and by the full buildout, but the actual timing of the improvements will be contained in the required phasing plan which will be presented to the Planning Commission prior to the submission of the first tentative map in the GPA/ZC area. This list will be overriden by the Planning Commission approved phasing plan. Upon determination by the City Engineer that traffic and public safety necessitates improvements be completed prior to the timing established in the Planning Commission approved phasing plan, the developer shall submit to the City Engineer design of such identified improvements and, upon approval, install such improvements in a timely manner as directed by the City Engineer.

    Improvements expected with adjacent development:

    A. With connection of Vineland to Hwy. 178 installation of a traffic signal and widening Hwy. 178 at the intersection to provide left turn channelization from Hwy. 178 is anticipated.
    B. With first development having connections to Masterson Street, realign Masterson to its ultimate alignment having 90 degree intersection with Hwy. 178.
    C. Install Panorama Dr. from Queen St. to Masterson St.
    D. Install the on-site Collector Loop street
    E. Install Vineland Rd./Valley Ln. from Hwy. 178 to Paladino Dr.
    F. Install Queen St. from Panorama Dr. to Paladino Dr.

14. Improvements expected by HALF BUILD OUT based upon the DEIR mitigation measures:
    A. Install traffic signals at the following intersections:
        1. Vineland Rd. at Interior Loop Collector
        2. Panorama Dr. at Interior Loop Collector (1 location)
        3. Panorama Dr. at Masterson St.
        4. Morning Dr. at Hwy. 178
        5. Masterson St (re-aligned) at Hwy. 178
        6. Hwy. 184 at Hwy. 178
        7. Vineland Rd. at Hwy. 178 (if not previously connected)
    B. Install one left turn lane to east bound and west bound lanes and re-time traffic signals at the intersection of Fairfax Rd. and Hwy. 178. Please note, this will be superceded by the construction of a full interchange which is funded for construction with completion expected by 2004-05.
    C. Install entire half width of Hwy. 178 and Masterson Street along project frontage.
    D. Install 2 lanes on Panorama Dr. from Morning Dr. to Queen St.
    E. Widen Hwy. 178 to 4-lanes from Fairfax Rd. to Alfred Harrel Hwy.

15. Improvements expected by FULL BUILD OUT based upon the DEIR mitigation measures:
    A. Install traffic signals at the following intersections:
        1. Panorama Dr. at Morning Dr.
        2. Morning Dr. at Auburn St.
        3. Paladino Dr. at Fairfax Rd.
        4. Vineland Dr. at Hwy. 184
        5. Paladino Dr. at Morning Dr.
    B. Install 2 lanes of paving on Paladino Dr. from Fairfax Rd. to Masterson St.
    C. Install 2 additional lanes of paving on Kern Canyon Rd. (Hwy. 184) from Hwy. 178 to Niles St.

16. The improvements needed at locations significantly and directly impacted by the project to maintain City service level standards will be required to be in place prior to occupancy of the relevant development phase. Improvements which are included in an adopted fee program will be provided by the fee program mechanism if funds are currently available. If funds are not available to meet the circulation improvement needs at any particular development phase, then the project proponent will either provide the off-site improvements directly (with potential of future reimbursement or credits if a relevant fee program is in place), or the development must await other sources of implementation.

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GENERAL PLAN AMENDMENT
P99-0647

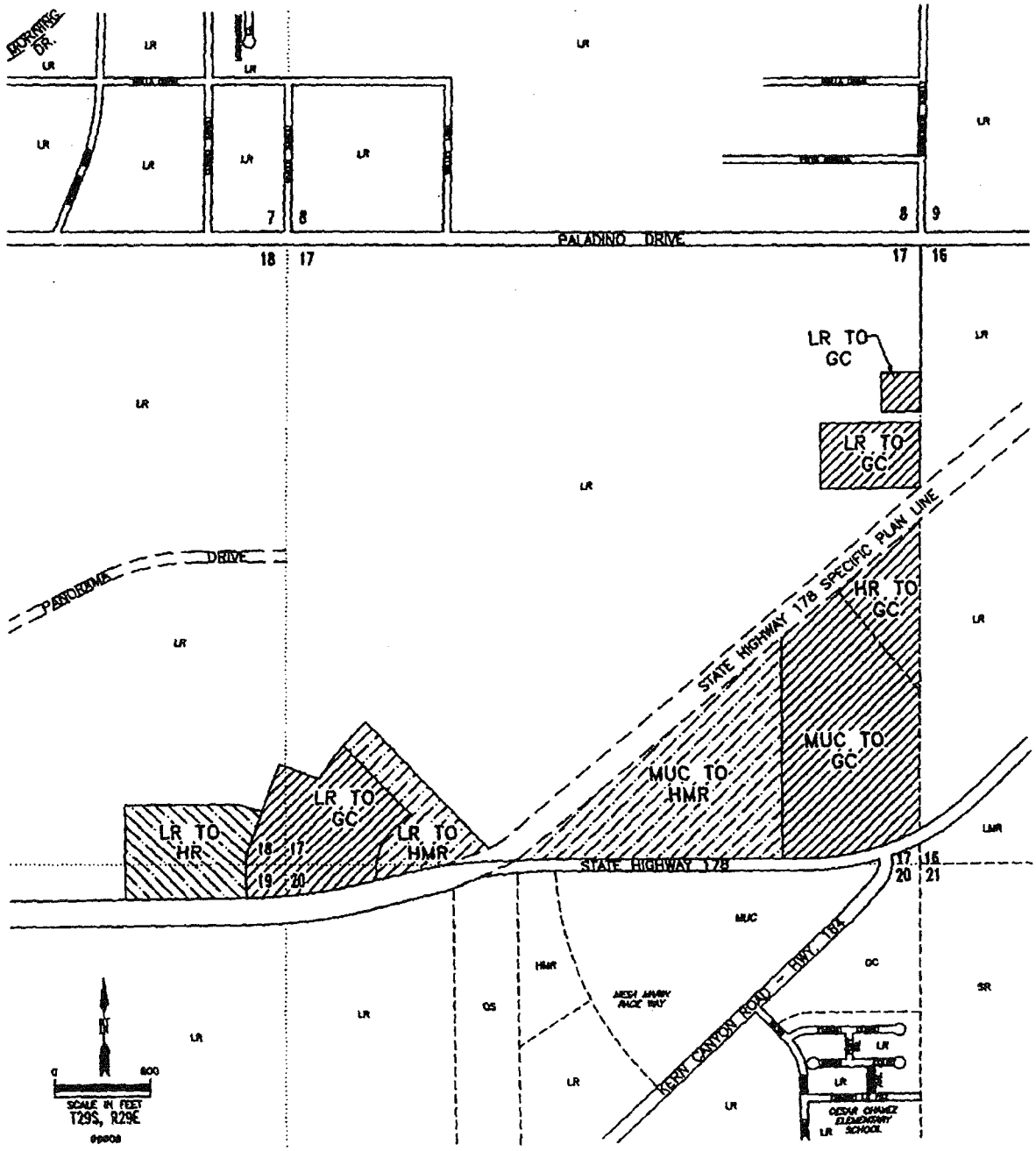

Exhibit C

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ZONE CHANGE
P99-0647

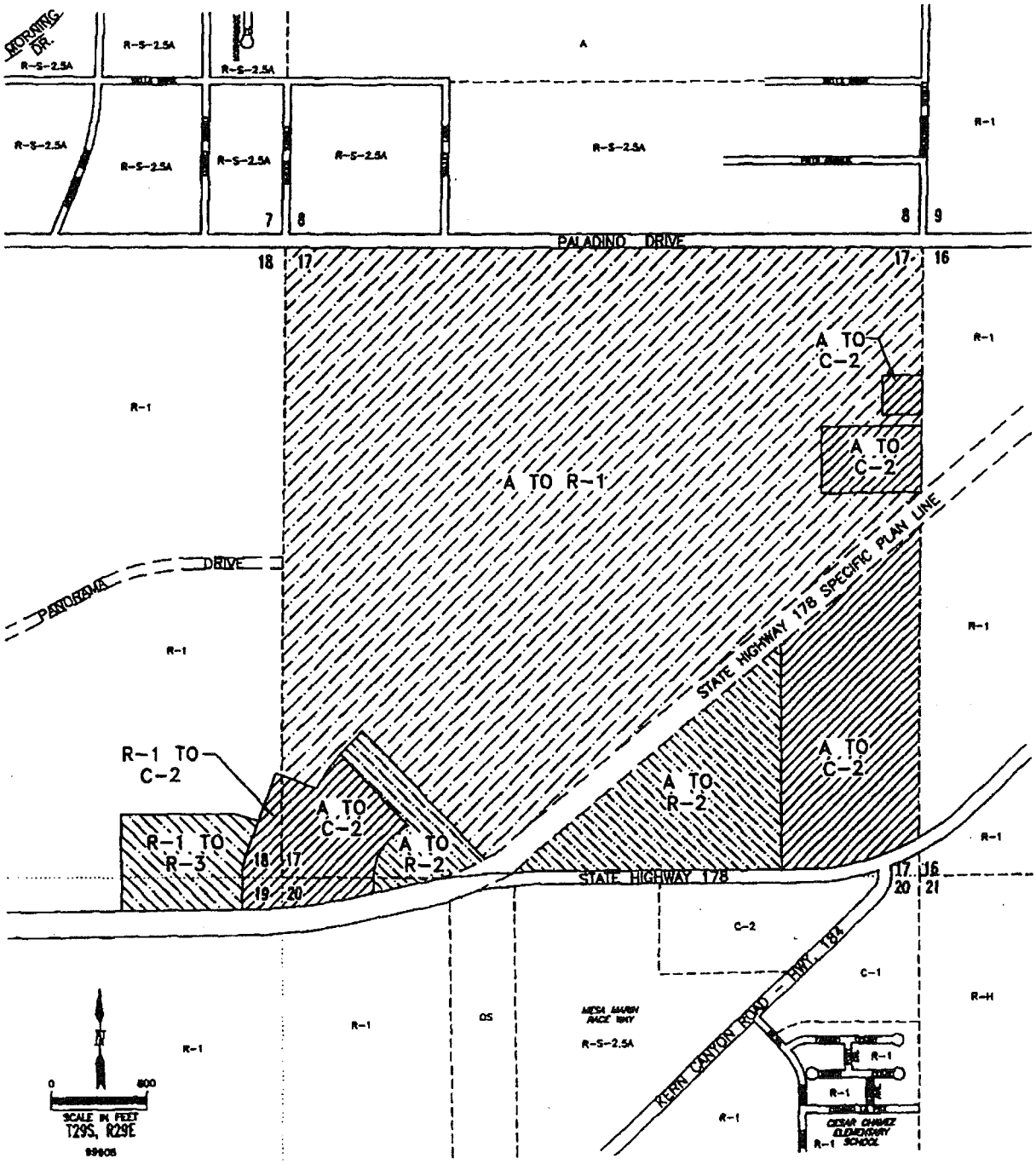


Exhibit C

EXHIBIT C

GENERAL PLAN AMENDMENT P99-0647
CIRCULATION ELEMENT

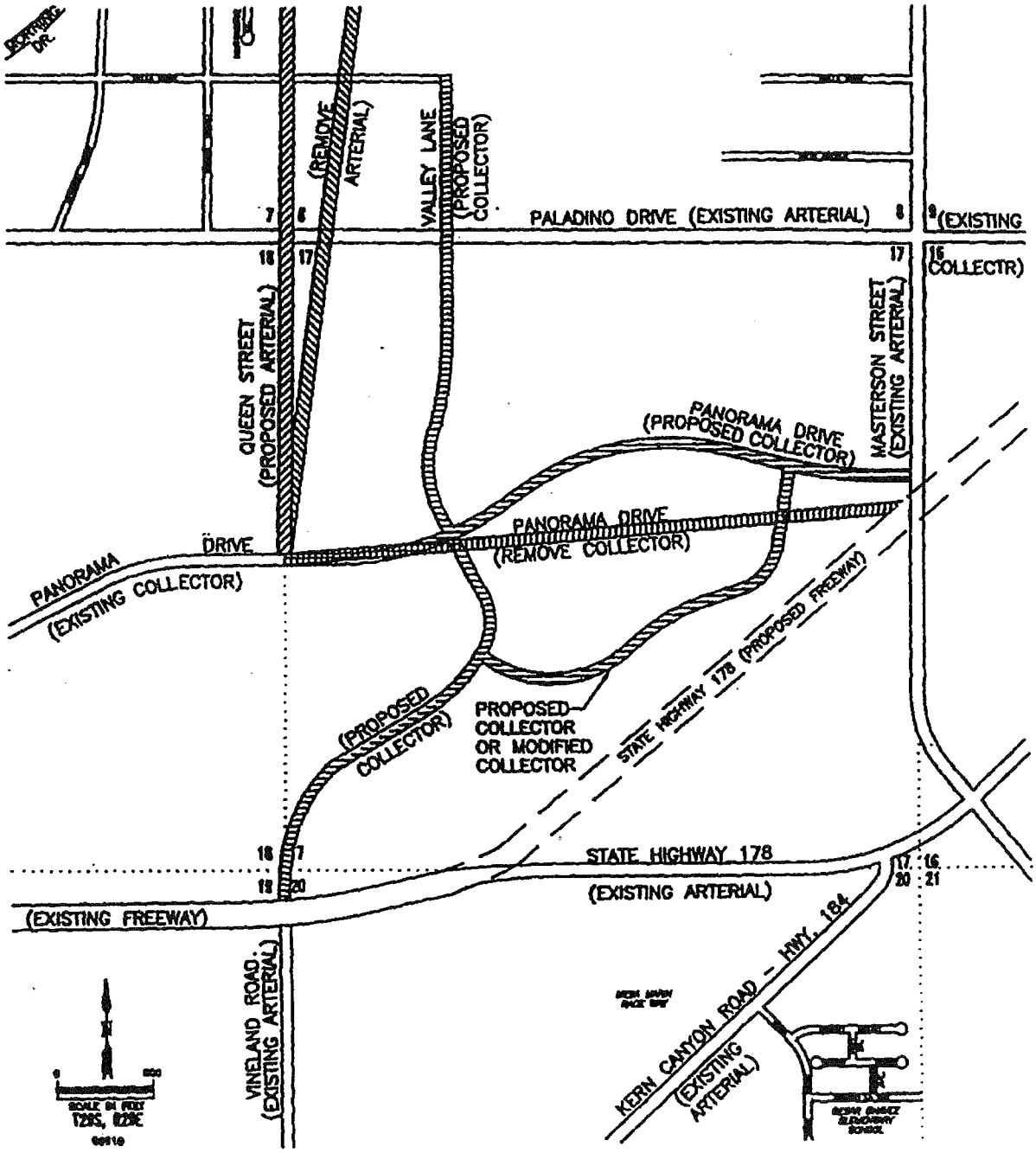
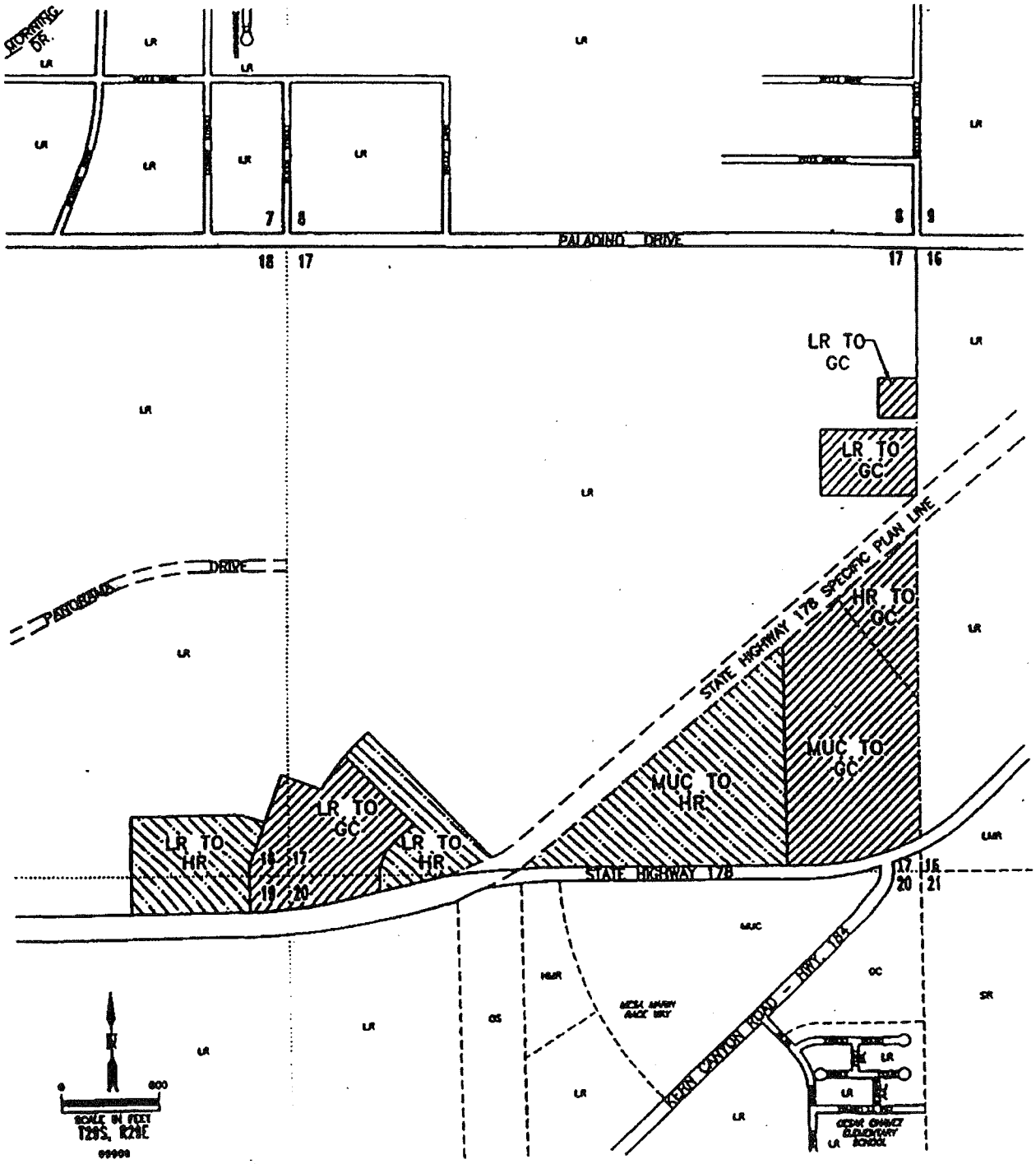


EXHIBIT C

GENERAL PLAN AMENDMENT
P99-0647



ORDINANCE NO. 3989

AN ORDINANCE AMENDING TITLE SEVENTEEN OF THE BAKERSFIELD MUNICIPAL CODE AND ZONING MAP NO. 104-17, 104-18, 104-19 AND 104-20 BY CHANGING THE ZONING FROM A (AGRICULTURE) AND R-1(ONE-FAMILY DWELLING) TO C-2 (REGIONAL COMMERCIAL) ON 96.9 ACRES; FROM A (AGRICULTURE) TO R-1 ON 500 ACRES; FROM A AND R-1 TO R-3 (LIMITED MULTIPLE-FAMILY DWELLING) ON 18.12 ACRES, FROM A TO R-2 ON 47.38 ACRES, GENERALLY LOCATED BETWEEN PALADINO DRIVE, STATE ROUTE-178, MASTERSON STREET AND VINELAND ROAD (ZONE CHANGE P99-0647)

WHEREAS, in accordance with the procedure set forth in the provisions of Title 17 of the Municipal Code of the City of Bakersfield, the Planning Commission held a public hearing on a petition to change the land use zoning of those certain properties in the City of Bakersfield generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended); and

WHEREAS, by Resolution No. 96-00, on October 5, 2000, the Planning Commission recommended approval and adoption of an ordinance amending Title 17 of the Municipal Code to approve R-1 (One-Family Dwelling), R-3 (Limited Multiple-Family Dwelling) and C-2 (Regional Commercial) zones as delineated on attached Zoning Map Nos. 104-17, 104-18, 104-19 and 104-20 marked Exhibit "C", attached hereto and nade a part hereof by this reference by this Council, and this Council has fully considered the recommendations made by the Planning Commission as set forth in that Resolution; and

WHEREAS, the Planning Commission, as a result of said hearing, did make several general and specific findings of fact which warranted an Environmental Impact Report (EIR) and changes in zoning of the subject property from A (Agriculture) and R-1 to R-1, R-3 and C-2 and the Council has considered said findings and all appear to be true and correct; and

WHEREAS, for the above-described project, an Initial Study was conducted and it was determined that the proposed project would have a significant effect on the environment, therefore, a Notice of Preparation (NOP) and an Environmental Impact Report (EIR) was prepared for the project in accordance with the California Environmental Quality Act (CEQA); and

WHEREAS, the applicant entered into an agreement with the City of Bakersfield to implement all mitigation measures identified in the environmental analysis contained within the Program EIR; and

WHEREAS, the law and regulations relating to the preparation and adoption of Environmental Impact Repots, as set forth in CEQA and City of Bakersfield's CEQA Implementation Procedures, have been duly followed by city staff, Planning Commission and this Council; and

WHEREAS, a Program Environmental Impact Report for the project was advertised and posted in accordance with CEQA; and

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WHEREAS, the general plan designations for this area allows residential and commercial development; and

WHEREAS, on October 13, 2000, an appeal of the Planning Commission's decisions was filed by Steve Hollis; and

WHEREAS, the City Council, has considered the appeal of the Planning Commission's decisions filed by Steve Hollis; and

WHEREAS, the City Council has considered the project proposal and hereby makes the following findings:

1. All above recitals are true and correct.

2. All required notices have been given.

3. The provisions of the California Environmental Quality Act (CEQA) have been followed.

4. Based on the initial study and comments received, staff has determined that the proposed project could have a significant effect on the environment. A Notice of Preparation (NOP) was prepared and sent to responsible agencies and property owners within 300 feet of the project site. A Program Environmental Impact Report (EIR) was prepared for this project in accordance with CEQA.

5. That this project was the subject of a Program EIR and the entire environmental record is incorporated herein by reference as set forth in the resolution certifying the Final Program Environmental Impact Report.

6. That infrastructure exists or can easily be provided to accommodate the types and intensities of the proposed development.

7. That the project site is a portion of an irregular shaped parcel consisting of 693.90 acres that was annexed to the City of Bakersfield in 1977.

8. The public necessity, general welfare and good zoning practice justify the recommended change of zone to R-1, R-2, R-3 and C-2 zones on 693.90 acres generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended).

9. The project site, with prior approval of General Plan Amendment No. P99-0647, is designated LR (Low Density Residential), HMR (High Medium Residential), HR (High Density Residential) and GC (General Commercial) on the Metropolitan Bakersfield 2010 General Plan Land Use Plan.

10. The recommended Zone Change P99-0647 will reflect the previously adopted General Plan Amendment P99-0647.

11. The recommended zone change is compatible with the surrounding uses.

CITY OF BAKERSFIELD ORIGINAL

12. The recommended zone change is consistent with the Metropolitan Bakersfield 2010 General Plan, subject to prior approval of General Plan Amendment P99-0647.

13. That the applicant by prior agreement agreed to comply with all adopted mitigation measures contained within the Final Program EIR for this project.

14. That Zone Change P99-0647 is hereby recommended for approval by staff and the Planning Commission with mitigation measures adopted in the GPA/ZC P99-0647 Final Program EIR.

15. That Section 17.06.020 (Zoning Map) of the Municipal Code of the City of Bakersfield is recommended for amendment by changing the land use zoning from from A and R-1 to C-2 on 96.9 acres, from A to R-1 on 500 acres and from A and R-1 to R-3 on 18.12 acres and A to R-2 on 47.38 acres as shown on Map Nos. 104-17, 104-18, 104-19 and 104-20 attached hereto as Exhibit "C" of that certain property in said City of Bakersfield as described in Exhibit "D" attached hereto and made a part hereof by this reference.

16. That Zone Change No. P99-0647, as outlined above, has been recommended by the Planning Commission for approval with mitigation measures as shown on Exhibit "A" and conditions of approval shown on Exhibit "B", both of which are attached hereto and made a part hereof by this reference subject to prior approval of General Plan Amendment No. P99-0647.

SECTION 1.

NOW, THEREFORE, BE IT ORDAINED by the Council of the City of Bakersfield as follows:

1. The above recitals and findings are true and correct and constitute the findings of the City Council in this matter.

2. All required notices have been given.

3. The provisions of the California Environmental Quality Act (CEQA) have been followed.

4. Based on the initial study and comments received, staff has determined that the proposed project could have a significant effect on the environment. A Notice of Preparation (NOP) was prepared and sent to responsible agencies and property owners within 300 feet of the project site. A Program Environmental Impact Report (EIR) was prepared for this project in accordance with CEQA.

5. That this project was the subject of a Program Environmental Impact Report and the entire environmental record is incorporated herein by reference as set forth in the resolution certifying the Final Program Environmental Impact Report.

6. That infrastructure exists or can easily be provided to accommodate the types and intensities of the proposed development.

7. That the project site is a portion of an irregular shaped parcel consisting of 693.90 acres that was annexed to the City of Bakersfield in 1977.

CITY OF BAKERSFIELD ORIGINAL

8. The public necessity, general welfare and good zoning practice justify the recommended change of zone to R-1, R-2, R-3 and C-2 zones on 693.90 acres generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended).

9. The project site, with prior approval of General Plan Amendment No. P99-0647, is designated LR, HMR, HR and GC on the Metropolitan Bakersfield 2010 General Plan Land Use Element.

10. The recommended Zone Change P99-0647 will reflect the previously adopted General Plan Amendment P99-0647.

11. The recommended zone change is compatible with the surrounding uses.

12. The recommended zone change is consistent with the Metropolitan Bakersfield 2010 General Plan, subject to prior approval of General Plan Amendment P99-0647.

13. That the applicant by prior agreement agreed to comply with all adopted mitigation measures contained within the Final Program EIR for this project.

14. That Zone Change P99-0647 is hereby approved as recommended by staff and the Planning Commission with mitigation measures adopted in the GPA/ZC P99-0647 Final Program EIR.

15. That Section 17.06.020 (Zoning Map) of the Municipal Code of the City of Bakersfield be amended by changing the land use zoning from A and R-1 to R-1, R-2, R-3 and C-2 on 693.90 acres as shown on Map Nos. 104-17, 104-18, 104-19 and 104-20 attached hereto as Exhibit "C" of that certain property in said City of Bakersfield as described in Exhibit "D" attached hereto.

16. That Zone Change No. P99-0647, as outlined above, is hereby approved with mitigation measures as shown on Exhibit "A" and conditions of approval shown on Exhibit "B", subject to prior approval of General Plan Amendment No. P99-0647.

17. That City Council hereby denies the appeal of the Planning Commission's decision recommending approval of Zone Change No. P99-0647.

SECTION 2.

This ordinance shall be posted in accordance with the Bakersfield Municipal Code and shall become effective not less than thirty (30) days from and after the date of its passage.

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CITY OF BAKERSFIELD ORIGINAL

I HEREBY CERTIFY that the foregoing Ordinance was passed and adopted by the Council of the City of Bakersfield at a regular meeting thereof held on November 15, 2000, by the following vote:

AYES:	COUNCILMEMBER CARSON, DEMOND, MAGGARD, COUCH, GREEN, SULLIVAN, SALVAGGIO
NOES:	COUNCILMEMBER NONE
ABSTAIN:	COUNCILMEMBER NONE
ABSENT:	COUNCILMEMBER NONE

Pamela A. McCarthy
CITY CLERK and Ex Officio Clerk of the
Council of the City of Bakersfield

APPROVED NOV 29 2000

BOB PRICE
MAYOR of the City of Bakersfield

APPROVED as to form:
BART THILTGEN
City Attorney

By: C. Franke III

Exhibits:
A. Conditions.
B. Zone Maps.
C. Legal Description

S:\Dole\P99-0647\CC ZC Ordinance.wpd
November 17, 2000

CITY OF BAKERSFIELD ORIGINAL

CITY IN THE HILLS PROJECT
MITIGATION MONITORING PLAN
(September 19, 2000)

Mitigation Measure	Verification of Compliance: Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
BIOLOGICAL RESOURCES				
Special Status Species BR-1 Prior to the issuance of a grading permit, the project applicant shall pay a development fee in accordance with the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP).	**Planning** Approved by _____ on_____			
BR-2 Prior to the issuance of a grading permit on the 694-acre site, the project proponent shall comply with all appropriate terms and conditions of the MBHCP. The MBHCP requires certain take avoidance measures for the San Joaquin kit fox. MBHCP guidelines regarding tracking and excavation shall be followed to prevent entrapment of kit fox in dens. Specific measures during the construction phase of the project shall be implemented and include the following: a) A preconstruction survey shall be conducted prior to site grading to search for active kit fox dens. The survey shall be conducted not more than 30 days prior to the onset of construction activities in areas subject to development to determine the necessity of den excavation. b) Monitoring and excavation of each known San Joaquin kit fox den which cannot be avoided by construction activities shall occur. c) Notification of wildlife agencies of relocation	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
opportunity prior to ground disturbance in areas of known kit fox dens shall be provided.				
d) Excavations shall either be constructed with escape ramps or covered to prevent kit fox entrapment. All trenches or steep-walled excavations greater than three feet deep shall include escape ramps to allow wildlife to escape. Each excavation shall contain at least one ramp, with long trenches containing at least one ramp every 1/4 mile. Slope of ramps shall be no steeper than 1:1.				
e) All pipes, culverts or similar structures with a diameter of four inches or greater shall be kept capped to prevent entry of kit fox. If they are not capped or otherwise covered, they will be inspected prior to burial or closure to ensure no kit foxes, or other protected species, become entrapped.				
f) All employees, contractors, or other persons involved in the construction of the project shall attend a "tailgate" session informing them of the biological resource protection measures that will be implemented for the project. The orientation shall be conducted by a qualified biologist and shall include information regarding the life history of the protected species, reasons for special status, a summary of applicable environmental law, and measures intended to reduce impacts.				
g) All food, garbage, and plastic shall be disposed of in closed containers and regularly removed				

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
from the site to minimize attracting kit fox or other animals.				
BR-3 Because "take" of blunt-nosed leopard lizards is also currently prohibited by Section 5050 of the California Fish and Game Code, additional mitigations are necessary in addition to those required by the MBHCP. The following measures are recommended to comply with this Section 5050: a) Surveys for blunt-nosed leopard lizards shall be conducted following CDFG protocols. These surveys should be conducted between April 15 and June 30 under the specified time and temperature conditions. This survey is necessary to determine the current status of blunt-nosed leopard lizards on the project site. b) If blunt-nosed leopard lizards are detected, the applicant shall submit methods for compliance with Fish and Game Code Section 5050 to CDFG for review and approval.	**Planning** Approved by _____ on_____			
<u>Raptor Nest Disturbance</u> BR-4 Prior to the issuance of a grading permit for the approximately 694-acre site, the project applicant shall comply with the following raptor nest mitigation: a) If site grading is proposed during the raptor nesting season (February-September), a focused survey for raptor nests shall be conducted by a qualified raptor biologist prior to grading activities in order to identify active nests in areas potentially impacted by project implementation.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
b) If construction is proposed to take place during the raptor nesting/breeding season (February - September), no construction activity shall take place within 500 feet of an active nest until the young have fledged (as determined by a qualified raptor biologist). Any nests that must be removed as a result of project implementation shall be removed during the non-breeding season (October-January). c) Preconstruction surveys shall include a survey for burrowing owl. If active burrowing owl burrows are detected outside of breeding season (September 1 through January 31), passive and/or active relocation efforts may be undertaken if approved by CDFG and USFWS. If active burrowing owl burrows are detected during breeding season (February 1 through August 31), no disturbance to these burrows shall occur without obtaining appropriate permitting through the Migratory Bird Treaty Act.				
Sensitive Habitats/Jurisdictional Areas BR-5 A formal jurisdictional delineation will be conducted. If project development would impact jurisdictional areas, a Clean Water Act, Section 404 permit from USACE and/or a CDFG Section 1601 Streambed Alteration Agreement will be obtained from USACE and/or CDFG respectively Prior to the issuance of a grading permit and/or approval of plans and specifications. USACE and CDFG typically require mitigation plans to be prepared prior to the	Planning Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
loss of habitat within jurisdictional areas.				
Indirect Impacts BR-6 The following invasive exotic plants shall not be used in any project residential or commercial landscaping: tamarisk (all species) and pampas grass. In addition, vegetation at any ponds or water features shall be managed in a way such that none of the invasive exotic plants listed by the Department of Agriculture allowed to become established. Typical invasive exotic plants that can become problematic in this region include: water hyacinth and pampas grass.	**Planning** Approved by _____ on_____			
BR-7 During construction, site boundaries shall be clearly marked with flagging, fencing, or other suitable material to prevent construction equipment and vehicles from impacting adjacent habitat areas potentially occupied by special status species.	**Planning** Approved by _____ on			
TRAFFIC AND CIRCULATION				
TR-1 Prior to the issuance of building permits, the project applicant shall comply with the Metropolitan Bakersfield Transportation Impact Fee Program. These improvement fees shall be used to provide the improvements listed on pages 44 and 45 in Appendix C in the Draft EIR. The following improvements shall be included within the improvement list. Prior to issuance of building permits, the applicant's funding calculations for all improvements associated with the fee program shall be submitted to the City for review and approval. a) The following traffic signals shall be installed prior to full buildout of the project which is expected to occur in the year 2020.		**Traffic Engineering** Approved by _____ on_____		

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
- Panorama Drive and Morning Drive - Morning Drive and Auburn Street - Paladino Drive and Fairfax Road - Vineland Road and SR 184 - Paladino Drive and Morning Drive b) The following roadway segment shall be installed prior to full buildout of the project which is expected to occur in the year 2020. - Install two lanes of pavement on Paladino Drive from Fairfax Road to Masterson Street. - Install 2, additional lanes of pavement on Kern Canyon Road from SR 178 to Niles Street.				
TR-2 Prior to the issuance of building permits, the project applicant shall provide its fair share funding toward the following improvements. The funding for the following improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit. a) Traffic signals shall be installed at the following locations prior to one-half buildout of the project which is expected to occur in the year 2010 and full buildout of the project which is expected to occur in the year 2020: Year 2010 (Project One-Half Buildout) - Vineland Road and Interior Collector Street		Traffic Engineering Approved by _____ on_____		

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
- Panorama Drive and Interior Collector Street (2 locations) - Panorama Drive and Masterson Street - Morning Drive and SR 178 - Masterson Street (SR 184) and Old SR 178 - Vineland Road and SR 178 Year 2020 (Full Project Buildout) - SR 184 and Chase Avenue - Queen Street and Paladino Drive - Alfred Harrell Highway/Comanche Drive and SR 178 b) The following intersection improvement shall be installed at the following location prior to one-half buildout of the project which is expected to occur in the year 2010. Year 2010 (Project One-Half Buildout) - Add one left turn lane to eastbound and westbound lanes and re-time traffic signals at the intersection of Fairfax Road and SR 178. c) The following roadway segments shall be installed prior to one-half buildout of the project which is expected to occur in the year 2010. Year 2010 (Project One-Half Buildout) - Install Vineland Road between SR 178 and Collector Loop Street. - Install half width of SR 178 and Masterson				

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
Street along the project frontage. - Install 2 lanes of pavement on Panorama Drive from Morning Drive to Queen Street. - Install 2 additional lanes of pavement on Old SR 178 from Fairfax Road to Alfred Harrell Highway/Comanche Drive.				
TR-3 Prior to the issuance of a building permit, the project applicant shall provide funding for the future realigned SR 178 between Fairfax Road and Alfred Harrell Highway/Comanche Drive. The project applicant shall provide a fair share amount of that portion of the future realigned SR 178 that is determined to be the obligation of local development. The project's share of traffic on SR 178 is 7.5 percent. Local funding for the future realignment of SR 178 shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. Local fees shall be paid prior to the issuance of each building permit.		Traffic Engineering Approved by _____ on_____		
TR-4 Prior to the issuance of building permits, the project applicant shall provide the City of Bakersfield with a phasing plan of the onsite roadway segments. The project applicant shall install the following roadway segments that are not part of the Metropolitan Bakersfield Transportation Impact Fee Program. - Install Panorama between Queen Street and Masterson Street. - Install the onsite Collector Loop Street. - Install Valley Lane between Panorama Drive and Paladino Drive.		Traffic Engineering Approved by _____ on_____		

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
- Install Queen Street between Panorama Drive and Paladino Drive. The project applicant shall provide full funding for all improvements on the project site and provide its fair share funding toward the portion of the improvements that are outside of the project site (i.e., the westerly half-width of Queen Street between Panorama Drive and Paladino Drive). The shared funding for the above improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit.				
NOISE				
Commercial Noise Sources N-1 Prior to the issuance of a building permit for the proposed commercial uses, the project applicant shall demonstrate that project commercial noise source impacts on nearby residences are below those indicated in the City's hourly noise level performance standards. To demonstrate commercial noise source impacts are below the City's standards, the project applicant may need to include project design features such as setbacks, barriers, building location/ orientation, acoustical design of buildings, etc.	Planning Approved by _____ on_____			
Project Related Onsite Traffic Noise N-2 Prior to the issuance of building permits, the project applicant shall reduce noise levels on the project residences by setting residential uses back	Planning Approved by _____ on			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
from the roads by a distance equal to or greater than the 65 dB CNEL contour. For the future alignment of SR 178, the minimum setback distance shall be 188 feet; for the remaining roadway mentioned above, the minimum setback shall be 84 feet. As an alternative to setbacks, the project applicant could use sound walls to mitigate traffic noise levels. The exact height and placement of soundwalls would depend on lot design and grading. Walls in the range of 6 to 10 feet probably would suffice for most situations. When lot design and grading are established, an acoustical consultant shall establish necessary wall heights and locations.				
AIR QUALITY				
Short Term Emissions AQ-1 The construction of the proposed project would result in the generation of fugitive dust. Compliance with SJVUAPCD Regulation VIII and the City of Bakersfield air quality regulations would result in no significant fugitive dust emissions. To ensure compliance, the following measure shall be implemented. • Prior to approval of a grading plan for any residential tract, multiple family project, and commercial project, the project applicant shall submit a letter to the City of Bakersfield Planning Department from the SJVUAPCD stating the dust suppression measures that shall be completed during construction activities to comply with SJVUAPCD Regulation VIII.	Planning Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
AQ-2 In addition to compliance with Regulation VIII the following shall be incorporated into building plans. The following measures can further reduce fugitive dust emissions associated with the project. The following shall be incorporated into building plans: a) Cover all access roads and parking areas with asphalt-concrete paving. b) Asphalt-concrete paving shall comply with SJVUAPCD Rule 4641 and restrict the use of cutback, slow-cure and emulsified asphalt paving materials. c) Use water sprays or chemical suppressants on all unpaved areas to control fugitive emissions. d) Enclose, cover or water all stockpiled soils to reduce fugitive dust emissions. e) Cease grading activities during periods of high winds (greater than 20 mph over a one-hour period). f) Limit construction-related vehicle speeds to 15 mph on all unpaved areas at the construction site. g) All haul trucks should be covered when transporting loads of soil. h) Wash off construction and haul trucks to minimize the removal of mud and dirt from the project sites.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
AQ-3 The following shall be incorporated into grading and building plans. a) Properly and routinely maintain all construction equipment, as recommended by manufacturer manuals, to control exhaust emissions. b) Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling engines. c) Encourage ride sharing and use of transit transportation for construction employee commuting to the project sites. d) Use electric equipment for construction whenever possible in lieu of fossil fuel-fired equipment.	**Planning** Approved by _____ on_____			
<u>Long Term Emissions</u> AQ-4 Prior to issuance of a building permit, transportation control measures and design features shall be incorporated into the project to reduce emissions from mobile sources. A strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, and traffic congestion includes the following: a) Improve street and traffic signals for those intersections and street segments that the proposed project contributes traffic.		**Traffic Engineering** Approved by _____ on_____		
AQ-5 The project applicant shall incorporate the following into building plans: a) Use low-NO_x emission water heaters.	**Building** Approved by _____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
b) Provide shade trees to reduce building cooling requirements. c) Install energy-efficient and automated air conditioners. d) Exterior windows shall all be double-paned glass. e) Energy-efficient (low-sodium) parking lights shall be used. f) Use EPA-approved wood burning stoves, fireplace inserts or pellet stoves in lieu of conventional fireplaces.	on_____			
CULTURAL RESOURCES				
Archaeological/Historical Resources CR-1 If cultural resources are unearthed during construction activities, all work shall be halted in the area of the find. A qualified archaeologist shall be called in to evaluate the findings and recommend any necessary mitigation measures. Proof of compliance with any recommendations resulting from such evaluation, if required, shall be submitted to the Southern San Joaquin Valley Archaeological Information Center (AIC) at California State University, Bakersfield, and to the City of Bakersfield Development Services Department.	Planning Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
Paleontological Resources				
CR-2 A paleontological monitoring program that includes the following measures shall be implemented to reduce potential impacts on the Sharktooth Hill bonebed:				
a) Prior to grading, a paleontologist shall be retained, attend a pre-grading meeting, and set forth the procedures to be followed during the monitoring program.				
b) One paleontological monitor that is trained and equipped to allow rapid removal of fossils with minimal construction delay is expected to be sufficient. Full-time monitoring of the portions of the project site that have earth-disturbing activities at elevations between 600 feet and 700 feet shall be provided.				
c) If fossils are found within an area being cleared or graded, earth-disturbing activities shall be diverted elsewhere until the monitor has completed salvage of the fossils. If construction personnel make the discovery, the grading contractor shall immediately divert construction and call the monitor to the site. Major salvage time may be shortened by grading contractor's assistance (e.g., removal of overburden, lifting and removing large and heavy fossils).				
d) The project paleontologist shall prepare, identify, and curate all recovered fossils. Upon completion of grading, the project paleontologist shall prepare a summary report documenting				

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
mitigation and results, with itemized inventory of collected specimens. The paleontologist shall submit the report to the City of Bakersfield, designated depository, and any other appropriate agency, and transfer fossil collection to a depository within the City of Bakersfield or County of Kern. The summary report shall be submitted to the City. This submittal will signify completion of the program to mitigate impacts on paleontological resources.				
HAZARDOUS MATERIALS COMPLIANCE				
HMC-1 Prior to the issuance of grading permits, the grading plans shall specify that in the event that hazardous waste is discovered during site preparation or construction, the property owner/developer shall ensure that the identified hazardous waste and/or hazardous material is handled and disposed of in the manner specified by the State of California Hazardous Substances Control Law (Health and Safety Code, Division 20, Chapter 6.5) and according to the California Administrative Code, Title 30, Chapter 22.				
HMC-2 The applicant shall handle and dispose of all hazardous materials and wastes during the operation and maintenance of facilities in accordance with state codes.				

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
HMC-3 Prior to the issuance of grading permits, the grading plans shall specify that in the event that any abandoned or unrecovered oil wells are uncovered or damaged during excavation or grading, remedial plugging operations will be required. **HMC-4** No structures are to be located over a previously plugged or abandoned well.				
PUBLIC SERVICES AND UTILITIES				
Fire Protection Services **FPS-1** Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Fire Department so that fire department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project.			**Fire Department** Approved by _____ on_____	
FPS-2 Prior to the approval of grading plans, the project applicant shall submit emergency fire access plans to the Fire Department for review and approval to assure that service to the site is in accordance with the Bakersfield Fire Department requirements.			**Fire Department** Approved by _____ on	
FPS-3 Prior to the commencement of structured framing onsite, the project applicant shall install fire hydrants in accordance with the City-approved building plans.			**Fire Department** Approved by _____ on	
FPS-4 Prior to the approval of street improvement plans, the project applicant shall demonstrate to the City Fire Department that the onsite water supply system is designed to provide sufficient fire flow			**Fire Department** Approved by	

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
pressure and storage in accordance with City Fire Department requirements.			on_____	
Police Protection Services PPS-1 Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Police Department so that police department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project.	**Planning** Approved by _____ on_____			
School Services SS-1 Prior to the issuance of building permits, the project applicant shall pay District-adopted development impact school fees that are in effect at the time of issuing each permit. The District-adopted fees are required to be in accordance with State statutes that are in effect at the time of issuing each permit. In lieu of the above, the project applicant may comply with alternative mitigation acceptable to the District.	**Planning** Approved by _____ on_____			
Solid Waste Services SWS-1 Prior to the issuance of building permits for residential uses, the applicant shall demonstrate how the project would participate in a waste management program, which includes but is not limited to the following: a) A commitment to contract with a recycling business for the collection and repossessing of glass, mixed and newsprint paper, plastics, and aluminum for all residential uses.	**Planning** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
b) A commitment to begin the recycling when solid waste collection begins. c) Provision of onsite receptacles for the collection of glass, mixed and newsprint paper, plastics, and aluminum for recycling purposes shall be provided. Locations of receptacles shall be indicated on building plans. d) Ensuring that hazardous waste disposal complies with federal, state, and city regulations.				
Water W-1 Prior to the issuance of building permits, the project applicant shall coordinate with the California Water Company to establish precise locations for water distribution and storage facilities that would be constructed onsite and offsite to adequately serve each of the residential and non-residential water needs of the proposed project.	**Planning** Approved by _____ on_____			
Stormwater Drainage SD-1 Prior to the issuance of a grading permit, the project applicant shall submit drainage plans for the project site for review and approval by the City of Bakersfield. The drainage plans shall identify all necessary onsite and offsite drainage facilities to accommodate project-related as well as cumulative (in accordance with the existing General Plan) drainage volumes and velocities. Modifications to the existing PDA for the Breckenridge area will require an approval of an amendment to the PDA by the City of Bakersfield.	**Building** Approved by _____ on_____			

Mitigation Measure	Verification of Compliance			
	Development Services (Planning And Building)	Engineering Services and Traffic Engineering	Fire Department	Comments
AESTHETICS				
AES-1 Prior to the issuance of grading permits, the project applicant shall prepare landscape plans for the project area to provide visual relief from project structures. **AES-2** Prior to the issuance of building permits, the project applicant shall outline specifications for outdoor lighting locations and other intensely lighted areas. The specifications shall identify minimum lighting intensity needs and design lights to be directed towards intended uses. Methods to reduce light impacts may include low-intensity light fixtures and hooded shields.	**Planning** Approved by _____ on_____			
AES-3 Prior to the issuance of building permits, the project applicant shall submit and obtain City approval of lighting plans. The lighting plans shall verify that outdoor lighting on private residences is designed so that all direct rays are confined to the site and that adjacent residences are protected from substantial light and glare.	**Planning** Approved by _____ on_____			

EXHIBIT B

Conditions

General Plan Amendment/Zone Change P99-0647

Planning

1. Comply with Safety Element policy numbers 11 and 12:

Policy Number	Fault Rupture Policies
11	*Prohibit development designed for human occupancy within 50 feet of a known active fault and prohibit any building from being placed astride an active fault.* To demonstrate compliance, this setback shall be shown on all tentative tracts and site plans submitted to the City of Bakersfield for approval.
12	*Require site-specific studies to locate and characterize specific fault traces within an Alquist-Priolo Fault Studies Zone for all construction designed for human occupancy.* Any tentative tract/site plan approval process will require site specific studies prior to project approval.

2. Developer shall prepare and submit a "master park plan" to the Planning Director for approval. Such "master park plan" shall be approved by the Planning Director prior to the filing of any tract map or parcel map.

3. The R-3 zoning district is limited to 20.00 dwelling units per net acre.

4. Adjacent to Paladino Drive minimum lot sizes in the first tier of lots shall be 8,400 square feet. This shall be for a distance of 2,000 feet along Paladino Drive west of the center line of Masterson or the last developed lot, whichever is greater.

5. Landscaping for medians and parkways along Paladino Drive shall include meandering sidewalks and a mixture of trees, shrubs, and turf consistent with landscaped strips for consolidated maintenance districts.

CITY OF BAKERSFIELD ORIGINAL

Public Works

1. Along with submittal of any development plan, tentative subdivision map, or application for a lot line adjustment in the project area, the following shall occur:

   a. Provide fully executed dedication for the expanded intersection of Paladino Drive and Masterson Street and for Masterson Street at SR 178 to arterial standards. Also provide dedications for additional areas for landscaping along Paladino Drive and Masterson Street as directed by the City Engineer. Submit a current title report with the dedication documents.

   b. Provide offers of dedication for the other major streets in the approved alignments, including Queen Street (a 110' side arterial).

   c. Modify the Breckenridge Planned Drainage Area to conform with the revised zoning.

   d. A comprehensive drainage study conforming to the Breckenridge Planned Drainage Area is to be submitted to and approved by the City Engineer. Provide percolation tests for any proposed retention site. Any required retention site and necessary easements shall dedicated to the City.

   e. Submit verification to the City Engineer of the existing sewer system's capability to accept the additional flows to be generated through development under the new land use and zoning.

2. All development within the boundary of this amendment shall comply with the traffic mitigation measures detailed in Section 5.3 of the DEIR and summarized in the Executive Summary of the DEIR (Table 2-1).

3. The existing Northeast Trunk Sewer traverses this property. The street and subdivision designs shall accommodate the sewer line easements - the sewer line is not to cross private property.

4. Prior to the issuance of any building permit or the recordation of any subdivision north of the proposed Panorama Street alignment, improve Paladino Drive between the project area boundary and Morning Drive.

5. Prior to the issuance of any building permit or the recordation of any subdivision south of the proposed Panorama Street alignment, construct the intersection connection at the proposed collector and SR 178.

6. Access to the arterial and collector streets will be limited and determined at time of division or development. Determination of whether a right turn lane is required at the access street(s) will also be made at the time of division or development. A full access opening will only be considered if the developer funds and installs a traffic signal at the site entrance.

7. As described in mitigation measures TR-1 and TR-2, the final traffic impact fee program shall be based upon a fee schedule submitted with cost estimates and share computations, subject to the approval of the City Engineer. It should be noted that the fee schedule referenced from pages 44 and 45 of the Traffic Study in Appendix C is considered preliminary and subject to correction. Several facilities on the fee list within the influence of the project are not shown, but need to be added, and several facilities appear to have incorrect project traffic shares computed.

8. Prior to issuance of a building permit, the project applicant shall provide funding for the future realigned SR 178 between Fairfax Road and Alfred Harrell Highway. The project's share of the traffic on future SR 178 is 7.5 percent. No policy has yet been adopted as to what share of future SR 187 local development is responsible to fund. The Bakersfield City Council and the Kern County Board of Supervisors, in their adoption of the Regional Transportation Impact Fee Program (RTIF), established that the local development's share of the Kern River freeway is 10%. Absent any policy decision to the contrary, we recommend that the developer be required to pay 7.5% of the local share, said local share to be 10% of the construction costs. Fifty percent of the right-of-way costs are already provided for in the RTIF program and shall be included in the RTIF calculations.

9. As noted in mitigation measure TR-4, a phasing plan is required for implementation of various onsite improvements mitigation measures. Since several mitigation improvements are also shown to be needed in at half project build out (TR-2), the phasing plan shall also extend to these as well as any other improvements. For example, any new connections to Hwy 178 requiring signals at half build out should probably require signalization at the time of connection. In addition, the phasing plan shall show how the project connects to the existing roadway network at initial development, half build-out and full build-out. The developer shall provide an appropriate mechanism to assure improvements occur in a timely manner.

10. A requirement of disclosure in any Department of Real Estate filings or sales contracts related to any property sale and an agreement to file a restrictive covenant recorded on the Project Area, which will disclose the possibility of noise

from Mesa Marin Raceway greater than allowable under applicable city standards and based on that disclosure prevent purchasers of property from instituting administrative or judicial action against Mesa Marin.

11. Prior to the grading, excavation or submittal of any tract or parcel map, applicant shall consult with the Department of Conservation, Division of Oil, Gas and Geothermal Resources to determine if any (1) oil and/or gas lines and (2) abandoned oil and gas wells are located on the project site. If such lines or wells or located on site, the location of such lines or wells shall be shown on the tract or parcel map.

12. Prior to, the grading, excavation or submittal of any tract or parcel map, USA North shall be contacted and assess the map site and/or grading/excavation site. A USA North identification number shall be obtain to identify all above and underground utility facilities in accordance with California Government Code Section 4216. USA North can be contacted at 1(800) 227-2600.

13. Mitigation measure TR-4 requires a phasing plan to address this issue. The following list can be considered an example listing projects expected to be complete with adjacent development, by the half build out and by the full buildout, but the actual timing of the improvements will be contained in the required phasing plan which will be presented to the Planning Commission prior to the submission of the first tentative map in the GPA/ZC area. This list will be overriden by the Planning Commission approved phasing plan. Upon determination by the City Engineer that traffic and public safety necessitates improvements be completed prior to the timing established in the Planning Commission approved phasing plan, the developer shall submit to the City Engineer design of such identified improvements and, upon approval, install such improvements in a timely manner as directed by the City Engineer.

    Improvements expected with adjacent development:

    A. With connection of Vineland to Hwy. 178 installation of a traffic signal and widening Hwy. 178 at the intersection to provide left turn channelization from Hwy. 178 is anticipated.
    B. With first development having connections to Masterson Street, realign Masterson to its ultimate alignment having 90 degree intersection with Hwy. 178.
    C. Install Panorama Dr. from Queen St. to Masterson St.
    D. Install the on-site Collector Loop street
    E. Install Vineland Rd./Valley Ln. from Hwy. 178 to Paladino Dr.
    F. Install Queen St. from Panorama Dr. to Paladino Dr.

14. Improvements expected by HALF BUILD OUT based upon the DEIR mitigation measures:
    A. Install traffic signals at the following intersections:
        1. Vineland Rd. at Interior Loop Collector
        2. Panorama Dr. at Interior Loop Collector (1 location)
        3. Panorama Dr. at Masterson St.
        4. Morning Dr. at Hwy. 178
        5. Masterson St (re-aligned) at Hwy. 178
        6. Hwy. 184 at Hwy. 178
        7. Vineland Rd. at Hwy. 178 (if not previously connected)
    B. Install one left turn lane to east bound and west bound lanes and re-time traffic signals at the intersection of Fairfax Rd. and Hwy. 178. Please note, this will be superceded by the construction of a full interchange which is funded for construction with completion expected by 2004-05.
    C. Install entire half width of Hwy. 178 and Masterson Street along project frontage.
    D. Install 2 lanes on Panorama Dr. from Morning Dr. to Queen St.
    E. Widen Hwy. 178 to 4-lanes from Fairfax Rd. to Alfred Harrel Hwy.

15. Improvements expected by FULL BUILD OUT based upon the DEIR mitigation measures:
    A. Install traffic signals at the following intersections:
        1. Panorama Dr. at Morning Dr.
        2. Morning Dr. at Auburn St.
        3. Paladino Dr. at Fairfax Rd.
        4. Vineland Dr. at Hwy. 184
        5. Paladino Dr. at Morning Dr.
    B. Install 2 lanes of paving on Paladino Dr. from Fairfax Rd. to Masterson St.
    C. Install 2 additional lanes of paving on Kern Canyon Rd. (Hwy. 184) from Hwy. 178 to Niles St.

16. The improvements needed at locations significantly and directly impacted by the project to maintain City service level standards will be required to be in place prior to occupancy of the relevant development phase. Improvements which are included in an adopted fee program will be provided by the fee program mechanism if funds are currently available. If funds are not available to meet the circulation improvement needs at any particular development phase, then the project proponent will either provide the off-site improvements directly (with potential of future reimbursement or credits if a relevant fee program is in place), or the development must await other sources of implementation.

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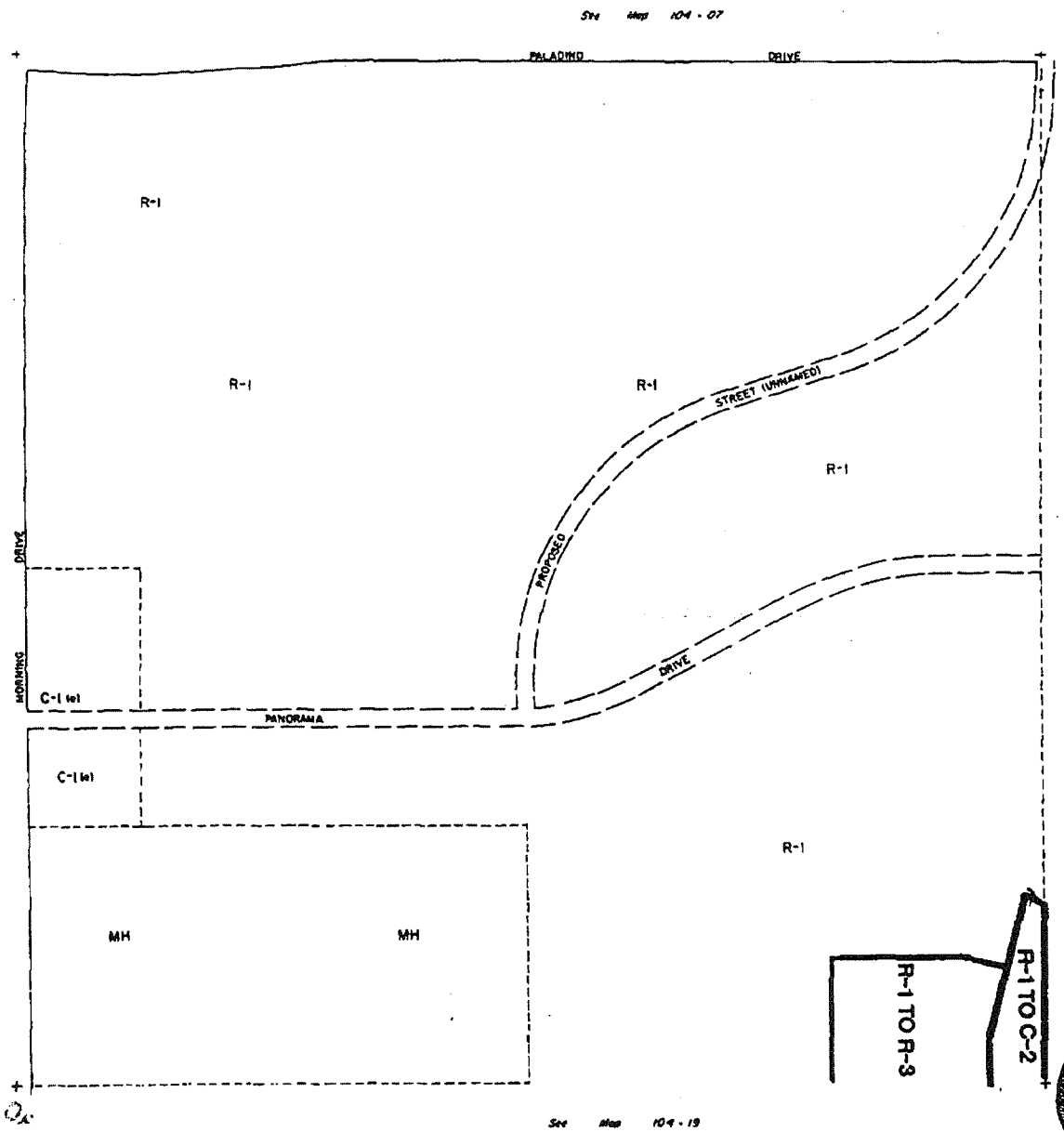
CITY OF BAKERSFIELD

ZONING MAP 104-18

SEC. 18 T. 29 S. R. 29 E.



ZONE CHANGE
P99-0647

LEGEND

- CITY LIMIT BOUNDARY
- ZONE DISTRICT BOUNDARY
- SCHOOLS
- PUBLIC PARKS

R-S	RESIDENTIAL SUBURBAN ZONE
R-S-1A	RESIDENTIAL SUBURBAN (ONE ACRE MINIMUM LOT SIZE) ZONE
R-S-2.5A	RESIDENTIAL SUBURBAN (TWO-AND-ONE-HALF ACRE MINIMUM LOT SIZE) ZONE
R-S-5A	RESIDENTIAL SUBURBAN (FIVE ACRE MINIMUM LOT SIZE)
R-S-10A	RESIDENTIAL SUBURBAN (TEN ACRE MINIMUM LOT SIZE)
R-1	ONE FAMILY DWELLING ZONE
R-2	LIMITED MULTIPLE FAMILY DWELLING ZONE (1 unit/2500 sq. ft. of lot area)
R-3	LIMITED MULTIPLE FAMILY DWELLING ZONE (1 unit/1250 sq. ft. of lot area)
R-4	MULTIPLE FAMILY DWELLING ZONE (1 units/600 sq. ft. of lot area)
P.U.D.	PLANNED UNIT DEVELOPMENT ZONE
RH	RESIDENTIAL HOLDING ZONE
C-O	COMMERCIAL AND PROFESSIONAL OFFICE ZONE
C-1	LIMITED COMMERCIAL ZONE
C-2	COMMERCIAL ZONE
C-C	CIVIC CENTER ZONE
P.C.D.	PLANNED COMMERCIAL DEVELOPMENT ZONE
M-1	LIGHT MANUFACTURING ZONE
M-2	GENERAL MANUFACTURING ZONE
OS	OPEN SPACE
RE	RECREATION ZONE
A	AGRICULTURE ZONE
A-20A	AGRICULTURAL (TWENTY ACRE MINIMUM LOT SIZE) ZONE
P	AUTOMOBILE PARKING ZONE
CH	CHURCH ZONE
HOSP	HOSPITAL ZONE
D	ARCHITECTURAL DESIGN ZONE
AD	ARCHITECTURAL DESIGN ZONE
AA	AIRPORT APPROACH ZONE
FP-P	FLOODPLAIN PRIMARY ZONE
FP-S	FLOODPLAIN SECONDARY ZONE
W	OIL WELL ZONE
TT	TRAVEL TRAILER PARK ZONE
MH	MOBILE HOME ZONE

WE HEREBY CERTIFY THAT THIS ZONING MAP WAS APPROVED AND RECOMMENDED FOR ADOPTION IN THIS FORM BY RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, AT A REGULAR MEETING THEREFORE HELD ON THE 15TH DAY OF JANUARY, 1969

CHAIRMAN, PLANNING COMMISSION

SECRETARY, PLANNING DIRECTOR

WE HEREBY CERTIFY THAT THIS ZONING MAP WAS ADOPTED AS A SUBSECTION OF SECTION 17.06.020 OF TITLE 17 OF THE MUNICIPAL CODE BY THE CITY COUNCIL OF THE CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, AT A REGULAR MEETING HELD ON THE 8TH DAY OF MARCH, 1989 BY AN ORDINANCE PASSED BY SAID COUNCIL

MAYOR, CITY OF BAKERSFIELD

CITY CLERK AND EX OFFICIO CLERK OF THE COUNCIL OF THE CITY OF BAKERSFIELD

north

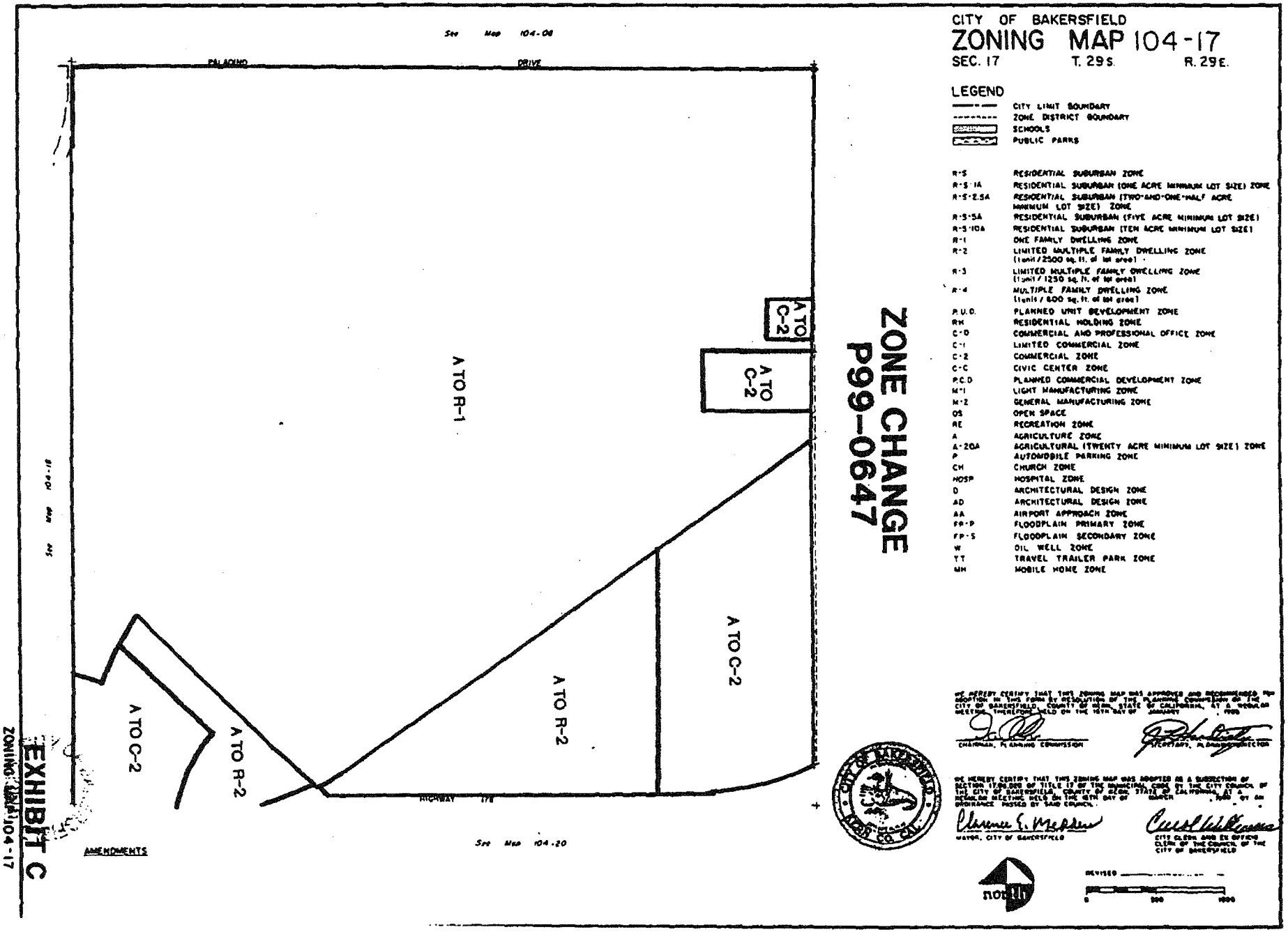
REVISED 3/23/99

0 500 1000

AMENDMENTS:
(a) ORD. 3835 Dated: 5/6/99

EXHIBIT C

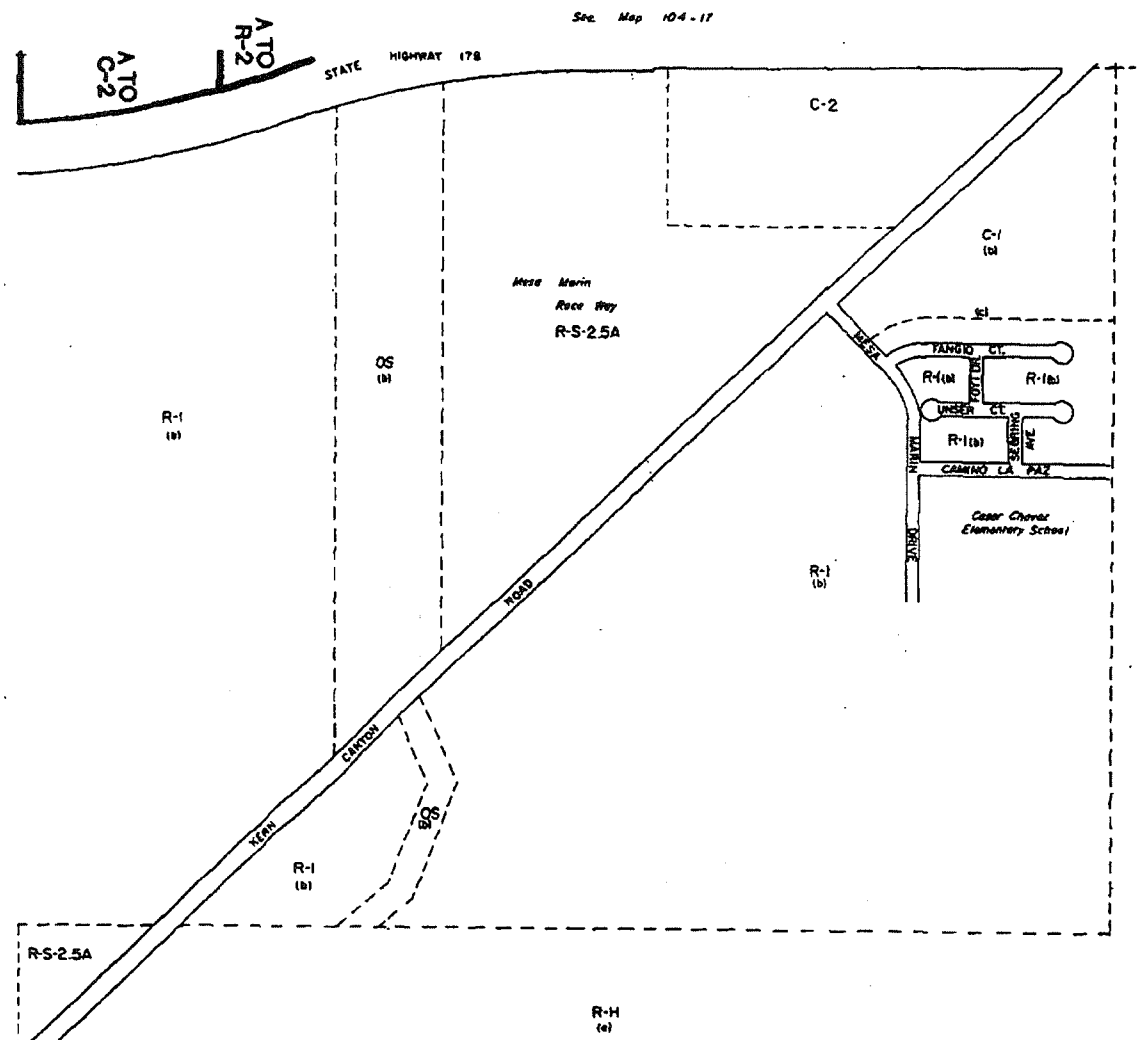
ZONING MAP 104-18


CITY OF BAKERSFIELD
ZONING MAP 104-17
SEC. 17 T. 29 S. R. 29 E.
LEGEND
CITY LIMIT BOUNDARY
ZONE DISTRICT BOUNDARY
SCHOOLS
PUBLIC PARKS
R-S RESIDENTIAL SUBURBAN ZONE
R-S-1A RESIDENTIAL SUBURBAN (ONE ACRE MINIMUM LOT SIZE) ZONE
R-S-2.5A RESIDENTIAL SUBURBAN (TWO-AND-ONE-HALF ACRE MINIMUM LOT SIZE) ZONE
R-S-5A RESIDENTIAL SUBURBAN (FIVE ACRE MINIMUM LOT SIZE)
R-S-10A RESIDENTIAL SUBURBAN (TEN ACRE MINIMUM LOT SIZE)
R-1 ONE FAMILY DWELLING ZONE
R-2 LIMITED MULTIPLE FAMILY DWELLING ZONE (1 unit / 2500 sq. ft. of lot area)
R-3 LIMITED MULTIPLE FAMILY DWELLING ZONE (1 unit / 1250 sq. ft. of lot area)
R-4 MULTIPLE FAMILY DWELLING ZONE (1 units / 800 sq. ft. of lot area)
P.U.D. PLANNED UNIT DEVELOPMENT ZONE
RH RESIDENTIAL HOLDING ZONE
C-O COMMERCIAL AND PROFESSIONAL OFFICE ZONE
C-1 LIMITED COMMERCIAL ZONE
C-2 COMMERCIAL ZONE
C-C CIVIC CENTER ZONE
P.C.D PLANNED COMMERCIAL DEVELOPMENT ZONE
M-1 LIGHT MANUFACTURING ZONE
M-2 GENERAL MANUFACTURING ZONE
OS OPEN SPACE
RE RECREATION ZONE
A AGRICULTURE ZONE
A-20A AGRICULTURAL (TWENTY ACRE MINIMUM LOT SIZE) ZONE
P AUTOMOBILE PARKING ZONE
CH CHURCH ZONE
HOSP HOSPITAL ZONE
D ARCHITECTURAL DESIGN ZONE
AD ARCHITECTURAL DESIGN ZONE
AA AIRPORT APPROACH ZONE
FP-P FLOODPLAIN PRIMARY ZONE
FP-S FLOODPLAIN SECONDARY ZONE
W OIL WELL ZONE
TT TRAVEL TRAILER PARK ZONE
MH MOBILE HOME ZONE
ZONE CHANGE
P99-0647
A TO R-1
A TO C-2
A TO C-2
A TO C-2
A TO R-2
A TO C-2
A TO R-2
PALADINO DRIVE
HIGHWAY 178
AMENDMENTS
See Map 104-08
See Map 104-18
See Map 104-20
CHAIRMAN, PLANNING COMMISSION
SECRETARY, PLANNING COMMISSION
MAYOR, CITY OF BAKERSFIELD
CITY CLERK AND EX OFFICIO CLERK OF THE COUNCIL OF THE CITY OF BAKERSFIELD
north
REVISED
0 500 1000
EXHIBIT C
ZONING MAP 104-17

CITY OF BAKERSFIELD

ZONING MAP 104-20

SEC. 20 T. 29S. R. 29E.



ZONE CHANGE P99-0647

LEGEND

- CITY LIMIT BOUNDARY
- ZONE DISTRICT BOUNDARY
- SCHOOLS
- PUBLIC PARKS

R-S	RESIDENTIAL SUBURBAN ZONE
R-S-1A	RESIDENTIAL SUBURBAN (ONE ACRE MINIMUM LOT SIZE) ZONE
R-S-2.5A	RESIDENTIAL SUBURBAN (TWO-AND-ONE-HALF ACRE MINIMUM LOT SIZE) ZONE
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R-S-10A	RESIDENTIAL SUBURBAN (TEN ACRE MINIMUM LOT SIZE)
R-1	ONE FAMILY DWELLING ZONE
R-2	LIMITED MULTIPLE FAMILY DWELLING ZONE (1 unit/2500 sq. ft. of lot area)
R-3	LIMITED MULTIPLE FAMILY DWELLING ZONE (1 unit/1250 sq. ft. of lot area)
R-4	MULTIPLE FAMILY DWELLING ZONE (1 unit/600 sq. ft. of lot area)
P.U.D.	PLANNED UNIT DEVELOPMENT ZONE
RH	RESIDENTIAL HOLDING ZONE
C-O	COMMERCIAL AND PROFESSIONAL OFFICE ZONE
C-1	LIMITED COMMERCIAL ZONE
C-2	COMMERCIAL ZONE
C-C	CIVIC CENTER ZONE
P.C.D.	PLANNED COMMERCIAL DEVELOPMENT ZONE
M-1	LIGHT MANUFACTURING ZONE
M-2	GENERAL MANUFACTURING ZONE
OS	OPEN SPACE
RE	RECREATION ZONE
A	AGRICULTURE ZONE
A-20A	AGRICULTURAL (TWENTY ACRE MINIMUM LOT SIZE) ZONE
P	AUTOMOBILE PARKING ZONE
CH	CHURCH ZONE
HOSP	HOSPITAL ZONE
O	ARCHITECTURAL DESIGN ZONE
AD	ARCHITECTURAL DESIGN ZONE
AA	AIRPORT APPROACH ZONE
FP-P	FLOODPLAIN PRIMARY ZONE
FP-S	FLOODPLAIN SECONDARY ZONE
W	OIL WELL ZONE
TT	TRAVEL TRAILER PARK ZONE
MH	MOBILE HOME ZONE

WE HEREBY CERTIFY THAT THIS ZONING MAP WAS APPROVED AND RECOMMENDED FOR ADOPTION IN THIS FORM BY RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, AT A REGULAR MEETING THEREFORE HELD ON THE 15TH DAY OF JANUARY, 1900.

CHAIRMAN, PLANNING COMMISSION

SECRETARY, PLANNING DIRECTOR

WE HEREBY CERTIFY THAT THIS ZONING MAP WAS ADOPTED AS A SUBSECTION OF SECTION 17.06.020 OF TITLE 17 OF THE MUNICIPAL CODE BY THE CITY COUNCIL OF THE CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, AT A REGULAR MEETING HELD ON THE 15TH DAY OF MARCH 1900 BY AN ORDINANCE PASSED BY SAID COUNCIL.

MAYOR, CITY OF BAKERSFIELD

CITY CLERK AND EX OFFICIO CLERK OF THE COUNCIL OF THE CITY OF BAKERSFIELD

REVISED 9/29/94, 9/18/95, 3/30/99

0 500 1000

AMENDMENTS:
(a) ORD. 3579 Dated: 2/23/94 (ZVA 5479)
(b) ORD. 3595 Dated: 6/15/94 (ZC 5546)
RES. 48-95 KERN-CANYON RD. (CH. 3/31/95
(c) ORD. 3653 Dated: 6/28/95 (ZC 5615)

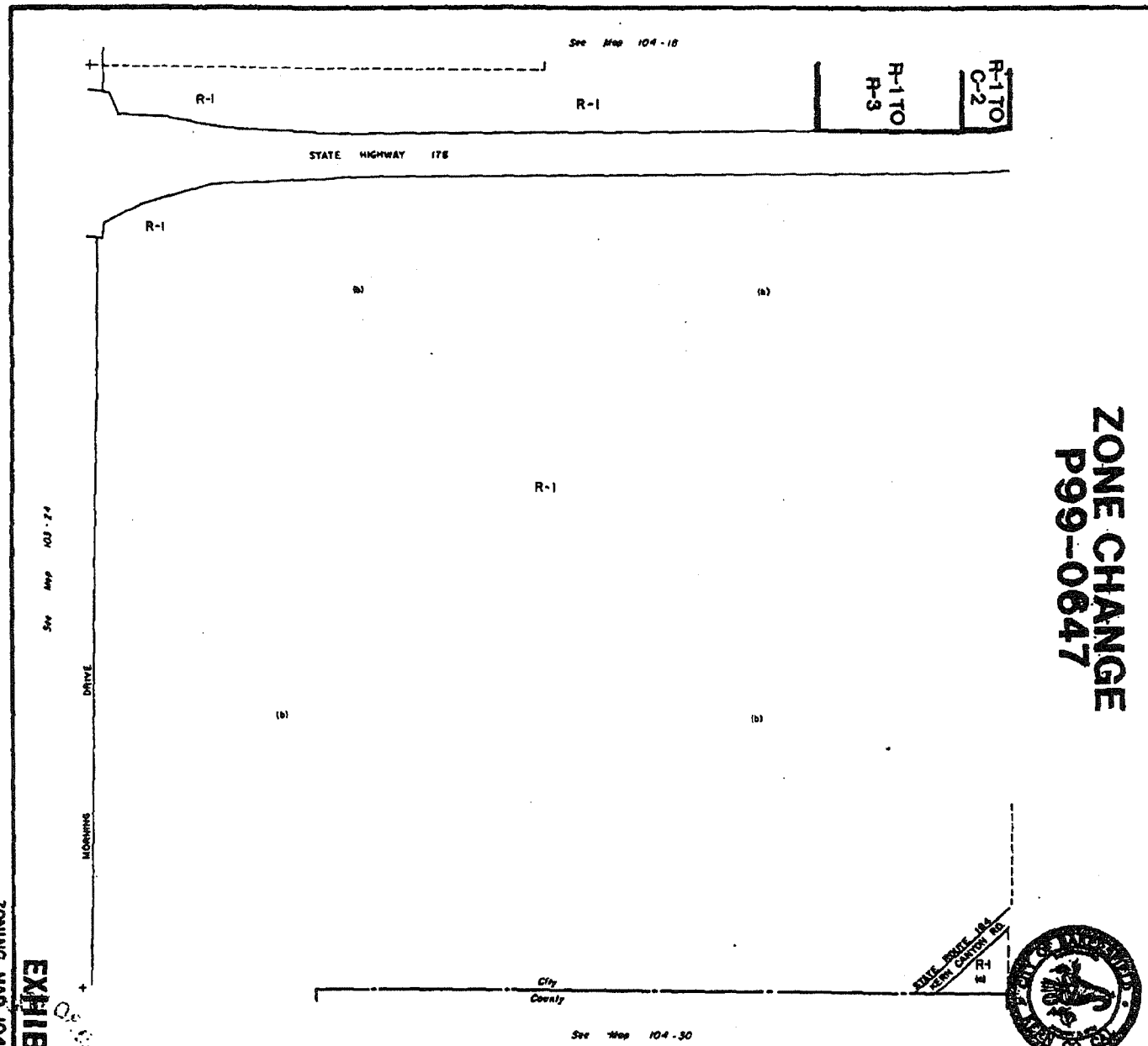
EXHIBIT C

ZONING MAP 104-20

CITY OF BAKERSFIELD

ZONING MAP 104-19

SEC. 19 T. 29 S. R. 29 E.



ZONE CHANGE
P99-0647

LEGEND

	CITY LIMIT BOUNDARY
	ZONE DISTRICT BOUNDARY
	SCHOOLS
	PUBLIC PARKS

R-S	RESIDENTIAL SUBURBAN ZONE
R-S-1A	RESIDENTIAL SUBURBAN (ONE ACRE MINIMUM LOT SIZE) ZONE
R-S-2.5A	RESIDENTIAL SUBURBAN (TWO-AND-ONE-HALF ACRE MINIMUM LOT SIZE) ZONE
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R-2	LIMITED MULTIPLE FAMILY DWELLING ZONE (1 unit/2500 sq. ft of lot area)
R-3	LIMITED MULTIPLE FAMILY DWELLING ZONE (1 unit/1250 sq. ft of lot area)
R-4	MULTIPLE FAMILY DWELLING ZONE (1 unit/600 sq. ft of lot area)
P.U.D.	PLANNED UNIT DEVELOPMENT ZONE
RH	RESIDENTIAL HOLDING ZONE
C-O	COMMERCIAL AND PROFESSIONAL OFFICE ZONE
C-1	LIMITED COMMERCIAL ZONE
C-2	COMMERCIAL ZONE
C-C	CIVIC CENTER ZONE
P.C.D.	PLANNED COMMERCIAL DEVELOPMENT ZONE
M-1	LIGHT MANUFACTURING ZONE
M-2	GENERAL MANUFACTURING ZONE
OS	OPEN SPACE
RC	RECREATION ZONE
A	AGRICULTURE ZONE
A-20A	AGRICULTURAL (TWENTY ACRE MINIMUM LOT SIZE) ZONE
P	AUTOMOBILE PARKING ZONE
CH	CHURCH ZONE
HOSP	HOSPITAL ZONE
D	ARCHITECTURAL DESIGN ZONE
AD	ARCHITECTURAL DESIGN ZONE
AA	AIRPORT APPROACH ZONE
FP-P	FLOODPLAIN PRIMARY ZONE
FP-S	FLOODPLAIN SECONDARY ZONE
W	OIL WELL ZONE
T.T.	TRAVEL TRAILER PARK ZONE
MH	MOBILE HOME ZONE

WE HEREBY CERTIFY THAT THIS ZONING MAP WAS APPROVED AND RECOMMENDED FOR ADOPTION IN THIS FORM BY RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, AT A REGULAR MEETING THEREOF HELD ON THE 6TH DAY OF JANUARY, 1988

CHAIRMAN, PLANNING COMMISSION

SECRETARY, PLANNING DIRECTOR

WE HEREBY CERTIFY THAT THIS ZONING MAP WAS ADOPTED AS A SUBSECTION OF SECTION 17.04.020 OF TITLE 17 OF THE MUNICIPAL CODE BY THE CITY COUNCIL OF THE CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, AT A REGULAR MEETING HELD ON THE 16TH DAY OF MARCH, 1988 BY AN ORDINANCE PASSED BY SAID COUNCIL

MAYOR, CITY OF BAKERSFIELD

CITY CLERK AND EX OFFICIO CLERK OF THE COUNCIL OF THE CITY OF BAKERSFIELD

REVISED _____

0 500 1000

AMENDMENTS:
ORD. 3879 Dated: 2/23/94 (ZUA 3479)
RES. 48-95 KERN CANYON NO 1 EIR 3/31/95
ORD. 3879 Dated: 12/3/98 (ZC 98-369)

EXHIBIT C

ZONING MAP 104-19

Legal Description
EXHIBIT D
Zone Change P99-0647

PROPOSED C-2 (FROM A)
ALL THAT PORTION OF SECTION 17, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 17; THENCE S.00°21'44"W. ALONG THE EAST LINE OF SAID SECTION 17 A DISTANCE OF 988.37 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING S.00°21'44"W. ALONG SAID EAST LINE A DISTANCE OF 330.00 FEET; THENCE DEPARTING SAID EAST LINE AT RIGHT ANGLES, N.89°38'16"W., A DISTANCE OF 330.00 FEET; THENCE N.00°21'44"E., 330.00 FEET; THENCE S.89°38'16"E., 330.00 FEET TO THE POINT OF BEGINNING.

CONTAINING 2.50 ACRES.

PROPOSED C-2 (FROM A)
ALL THAT PORTION OF SECTION 17, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 17; THENCE S.00°21'44"W. ALONG THE EAST LINE OF SAID SECTION 17 A DISTANCE OF 1408.37 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING S.00°21'44"W. ALONG SAID EAST LINE A DISTANCE OF 504.88 FEET; THENCE DEPARTING SAID EAST LINE, S.39°45'39"W., 200.61 FEET; THENCE N.89°38'16"W., 712.85 FEET; THENCE N.00°21'44"E., 660.00 FEET; THENCE S.89°38'16"E., 840.18 FEET TO THE POINT OF BEGINNING.

CONTAINING 12.50 ACRES.

PROPOSED R-1 (FROM A)
ALL THAT PORTION OF SECTION 17, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF SAID SECTION 17; THENCE S.00°21'44"W. ALONG THE EAST LINE OF SAID SECTION 17 A DISTANCE OF 988.37 FEET; THENCE DEPARTING SAID EAST LINE AT RIGHT ANGLES, N.89°38'16"W., A DISTANCE OF 330.00 FEET; THENCE S.00°21'44"W., 330.00 FEET; THENCE S.89°38'16"E., 330.00 FEET TO SAID EAST LINE; THENCE S.00°21'44"W. ALONG SAID EAST LINE A DISTANCE OF 90.00 FEET; THENCE DEPARTING SAID EAST LINE AT RIGHT ANGLES, N.89°38'16"W., 840.18 FEET; THENCE S.00°21'44"W., 660.00 FEET; THENCE S.89°38'16"E., 712.85 FEET; THENCE S.39°45'39"W., 1264.86 FEET TO A LINE THAT IS PARALLEL TO AND 105.00 FEET NORTHWESTERLY AS MEASURED AT RIGHT ANGLES FROM THE CENTERLINE OF THE SPECIFIC PLAN LINE OF STATE ROUTE 178 AS DESCRIBED IN THE CITY OF BAKERSFIELD RESOLUTION NO. 83-95 APPROVED ON MAY 17, 1995; THENCE ALONG SAID PARALLEL LINE THE FOLLOWING TWO (2) COURSES:

1) S.49°26'34"W., 2046.48 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 4895.00 FEET; THENCE
2) SOUTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 14°11'18" AN ARC DISTANCE OF 1212.16 FEET TO THE NORTHEASTERLY BOUNDARY OF STATE ROUTE VI-KER-178 AS SHOWN ON "STATE HIGHWAY MAP" FILED IN THE OFFICE OF THE KERN COUNTY SURVEYOR, IN FILED MAP BOOK 4, PAGE 114; THENCE

N.40°05'41"W. ALONG SAID NORTHEASTERLY BOUNDARY A DISTANCE OF 20.59 FEET TO THE NORTHERLY BOUNDARY OF SAID STATE ROUTE VI-KER-178, AND THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 4875.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS S.26°18'41"E.; THENCE SOUTHWESTERLY ALONG SAID CURVE AND SAID NORTHERLY BOUNDARY THROUGH A CENTRAL ANGLE OF 03°26'43" AN ARC DISTANCE OF 293.14 FEET; THENCE DEPARTING SAID NORTHERLY BOUNDARY, N.37°26'50"W., 1328.31 FEET; THENCE S.52°33'10"W., 160.46 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1500.00 FEET; THENCE SOUTHWESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF

19°39'11" AN ARC DISTANCE OF 514.52 FEET; THENCE N.57°06'01"W., 277.36 FEET TO THE WEST LINE OF SAID SECTION 17; THENCE N.00°28'22"E. ALONG SAID WEST LINE A DISTANCE OF 4466.85 FEET TO THE NORTHWEST CORNER OF SAID SECTION 17; THENCE S.89°24'13"E. ALONG THE NORTH LINE OF SAID SECTION 17 A DISTANCE OF 5271.39 FEET TO THE POINT OF BEGINNING.

CONTAINING 470.92 ACRES.

PROPOSED R-1 (FROM R-1)

ALL THAT PORTION OF SECTION 18, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE N.00°28'22"E. ALONG THE EAST LINE OF SAID SECTION 18 A DISTANCE OF 819.77 FEET TO THE POINT OF BEGINNING; THENCE DEPARTING SAID EAST LINE, N.57°06'01"W., 0.84 FEET; THENCE N.32°53'59"E., 1.33 FEET TO SAID EAST LINE; THENCE S.00°28'22"W. ALONG SAID EAST LINE OF SECTION 18 A DISTANCE OF 1.57 FEET TO THE POINT OF BEGINNING.

CONTAINING 0.56 SQUARE FEET.

PROPOSED C-2 (FROM A)

ALL THAT PORTION OF SECTION 17, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 17; THENCE N.00°21'44"E. ALONG THE EAST LINE OF SAID SECTION 17 A DISTANCE OF 307.61 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING N.00°21'44"E. ALONG SAID EAST LINE A DISTANCE OF 2082.21 FEET; THENCE DEPARTING SAID EAST LINE, S.62°49'08"W., 1215.98 FEET TO A LINE THAT IS PARALLEL TO AND 105.00 FEET SOUTHEASTERLY AS MEASURED AT RIGHT ANGLES FROM THE CENTERLINE OF THE SPECIFIC PLAN LINE OF STATE ROUTE 178 AS DESCRIBED IN THE CITY OF BAKERSFIELD RESOLUTION NO. 83-95 APPROVED ON MAY 17, 1995; THENCE S.49°26'34"W. ALONG SAID PARALLEL LINE A DISTANCE OF 240.64 FEET; THENCE DEPARTING SAID PARALLEL LINE, S.00°21'44"W., 1616.46 FEET TO THE NORTH RIGHT-OF-WAY OF THE 100-FOOT WIDE TEMPORARY CONNECTION OF STATE ROUTE VI-KER-178 AS SHOWN ON "STATE HIGHWAY MAP" FILED IN THE OFFICE OF THE KERN COUNTY SURVEYOR, IN FILED MAP BOOK 4 AT PAGE 115, ALSO BEING THE NORTH LINE OF THE SOUTH 50.00 FEET OF SAID SECTION 17; THENCE ALONG SAID NORTH RIGHT-OF-WAY THE FOLLOWING TWO (2) COURSES:

1) S.89°28'51"E., 290.64 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE NORTH, HAVING A RADIUS OF 1950.00 FEET; THENCE
2) EASTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 29°47'06" AN ARC DISTANCE OF 1013.70 FEET TO THE POINT OF BEGINNING.

CONTAINING 56.14 ACRES.

PROPOSED R-1 (FROM A)

ALL THAT PORTION OF SECTION 17, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 17; THENCE N.00°21'44"E. ALONG THE EAST LINE OF SAID SECTION 17 A DISTANCE OF 307.61 FEET TO THE NORTH RIGHT-OF-WAY OF THE TEMPORARY CONNECTION OF STATE ROUTE VI-KER-178 AS SHOWN ON "STATE HIGHWAY MAP" FILED IN THE OFFICE OF THE KERN COUNTY SURVEYOR, IN FILED MAP BOOK 4 AT PAGE 115, ALSO BEING THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTH, HAVING A RADIUS OF 1950.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS S.29°15'57"E.; THENCE ALONG SAID NORTH RIGHT-OF-WAY THE FOLLOWING TWO (2) COURSES:

1) WESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 29°47'06" AN ARC DISTANCE OF 1013.70 FEET; THENCE
2) N.89°28'51"W., 290.64 FEET TO THE POINT OF BEGINNING; THENCE

CONTINUING ALONG SAID NORTH RIGHT-OF-WAY THE FOLLOWING TWO (2) COURSES:

1) N.89°28'51"W., 1761.76 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE SOUTH, HAVING A RADIUS OF 2500.00 FEET; THENCE
2) WESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 07°01'28" AN ARC DISTANCE OF 306.50 FEET TO THE NORTHEASTERLY BOUNDARY OF STATE ROUTE VI-KER-178 AS SHOWN ON "STATE HIGHWAY MAP" FILED IN THE OFFICE OF THE KERN COUNTY SURVEYOR, IN FILED MAP BOOK 4, PAGE 114; THENCE

N.40°05'41"W. ALONG SAID NORTHEASTERLY BOUNDARY A DISTANCE OF 20.59 FEET TO A LINE THAT IS PARALLEL TO AND 105.00 FEET SOUTHEASTERLY AS MEASURED AT RIGHT ANGLES FROM THE CENTERLINE OF THE SPECIFIC PLAN LINE OF STATE ROUTE 178 AS DESCRIBED IN THE CITY OF BAKERSFIELD RESOLUTION NO. 83-95 APPROVED ON MAY 17, 1995, ALSO BEING THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 5105.00 FET AND TO WHICH BEGINNING A RADIAL LINE BEARS S.26°56'38"E.; THENCE ALONG SAID PARALLEL LINE THE FOLLOWING TWO (2) COURSES:

1) NORTHEASTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 13°36'48" AN ARC DISTANCE OF 1212.94 FEET; THENCE
2) N.49°26'34"E., 1427.92 FEET; THENCE

DEPARTING SAID PARALLEL LINE, S.00°21'44"W., 1616.46 FEET TO THE POINT OF BEGINNING.

CONTAINING 35.56 ACRES.

PROPOSED R-2 (FROM A)

ALL THAT PORTION OF SECTION 17, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 17; THENCE S.89°28'51"E. ALONG THE SOUTH LINE OF SAID SECTION 17 A DISTANCE OF 753.70 FEET TO THE POINT OF BEGINNING, ALSO BEING THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE EAST, HAVING A RADIUS OF 500.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS N.85°28'56"W.; THENCE NORTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 48°02'06" AN ARC DISTANCE OF 419.18 FEET; THENCE N.52°33'10"E., 6.63 FEET; THENCE N.37°26'50"W., 765.33 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1500.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS N.42°22'47"W.; THENCE NORTHEASTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 04°55'57" AN ARC DISTANCE OF 129.13 FEET; THENCE N.52°33'10"E., 160.46 FEET; THENCE S.37°26'50"E., 1328.31 FEET TO THE NORTHERLY RIGHT-OF-WAY OF STATE ROUTE VI-KER-178 AS SHOWN ON "STATE HIGHWAY MAP" FILED IN THE OFFICE OF THE KERN COUNTY SURVEYOR, IN FILED MAP BOOK 4, PAGE 114, ALSO BEING THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 4875.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS S.22°51'58"E.; THENCE SOUTHWESTERLY ALONG SAID CURVE AND SAID NORTHERLY RIGHT-OF-WAY THROUGH A CENTRAL ANGLE OF 03°13'58" AN ARC DISTANCE OF 275.06 FEET TO SAID SOUTH LINE OF SECTION 17; THENCE DEPARTING SAID NORTHERLY RIGHT-OF-WAY, N.89°28'51"W. ALONG SAID SOUTH LINE A DISTANCE OF 512.11 FEET TO THE POINT OF BEGINNING.

CONTAINING 10.83 ACRES.

PROPOSED R-2 (FROM A)

ALL THAT PORTION OF SECTION 20, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 20; THENCE S.89°28'51"E. ALONG THE NORTH LINE OF SAID SECTION 20 A DISTANCE OF 753.70 FEET TO THE POINT OF BEGINNING, ALSO BEING THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE EAST, HAVING A RADIUS OF 500.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS N.85°28'56"W.; THENCE SOUTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF

04°02'42 AN ARC DISTANCE OF 35.30 FEET; THENCE S.00°28'22"W., 121.61 FEET TO THE NORTHERLY RIGHT-OF-WAY OF STATE ROUTE VI-KER-178 AS SHOWN ON "STATE HIGHWAY MAP" FILED IN THE OFFICE OF THE KERN COUNTY SURVEYOR, IN FILED MAP BOOK 4, PAGE 114, ALSO BEING THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 4875.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS S.13°19'22"E.; THENCE EASTERLY ALONG SAID CURVE AND SAID NORTHERLY RIGHT-OF-WAY THROUGH A CENTRAL ANGLE OF 06°18'38" AN ARC DISTANCE OF 536.94 FEET TO SAID NORTH LINE OF SECTION 20; THENCE DEPARTING SAID NORTHERY RIGHT-OF-WAY, N.89°28'51"W. ALONG SAID NORTH LINE OF SECTION 20 A DISTANCE OF 512.11 FEET TO THE POINT OF BEGINNING.

CONTAINING 0.98 ACRE.

PROPOSED C-2 (FROM A)

ALL THAT PORTION OF SECTION 17, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 17; THENCE S.89°28'51"E. ALONG THE SOUTH LINE OF SAID SECTION 17 A DISTANCE OF 6.17 FEET TO THE POINT OF BEGINNING, ALSO BEING THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1500.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS N.85°25'46"W.; THENCE NORTHEASTERY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 42°02'59" AN ARC DISTANCE OF 1100.86 FEET; THENCE S.37°26'50"E., 765.33 FEET; THENCE S.52°33'10"W., 6.63 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 500.00 FEET; THENCE SOUTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 48°02'06" AN ARC DISTANCE OF 419.18 FEET TO SAID SOUTH LINE OF SECTION 17; THENCE N.89°28'51"W. ALONG SAID SOUTH LINE A DISTANCE OF 747.53 FEET TO THE POINT OF BEGINNING.

CONTAINING 12.99 ACRES.

PROPOSED C-2 (FROM A)

ALL THAT PORTION OF SECTION 20, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID SECTION 20; THENCE S.89°28'51"E. ALONG THE NORTH LINE OF SAID SECTION 17 A DISTANCE OF 6.17 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING S.89°28'51"E. ALONG SAID NORTH LINE A DISTANCE OF 747.53 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE EAST, HAVING A RADIUS OF 500.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS N.85°28'56"W.; THENCE SOUTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 04°02'42" AN ARC DISTANCE OF 35.30 FEET; THENCE S.00°28'22"W., 121.61 FEET TO THE NORTHERLY RIGHT-OF-WAY OF STATE ROUTE VI-KER-178 AS SHOWN ON "STATE HIGHWAY MAP" FILED IN THE OFFICE OF THE KERN COUNTY SURVEYOR, IN FILED MAP BOOK 4, PAGE 114, ALSO BEING THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTHWEST, HAVING A RADIUS OF 4875.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS S.13°19'22"E.; THENCE WESTERLY ALONG SAID NORTHERLY RIGHT-OF-WAY AND SAID CURVE THROUGH A CENTRAL ANGLE OF 08°57'54" AN ARC DISTANCE OF 762.79 FEET TO THE WEST LINE OF SAID SECTION 20; THENCE DEPARTING SAID NORTHERLY RIGHT-OF-WAY, N.00°22'29"E. ALONG SAID WEST LINE A DISTANCE OF 144.95 FEET TO THE BEGINNING OF A CURVE CONCAVE TO THE EAST, HAVING A RADIUS OF 1500.00 FEET; THENCE NORTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 05°11'45" AN ARC DISTANCE OF 136.02 FEET TO THE POINT OF BEGINNING.

CONTAINING 3.95 ACRES.

PROPOSED C-2 (FROM A)
ALL THAT PORTION OF SECTION 17, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 17; THENCE N.00°28'22"E. ALONG THE WEST LINE OF SAID SECTION 17 A DISTANCE OF 819.77 FEET; THENCE DEPARTING SAID WEST LINE, S.57°06'01"E., 277.36 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE SOUTHEAST, HAVING A RADIUS OF 1500.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS N.57°06'01"W.; THENCE SOUTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 27°19'45" AN ARC DISTANCE OF 715.48 FEET TO THE SOUTH LINE OF SAID SECTION 17; THENCE N.89°28'51"W. ALONG SAID SOUTH LINE A DISTANCE OF 6.17 FEET TO THE POINT OF BEGINNING.

CONTAINING 1.79 ACRES,

PROPOSED C-2 (FROM R-1)
ALL THAT PORTION OF SECTION 18, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: BEGINNING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE N.89°39'39"W. ALONG THE SOUTH LINE OF SAID SECTION 18 A DISTANCE OF 382.95 FEET; THENCE DEPARTING SAID SOUTH LINE, N.00°28'22"E., 105.83 FEET; THENCE N.25°40'11"E., 815.20 FEET; THENCE S.57°06'01"E., 42.52 TO THE EAST LINE OF SAID SECTION 18; THENCE S.00°28'22"W. ALONG SAID EAST LINE A DISTANCE OF 819.77 FEET TO THE POINT OF BEGINNING.

CONTAINING 4.46 ACRES.

PROPOSED C-2 (FROM R-1)
ALL THAT PORTION OF SECTION 19, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHEAST CORNER OF SAID SECTION 19; THENCE S.00°22'29"W. ALONG THE EAST LINE OF SAID SECTION 19 A DISTANCE OF 280.81 FEET TO THE NORTHERLY BOUNDARY OF STATE ROUTE VI-KER-178 AS SHOWN ON "STATE HIGHWAY MAP" FILED IN THE OFFICE OF THE KERN COUNTY SURVEYOR, IN FILED MAP BOOK 4, PAGE 113, ALSO BEING THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE NORTH, HAVING A RADIUS OF 4875.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS S.04°21'28"E.; THENCE ALONG SAID NORTHERLY RIGHT-OF-WAY THE FOLLOWING TWO (2) COURSES:

1) WESTERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 04°08'50" AN ARC DISTANCE OF 352.84 FEET; THENCE
2) S.89°47'22"W., 31.07 FEET; THENCE DEPARTING SAID NORTHERLY RIGHT-OF-WAY, N.00°28'22"E., 297.26 FEET TO THE NORTH LINE OF SAID SECTION 19; THENCE S.89°39'39"E. ALONG SAID NORTH LINE A DISTANCE OF 382.95 FEET TO THE POINT OF BEGINNING.

CONTAINING 2.56 ACRES.

PROPOSED C-2 (FROM R-1)
ALL THAT PORTION OF SECTION 20, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 20; THENCE S.89°28'51"E. ALONG THE NORTH LINE OF SAID SECTION 20 A DISTANCE OF 6.17 FEET TO THE BEGINNING OF A NON-TANGENT CURVE CONCAVE TO THE EAST, HAVING A RADIUS OF 1500.00 FEET AND TO WHICH BEGINNING A RADIAL LINE BEARS N.84°25'46"W.; THENCE SOUTHERLY ALONG SAID CURVE THROUGH A CENTRAL ANGLE OF 05°11'45" AN ARC DISTANCE OF

CITY OF BAKERSFIELD ORIGINAL

136.02 FEET TO THE WEST LINE OF SAID SECTION 20; THENCE N.00°22'29"E. ALONG SAID WEST LINE A DISTANCE OF 135.85 FEET TO THE POINT OF BEGINNING.

CONTAINING 0.01 ACRE.

PROPOSED R-1 (FROM R-1)

ALL THAT PORTION OF SECTION 18, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE N.00°28'22"E. ALONG THE EAST LINE OF SAID SECTION 18 A DISTANCE OF 819.77 FEET; THENCE N.57°06'01"W., 0.84 FEET TO THE POINT OF BEGINNING; THENCE N.57°06'01"W., 41.68 FEET; THENCE S.25°40'11"W., 509.17 FEET; THENCE N.64°19'49"W., 219.63 FEET; THENCE N.89°39'39"W., 918.61 FEET; THENCE N.00°28'22"E., 848.60 FEET; THENCE S.89°39'39"E., 1370.00 FEET TO SAID EAST LINE OF SECTION 18; THENCE S.00°28'22"W. ALONG SAID EAST LINE A DISTANCE OF 503.66 FEET; THENCE S.32°53'59"W., 1.33 FEET TO THE POINT OF BEGINNING.

CONTAINING 25.93 ACRES.

PROPOSED R-3 (FROM R-1)

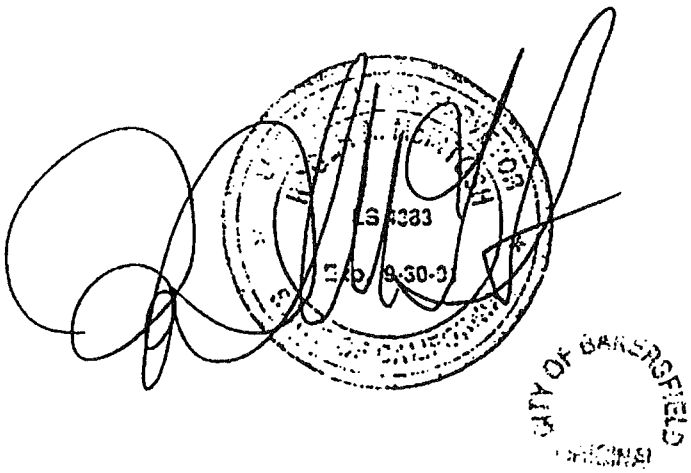
ALL THAT PORTION OF SECTION 18, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE SOUTHEAST CORNER OF SAID SECTION 18; THENCE N.89°39'39"W. ALONG THE SOUTH LINE OF SAID SECTION 18 A DISTANCE OF 382.95 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING N.89°39'39"W. ALONG SAID SOUTH LINE A DISTANCE OF 987.06 FEET; THENCE DEPARTING SAID SOUTH LINE, N.00°28'22"E., 476.40 FEET; THENCE S.89°39'39"E., 918.61 FEET; THENCE S.64°19'49"E., 219.63 FEET; THENCE S.25°40'11"W., 306.03 FEET; THENCE S.00°28'22"W., 105.83 FEET TO THE POINT OF BEGINNING.

CONTAINING 11.28 ACRES.

PROPOSED R-3 (FROM R-1)

ALL THAT PORTION OF SECTION 19, TOWNSHIP 29 SOUTH, RANGE 29 EAST, M.D.M., CITY OF BAKERSFIELD, COUNTY OF KERN, STATE OF CALIFORNIA, BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 19; THENCE N.89°39'39"W. ALONG THE NORTH LINE OF SAID SECTION 19 A DISTANCE OF 382.95 FEET TO THE POINT OF BEGINNING; THENCE DEPARTING SAID NORTH LINE, S.00°28'22"W., 297.26 FEET TO THE NORTHERLY BOUNDARY OF STATE ROUTE VI-KER-178 AS SHOWN ON "STATE HIGHWAY MAP" FILED IN THE OFFICE OF THE KERN COUNTY SURVEYOR, IN FILED MAP BOOK 4, PAGE 113; THENCE S.89°47'22"W. ALONG SAID NORTHERLY BOUNDARY A DISTANCE OF 987.12 FEET; THENCE DEPARTING SAID NORTHERLY BOUNDARY, N.00°28'22"E., 306.73 FEET TO SAID NORTH LINE OF SECTION 19; THENCE S.89°39'39"E. ALONG SAID NORTH LINE A DISTANCE OF 987.06 FEET TO THE POINT OF BEGINNING.

CONTAINING 6.84 ACRES.



AFFIDAVIT OF POSTING DOCUMENTS

STATE OF CALIFORNIA)
) ss.
County of Kern)

PAMELA A. McCARTHY, being duly sworn, deposes and says:

That she is the duly appointed, acting and qualified City Clerk of the City of Bakersfield; and that on the 30TH day of November, 2000 she posted on the Bulletin Board at City Hall, a full, true and correct copy of the following: Ordinance No. 3989, passed by the Bakersfield City Council at a meeting held on the 29TH day of November 2000 and entitled:

> AN ORDINANCE AMENDING TITLE SEVENTEEN OF THE BAKERSFIELD MUNICIPAL CODE AND ZONING MAP NO. 104-17, 104-18, 104-19 AND 104-20 BY CHANGING THE ZONING FROM A (AGRICULTURAL), R-1 (ONE FAMILY DWELLING) TO C-2 (REGIONAL COMMERCIAL) ON 96.9 ACRES; FROM A (AGRICULTURAL) TO R-1 ON 500 ACRES; FROM A AND R-1 TO R-3 (LIMITED MULTIPLE FAMILY DWELLING) ON 18.12 ACRES, FROM A T R-2 ON 47.38 ACRES, GENERALLY LOCATED BETWEEN PALADINO DRIVE, STATE ROUTE 178, MASTERSON STREET AND VINELAND ROAD.

/s/ PAMELA A. McCARTHY
City Clerk of the City of Bakersfield

By: Robin Betts
DEPUTY City Clerk

S:\Document\FORMS\AOP.ORD.wpd
November 30, 2000

II

ADMINISTRATIVE REPORT

MEETING DATE: November 15, 2000	AGENDA SECTION: Hearings ITEM: 9.d.

TO: Honorable Mayor and City Council

FROM: Development Services - Planning

DATE: October 17, 2000

APPROVED

DEPARTMENT HEAD

CITY ATTORNEY

CITY MANAGER

SUBJECT: Final Environmental Impact Report for the "City in the Hills" project, General Plan Amendment, Zone Change P99-0647, and Appeal of Planning Commission Recommendations. (Ward 3)

1. Resolution certifying the Final Environmental Impact Report for General Plan Amendment P99-0647.

2. Resolution adopting the General Plan Amendment to change the land use designation from MUC (Mixed Use Commercial), LR (Low Density Residential), and HR (High Density Residential) to GC (General Commercial) on 96.90 acres; and from MUC (Mixed Use Commercial) and LR (Low Density Residential) to HR (High Density Residential) on 162.40 acres. Also, a Circulation Element establishing new arterial and collector street alignments within the development site.

3. Ordinance amending Title 17 of the Municipal Code and Zoning Maps 104-17, 104-18, 104-19, 104-20 from A (Agriculture) and R-1 (One Family Dwelling) to C-2 (Regional Commercial) on 96.9 acres; from A (Agriculture) to R-1 (One Family Dwelling) on 500 acres, from A (Agriculture) and R-1 (One Family Dwelling) to R-3 (Limited Multiple Family Dwelling) on 65.5 acres.

4. Appeal of Planning Commission's recommending certification of the Final Environmental Impact Report and recommending approval of General Plan Amendment/Zone Change P99-0647. The appeal was filed with the City Clerk on October 13, 2000 by Steve Hollis.

RECOMMENDATION:

Staff recommends adoption of the resolution, certifying the EIR and approving the general plan amendments, denying the appeal and first reading of the Ordinance.

ADMINISTRATIVE REPORT

BACKGROUND:

The "City in the Hills" project covers nearly 700 acres and is located along side Highway 178 north of Mesa Marin Raceway. The applicant is asking for an urban development that upon buildout would have a population of 11,500 people. This area has been planned for urbanization since the late 1970's. The Planning Commission approved the project without significant modification on October 5, 2000.

Approximately 20 people attending the hearing spoke in opposition to the project. Many issues were raised including; loss of open space, need for trails, traffic, noise, and lack of urban services (water). The primary issue voiced by the opposition was the 6,000 square foot minimum lot size allowed by the R-1 zoning district. The opposition resides north of Paladino Drive where the range of parcel size is from 2.5 acres to 40 acres. Several property owners wanted a transition area of lots larger along the south side of Paladino Drive.

An appeal of the Planning Commission's decisions was filed by Steve Hollis on October 13, 2000. Mr. Hollis appealed the decision of the Planning Commission, but gave no specifics regarding issues or his concerns.

Subject site was annexed to the City in 1977. The City Council, by Resolution No. 77-77, amended the Land Use Element designation to Residential (0.50 - 5.49 DU/GA) in that same year. On March 7, 1990 by adoption of the Metropolitan Bakersfield 2010 General Plan, the subject site was designated LR (Low Density Residential ≤ 7.26 DU/Net acres), HR (High Density Residential > 17.4 and ≤ 72.6 DU/Net Acre) and MUC (Mixed Use Major/Office Commercial). The zoning has remained predominantly Agriculture throughout the last 20 years.

Proposed GC sites located within the southeast portion of the project site are situated at the location designated as a "New Mixed Use Center" by the "Land Use Policy Concept" map. The proposed project together with the GC, MUC and HMR located directly south of the subject site along the south side of State Route 178 may be viewed as the establishment of the "centers concept" in the northeast as required by the Metropolitan Bakersfield 2010 General Plan.

The proposal at build out includes fewer people and less commercial building square footage than permitted by the existing Metropolitan Bakersfield 2010 General Plan.

The EIR was distributed to the City Council for review on October 16, 2000. The Resolution of Certification contains a Statement of Overriding Considerations because the project includes significant unavoidable impacts.

They are:
1) Noise from Mesa Marin and roads.
2) Air Pollution
3) Alteration of views
4) Light

Considerable correspondence has been received in regards to this project. The planning issues raised are far more regional than can reasonably be related to this specific project. Issues such as preservation of the "bluffs" as open space, establishment of a trail system for northeast Bakersfield and preservation of the existing recreational activities in the area are a common theme in all the letters.

RED:pjt
(admin\nov\11-15-0647)

CITY OF BAKERSFIELD
PLANNING DEPARTMENT
STAFF REPORT

TO: Chairman and Members of the Planning Commission

FROM: Stanley C. Grady, Planning Director **AGENDA ITEM** _____

DATE: September 21, 2000 **APPROVED** _____

SUBJECT: Final EIR, Concurrent General Plan Amendment/Zone Change P99-0647. (Ward 3)

APPLICANT/PROPERTY OWNER: Mountain View Bravo LLC and S & J Alfalfa Inc.
18101 Van Karmen, Suite 1800
Irvine, CA

LOCATION: Generally located between Paladino Drive, State Route-178, Masterson Street and Vineland Road (extended). More specifically the project site includes Section 17, the Southeast 1/4 of the Southeast 1/4 of Section 18, the extreme northeast portion of Section 19 and the extreme northwest portion of Section 20 Township 29 South, Range 29 East, MDB&M. (APN #:387-030-01, 15 and 34, 387-040-02, 20 and 40)

RECOMMENDATION: Motion to adopt resolution the following:

For Environmental Document

Resolution making CEQA findings (Section 15091 and 15093 of the State CEQA Guidelines) and recommending **CERTIFYING** of the Program Environmental Impact Report.

For General Plan Amendments

Resolution making findings, **APPROVING** the requested General Plan Amendment No. P99-0647 to the Land Use Element from MUC, LR, and HR to LR, HR and GC on 162.40 acres as shown on Exhibit "E" and approving the requested amendment to the Circulation Element by establishing new arterial and collector street alignments within the development site and recommend same to City Council.

For Zone Change

Resolution making findings, **APPROVING** the requested Zone Change P99-0647 to amend the zoning districts from A and R-1 to R-3 on 65.50 acres, to C-2 on 96.90 acres and from A to R-1 on 500 acres as shown on the attached Exhibit "E" and recommend the same to the City Council.

PROJECT ANALYSIS:

Final EIR:

The Commission conducted a public hearing on the adequacy of the Draft EIR on August 17, 2000. Comments were referred to staff for preparation of the Final EIR. The consultant has prepared the Final EIR and comments from the EIR public hearing and comments received through the Notice of Completion review period are included in the Final EIR.

Project Description:

General Plan Amendment/Zone Change P99-0647 - Amendment to the Land Use Element and Circulation Element of the Metropolitan Bakersfield 2010 General Plan and an amendment to the zoning ordinance. The amendment to the Land Use Element designations consist of **(1)** changes from MUC (Mixed Use Commercial), LR (Low Density Residential) and HR (High Density Residential) to GC (General Commercial) on 96.90 acres; and from MUC and LMR to HR on 162.40 acres; **(2)** an amendment to the Circulation Element of the Metropolitan Bakersfield 2010 General Plan establishing new arterial and collector street alignments within the development site; and **(3)** an amendment to the zoning ordinance changing the zoning districts as follows - from A (Agriculture) and R-1(One-Family Dwelling) to C-2 (Regional Commercial) on 96.9 acres; from A to R-1 on 500 acres; from A and R-1 to R-3 (Limited Multiple-Family Dwelling) on 65.5 acres. Roads and public right-of-way will constitute 31.5 acres.

The Draft EIR states that the 65.50 acres of land designated HR will permit a total of 1,300 units (Draft Environmental Impact Report, 2000: Table 3-1, p. 3-1) which equates to approximately 20.00 units per acre. Applicant's proposed Land Use Element amendments and zone changes show the HR land use designation and the R-3 zoning in the same location. The R-3 zoning is consistent with the HR designation. Therefore, land zoned as R-3 will not exceed 20.00 multiple-family units per net acre.

Background:

Subject site was annexed to the City in 1977. The City Council, by Resolution No. 77-77, amended the Land Use Element designation to Residential (0.50 - 5.49 DU/GA) in that same year. On March 7, 1990, by adoption of the Metropolitan Bakersfield 2010 General Plan, the subject site was designated LR (Low Density Residential ≤7.26 DU/Net acre) , HR (High Density Residential (>17.42 and ≤72.6 DU/Net Acre) and MUC (Mixed Use Major/Office Commercial). Land surrounding the subject site was designated LR, LMR, MUC, GC (General Commercial), OS (Open Space) and R-MP (Resource-Mineral Petroleum). The zoning has remained predominately Agriculture throughout the last 20 years.

Access:

Existing access to the subject site is from Paladino Drive and Masterson Street. The site does not presently have access to State Route-178. Proposed access to the site includes a northeast-southwest oriented collector intersecting State Route-178 along the interface of section numbers 17, 18, 19. Proposed access to Masterson Street, Paladino Drive and Queen Road (extended) would be by collector. In addition, the northern portion of Queen Road (extended) would be an arterial. The State Route-178 Specific Plan Line transverses the southeastern portion of the site in a northeast-southwest orientation.

Traffic:

This project would generate 60,976 vehicle trips per day. Approximately 15 percent of these trips would be "capture trips" (i.e. would remain within the project boundary). Therefore, approximately 51,830 daily trip ends would access surrounding roadways. Table I shows the daily trip generation.

Table I
Trip Generation

Land Use	Units/Square Footage	A.M. Peak Hour	P.M. Peak Hour	Total Project Trips	Total Project Trips with 15% Capture Trips
Low Density Residential	2,750 units	1,934	2,126	22,160	18,836
Multi-Family Residential	1,300 units (19.84 DU's/AC)	649	722	7,926	6,737

Land Use	Units/Square Footage	A.M. Peak Hour	P.M. Peak Hour	Total Project Trips	Total Project Trips with 15% Capture Trips
General Commercial	1,048,706 (Gross Leaseable Floor Area)	648	2,962	30,890	26,257
Total	----	3,231	5,810	60,976	51,830
Source: Crenshaw Traffic Engineering and Michael Brandman Associates					

Intersections affected by the percentage of the project to be developed by the year 2020 include the following: Fairfax Road and State Route-178, Morning Drive and State Route-178, Masterson Street-State Route-84-State Route-178, and Vineland Road and State Route-178. (See the EIR for a detailed analysis).

Parks/Recreation

This project is estimated to produce a population of 8,300 from the single-family dwellings and a population of 2,964 from multiple-family dwellings. Parks will be necessary to serve the population of this development. Park acreage necessary to serve this population is shown on Table II. The City ordinance for park standards requires 2.5 acres of park land per 1,000 population.

Table II
Park Acreage

Type of Dwelling Units	No. of Dwelling Units	Park Factor	Park Acreage Needed
Single-Family	2,750	.0076	20.90
Multiple-Family	1,300	.0057	7.41
Total	4,050	-------	28.31

The following parks policies are applicable to this project.

Parks Element

Policy No.	Policy
3.	*Require developers to dedicate land, provide improvements and/or in-lieu fees to serve the needs of the population in newly developing areas.*
5.	*Establish as a target that mini-parks and neighborhood parks within the City of Bakersfield jurisdiction be situated within three-quarters of a mile of residents they are intended to serve.*
8.	*Require the following minimum site size standards in planning and acquiring of local parks and playgrounds:* *Mini parks (public) - 2.5 usable acres* *Neighborhood parks/playgrounds - 10.0 usable acres* *Community park/play field - 20.0 usable acres*

Variations may be allowed based on constraints, such as, land availability, natural obstacles, financing, funding and maintenance costs. The above acreage figures apply to usable acreage. Usable means an area that people can use with an emphasis on active and group use. It is essentially flat land that can be developed for facilities and activity areas. It is not land steeper than 4 feet horizontal and 1 foot vertical in slope, land with unusually poor soil conditions, land subject to flood water stagnation, land with riparian or otherwise unique habitat worthy of preservation or water bodies or areas impacted adversely by adjacent or nearby land uses.

26.	*Encourage the development of a trail system for hiking, equestrian and bicycling purposes.*
27.	*Encourage pedestrian and bicycle linkages between residential and commercial uses.*
47.	*Community parks should be located adjacent to or near arterials. Neighborhood parks should be located adjacent to collector or local streets, rather than arterial streets.*

Parks are not addressed in the GPA/ZC application. Per Section15.80.070 of the Municipal Code parks are required, based on population, for residential development. This development would require a total of 28.31 acres. There are numerous outdoor activities currently occurring within the general area of the project site. Such activities include but are not limited to hiking, horseback riding, and motorcycling and bicycle riding. It is understandable that the project developer cannot provide all of park amenities specified in the above park policies. However, applicant will be required by ordinance to provide parks with amenities which would serve the project development.

Without addressing park sites, a project of this size is not consistent with the Parks Element. To be consistent with the Park Element, applicant must provide a master park plan for the project site. Such plan should consist of park type, facilities and time frame for park development and approved by the Planning Commission. Therefore condition number 2 requires a master park plan to achieve consistency with the above policies. Bicycle Lanes within arterials and collectors are typical requirements in all new development.

Safety:

The northeast 1/4 of the northeast 1/4 of Section 17 Township 29 South Range 29 East MDB and M is located within an "Earthquake Fault Zone"(State of California, Earthquake Fault Zone, Oil Center Quadrangle) and within the Alquist-Priolo Special Study Zones. For this portion of the subject site the quadrangle map describes the fault as follows: "Faults considered to have been active during Holocene time and to have a relatively high potential for surface rupture...". Location of the fault is approximate. An active fault is defined as having "...surface displacement within Holocene time (about the last 11,000 years)"; however, a fault may shown to be inactive based on geologic evidence (Fault-Rupture Hazard Zones In California, State of California, 1994:5). The Alquist-Priolo Earthquake Fault Zoning Act regulates development near active faults in order to mitigate surface fault rupture.

The Safety Element of the Metropolitan Bakersfield 2010 General Plan states the following: "Special studies are required prior to building structures for human occupancy within special Study Zones." Safety/Seismic Element policies addressing such statement are shown on Table III.

Table III
Seismic Policies

	Safety Element
Policy Number	Fault Rupture Policies
11	*Prohibit development designed for human occupancy within 50 feet of a known active fault and prohibit any building from being placed astride an active fault.*
12	*Require site-specific studies to locate and characterize specific fault traces within an Alquist-Priolo Fault Studies Zone for all construction designed for human occupancy.*

Safety Element policy numbers 11and 12 reflect the policies and criteria of the State Mining and Geology Board (Fault-Rupture Hazard Zones In California, State of California, 1994: 25-26).

For development to be consistent with Safety Element policy numbers 11 and 12, a seismic site-specific study which locates and characterizes the fault area must be provided to the City. The site specific study would be for that portion of the project site located within the boundaries of the Alquist-Priolo Fault Studies Zone. If such study confirms the existence of a fault Safety Element policy number 11 would be applicable.
Condition number 1 requires such a study to implement the above requirements.

Noise:

Mesa Marin Raceway events generates noise levels which would affect the project site. The maximum decibel level generated during the raceway event study was 70 and 75 dBA Lmax. This dBA level occurs eight per cent of the time during actual racing events. The Mesa Marin noise study places the 70 and 75 dBA LMAX contours at approximately 2,700 feet and 1,600 feet north and west of Mesa Marin.

The EIR discusses noise impacts.

(NOTE: Acoustical analysis of a racetrack event is a snap shot in time. "... the idea of allowing short-term measurements of a race track to define impact areas is faulty. Using measurements alone will lead to different results depending on the day of the measurement. Therefore, the measurement results reported for September 9, 1995, are accurate only for that day. They must be used with care in making long-term land use decisions" (Acoustical Analysis Mesa Marin Raceway, 1996: 4).

Noise Element policies applicable to the project are as follows:

1. *Identify noise-impact areas exposed to existing or projected noise levels exceeding 65 dB CNEL (exterior) or the performance standards described in Table VII-5. The noise exposure contour maps on file at the City of Bakersfield and County of Kern indicate areas where existing and projected noise exposures exceed 65 dB CNEL (exterior) for the major noise sources identified.*

   (NOTE: CNEL and performance standards are shown on Exhibit H**).**

   Staff Comment - The Noise Element identified the Mesa Marin Raceway as a major noise source. Noise analysis for Mesa Marin (1995) used a "worse case" methodology for computation of noise impacts. Race cars are now using mufflers which dampen the noise generated. In addition, the operator of Mesa Marin has constructed bleachers which reduce the amount of noise leaving the raceway facility. Construction of commercial buildings on the north side of State

Route-178 will reduce the area subject to noise impacts in excess of local standards. Actual impacts to new residents, for all the above reasons, are going to be less than indicated by the 1995 study.

2. *Prohibit new noise-sensitive land uses in noise-impacted areas unless effective mitigation measures are incorporated into project design to reduce noise to the following levels:*

   b. For noise due to sources which are not preempted from local control, such as local industries or other stationary noise sources, 65 dB CNEL or less in outdoor activity areas, 45 dB CNEL or less within interior living spaces or other noise-sensitive interior spaces and the performance standards contained within Table VII-5.

(NOTE: CNEL and performance standards are shown on Exhibit H**).**

Staff Comment - The EIR indicates some portion of the southern end of the project will be subject to noise impacts greater than 65 dB CNEL. In addition, the City Council has supported the construction of the Mesa Marin Raceway consistently within an area planned for urbanization.

The City of Bakersfield desires to balance growth directions within city boundaries by extending growth to the northeast. This is evidenced by the LR designation of the project site and much of the undeveloped land within this general area. This project in conjunction with the existing sewer trunk lines, gas main line and the water plant facility (in the design stage) will stimulate growth in the northeast and bring about urban development of this area as shown on the Land Use Element of the Metropolitan Bakersfield 2010 General Plan.

Commercial development is proposed along the southeast and southwest corners of the site. Also, multi-family development is proposed along the north side of State Route-178. This development would be directly impacted by Mesa Marin noise. Such development would prevent some of the Mesa Marin generated noise from impacting residential development located north of the proposed commercial and multi-family development.

5. *Encourage vegetation and landscaping along roadways and adjacent to other noise sources in order to increase absorption of noise.*

Staff Comment - Landscaping is required for commercial development as a site plan review condition. Residential development along arterials and collectors require masonry walls, landscaping and building setbacks to address noise issues.

Hazards:

The Bear Mountain co-generation facility is located approximately 1.50 miles northwest of the subject site. This facility uses and stores hazardous materials. The City Fire Department required a Risk Management and Prevention Program for the co-generation facility. A transportation route to and from the facility was also approved by the fire department. There is no evidence in the extensive record for cogeneration facility that indicates any adverse affect to development within the proposed project site boundaries.

General Plan Policies:

"Centers" Concept

The "Land Use Policy Concept" map shows the approximate southeast 1/4 of Section 17 and adjacent portions of Sections 16, 20 and 21 Township 29 South Range 29 East MDB and M as being designated a "New Mixed Use Center" (Land Use Element, 1990: Figure II-3). This is known as the "centers" concept. This concept focuses new development into distinctive centers. The concept provides a land use pattern consisting of concentrated mixed use commercial and high density residential centers surrounded by medium density residential uses. Single-family residences are located between these centers.

Staff Comment - The large commercial area adjacent State Route-178 is consistent with figure II-3 which depicts the northwest center at this location. This center ill serve the entire northeast portion of the Bakersfield Metropolitan area.

Metropolitan Bakersfield 2010 General Plan Policies in Support of the Project

Land Use Element policies in support of the project are shown on Table III.

Table III
Supporting Policies

Land Use Element

Policy Number	Residential Policies
2	*Allow for the development of a variety of residential types and densities.* Staff Comment - This project proposes LR and HR densities.
3	*Ensure that residential uses are located in proximity to commercial services, employment centers, public services, transportation routes, and recreational and cultural resources.* Staff Comment - Residential uses will be located in proximity to commercial uses which may provide employment to some of the residents, will be located adjacent to State Route-178, and recreational and cultural activities are available at Lake Ming, CALM and Hart Park.
11	*Encourage that all new high and high-medium density residential designations be on a contiguous area of at least five acres.* Staff Comment - The proposed HR designation sites will be 5+ acres.
	Commercial Policies
14	*Allow for the development of a variety of commercial centers/corridors which are differentiated by their function, intended users and level of intensity, including convenience centers serving local residential neighborhoods, sub-regional centers which serve groupings of neighborhoods, and major regional centers which serve the planning area and surrounding areas.* Staff Comment - Subject site will serve as a "New Mixed Use Center" which would provide commercial and residential development. Commercial uses may act as a commercial center for future residential development.

15 *Allow for the development of a variety of commercial uses, including those which serve residents (groceries, clothing, etc.), highway users, and tourists-visitors.*

Staff Comment - Commercial uses which are allowed on the designated land along the north side of State Route-178 will provide services to residents, highway users and tourist-visitors.

16 *Ensure that adequate lands are set aside for neighborhood-serving commercial uses adjacent to designated residential areas. Where land has not been set aside, permit neighborhood scale commercial uses in residential areas when compatible with surrounding development.*

Staff Comment - Applicant proposes two GC sites along the west side of Masterson Street approximately one-half mile south of Paladino Drive and north of the State Route-178 Specific Plan Line. These two sites could provide neighborhood-serving commercial uses.

17 *Require all new commercial designations be assigned to sites where the aggregate of all contiguous parcels designated for commercial use is no less than five (5) acres, except for approved specific plans, parcels to be developed for highway-oriented service uses at freeway on- and off-ramps, or where physical conditions are such that commercial is the only logical use of the property.*

Staff Comment - Proposed GC sites are 5+ acres.

20 *Locate major (regional) commercial uses in proximity to existing regional centers (such as Valley Plaza and East Hills Mall), and in proximity to future regional serving commercial centers in the downtown, southwest, northwest, and northeast, as designated on the Land Use Policy Map.*

Staff Comment - Proposed GC designated sites are situated at the location designated as a "New Mixed Use Center" by the "Land Use Policy Concept" map.

Centers Development

37 *Enhance existing and establish new centers as the principal focus of development and activity in the planning area, around which other land uses are grouped. Centers should be linked by adequate transportation facilities and may be linked to the Kern River, canals, or other resource amenities. Centers may be differentiated by functional activity, density/intensity, and physical character.*

42 *Provide for the establishment of the following new major centers as the focus of development in the planning area:*

a) Southwest
b) Northwest
c) Northeast

Staff Comment (Policy Numbers 37 and 42) - The proposed project together with the GC, MUC and HMR located directly south of the subject site along the south side of State Route-178 may be viewed as the establishment of the "centers concept" in the northeast. State Route-178 would provide adequate access to the site.

45 *Allow for the development of a low density "village-like" center in the Northeast as a focal point of activity which includes retail commercial, professional offices, moderate and high density residential, and filtering outwards to lower densities, according to the following principles.*

a) Attempt to focus on open space amenities;

b) Cluster development to take advantage of views;

c) Encourage development to preserve public views of foothill topography and sensitive habitats;

d) Provide the opportunity for the development of residential units above ground floor commercial;

e) Promote pedestrian activity and use of greenbelt links between land uses.

Staff Comment - Applicant's site plans have not been submitted at this time. However, such plans could and should incorporate the above principles where possible.

Public Facilities

50 *Locate new development where infrastructure is available or can be expanded to serve the proposed development.*

Staff Comment - Subject site is located within Assessment District 93-1. This district provided sewer trunk lines and a gas line (See Exhibit "G" Assessment District Maps). Also, the water facility, which will serve this area, in the design phase with construction to commence within approximately two years.

General

69 *Provide adequate land area for the expansion of existing uses and development of new uses consistent with the policies of the general plan.*

Staff Comment - The Land Use Element provides adequate undeveloped land area for development of the "center concept", development of residences and expansion of residential development located north, east and west of the subject site.

70 *Provide for a mix of land uses which meets the diverse needs of residents; offers a variety of employment opportunities; capitalizes, enhances, and expands upon existing physical and economic assets; and allows for the capture of regional growth.*

Staff Comment - The proposed residential and commercial development would meet the needs of residents, provide employment, and capitalize on physical amenities. Also, commercial development would capture business from tourist and highway travelers.

Housing Element

Adequate Supply of Housing

A *Encourage the development of additional owner and renter housing units for low and moderate income households, including those with special needs.*

B *Encourage the development of a balanced housing stock in the City of Bakersfield, including a variety of housing types, ownership configurations and prices.*

Staff Comment (Policy Numbers A and B) - The project will provide additional owner and renting housing.

Metropolitan Bakersfield 2010 General Plan Policies Not in Support of the Project

Land Use Element policies not in support of the project are shown on Table IV.

Table IV
Non-supportive Policies

Land Use Element

Policy Number	Commercial
19	*Encourage a separation of at least one-half mile between new commercial designations.*

Staff Comment - None of the proposed GC sites located along the north side of State Route-178 are separated from existing GC designations along the south side of State Route-178 by the recommended one-half mile separation distance. The western most proposed GC site is separate from the existing GC site (south side of SR-178) by approximately 1,500 feet while the eastern most proposed GC site is separated from existing MUC and GC sites by the distance of the State Route-178 right-of-way. In addition, only the western most GC site is separated from other proposed GC sites by the recommended one-half mile separation. The proposed GC sites along the north and south sides of the State Route-178 Specific Plan Line are separated by the specific plan line width of 210 feet.

The one-half mile separation is not mandatory. Location of these proposed GC sites is necessary for the development of the "center concept" while providing for typical neighborhood commercial centers to serve the immediate area.

Land Use Element

73 *Provide for an orderly outward expansion of new "urban" development (any commercial, industrial, and residential development have a density greater than one unit per acre) so that it maintains continuity of existing development, allows for the incremental expansion of infrastructure and public services, minimizes impacts on natural environmental resources, and provides a high quality environment for living and business.*

Staff Comment - project is not continuous with existing development east and west of the subject site. However, continuity does exist with development north and south of the site. Along the north side of Paladino Drive, there are single-family dwellings. Commercial designations with scattered development and single-family dwellings exist south of State Route-178.

Proposed development is consistent with the land use designations of the Land Use Element. West of the subject site along the north side of State Route-178, continuity of development from the west would be next to impossible due the expanse of R-MP designated land east of Morning Drive. Also, non-contiguous residential development is located east of the project. **Although not fully contiguous with existing residential and commercial uses, development of the proposed project may be necessary for realization of the "center concept" and supports the City's goal to develop the northeast metropolitan area which is on non-prime agricultural land.**

Compatibility:

During the EIR adequacy public hearing concerns were voiced about small residential lots adjacent to existing large parcels. Adjacent parcels located north, east and west of the subject site range in size from 2 ½ acres to 28 acres. Only those parcels located along the north side of Paladino Road are developed. There are 19 residences located directly north of the subject site and north of Paladino Drive. These residences are constructed on parcels ranging in size from 2 ½ to 10 acres. A total of 22 parcels are located north of Paladino Drive. In addition, a horse training facility is located along the north side of Paladino Drive within the Southwest Quarter of Section 17.

The next nearest residential development, and also the nearest smaller lot residential development, is located approximately one-half mile east of the subject site. Lots in this subdivision range in size from approximately 8,500 square feet to greater than 10,000 square feet.

In the past, the City position has been to protect the integrity of the existing large lots. This has been accomplished by requiring an interface of lots the same size as the existing larger

lots or somewhat smaller lots adjacent to the existing large lots/parcels. These somewhat smaller lots are smaller than the existing lots/parcels, but larger than the minimum size lots allowed by the zoning ordinance. Three projects where this has occurred are as follows:

(1) GPA 4-90 Segment IV from R-IA (Resource-Intensive Agriculture, Minimum 20 Acre Parcel Size) to LR, from R-IA to LMR (Low Medium Density Residential) and from R-IA to GC (General Commercial). Applicant proposed 6,000 square foot lots south of Johnson Road. Along the north side of Johnson Road parcel size was mostly 2 ½ acres. This was resolved by tiering lot size: a 12,000 square foot lot size along the south side of Johnson Road, then a tier of 10,000 square foot lots and finally 8,500 square foot lots. The Land Use Element designation for property along the north side of Johnson Road was SR at the time of this proposal; and

(2) GPA 3-93 Segment IV from SR (Suburban Residential, 18,000 square feet minimum lot size) to SR (≤ 4 Dwelling Units per net acre) - Applicant proposed lot sizes ranging from 10,000 to 13,000 square feet. Located east of Jewetta Avenue and south side of Shellabarger Road (extended) where applicant requested a change from SR (the existing SR had a condition of 18,000 square foot minium lot size) to SR (≤ 4 dwelling units per net acre) adjacent to 2 ½ acre parcels and the Commission recommended denial which was upheld by Council. The Land Use Element designation for surrounding property, at the time of this proposal, was SR, 18,000 square feet minimum lot size.

(3) ZC P96-0521 from A-20A to R-1 - Applicant had requested R-1 zoning with minimum lot size of 6,000 square feet along the south side of Brimhall Road. Lots located north of Brimhall Road range in size from 18,000 to 30,000 square feet. The first tier of lots along the south side of Brimhall Road were required to have a minimum lot size of 18,000 square feet. Zoning districts along the north side of Brimhall Road, at the time of this proposal were as follows: **County** - E(½)RS (Estate ½ acre-Residential Suburban Combining), E(2½)RS (Estate 2½ acre-Residential Suburban Combining), C-1 (Neighborhood Commercial), A-1 (Agriculture) E(5)RS (Estate 5 acre-acre-Residential Suburban Combining); and **City** - R-1 (One-Family Dwelling), E 14,000 (Estate 14,000 square feet minimum lot size), C-1 (Neighborhood Commercial), R-1 (One-Family Dwelling), R-1CH (One-Family Dwelling, Church) and RS (Residential Suburban).

CONCLUSION:

Proposed residential is less than allowed by the LR and HR densities. Propose single-family residential density equates to 5.5 dwellings per acre, and multi-family density equates to 19.84 dwellings per net acre. The LR density is ≤7.26 dwelling units per net acre and the HR density is >17.42 and ≤72.6 dwelling units per net acre.

There is no standardized policy for staff to rely upon to address this issue.

Table V.

An EIR was prepare for this project. The Notice Of Availability of the EIR was advertised in the Bakersfield Californian and posted on the bulletin board of the Bakersfield City Planning Department on July 25, 2000. The consultant who prepared the Draft EIR, mailed the Notice of Completion (NOC) to the State Clearinghouse for a 45 day review period by applicable state agencies. The 45 day NOC review began on July 25, 2000 and was complete on September 7, 2000. Consultant also transmitted the EIR to 50 agencies for review.

City of Bakersfield Planning Commission public hearings have been noticed as follows:

Notice of Availability and Notice of public hearing for the Draft EIR was advertised in the Bakersfield Californian and posted on the bulletin board of the Bakersfield City Planning Department on July 25, 2000.

Adequacy and objectivity of the Draft EIR hearing notice was advertised in the Bakersfield Californian and posted on the bulletin board of the Bakersfield City Planning Department on August 2, 2000. The hearing was conducted on August 14 and 17, 2000. Three hundred foot radius notification.

The GPA/ZC public hearing was advertised in the Bakersfield Californian and posted on the bulletin board of the Bakersfield City Planning Department on August 14, 2000. The hearing was noticed for September 18 and 21, 2000. Three hundred foot radius notification.

Renotification - The GPA/ZC public hearing was readvertised in the Bakersfield Californian and posted on the bulletin board of the Bakersfield City Planning Department on August 28, 2000. Renoticing was for the purpose of providing notice to property owners within 1,000 feet of the subject site. The hearing was noticed for September 18 and 21, 2000. One thousand foot radius notification.

Property owners receiving the above Planning Commission notices were notified by United States Mail in accordance with State Law.

TABLE V
DESIGNATIONS, ZONING, LAND USE

LOCATION	LAND USE		
	Land Use Element Designation	Zoning District	Existing Land Uses
NORTH	LR	R-S-2 ½ A	Large Parcel Single-Family Dwellings
SOUTH	LR, OS, HMR, MUC, GC	R-1, OS, C-2, R-S-2.5 A, C-1	State Route-178, Sports Complex, Vacant Restaurant/Cocktail Lounge, Mesa Marin Raceway, Undeveloped Land
EAST	LR, LMR	R-1	Undeveloped Land
WEST	LR, R-MP	R-1	Undeveloped Land

EXHIBITS: (Attached)

1. Findings Of Fact
2. Statement of Overriding Consideration
3. Mitigation Monitoring Plan/Mitigation
4. Conditions
5. GPA and Zone Change Maps
6. Legal Description
7. Assessment District Maps
8. Noise Levels
9. Resolutions with Exhibits

III

Draft
Environmental Impact Report

State Clearinghouse Number 2000011101

for

City in the Hills

Volume I

Michael Brandman Associates

July 25, 2000

02160011

DRAFT
ENVIRONMENTAL IMPACT REPORT
CITY IN THE HILLS
State Clearinghouse No. 2000011101

VOLUME I

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July 25, 2000

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SECTION 1
INTRODUCTION

1.1 PURPOSE OF THE EIR

This draft environmental impact report (EIR) has been prepared in accordance with the California Environmental Quality Act (CEQA) to evaluate the potential environmental impacts associated with the development of the City in the Hills. The City of Bakersfield is the lead agency for the preparation of the EIR. This document is a program EIR and has been prepared in conformance with CEQA, California Public Resources Code Section 2100 et seq; the California CEQA guidelines (California Code of Regulation, Title 14, Section 15000 et seq.); and the rules, regulations, and procedures for implementing CEQA as adopted by the City of Bakersfield.

This draft EIR is intended to serve as an informational document for the public agency decision-makers and the general public regarding the objectives and components of the proposed project. This document will address the potentially significant adverse environmental impacts that may be associated with the planning, construction, or operation of the project, as well as identify appropriate feasible mitigation measures and alternatives that may be adopted to reduce or eliminate these impacts. This EIR considers a series of actions that are needed to achieve development of the proposed project. The actions currently being requested include approval of project components, a General Plan Land Use Element amendment, a General Plan Circulation Element amendment, a concurrent zone change, and a development agreement to vest development rights. Additional City approvals (i.e., tentative parcel, tract maps, master plans, conditional use permits, amendment to the Plan Drainage Area for the Breckenridge area, grading permits, and building permits) may be needed. In addition to the City, other public agencies (i.e., responsible and trustee agencies) will also use the information in the EIR in their decision making process as well as additional information that may be presented during the CEQA process. At this time, the California Department of Fish and Game (CDFG) is identified as a potential responsible and trustee agency for the project. A more detailed discussion of the potential project approvals is provided in Section 3.4 of this document.

This EIR is the primary reference document for the formulation and implementation of a mitigation monitoring program for the proposed project. Environmental impacts are not always mitigable to a level that is considered to be less than significant. In accordance with Section 15093(b) of the State CEQA Guidelines, if a lead agency approves a project that has significant impacts that are not substantially mitigated (i.e. significant unavoidable impacts), the agency shall state in writing the specific reasons for approving the project, based on the final CEQA documents and any other information in the public record for the project. The is termed, per Section 15093 of the state CEQA Guidelines, "a statement of overriding considerations."

The intent of this program EIR is to provide a comprehensive single environmental document that will allow the City of Bakersfield to carry out the proposed project. This EIR provides a reasonably anticipated scope of the project. This EIR will also be used to determine whether subsequent environmental documentation will be required. Subsequent actions on the project site may include, but not limited to, the consideration of tentative parcel or tract maps, conditional use permits, grading permits, building permits, etc. The lead agency can approve subsequent actions without additional environmental documentation unless as otherwise required by Public Resources Code Section 21166, and the state CEQA Guidelines Sections 15162 and 15163.

1.2 SCOPE OF THE EIR

The EIR will address the potential environmental effects of the proposed project. The scope of the EIR includes issues identified by the City of Bakersfield during the preparation of the Initial Study (IS) and Notice of Preparation (NOP) for the proposed project, and issues raised by agencies and the general public in response to the IS/NOP, as described below.

Environmental Procedures

This document analyzes the environmental effects of the project to the degree of specificity appropriate to the current proposed actions, as required by Section 15146 of the state CEQA Guidelines. This analysis considers the series of actions associated with the various discretionary actions required for project implementation to determine the associated short-term and long-term effects. This EIR discusses both the direct and indirect impacts of this project, as well as the cumulative impacts associated with buildout of the City's General Plan land uses.

CEQA requires the preparation of an objective, full disclosure document, to inform agency decision-makers and the general public of the direct and indirect environmental effects of the proposed action; provide mitigation measures to reduce or eliminate potential adverse effects; and identify and evaluate reasonable alternatives to the proposed project.

Scoping Process

In compliance with State CEQA Guidelines, the City of Bakersfield has taken steps to maximize opportunities to participate in the environmental process. During the preparation of the draft EIR, an effort was made to contact various federal, state, regional, and local governmental agencies and other interested parties to solicit comments and inform the public of the proposed project. This included the distribution

of the IS/NOP on February 2, 2000. The project was described, potential environmental effects associated with the project implementation were identified, and agencies and the public were invited to review and comment on the NOP. The close of the NOP review period was March 2, 2000. The IS/NOP and comment letters received during the NOP review period are included in Appendix A of this EIR.

Agencies, organizations, and interested parties not contacted or who did not respond to the request for comments about the project during the preparation of the draft EIR currently have the opportunity to comment during the 45-day public review period on the draft EIR.

1.3 EIR FOCUS AND EFFECTS FOUND NOT TO BE SIGNIFICANT

Based on the findings of the IS/NOP, a determination was made that an EIR is required to address the potentially significant environmental effects of the proposed project. The scope of the EIR includes issues identified by the City of Bakersfield during the preparation of the IS/NOP for the proposed project, as well as environmental issues raised by agencies and the general public in response to the IS/NOP. The following are the issues addressed in this EIR:

- Land Use and Planning
- Hazardous Materials Compliance
- Biological Resources
- Public Services and Utilities
- Traffic and Circulation
- Noise
- Air Quality
- Cultural Resources
- Aesthetics

The environmental issues that were determined not to be significantly affected by the proposed project and therefore, do not require evaluation in the document, per section 15063(c) of the State CEQA Guidelines, are as follows:

- Agriculture Resources
- Geology and Soils
- Hydrology and Water Quality
- Mineral Resources
- Population and Housing
- Recreation

The following is intended to supplement the information in the IS/NOP.

Recreation/Parks—Development of the proposed project is expected to result in a residential population of 11,503 people. This additional population would result in a demand for new parks and recreational facilities. The project site is located within the City of Bakersfield's park service area. The City has established a standard providing 2.5 acres of new parks per 1,000 population. Based on the park standard, the proposed project would create a demand for approximately 28.8 acres of parks. The proposed project will be required to be in accordance with the City's standard for providing parks. The project applicant will be required to

dedicate approximately 28.8 acres of land, pay a fee in accordance with the park standard, or a combination of parkland dedication and payment of a fee. After compliance with the park standard, no impacts to existing parks and recreational facilities would occur from project implementation.

1.4 COMPONENTS OF THE EIR ANALYSIS

The analysis of each environmental category within Section 5, Existing Conditions, Project Impacts, Cumulative Impacts, Mitigation Measures, and Level of Significance After Mitigation, of this EIR is organized into the following subsections.

- "Existing Conditions" describes the physical conditions that exist at this time and which may influence or affect the issue under investigation.
- "Project Impacts" describes the potential environmental changes to the existing physical conditions that may occur if the proposed project is implemented.
- "Cumulative Impacts" describes the potential environmental changes to the existing physical conditions that may occur with the proposed project, together with anticipated growth in the vicinity of the project site.
- "Mitigation Measures" are those specific measures that may be required of the project by the decision-makers in order to (1) avoid an impact, (2) minimize an impact, (3) rectify an impact by restoration, (4) reduce or eliminate an impact over time by preservation and maintenance operations, or (5) compensate for the impact by replacing or providing substitute resources or environment.
- "Level of Significance After Mitigation" discusses whether the project and the project's contribution to cumulative impacts can be reduced to levels that are considered less than significant.

1.5 PROJECT SPONSORS AND CONTACT PERSONS

The City of Bakersfield is the lead agency in the preparation of the EIR. Mountain View Bravo, LLC and S & J Alfalfa, Inc., the landowners, are the project applicant. Michael Brandman Associates is the environmental consultant for the project. Preparers of this EIR are provided in Section 10. Key contact persons are as follows:

Lead Agency:	City of Bakersfield Marc Gauthier 1715 Chester Avenue Bakersfield, California 93301

Project Applicant:	Mountain View Bravo, LLC/S & J Alfalfa, Inc. Phillippe Laik C/O Robert McMurray Nossaman, Gunther, & Knox, LLP 18101 Von Karmen Avenue, Suite 1800 Irvine, California 92612
Environmental Consultant:	Michael Brandman Associates Michael E. Houlihan, AICP 15901 Red Hill Avenue, Suite 200 Tustin, California 92780

1.6 REVIEW OF THE DRAFT EIR

This draft EIR was distributed to responsible and trustee agencies, other affected agencies, surrounding cities, and interested parties, as well as all parties requesting a copy of the draft EIR in accordance with Public Resources Code 21092(b)(3). The Notice of Completion of the draft EIR was also distributed as required by CEQA. During the 45-day public review period, the EIR, including technical appendices, is available for review at the City of Bakersfield, Planning Department, 1715 Chester Avenue, Bakersfield, CA 93301. Written comments on the draft EIR should be addressed to:

Marc Gauthier
City of Bakersfield
1715 Chester Avenue
Bakersfield, CA 93301

Upon completion of the 45-day review public review period, written responses to all significant environmental issues raised will be prepared and available for review at least 10 days prior to the public hearing before the Bakersfield City Council at which the certification of the final EIR will be considered. These environmental comments and their responses will be included as part of the environmental record for consideration by decision-makers for the project.

SECTION 2
EXECUTIVE SUMMARY

2.1 PROPOSED PROJECT

The project is an amendment to the Land Use Element and the Circulation Element of the Metropolitan Bakersfield 2010 General Plan and a concurrent zone change. The proposed Land Use and Circulation Element Amendments and the Zone Change will consist of boundary realignments of the Low Density Residential (2750 units), High Density Residential (1,300 units), and Commercial (1,048,706 square feet) land use designations and zoning districts. Proposed Circulation Element amendments include the addition of new arterial and collector street alignments within the development site. The project site is located within Section 17, the SE ¼ of the SE ¼ of Section 18, and the extreme NE portion (8.9 acres) of Section 19, Township 29 South, Range 29 East, in the northeast portion of Bakersfield. The project site encompasses approximately 694 acres and is located in the northeast portion of the City between Highway 178, Masterson Lane, Paladino Drive, and undeveloped portions of Vineland Road and Queen Street (one mile east of Morning Drive). The project site is mostly vacant with some oil extraction facilities in or near the southwest portion of the site.

2.2 AREAS OF CONTROVERSY/ISSUES TO BE RESOLVED

This EIR addresses nine primary issues including land use and planning, biological resources, traffic and circulation, noise, air quality, cultural resources, hazardous materials compliance, public services and utilities, and aesthetics. The proposed project includes residential uses in areas on the project site that would be exposed to excessive noise levels (i.e., greater than L50-55 dBA) during events at the Mesa Marin Raceway. This periodic exposure to excessive noise levels is considered potentially controversial. Furthermore, the project's contribution of traffic noise levels on offsite street segments, the project's impact on existing views as well as increase in night lighting, and the project's increase in long-term air emissions are considered potentially controversial.

Issues that are considered to be resolved include the timing of implementing the SR 178 Freeway and the modifications to the Plan Drainage Area for Breckenridge. In this EIR, it is assumed that the SR 178 Freeway would be constructed by the year 2020; however, there is currently no finances in place to construct the freeway. Furthermore, it is assumed that the modifications to the Plan Drainage Area for Breckenridge would be approved prior to development on the project site. Currently, these modifications are being prepared for consideration by the City. Issues that are considered to be resolved include the choice among the alternatives as well as whether or how to mitigate the significant effects of the project.

2.3 SUMMARY OF ALTERNATIVES

Alternatives have been developed to avoid or substantially lessen environmental impacts of the proposed project. Section 15126.6 of the CEQA Guidelines, "states that EIR shall include a range of reasonable alternatives to the project, or the location of the project, which would feasible attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives." Section 7 provides descriptions and analysis of each alternative in adequate detail to allow the decision-maker to decide whether or not an alternative should be adopted in lieu of the proposed project. The alternatives evaluated in the following EIR include the following:

- No Project/No Development Alternative
- No Project/Development In Accordance with Existing General Plan Land Use Designations
- Alternative Design
- Less Intense Development Alternative

NO PROJECT/NO DEVELOPMENT ALTERNATIVE

Under the No Project/No Development alternative, the proposed development would not occur. The proposed site would remain in its present, mainly vacant condition. While no development would be permitted under this alternative, the underlying General Plan and zoning designations would be retained.

NO PROJECT/DEVELOPMENT IN ACCORDANCE WITH EXISTING GENERAL PLAN LAND USE DESIGNATIONS

This alternative includes the development of the project site with the existing General Plan land use designations. The project site would consist of 586.5 acres of low density residential, 67 acres of mixed-use commercial, 13 acres of high density residential, and 27 acres of roads (i.e., SR 178 right-of-way). A total of 4,518 residential dwelling units and 1,983,200 square feet of general commercial uses could be potentially developed on the project site under this alternative. This alternative would result in 468 more residential dwelling units and 934,494 more square feet of general commercial compared to the proposed project.

ALTERNATIVE DESIGN

This alternative includes avoidance of excessive noise levels (i.e., less than L50-55 dBA) by residential uses during events at the Mesa Marin Raceway. As a result, this alternative does not include any residential uses within the L50-55 dBA contour. This alternative includes 199.8 acres of low density residential, 96.9

acres of general commercial uses, 31.5 acres of SR 178 right-of-way, and 365.7 acres of vacant open space. A total of 1,450 residential dwelling units and 1,048,706 square feet of general commercial uses could be potentially developed on the project site under this alternative. This alternative would have 2,600 less residential units and the same amount of commercial uses. The project would include a substantial amount of vacant open space that would provide a buffer for residences from excessive noise levels from the events at Mesa Marin Raceway.

LESS INTENSE DEVELOPMENT ALTERNATIVE

The intent of this alternative is to avoid significant unavoidable long-term air emissions from the development of the project site. To reduce long-term air quality emissions to a level that is considered less than significant, no more than 10 tons of ROG or NOx could be generated in one year. Under the proposed project, NOx would be exceeded by approximately 113.25 tons per year. As a result, NOx would need to be reduced by approximately 92 percent so that no significant NOx emissions would be generated. This alternative assumes that all of the proposed land uses under the proposed project (i.e., low density residential, high density residential, and general commercial) would be reduced by 92 percent. Therefore, this alternative assumes the development of 223 low density residential units on approximately 41 acres, 105 high density residential units on 5 acres, and approximately 85,000 square feet of general commercial on approximately 8 acres. The developed acres for each use was derived from a similar density as identified for the proposed project. The development of this alternative would encompass 54 acres on the project site.

2.4 MITIGATION MONITORING PROGRAM

CEQA requires public agencies to set up monitoring report programs for the purpose of ensuring compliance with those mitigation measures adopted as conditions of approval in order to mitigate or avoid significant environmental effects as identified in the EIR. A mitigation monitoring program, incorporating the mitigation measures set forth in this document, will be adopted at the time of certification of the EIR.

2.5 SUMMARY OF SIGNIFICANT ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

Table 2-1 summarizes the potential environmental effects of the proposed project, the recommended mitigation measures, and the level of significance after mitigation. Impacts that are noted in the summary as "significant" after mitigation will require the adoption of a statement of overriding considerations, if the project is approved as proposed (CEQA Section 21081). Impacts of the project are classified as (1) NS, not significant (adverse effects that are not substantial according to CEQA, but may include mitigation); (2) S, significant (substantial adverse changes in the environment); (3) PS, potentially significant (potential substantial adverse changes in the environment); (4) B, beneficial (beneficial changes in the environment). Mitigation measures are listed, when feasible for each impact. The EIR also identifies other effects, which

are either not considered significant or are beneficial effects of the proposed project, but these are not the focus of this summary. The reader is referred to the full text of this EIR for a description of the environmental effects of the proposed project and feasible mitigation measures recommended to reduce these effects to a level considered less than significant.

TABLE 2-1
EXECUTIVE SUMMARY

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
LAND USE AND PLANNING (Section 5.1)		
Compatibility with Onsite Land Uses		
Implementation of the project would include right-of-way for the realignment of SR 178 through the proposed residential and commercial land uses onsite. Adherence to the mitigation measures described in Section 5.4 (Noise) would reduce potential adverse impacts. No other conflicts or incompatibilities among internal land uses are anticipated. (NS)	No measures are required.	Not Significant.
Compatibility with Surrounding Land Uses		
No potential significant incompatibilities between the proposed land uses within the project site and the surrounding land uses are anticipated because the proposed land uses are similar in nature and have been designed to compliment and support the land uses in the immediately surrounding area. (NS)	No measures are required.	Not significant.
Consistency with Plans, Policies, and Programs		
The proposed project would not conflict with most of the goals of the General Plan and with other regional plans and policy documents including the Metropolitan Bakersfield Habitat Conservation Plan, Air Quality Attainment Plan, and the Regional Transportation Plan. However, the project would not be consistent with the Noise Element of the City's General Plan. The project includes residences in an area that would expose residents to noise levels that exceed the City's noise performance. (S)	No feasible measures are available for the project applicant to reduce noise levels from the Mesa Marin Raceway to less than the City's noise performance standard for residences.	Significant and unavoidable.

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
BIOLOGICAL RESOURCES (Section 5.2)		
Loss of Habitat		
Implementation of the proposed project would eliminate approximately 684 acres of non-native grassland habitat and approximately 10 acres of valley saltbush scrub. Development of the proposed project would eliminate suitable foraging habitat for raptors, in addition to reducing or eliminating some plant and wildlife populations on the site. (NS)	No measures are required.	Not significant.
Special-Status Species		
Direct take of San Joaquin kit fox, blunt-nosed leopard lizard, and burrowing owl could possibly occur during grading of the approximately 694-acre site. Vehicular collisions as well as depredation by domestic dogs and cats could also result in the direct take of special-status wildlife species. (S)	Prior to the issuance of a grading permit, the project applicant shall pay a development fee in accordance with the MBHCP. Prior to the issuance of a grading permit on the 694-acre site, the project proponent shall comply with all appropriate terms and conditions of the MBHCP. The MBHCP requires certain take avoidance measures for the San Joaquin kit fox. MBHCP guidelines regarding tracking and excavation shall be followed to prevent entrapment of kit fox in dens. Specific measures during the construction phase of the project shall be implemented and include the following: a) A preconstruction survey shall be conducted prior to site grading to search for active kit fox dens. The survey shall be conducted not more than 30 days prior to the onset of construction activities in areas subject to development to determine the necessity of den excavation. b) Monitoring and excavation of each known San Joaquin kit fox den which cannot be avoided by construction activities shall occur.	Not Significant

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	c) Notification of wildlife agencies of relocation opportunity prior to ground disturbance in areas of known kit fox dens shall be provided. d) Excavations shall either be constructed with escape ramps or covered to prevent kit fox entrapment. All trenches or steep-walled excavations greater than three feet deep shall include escape ramps to allow wildlife to escape. Each excavation shall contain at least one ramp, with long trenches containing at least one ramp every 1/4 mile. Slope of ramps shall be no steeper than 1:1. e) All pipes, culverts or similar structures with a diameter of four inches or greater shall be kept capped to prevent entry of kit fox. If they are not capped or otherwise covered, they will be inspected prior to burial or closure to ensure no kit foxes, or other protected species, become entrapped. f) All employees, contractors, or other persons involved in the construction of the project shall attend a "tailgate" session informing them of the biological resource protection measures that will be implemented for the project. The orientation shall be conducted by a qualified biologist and shall include information regarding the life history of the protected species, reasons for special status, a summary of applicable environmental law, and measures intended to reduce impacts. g) All food, garbage, and plastic shall be disposed of in closed containers and regularly removed from the site to minimize attracting kit fox or other animals.	

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Because "take" of blunt-nosed leopard lizards is also currently prohibited by Section 5050 of the California Fish and Game Code, additional mitigations are necessary in addition to those required by the MBHCP. The following measures are recommended to comply with this Section 5050: a) Surveys for blunt-nosed leopard lizards shall be conducted following CDFG protocols. These surveys should be conducted between April 15 and June 30 under the specified time and temperature conditions. This survey is necessary to determine the current status of blunt-nosed leopard lizards on the project site. b) If blunt-nosed leopard lizards are detected, the applicant shall submit methods for compliance with Fish and Game Code Section 5050 to CDFG for review and approval.	
Raptor Nest Disturbance		
Implementation of the proposed project may disturb active burrowing owl nests. Nests of other raptors are not expected to be impacted. (S)	Prior to the issuance of a grading permit for the approximately 694-acre site, the project applicant shall comply with the following raptor nest mitigation: a) If site grading is proposed during the raptor nesting season (February-September), a focused survey for raptor nests shall be conducted by a qualified raptor biologist prior to grading activities in order to identify active nests in areas potentially impacted by project implementation.	Not significant.

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	b) If construction is proposed to take place during the raptor nesting/breeding season (February - September), no construction activity shall take place within 500 feet of an active nest until the young have fledged (as determined by a qualified raptor biologist). Any nests that must be removed as a result of project implementation shall be removed during the non-breeding season (October-January). c) Preconstruction surveys shall include a survey for burrowing owl. If active burrowing owl burrows are detected outside of breeding season (September 1 through January 31), passive and/or active relocation efforts may be undertaken if approved by CDFG and USFWS. If active burrowing owl burrows are detected during breeding season (February 1 through August 31), no disturbance to these burrows shall occur without obtaining appropriate permitting through the Migratory Bird Treaty Act.	
Sensitive Habitats/Jurisdictional Areas		
Areas under the jurisdiction of USACE or CDFG may be impacted by the project. Impacts to these areas would be considered significant. (S)	A formal jurisdictional delineation will be conducted. If project development would impact jurisdictional areas, a Clean Water Act, Section 404 permit from USACE and/or a CDFG Section 1601 Streambed Alteration Agreement will be obtained from USACE and/or CDFG respectively Prior to the issuance of a grading permit and/or approval of plans and specifications. USACE and CDFG typically require mitigation plans to be prepared prior to the loss of habitat within jurisdictional areas.	Not significant.

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Indirect Impacts		
Following project buildout, increased vehicular traffic, noise, pollutants, and other indirect impacts are expected to adversely affect local wildlife. Wildlife mortality could occur from collisions with motor vehicle traffic. Depredation on native wildlife by dogs and cats is expected to increase. Human related impacts on wildlife such as disturbance of active nests or dens, are also expected to increase. The introduction of non-native invasive plant species could occur due to project implementation. (S)	The following invasive exotic plants shall not be used in any project residential or commercial landscaping: tamarisk (all species) and pampas grass. In addition, vegetation at any ponds or water features shall be managed in a way such that none of the invasive exotic plants listed by the Department of Agriculture allowed to become established. Typical invasive exotic plants that can become problematic in this region include: water hyacinth and pampas grass. During construction, site boundaries shall be clearly marked with flagging, fencing, or other suitable material to prevent construction equipment and vehicles from impacting adjacent habitat areas potentially occupied by special status species.	Not Significant
TRAFFIC AND CIRCULATION (Section 5.3)		
The proposed project will result in the generation of 60,976 trips of which 51,830 trips will be distributed to roadways in the project vicinity while the remaining 9,146 trips would remain on roadways on the project site. This increase in project traffic as well as traffic from future related growth would result in project and cumulative impacts to 4 intersections and 4 street segments in the year 2010 and 12 intersections and 1 street segment in the year 2020. (S)	Prior to the issuance of building permits, the project applicant shall comply with the Metropolitan Bakersfield Transportation Impact Fee Program. These improvement fees shall be used to provide the improvements listed on pages 44 and 45 in Appendix C in the Draft EIR. The following improvements shall be included within the improvement list. Prior to issuance of building permits, the applicant's funding calculations for all improvements associated with the fee program shall be submitted to the City for review and approval. • The following traffic signals shall be installed in the year 2020. - Panorama Drive and Morning Drive - Morning Drive and Auburn Street - Paladino Drive and Fairfax Road - Vineland Road and SR 184 - Paladino Drive and Morning Drive	Not significant.

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	• The following roadway segment shall be installed in the year 2020. - Install lanes of pavement on Paladino Drive and Fairfax Road to Masterson Street. - Install 2 additional lanes of payment on Kern Canyon Road from SR 178 to Niles Street. Prior to the issuance of building permits, the project applicant shall provide its fair share funding toward the following improvements. At the time of issuing building permits, the applicant's funding calculations for all improvements associated with the fee program shall be submitted to the City for review and approval. • Traffic signals shall be installed at the following locations in the years 2010 and 2020: Year 2010 (Project One-Half Buildout) - Vineland Road and Interior Collector Street - Panorama Drive and Interior Collector Street (2 locations) - Panorama Drive and Masterson Street - Morning Drive and SR 178 - Masterson Street (SR 184) and Old SR 178 - Vineland Road and SR 178 Year 2020 (Full Project Buildout) - SR 184 and Chase Avenue - Queen Street and Paladino Drive - Alfred Harrell Highway/Comanche Drive and SR 178 • The following intersection improvement shall be installed at the following location. Year 2010 (Project One-Half Buildout) - Add one left turn lane to eastbound and westbound lanes and re-time traffic signals at the intersection of Fairfax Road and SR 178.	

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	• The following roadway segments shall be installed in the year 2010. Year 2010 (Project One-Half Buildout) - Install Vineland Road between SR 178 and Collector Loop Street - Install half width of SR 178 and Masterson Street along the project frontage. - Install 2 lanes of pavement on Panorama Drive from Morning Drive to Queen Street - Install 2 additional lanes of pavement on Old SR 178 from Fairfax Road to Alfred Harrell Highway/Comanche Drive.. Prior to the issuance of a building permit, the project applicant shall provide funding for future realigned SR 178 between Fairfax Road and Alfred Harrell Highway/Comanche Drive. The funding will be for that portion of future realigned SR 178 which is determined to be the obligation of local development. The project's share of traffic on SR 178 is 7.5 percent. Prior to the issuance of building permits, the project applicant shall provide the City of Bakersfield with a phasing plan of the onsite roadway segments. The project applicant shall install the following roadway segments that are not part of the Metropolitan Bakersfield Transportation Impact Fee Program. - Install Panorama between Queen Street and Masterson Street - Install the onsite Collector Loop Street - Install Valley Lane between Panorama Drive and Paladino Drive - Install Queen Street between Panorama Drive and Paladino Drive	

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
NOISE (Section 5.4)		
Construction Noise		
Earthmoving, materials handling, stationary, and impact equipment and vehicles would generate noise during clearing, excavation, grading, structure, roadway, and utility construction operations associated with the development of the proposed project. Since construction noise is temporary and would be restricted to 7:00 a.m. to 7:00 p.m. Monday through Friday, and 9 a.m. to 6 p.m. on Saturday and Sunday, no significant short-term noise impacts would occur from construction activities. (NS)	No measures are required.	Not significant.
Commercial Noise Sources		
Proposed commercial land uses would be adjacent and near proposed residential land uses which would be exposed to varying amounts of commercial noise impacts from such sources as air condition units, trash compactors, fans, compressors, and truck deliveries. (PS)	Prior to the issuance of a building permit for the proposed commercial uses, the project applicant shall demonstrate that project commercial noise source impacts on nearby residences are below those indicated in the City's hourly noise level performance standards. To demonstrate commercial noise source impacts are below the City's standards, the project applicant may need to include project design features such as setbacks, barriers, building location/orientation, acoustical design of buildings, etc.	Not significant.

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Project-Related Onsite Traffic Noise		
Development of the proposed land uses would result in a daily traffic volume increase of approximately 60,976 trips. In the year 2010, two onsite street segments along Masterson Street would experience noise levels that exceed 65 dB CNEL, which is considered a significant impact in noise impact. In the year 2020, there would be 6 onsite street segments along Panorama Drive, Vineland Road, SR 178 (future alignment), Masterson Street, and Paladino Drive that would experience noise levels that exceed 65 dB CNEL which is also considered a significant noise impact. (S)	Prior to the issuance of building permits, the project applicant shall reduce noise levels on the project residences by setting residential uses back from the roads by a distance equal to or greater than the 65 dB CNEL contour. For the future alignment of SR 178, the minimum setback distance shall be 188 feet; for the remaining roadway mentioned above, the minimum setback shall be 84 feet. As an alternative to setbacks, the project applicant could use sound walls to mitigate traffic noise levels. The exact height and placement of soundwalls would depend on lot design and grading. Walls in the range of 6 to 10 feet probably would suffice for most situations. When lot design and grading are established, an acoustical consultant shall establish necessary wall heights and locations.	Not significant.
Project Related Offsite Traffic Noise		
In the year 2010, one offsite roadway segment (along SR 178) would experience a significant adverse project-related traffic noise level and in the year 2020, there would be 6 offsite roadway segments (along Panorama Drive, Fairfax Road, and Paladino Drive) that would experience significant adverse project-related traffic noise levels. (S)	No feasible measures are available for the project applicant to reduce offsite traffic noise.	Significant and unavoidable.
Mesa Marin Raceway Noise		
Development of residential land uses in the southern half of the project site will expose residents to noise levels that exceed L50-55 dBA. These noise levels would be generated by racing events at the adjacent Mesa Marin Raceway. (S)	No feasible measures are available for the project applicant to reduce noise levels from the Mesa Marin Raceway to less than L50-55 dBA.	Significant and unavoidable.
Cumulative Offsite Traffic Noise		
In the year 2020, the proposed project and future growth will result in significant adverse cumulative traffic noise levels along Panorama Drive, old SR 178, Fairfax Road, Morning Drive, SR 184, SR 178 (future alignment), Masterson Street, and Paladino Drive. (S)	No feasible measures are available for the project applicant or applicants for development of future growth to reduce offsite traffic noise.	Significant and unavoidable.

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
AIR QUALITY (Section 5.5)		
Short-Term Emissions		
Construction activities are a source of dust (PM10) emissions that can have a substantial temporary impact on local air quality. Fugitive dust emissions are associated with land clearing, ground excavation, cut and fill operations, and truck travel on unpaved roads. (S)	The construction of the proposed project would result in the generation of fugitive dust. Compliance with SJVUAPCD Regulation VIII and the City of Bakersfield air quality regulations would result in no significant fugitive dust emissions. To ensure compliance, the following measure shall be implemented. Prior to approval of a grading plan for any residential tract, multiple family project, and commercial project, the project applicant shall submit a letter to the City of Bakersfield Planning Department from the SJVUAPCD stating the dust suppression measures that shall be completed during construction activities to comply with SJVUAPCD Regulation VIII. In addition to compliance with Regulation VIII, the following shall be incorporated into building plans. The following measures can further reduce fugitive dust emissions associated with the project.	Not signficant.

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	The following shall be incorporated into building plans. • Cover all access roads and parking areas with asphalt-concrete paving. • Asphalt-concrete paving shall comply with SJVUAPCD Rule 4641 and restrict the use of cutback, slow-cure and emulsified asphalt paving materials. • Use water sprays or chemical suppressants on all unpaved areas to control fugitive emissions. • Enclose, cover or water all stockpiled soils to reduce fugitive dust emissions. • Cease grading activities during periods of high winds (greater than 20 mph over a one-hour period). • Limit construction-related vehicle speeds to 15 mph on all unpaved areas at the construction site. • All haul trucks should be covered when transporting loads of soil. • Wash off construction and haul trucks to minimize the removal of mud and dirt from the project sites.	

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Construction activity will also result in exhaust emissions from diesel-powered heavy equipment. Exhaust emissions from construction include emissions associated with the transport of machinery and supplies to and from the site, emissions produced onsite as the equipment is used, and emissions from trucks transporting excavated materials from the site and fill soils to the site. Examples of these emissions include CO, ROG, NO_x, SO_x and PM_{10}. (S)	The following shall be incorporated into grading and building plans. • Properly and routinely maintain all construction equipment, as recommended by manufacturer manuals, to control exhaust emissions. • Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling engines. • Encourage ride sharing and use of transit transportation for construction employee commuting to the project sites. • Use electric equipment for construction whenever possible in lieu of fossil fuel-fired equipment.	Not Significant.
Long-Term Emissions Long-term emissions will be caused by mobile sources (vehicle emissions) and stationary source energy consumption (heating and cooling) emissions. The major long-term impact to air quality will be ROG and NOx emissions caused by motor vehicles traveling to and from the project site, and NOx emissions from stationary source energy consumption. (S)	Prior to issuance of a building permit, transportation control measures and design features shall be incorporated into the project to reduce emissions from mobile sources. A strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, and traffic congestion includes the following: • Improve street and traffic signals for those intersections and street segments that the proposed project contributes traffic.	Significant and unavoidable.

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	The project applicant shall incorporate the following in building plans. • Use low-NO_x emission water heaters. • Provide shade trees to reduce building cooling requirements. • Install energy-efficient and automated air conditioners. • Exterior windows shall all be double-paned glass. • Energy-efficient (low-sodium) parking lights shall be used. • Use EPA-approved wood burning stoves, fireplace inserts or pellet stoves in lieu of conventional fireplaces.	
Conformity With The Air Quality Attainment Plan		
The Air Quality Attainment Plan recognized growth of the population and economy within the Air Basin. The plan predicted the workforce in Kern County to increase 40 percent and housing to increase 30 percent from 1990 to 2000. This project can be viewed as growth that was anticipated by the plan. (NS)	No measures are required.	Not Significant.
CULTURAL RESOURCES (Section 5.6)		
Archaeological/Historical Resources		
Implementation of the proposed project would affect two archaeological sites; however, these sites have characteristics of a single, one-time only activity. Therefore, these two sites were determined to be not significant. (NS)	If cultural resources are unearthed during construction activities, all work shall be halted in the area of the find. A qualified archaeologist shall be called in to evaluate the findings and recommend any necessary mitigation measures. Proof of compliance with any recommendations resulting from such evaluation, if required, shall be submitted to the Southern San Joaquin Valley Archaeological Information Center (AIC) at California State University, Bakersfield, and to the City of Bakersfield Development Services Department.	Not significant.

TABLE 2-1

EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Paleontological Resources Grading activities in the southwest portion of the project site between elevations 600 feet and 700 feet could result in impacts to the Sharktooth Hill bonebed. (PS)	A paleontological monitoring program that includes the following measures shall be implemented to reduce potential impacts on the Sharktooth Hill bonebed. • Prior to grading, a paleontologist shall be retained, attend a pre-grading meeting, and set forth the procedures to be followed during the monitoring program. • One paleontological monitor that is trained and equipped to allow rapid removal of fossils with minimal construction delay is expected to be sufficient. Full-time monitoring of the portions of the project site that have earth-disturbing activities at elevations between 600 feet and 700 feet shall be provided. • If fossils are found within an area being cleared or graded, earth-disturbing activities shall be diverted elsewhere until the monitor has completed salvage of the fossils. If construction personnel make the discovery, the grading contractor shall immediately divert construction and call the monitor to the site. Major salvage time may be shortened by grading constructor's assistance (e.g., removal of overburden, lifting, and removing large and heavy fossils). • The project paleontologist shall prepare, identify, and curate all recovered fossils. Upon completion of grading, the project paleontologist shall prepare a summary report documenting mitigation and results, with itemized inventory of collected specimens. The paleontologist shall submit the report to the City of Bakersfield, designated depository, and any other appropriate agency, and transfer fossil collection to an appropriate depository. The summary report shall be submitted to the City. This submittal will signify completion of the program to mitigate impacts on paleontological resources.	

TABLE 2-1
EXECUTIVE SUMMARY
(CONTINUED)

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
HAZARDOUS MATERIALS COMPLIANCE (Section 5.7)		
Implementation of the proposed project would not result in impacts with known and/or suspect hazardous materials. However, there is a potential that previously unknown hazardous materials contamination from historical use of the project site may be encountered during project development activities. It is unlikely that any such contamination would be extensive beyond the capacities of typical remediation measures. (NS)	Prior to the issuance of grading permits, the grading permits, the grading plans shall specify that in the event that hazardous waste is discovered during site preparation or construction, the property owner/developer shall ensure that the identified hazardous waste and/or hazardous material is handled and disposed of in the manner specified by the State of California Hazardous Substances Control Law (Health and Safety Code, Division 20, Chapter 6.5) and according to the California Administrative Code, Title 30, Chapter 22.	Not significant.
Implementation of the City in the Hills Project would introduce new land uses to the project area and hence would result in the additional use of hazardous materials and an increase in hazardous waste generated onsite. (NS)	The applicant shall handle and dispose of all hazardous materials and wastes during the operation and maintenance of facilities in accordance with state codes.	Not significant.
Implementation of the proposed project could result in potential impacts with unrecorded oil wells. (NS)	Prior to the issuance of grading permits, the grading plans shall specify that in the event that any abandoned or unrecovered oil wells are uncovered or damaged during excavation or grading, remedial plugging operations will be required. No structures are to be located over a previously plugged or abandoned well.	Not significant.
PUBLIC SERVICES AND UTILITIES (Section 5.8)		
<u>Fire Protection Services</u>		
Development of the proposed project would result in a substantial increase in population and structures on the project site and require 8.7 additional fire protection personnel to serve the site based on the current City staff levels. (S)	Prior to the issuance of building permits, the project applicant shall pay its fair share toward the construction of a new fire station and provision of fire department personnel that will serve the project vicinity. Prior to the approval of grading plans, the project applicant shall submit emergency fire access plans to the Fire Department for review and approval to assure that service to the site is in accordance with the Bakersfield Fire Department requirements.	Not significant.

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	Prior to the commencement of structured framing onsite, the project applicant shall install fire hydrants in accordance with the City-approved building plans. Prior to the approval of street improvement plans, the project applicant shall demonstrate to the City Fire Department that the onsite water supply system is designed to provide sufficient fire flow pressure and storage in accordance with City Fire Department requirements.	
Police Protection Services		
Development of the proposed project would result in a substantial increase in population and structures on the project site and require 15 additional police protection personnel to serve the site based on the current City staff levels. (S)	Prior to the issuance of building permits, the project applicant shall pay its fair share toward the provision of additional police protection personnel and equipment that will serve the project vicinity.	Not significant.
School Services		
Implementation of the proposed project would result in the generation of 2,087 K-6th, 821 7-8th, and 1,013 9-12th students. (S)	Prior to the issuance of building permits, the project applicant shall pay District-adopted development impact school fees that are in effect at the time of issuing each permit. The District-adopted fees are required to be in accordance with State statutes that are in effect at the time of issuing each permit.	Not significant.
Solid Waste Services		
The proposed project would generate approximately 12,200 tons of solid waste per year. (NS)	Prior to the issuance of building permits for residential uses, the applicant shall demonstrate how the project would participate in a waste management program, which includes but is not limited to the following: • A commitment to contract with a recycling business for the collection and repossessing of glass, mixed and newsprint paper, plastics, and aluminum for all residential uses. • A commitment to begin the recycling when solid waste collection begins.	Not significant.

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
	• Provision of onsite receptacles for the collection of glass, mixed and newsprint paper, plastics, and aluminum for recycling purposes shall be provided. Locations of receptacles shall be indicated on building plans. • Ensuring that hazardous waste disposal complies with federal, state, and city regulations.	
Electricity		
The proposed project would result in the consumption of approximately 66.3 million kilowatt hours per year. (NS)	No measures are required.	Not significant.
Natural Gas		
Development of the proposed project would result in the consumption of approximately 61 million cubic feet of natural gas per year. (NS)	No measures are required.	Not significant.
Wastewater		
The proposed project would result in the generation of approximately 1.5 million gallons per day. (NS)	No measures are required.	Not significant.
Water		
The proposed project would result in the consumption of 2.7 million gallons per day at full buildout. (NS)	Prior to the issuance of building permits, the project applicant shall coordinate with the California Water Company to establish precise locations for water distribution and storage facilities that would be constructed onsite and offsite to adequately serve each of the residential and non-residential water needs of the proposed project.	Not significant.

IMPACT	MITIGATION MEASURES	LEVEL OF SIGNIFICANCE AFTER MITIGATION
Stormwater Drainage Development of the proposed project would result in substantial increases in stormwater runoff and result in potential significant impacts on existing drainage facilities (S)	Prior to the issuance of a grading permit, the project applicant shall submit drainage plans for the project site for review and approval by the City of Bakersfield. The drainage plans shall identify all necessary onsite and offsite drainage facilities to accommodate project-related as well as cumulative (in accordance with the existing General Plan) drainage volumes and velocities. Modifications to the existing PDA for the Breckenridge area will require an approval of an amendment to the PDA by the City of Bakersfield.	Not Significant
AESTHETICS (Section 5.9)		
Since the project site does not currently include any development, implementation of the proposed project would substantially alter the existing visual characteristics of the site and substantially alter the existing viewsheds surrounding the site. (S)	Prior to the issuance of grading permits, the project applicant shall prepare landscape plans for the project area to provide visual relief from project structures.	Not significant.
The proposed project would introduce new sources of light associated with the general commercial land uses, including parking lot lighting, sign lighting, and security lighting. Increased traffic in the area would also create additional sources of light. (S)	Prior to the issuance of building permits, the project applicant shall outline specifications for outdoor lighting locations and other intensely lighted areas. The specifications shall identify minimum lighting intensity needs and design lights to be directed towards intended uses. Methods to reduce light impacts may include low-intensity light fixtures and hooded shields. Prior to the issuance of building permits, the project applicant shall submit and obtain City approval of lighting plans. The lighting plans shall verify that outdoor lighting on private residences is designed so that all direct rays are confined to the site and that adjacent residences are protected from substantial light and glare.	Not significant.

SECTION 3
PROJECT DESCRIPTION

3.1 PROJECT LOCATION

The project site is located in the northeastern portion of the City of Bakersfield in Kern County, approximately 8.5 miles east of State Roue 99 and 3 miles north of SR 58 (see Exhibit 3-1). The project site consists of approximately 694 acres and is generally located north of SR 178, west of Masterson Lane, south of Paladino Drive, and east of the future extension of Vineland Road which is located approximately one mile east of Morning Drive (see Exhibit 3-2). The project site is located on the United States Geologic Services (USGS) topographic map in Sections 17 (640.1 acres), the Southeast ¼ of the Southeast ¼ of Section 18 (40 acres), the extreme northeast portion of Section 19 (9 acres), and the extreme northwest portion of Section 20 (4.9 acres) in Township 29 South and Range 29 East.

3.2 PROJECT CHARACTERISTICS

The proposed project involves a mixed-use development. The proposed uses include 2,750 single family lots, 1,300 multiple family lots, and 1,048,706 square feet of gross leasable commercial floor area. Table 3-1 provides a land use statistical summary of the proposed project. As shown in Table 3-1, the project includes a residential population of approximately 11,500 and approximately 2,060 employment opportunities.

TABLE 3-1
LAND USE STATISTICAL SUMMARY

LAND USE	AREAS	UNITS/SF[a]	POPULATION	EMPLOYMENT
Residential				
Low Density	500.0	2,750 units	8,305	N/A
High Density	65.5	1,300 units	3,198	N/A
Commercial				
General Commercial	96.9	1,048,706 SF	N/A	2,056
Other				
SR 178	27.3	N/A	N/A	N/A
SR 178 Ramp Right-of-Way	4.2	N/A	N/A	N/A
TOTAL	**693.9**	**4,050 units/ 1,048,706 SF**	**11,503**	**2,056**

SF – Square Feet N/A – Not Applicable

[a] Information is based on the traffic report in Appendix C prepared by Crenshaw Traffic Engineering in March 2000.

[b] Based on 3.02 people per low density residential dwelling units and 2.46 people per high density residential dwelling units.

[c] Based on 1 employee per 510 square feet of general commercial.

Source: Michael Brandman Associates 2000.

As shown in Table 3-1, the proposed project includes right-of-way for the future re-alignment of SR 78 as well as the right-of-way for the Vineland Road and Masterson Street freeway ramps. North of the future re-alignment primarily includes single family lots with some multiple family lots and commercial uses in the southwest portion of the site and commercial uses along the eastern portion of the site. South of the future re-alignment includes multiple family lots and commercial uses.

Buildout of the City in the Hills project is proposed to occur over 20 years. The project will generally be developed in two phases with half of the project built out by the year 2010 and full project buildout occurring in the year 2020. The specific developments occurring during each phase has not yet been determined. It is assumed, however, that although not an element of the project, SR 178 will be realigned and at full freeway status by the year 2020. Additionally, it is assumed that there will be the following interchanges: Fairfax Road, Morning Drive, Vineland Road, and Masterson Street by the year 2020. Approximately 4.5 percent (31 acres) of the project site has been set aside for the ultimate right-of-way alignment of SR 178.

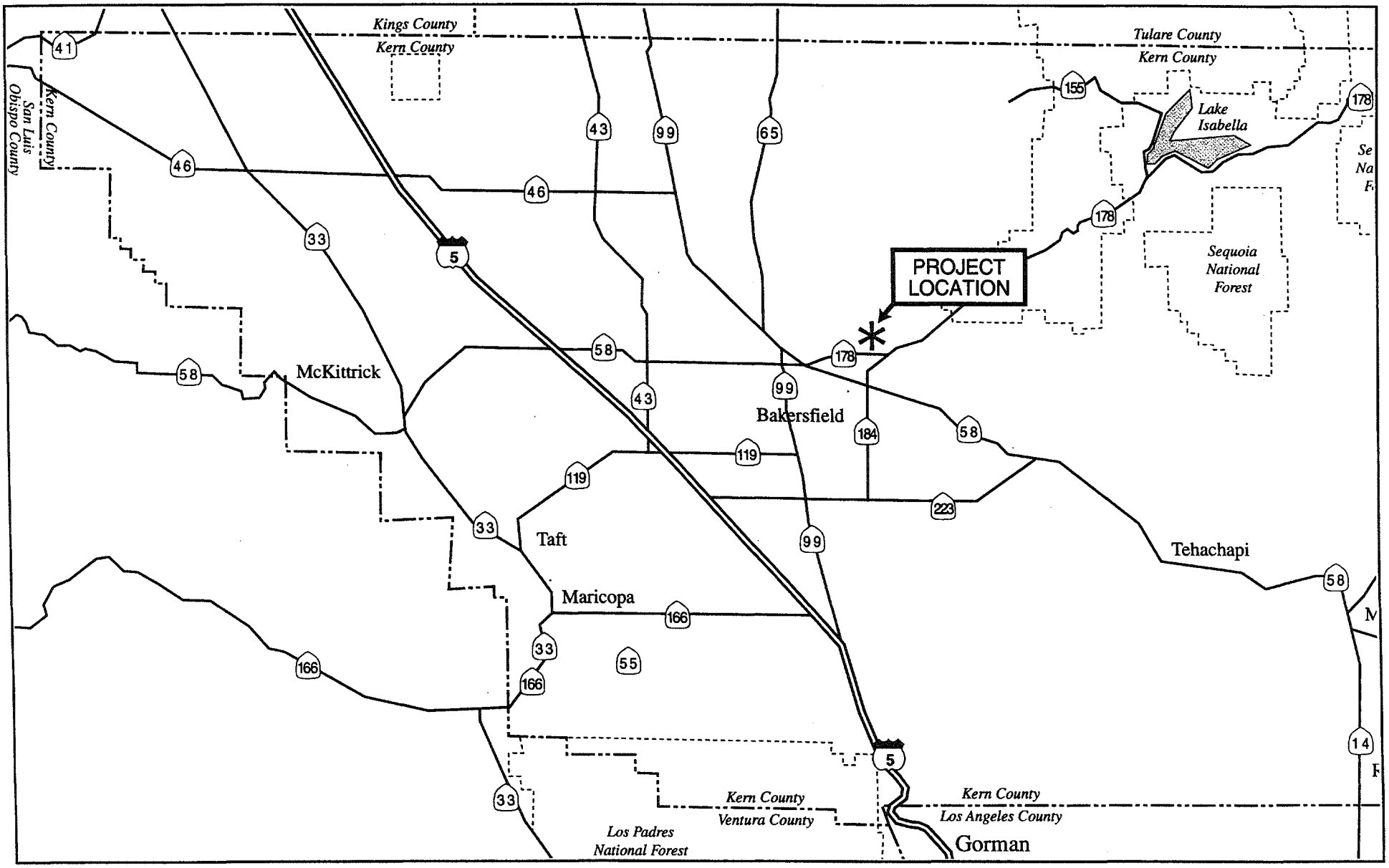
GENERAL PLAN LAND USE ELEMENT AMENDMENT

Exhibit 3-3 illustrates the proposed land use changes on the project site. Table 3-2 provides a summary of the proposed General Plan land use changes.

TABLE 3-2
PROPOSED GENERAL PLAN LAND USE DESIGNATION CHANGES

Existing Land Use Element Designations	Proposed Land Use Element Designations	Acreage
MUC (Mixed Use Commercial) LR (Low Density Residential) HR (High Density Residential)	GC (General Commercial)	96.9
LR (Low Density Residential)	LR (Low Density Residential # 7.26 dwelling units per net acre)	500
MUC (Mixed Use Commercial) LR (Low Density Residential)	HR (High Density Residential > 17.42 > 72.60 dwelling units per net acre)	65.5
Various	Roads	31.5
TOTAL GENERAL PLAN LAND USE DESIGNATION CHANGES		**693.9**

The proposed land use amendments will occur in the vicinity of the proposed re-alignment of SR 78. The land use amendments include changing existing uses to high density residential and general commercial because these uses would be generally more compatible with the future re-alignment of SR 78.



NORTH

12 6 0 12
SCALE IN MILES

Michael Brandman Associates

Exhibit **3-1**
Regional Location Map

02160011 • 5/2000

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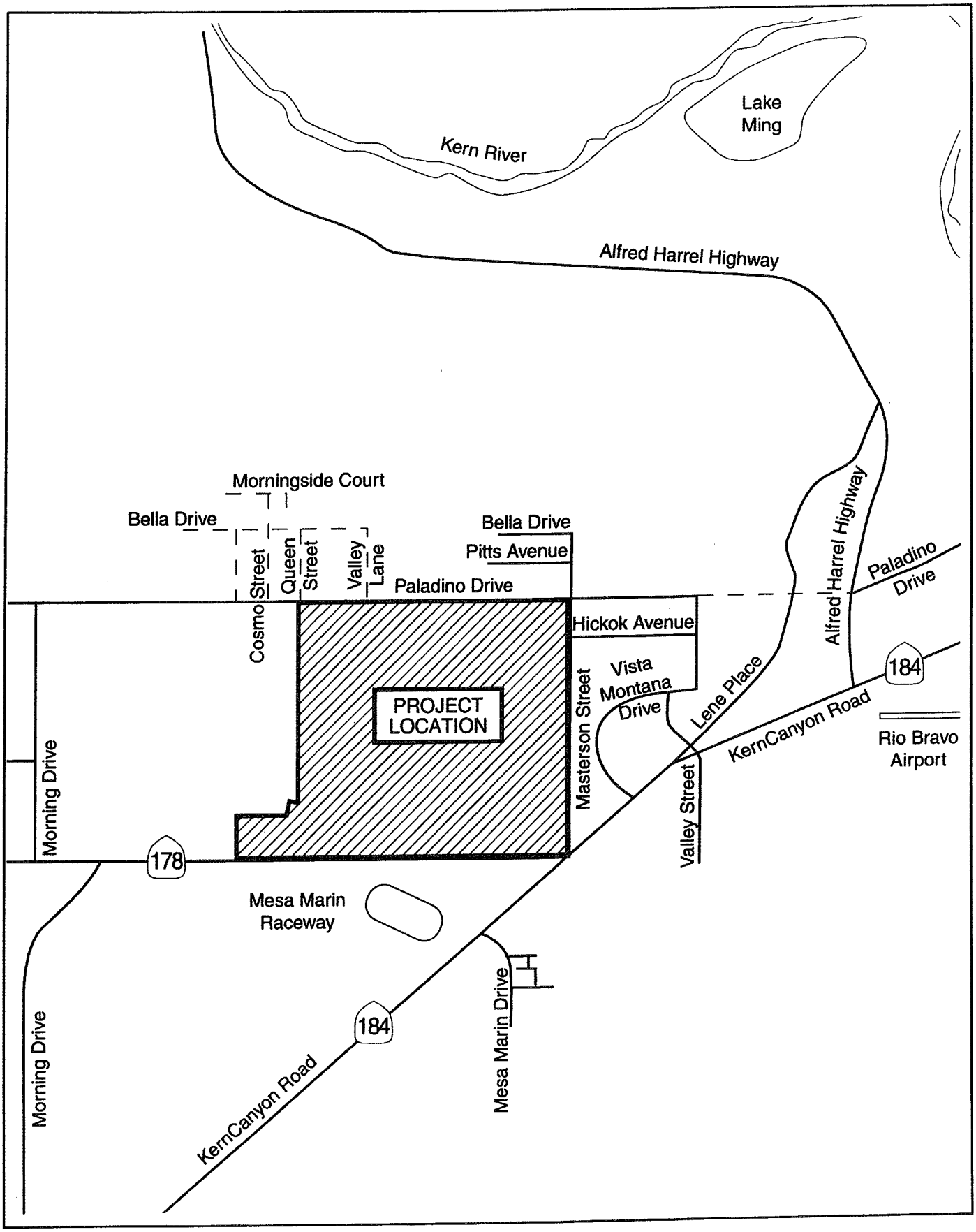


NORTH

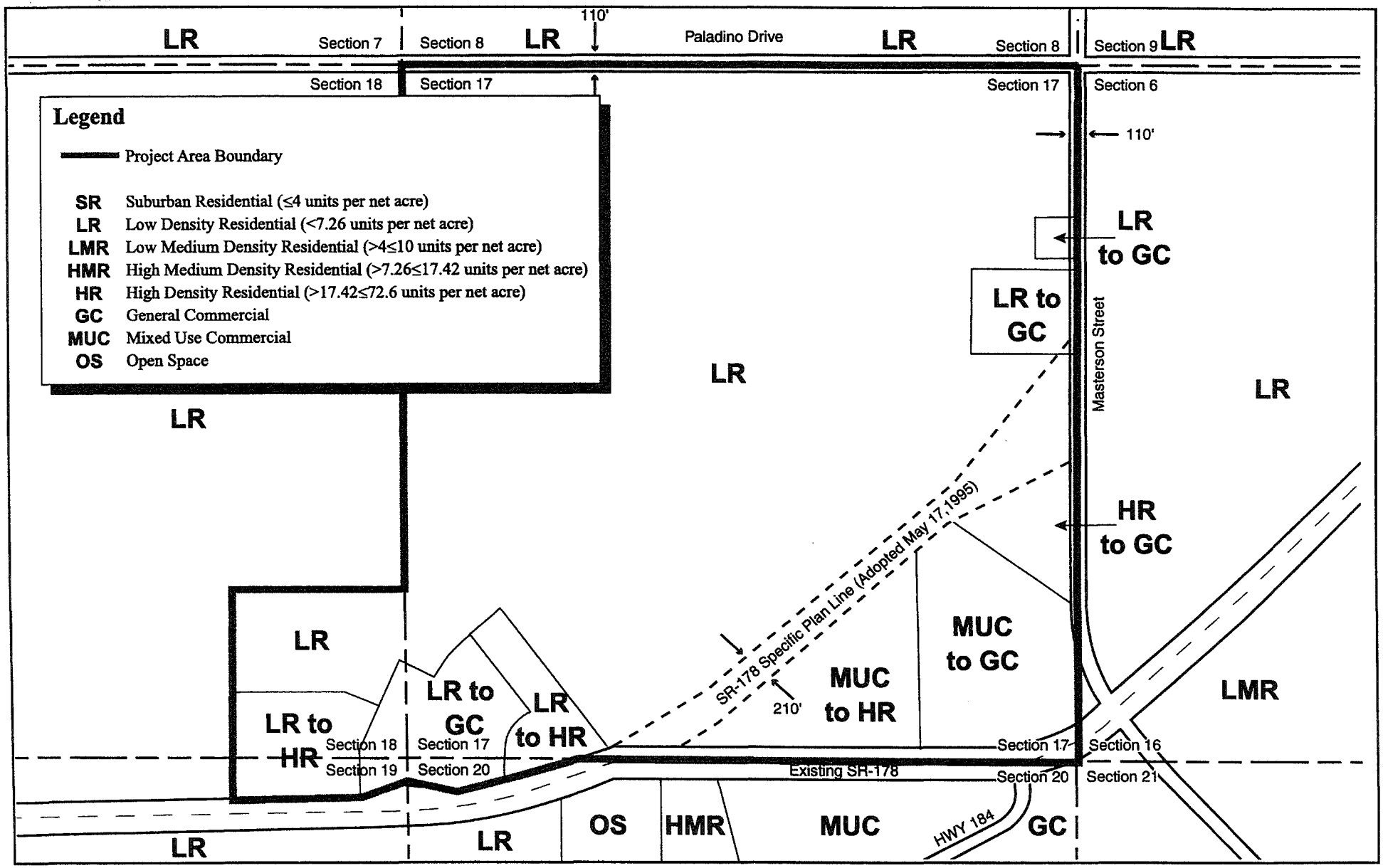
0.5 0.25 0 0.5
SCALE IN MILES

Michael Brandman Associates

Exhibit **3-2**
Local Vicinity Map

02160011 • 5/2000

CITY OF BAKERSFIELD • CITY IN THE HILLS



SOURCE: Porter-Robertson Engineering, January 2000.

Michael Brandman Associates

NORTH

1056 528 0 1056
SCALE IN FEET

Exhibit 3-3
Proposed General Plan Amendment

CIRCULATION ELEMENT AMENDMENTS

Amendments to the Circulation Element are proposed as part of the project. As shown on Exhibit 3-4, a portion of an east-west onsite collector is proposed to be realigned along with a northeast to southwest arterial that extends from Paladino Drive to Queen Street. The project includes a proposed northeast to southwest collector that will intersect SR 178 along the Vineland Road alignment, a proposed collector along the Valley Lane alignment between Paladino Road and the alignment of Panorama Drive, a realignment of Panorama Drive through the project site, and a realignment of an arterial between Paladino Drive and the future alignment of Panorama Drive. Furthermore, a loop road on the project site is proposed as a collector.

ZONE CHANGE

Exhibit 3-5 present the proposed land use changes to the Zoning Map. The zone changes have been requested to bring the zoning land use designations into conformance with the proposed General Plan land use changes. Table 3-5 provides a summary of the proposed zone changes.

TABLE 3-3
PROPOSED ZONING DESIGNATION CHANGES

Existing Zoning Designations	Proposed Zoning Designations	Acreage
A (Agriculture), R-1 (One Family Dwelling)	C-2 (Regional Commercial)	96.9
A (Agriculture)	R-1 (One Family Dwelling 6,000 sq. ft. minimum lot size)	500
A (Agriculture), R-1(One Family Dwelling)	R-3 (Limited Multi-Family 6,000 sq. ft. minimum lot area, one dwelling unit per 1,250 sp. Ft. minimum)	65.5
Various	Roads	31.5
TOTAL ZONING DESIGNATION CHANGES		**693.9**

The entire project site is subject to a zone change. The majority of the project site is being changed from A (Agriculture) to R-1 (One Family Dwelling Zone). Other areas are being changed from A (Agriculture) to C-2 (Regional Commercial) and R-3 (Limited Multi-Family). In the southwest portion of the project site, the zone changes include R-1 (One Family Dwelling Zone) to C-2 (Regional Commercial) and R-3 (Limited Multi-Family).

STATE ROUTE 78 SPECIFIC PLAN LINE AMENDMENT

The proposed project includes the dedication of right-of-way for an interchange at Masterson Street. The current SR 78 Specific Plan Line does not include an interchange at Masterson Street.

PLAN DRAINAGE AREA FOR BRECKENRIDGE AMENDMENT

The proposed project includes the modification of planned drainage facilities that are currently part of the Plan Drainage Area for Breckenridge. The southern portion of the site was originally identified for a drainage basin; however, due to drainage issues associated with other parts of the Plan Drainage Area, a comprehensive re-evaluation of the area is currently being prepared.

3.3 PROJECT OBJECTIVES

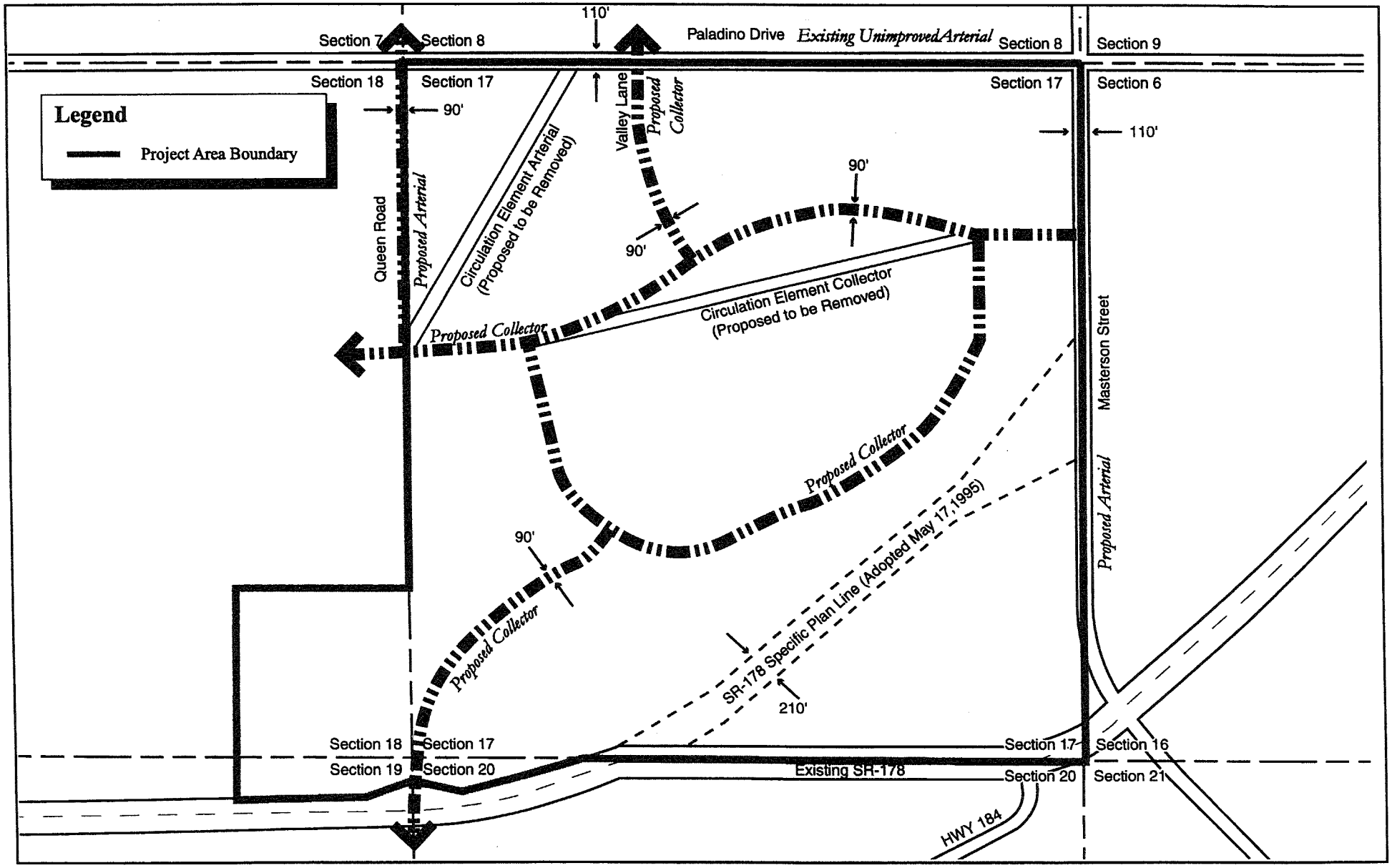
The following are the development objectives for the proposed project.

- Provide a residential and commercial use community that includes similar uses and quantity of uses as currently identified in the Metropolitan Bakersfield 2010 General Plan Land Use Element for the project site.
- Provide a mixed use residential community that includes at least 4,000 units with an average density of less than 7.26 units per acre.
- Provide a range of housing types on the project site.
- Provide right-of-way for the future construction of the approved SR 178 Freeway and the Vineland Road interchange.
- Provide right-of-way for the future construction of the SR 178 and Masterson Street interchange.
- Provide general commercial uses adjacent to the proposed SR 178 interchanges at Vineland Road and Masterson Street.

3.4 INTENDED USE OF THIS EIR, RESPONSIBLE AGENCIES, AND APPROVALS NEEDED

The City of Bakersfield is the lead agency for the project and has discretionary authority over the primary project approvals which include the following:

- **General Plan Land Use Element Amendment** – The project applicant is required to obtain General Plan Land Use Element amendments from the City prior to approval of a zone change. Following is



SOURCE: Porter-Robertson Engineering, January 2000.

NORTH

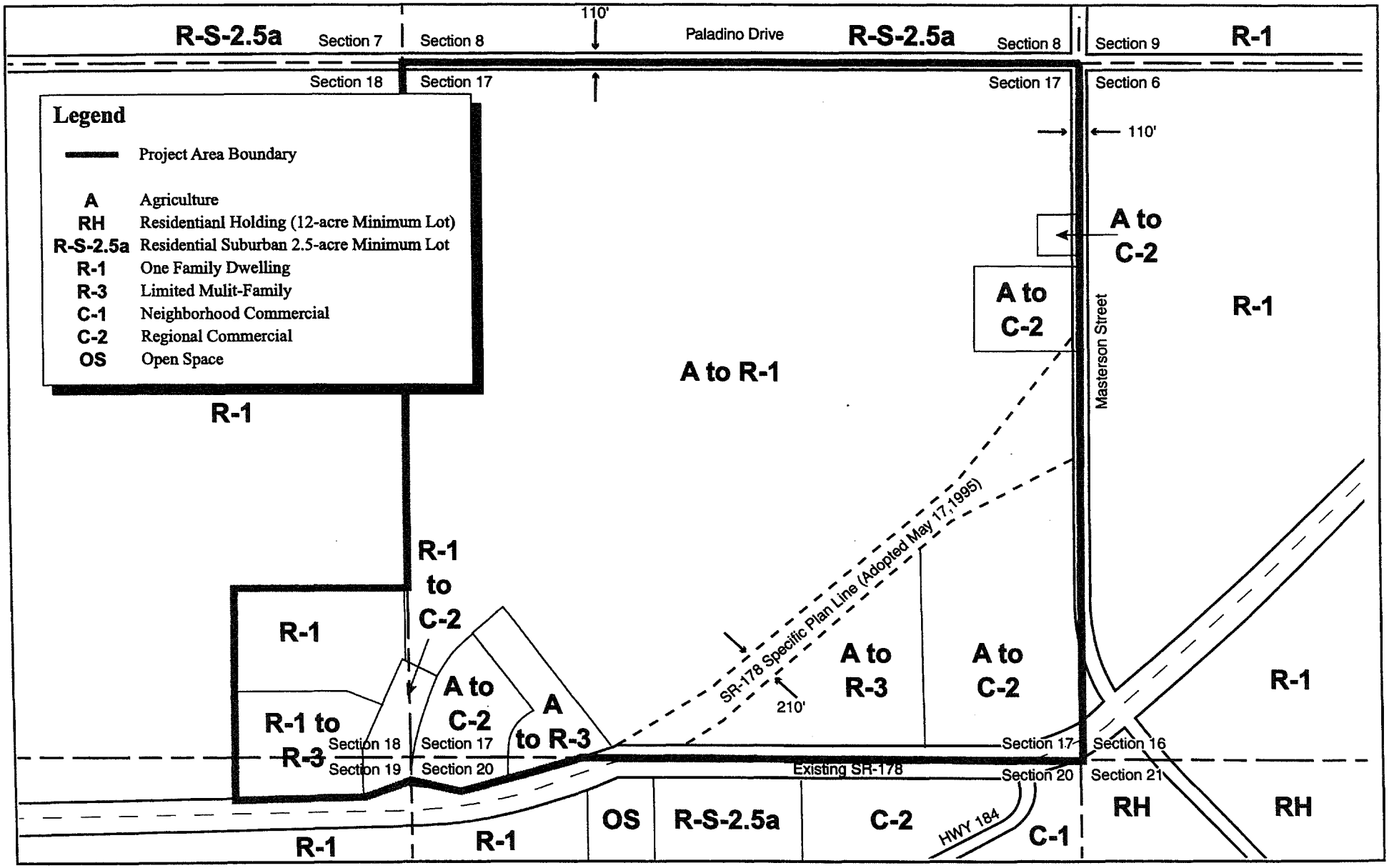
1056 528 0 1056

SCALE IN FEET

Michael Brandman Associates

Exhibit **3-4**

Proposed Circulation Element Amendment Map



SOURCE: Porter-Robertson Engineering, January 2000.

NORTH

1056 528 0 1056
SCALE IN FEET

Michael Brandman Associates

Exhibit 3-5
Proposed Zone Change

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a list of the required amendments:

- Approval of an amendment to redesignate 96.9 acres of land to General Commercial from Mixed Use Commercial, and Low and High Density Residential.

- Approval of an amendment to redesignate 65.5 acres of land to High Density Residential from Mixed Use Commercial and Low Density Residential.

- **General Plan Circulation Element Amendment** – The project applicant is required to obtain General Plan Circulation Element Amendments prior to approval of a zone change. Following is a list of required amendments:

  - Approval of an amendment to revise and realign the future alignment of Panorama Drive to a proposed collector from an arterial between the future alignment of Queen Street and Masterson Street.

  - Approval of an amendment to revise and realign an arterial along the Queen Street alignment between Paladino Drive and the future alignment of Panorama Drive.

  - Approval of an amendment to add a collector along the Valley Lane alignment between Paladino Drive and the future alignment of Panorama Drive.

  - Approval of an amendment to add a collector that loops within the project site and connects at both ends to the future alignment of Panorama Drive.

  - Approval of an amendment to add a collector from the proposed onsite loop road to the future SR 78 interchange at the Vineland Road alignment.

- **Zone Change** - The project applicant is required to obtain various changes to zoning designations on the project site prior to subsequent approvals. Following is a list of required zone changes.

  - Approval of a zone change from A and R-1 (Agriculture and One Family Dwelling) on 96.9 acres to C-2 (Regional Commercial).

  - Approval of a zone change from A (Agriculture) on 500 acres to R-1 (One Family Dwelling).

  - Approval of a zone change from A and R-1 (Agriculture and One Family Dwelling) on 65.5 acres to R-3 (Limited Multi Family Residential).

  - An additional 27.3 acres of land having various zoning designations are proposed for roadway infrastructure.

- **SR 78 Specific Plan Line Amendment** – The project applicant is required to obtain approval to dedicate right-of-way for an interchange at Masterson Street.

- **Plan Drainage Area for Breckridge Amendment** – The project applicant is required to obtain approval to modify the Plan Drainage Area for Breckenridge.

- **Development Agreement** - A development agreement with the City of Bakersfield is requested by the project applicant to vest development rights.

This EIR can also be reviewed/used by the City of Bakersfield for the following additional approvals.

- **Tentative Parcel, Tract Maps and Master Plans** - Individual tentative parcel or tract maps and master plans may also be processed at a future time for smaller parcels having particular development characteristics or needs.

- **Conditional Use Permits** - Approval of future uses, which are conditionally permitted under the proposed zoning, is subject to review and approval of the City.

- **Grading Permits** - Future grading for development of the project site will be subject to the review and approval of grading permits by the City.

- **Building Permits** - Future construction of structures on the project site will be subject to the review and approval of building permits by the City.

In addition to the project approvals required by the City of Bakersfield, the California Department of Fish and Game may be considered a responsible and trustee agency for the proposed project.

- **Section 1603 Streambed Alteration Agreement** - The project may require a California Department of Fish and Game Streambed Alteration Agreement pursuant to Section 1603 of the California Department of Fish and Game Code associated with the disturbance of wildlife habitats. A written agreement is required prior to allowing development that may threaten, harm, or destroy existing wildlife habitats areas of jurisdiction.

- **Section 404 of the Clean Water Act** – The project may require a U.S. Army Corps of Engineers (USACE) Section 404 permit because more than 1 acre of an area that is classified as "waters of the United States" may be developed. The USACE has jurisdiction over developments in or affecting waters of the United States. A USACE permit is required prior to discharging any dredge or fill material into United States water, pursuant to Section 4040 of the Clean Water Act.

- **Section 401 Water Quality Certification** – State of California, Regional Water Quality Control Board Santa Ana Region. Pursuant to the Federal Clean Water Act (Section 402[g]) and State General Construction Activity Storm Water Permit, a National Pollution Discharge Elimination System Permit (NPDES) would be required for the project because construction activities would result in the disturbance of more than 5 acres. Pursuant to Section 401(a)(1) of the Clean Water Act, a Section 401 water quality certification or waiver would be required for the project before any Federal permit can be issued.

SECTION 4
GENERAL DESCRIPTION OF ENVIRONMENTAL SETTING

4.1 OVERVIEW OF ENVIRONMENTAL SETTING

The project site is located in the northeast portion of the City of Bakersfield in the County of Kern, California. The approximately 694-acre site is situated between SR 178, Masterson Street, Paladino Drive, and the undeveloped northerly portion of Vineland Road and Queen Street (one mile east of Morning Drive). The site is vacant and contains primarily non-native grassland vegetation. The project site is characterized by relatively flat terrain that has an elevation of 754 feet in the northeast portion of the site and an elevation of 690 feet in the southwest portion of the site.

The surrounding areas can also be primarily characterized as undeveloped open space with non-native grassland vegetation. North of the project site, there are a few large-lot residences and further north there are rolling hills that include Ant Hill. Ant Hill extends to the highest elevation (960 feet) in the northeast Bakersfield area. West of the project site, there are some oil facilities east of Morning Drive and residences, church, and schools are located west of Morning Drive. South of the project site is a gas station and the Mesa Marin Raceway. East of the site includes non-native grassland immediately adjacent to the site and low-density residential uses further east of the site. The Rio Bravo Airport which is a private airport is located approximately one mile southeast of the site. The airport includes some daytime use and no nighttime use.

4.2 RELATED PROJECTS

Section 15310 of the CEQA Guidelines requires that the EIR discuss cumulative impacts of a project when the incremental effects of a project are cumulatively considerable. Cumulative impacts are defined as an impact that is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts. Cumulatively considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. According to the CEQA Guidelines, elements considered necessary to provide an adequate discussion of cumulative impacts of a project include either: (1) list of past, present, and probable future projects producing related or cumulative impacts; or (2) a summary of projection contained in an adopted General Plan or related planning document which is designed to evaluate regional or areawide conditions.

The cumulative analysis discussed in Section 5 varies depending on the environmental component that is analyzed. The cumulative analysis for Sections 5.1 (Land Use and Planning), 5.2 (Biological Resources), 5.6 (Cultural Resources), 5.7 (Hazardous Materials Compliance, 5.8 (Public Services and Utilities, and 5.9

(Aesthetics) was based on buildout of the General Plan designations in the Metropolitan Bakersfield 2010 General Plan and major development projects that have been approved or are currently being processed in the Metropolitan Bakersfield area since the adoption of the General Plan. The General Plan encompasses an area of 408 square miles in Kern County, including the City and within the City's sphere of influence. Based on the Metropolitan Bakersfield 2010 General Plan, the buildout of the City and County General Plans within the City's sphere of influence since 1985 would result in an increase in population and dwelling units by 65,712 and 23,845, respectively. Buildout of the non-residential land uses would result in an increase of approximately 1,490 acres of commercial uses, approximately 1,870 acres of industrial uses, and approximately 1,040 acres of schools and public facilities.

The cumulative analysis for Sections 5.3 (Traffic and Circulation), 5.4 (Noise), and 5.5 (Air Quality) assume development in accordance with an annual growth rate for the northeast Bakersfield area. Based on input from the City of Bakersfield, the growth rate used for this area is 3 percent per year.

SECTION 5

EXISTING CONDITIONS, PROJECT IMPACTS, CUMULATIVE IMPACTS, MITIGATION MEASURES, AND LEVEL OF SIGNIFICANCE AFTER MITIGATION

5.1 LAND USE AND PLANNING

Information in this section is based on site surveys conducted by Michael Brandman Associates (MBA) in January 2000. MBA also utilized ground and aerial photographs from the onsite and surrounding land use analysis, as well as the following reference documents:

- Metropolitan Bakersfield 2010 General Plan (March 1990);
- Final Environmental Impact Report (EIR) for the Metropolitan Bakersfield 2010 General Plan (September 1989);
- Zoning Ordinance – Bakersfield Municipal Code, Title 17 (December 1999)

The purpose of this section is to identify the existing land use conditions on and surrounding the project site, analyze the project's compatibility with existing onsite and surrounding land uses, and to evaluate the project's consistency with relevant plans and policies.

5.1.1 EXISTING CONDITIONS

Onsite Land Uses

The project area encompasses a total of 694 acres in an area that is generally identified as the rural northeast as defined by the Metropolitan Bakersfield 2010 General Plan. The project site is characterized by relatively flat terrain that has an elevation of 754 feet in the northeast portion of the site and an elevation of 690 feet in the southwest portion of the site. The primary vegetation on the project site is non-native grassland (see Exhibit 5.1-1).

Surrounding Land Uses

The area surrounding the project site is primarily undeveloped, includes non-native grassland, and has a few large lot residences (See Exhibit 5.1-1). North of the project site, there are a few large-lot residences and further north there are rolling hills that include Ant Hill. Ant Hill extends to the highest elevation (960 feet) in the northeast Bakersfield area. West of the project site, there are some oil facilities east of Morning Drive and residences, church, and school are located west of Morning Drive. South of the project site is

a gas station and the Mesa Marin Raceway. East of the site includes non-native grassland immediately adjacent to the site and low-density residential uses further east of the site. The Rio Bravo Airport which is a private airport is located approximately one mile southeast of the site. According to the Federal Aviation Administration's facility directory dated June 15, 2000, the Rio Bravo Airport is closed and its runway is in need of repair (J. Cavanaugh, pers. comm., 2000).

Related Planning Programs

Several local and regional plans and programs apply or are related to the development of the project area. Among the plans and programs are elements within the City's 2010 Metropolitan Bakersfield General Plan and the Habitat Conservation Plan. These plans are incorporated by reference into this document. The following is a discussion of those plans and policies that apply or are related to the development of the project area.

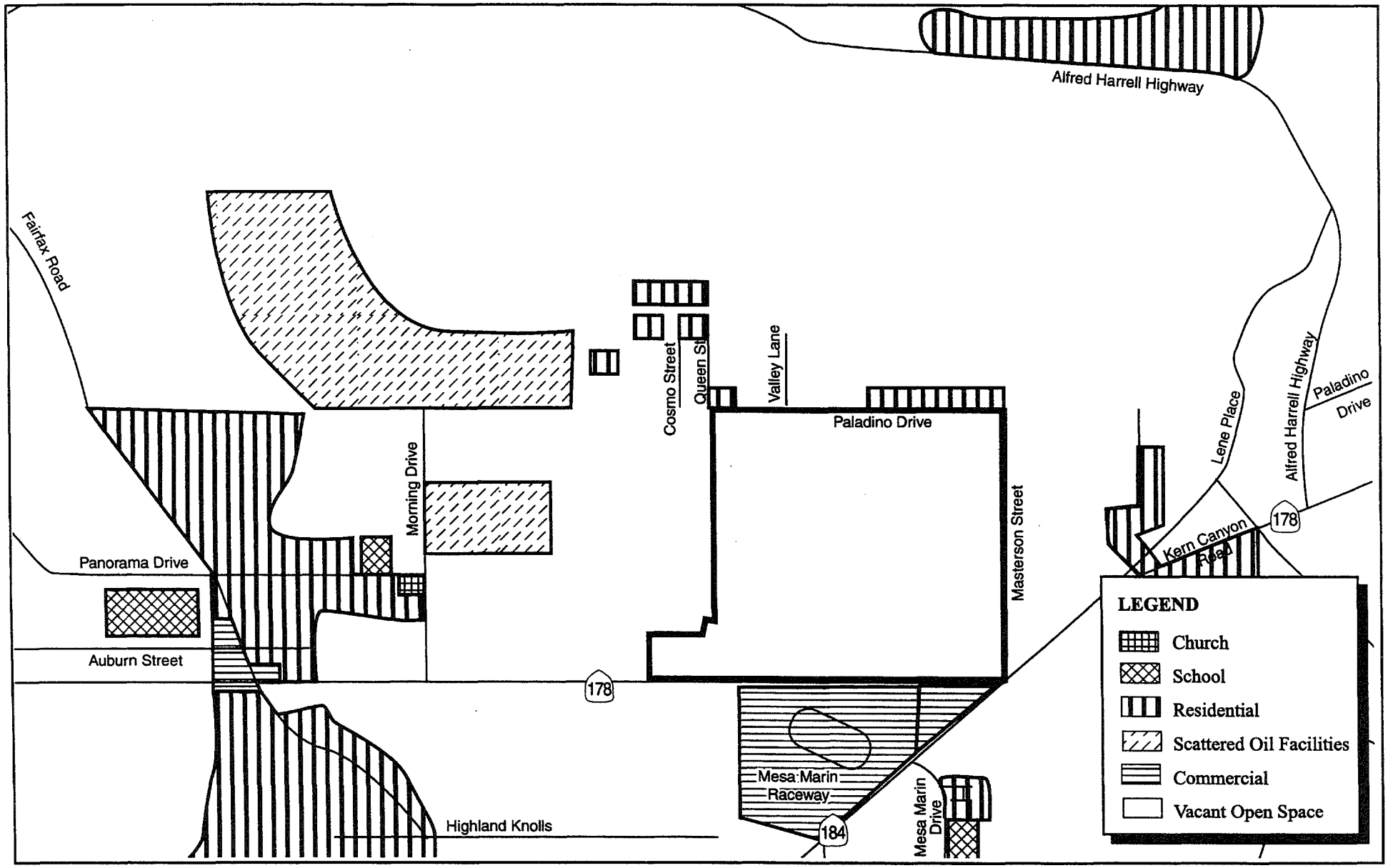
Metropolitan Bakersfield 2010 General Plan

The Metropolitan Bakersfield 2010 General Plan encompasses an area of 408 square miles in Kern County, including the City of Bakersfield. The plan is a policy document designed to give long-range guidance to those making decisions affecting the character and future land uses in the Metropolitan Bakersfield Planning Area. It represents the official statement of the community's physical development, as well as its economic, social, and environmental growth. The Plan was adopted in 1990 and is routinely amended to meet City needs. The General Plan is intended to direct the City's planning processes through the year 2010.

The Metropolitan Bakersfield 2010 General Plan primarily guides development of the project site. The General Plan provides a comprehensive set of policies and guidelines for long term development in the City and the City's sphere of influence. In accordance with the California Planning and Zoning Law, General Plans must contain seven principle elements. These elements include Land Use, Housing, Circulation, Conservation, Open Space, Noise, and Safety. This section contains a discussion of land use, circulation, safety, housing, and noise.

Land Use Element

The purpose of the Land Use Element is to provide for the compatible mixture of land use and to minimize land use conflicts. Exhibit 3-3 shows the existing General Plan Land Use Element designations for the project site. The Land Use Element designates low-density residential, high-density residential and mixed-use commercial land uses within the project area.



NORTH

2514 1257 0 2514

SCALE IN FEET

Michael Brandman Associates

Exhibit **5.1-1**

Onsite and Surrounding Land Uses

Goals for development as set forth in the Land Use Element include meeting mixed land use needs of the Metropolitan Bakersfield Planning Area, to be sensitive and compatible with existing land uses, to be phased orderly and coordinate with the provision of infrastructure and public improvements, to be compatible with and enhance the Planning Area's natural setting, including the Kern River and the foothills, exhibit sensitivity toward the natural environment and account for environmental hazards, and to establish distinct entries to the Planning Area.

According to the General Plan, new development in northeast Bakersfield is to include retail, commercial, professional office, moderate and high density residential, that will filter outwards to lower densities.

The Land Use Element includes the following goals that are related to the proposed project:

Goal 1: Accommodate new development which captures the economic demands generated by the marketplace and established Bakersfield's role as the capital of the southern San Joaquin Valley.

Goal 2: Accommodate new development, which provides a full mix of uses to support its population.

Goal 3: Accommodate new development, which is compatible with, and complements existing land uses.

Goal 4: Accommodate new development which channels land uses in a phased, orderly manner and is coordinated with the provision of infrastructure and public improvements.

Circulation Element

The Circulation Element of the General Plan describes existing and proposed thoroughfares, transportation routes, terminals and facilities, all coordinated with the land use element of the plan. Existing circulation system conditions are discussed in greater detail in Section 5.3, Transportation and Circulation, of this EIR. The Circulation Element designates improvements to the Planning Area's circulation system. Moreover, in relation to the proposed project, the Circulation Element establishes as policy to provide a street system which contributes to the area's quality of life, networks logically within residential and commercial areas, and provides a positive image of the City, and supports plans that minimize traffic congestion. In particular, the Circulation Element sets forth the goal to have a safe and efficient street system linking all parts of the Planning Area.

The Circulation Element includes the following goals that are related to the proposed project:

Goal 1: Provide a safe and efficient street system that links all parts of the Planning Area for movement of people and goods.

Goal 2: Provide for a safe and efficient motorized, non-motorized, and pedestrian traffic movement.

Goal 4: Provide a street system that creates a positive image of Bakersfield and contributes to residents' quality of life.

Bikeway Sub-Element

Bicycling accounts for a small portion of total miles traveled in Bakersfield (less than 2 percent). Nevertheless, the relatively flat terrain and fair weather are conducive to bicycling for transportation to work, recreation, and school. It is estimated that one-third the population utilizes bicycling in one form or another. Part of the planned bikeway systems as been implemented. A planned 3.7-mile bike path is planned north and west of the project site to connect two existing bike facilities.

Bikeway goals relevant to the proposed project include:

Goal 1: Provide a circulation system which recognizes and respond to the needs of bicycle travel.

Goal 2: Provide a circulation system that minimizes cyclist/motorist conflicts.

Housing Element

The Housing Element was designed to expand upon the original goals set forth in the 1984 General Plan update which were to increase the housing supply through preventing financial impediments resulting from market conditions. These goals addressed housing supply through the maintenance of adequate sites with land use designations and zoning to support the construction of a variety of housing types. Overall, the Housing Element recognizes the impact of land use and zoning decisions on housing opportunities.

The Housing Element currently includes one goal and the goal is relevant to the proposed project:

Goal 1: To provide and adequate supply of sites for the development of sound, affordable new housing.

Conservation Element

The Conservation Element of the General Plan provides long-term guidance for the conservation of biological resources, mineral resources, agricultural resources, water resources, and air quality resources.

The Conservation Element includes the following goals that are related to the proposed project:

Biological Resources

Goal 1: Conserve and enhance Bakersfield's biological resources in a manner which facilitates orderly development and reflects the sensitivities and constraints of these resources.

Goal 2: To conserve and enhance habitat areas for designated "sensitive" animal and plant species.

Mineral Resources

Goal 3: Avoid conflicts between the productive use of mineral and energy resource lands and urban growth.

Agricultural Resources

Goal 3 Establish urban development patterns and practices that promote soil conservation and that protect areas of agricultural production of food and fiber crops, and nursery products.

Water Resources

Goal 1: Conserve and augment the water resources of the planning area.

Air Quality Resources

Goal 1: Promote air quality that is compatible with health, well being, and enjoyment of life by controlling point sources and minimizing vehicular trips to reduce air pollutants.

Goal 3: Reduce the amount of vehicular emissions in the planning area.

Noise Element

The purpose of the Noise Element is to provide a means for protecting local citizens from the harmful effects of excessive exposure to noise. The Noise Element policies encourage noise reduction from all sources, mobile and stationary. In general, the goals sets forth in the Noise Element are to ensure that residents are protected from excessive noise levels, moderate noise levels are maintained, and to prevent the interface of incompatible land uses near known noise producing sources. Section 5.4, Noise, of this EIR provides a detailed discussion of noise as it relates to the proposed project.

The Noise Element includes the following relevant goal to the proposed project:

Goal 1: Ensure that residents of the Bakersfield metropolitan area are protected from excessive noise and existing moderate levels of noise are maintained.

Safety Element

The primary intent of the Safety Element is to identify and appraise the risks associated with fire, geologic, seismic, and seismically induced hazards in order to protect populations from unreasonable risks associated with these disasters. Ultimately this element serves as the guiding document in reducing risk to life, property, and society.

Public Sub-Element

Goal 1: Ensure that the Bakersfield metropolitan area maintains a high level of public safety for its citizenry.

City of Bakersfield Zoning Ordinance

As shown on Exhibit 3-5 in Section 3.2, the project site is primarily zoned as A (Agricultural) and approximately 44 acres of the 694-acre site are zoned as R-1 (Single Family Dwelling). The Agricultural Zone is intended to support agricultural and related light agricultural industries and the Single-Family Dwelling Zone is intended to support single-family detached housing, typically characterized by tract housing.

Regional Planning Programs

Air Quality Attainment Plan

The Air Quality Attainment Plan (AQAP) has been prepared for the San Joaquin Valley Air Basin and calls for the overall reduction in air quality emissions in the valley in order to comply with California ambient air quality standards for ozone and carbon monoxide. A number of stationary and mobile source emission control recommendations and regulations have been developed by the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD) to implement the AQAP. Section 5.5, Air Quality, of this EIR provides additional information in regards to this plan and its relevancy to the project.

Regional Transportation Plan

The RTP for Kern County identifies future transportation improvements needed to serve the project transportation needs of the County. The RTP details the existing transportation systems, sets goals, policies, and projects, and identifies funding mechanisms for these projects. Transportation projects identified in the RTP include highway, street, and roadway projects, mass transportation, railroad, and other programs and projects related to the transportation needs of the County.

Metropolitan Bakersfield Habitat Conservation Plan

The project site is within the area covered by the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP). The goal of the MBHCP is to acquire, preserve, and enhance native habitats which support endangered and sensitive species, while allowing urban development to proceed as set forth in the Metropolitan Bakersfield 2010 General Plan. The plan generally takes a broad ecosystem approach on conservation of endangered species and requires development fees to be paid as mitigation for impacts. These fees are used for the acquisition and management of lands for conservation, which are held in perpetuity. The Plan also requires impact avoidance measures. The MBHCP does not eliminate the need to consider endangered species under CEQA, but it does establish programmatic mitigation for project impacts on endangered species.

5.1.2 PROJECT IMPACTS

Implementation of the proposed project will require several discretionary actions that will result in the development of approximately 694 acres in northeast Bakersfield. Amendments to the City's Land Use Element and the Circulation Element to include the redesignation of boundary alignments and the addition of new arterial and collector street alignments within the project site, and a zone change are included as part of the project.

Thresholds of Significance

According to Appendix G of the California Environmental Quality Act (CEQA) guidelines, a project will normally have a significant adverse environmental impact on land use if it results in the following:

- a conflict with adopted environmental plans and goals of the community in which it is located;
- a disruption or division of the physical arrangement of an established community;
- a conflict with established recreational, education, religious, or scientific uses of the area; or
- Incompatibility with existing land uses in the vicinity.

Appendix G also states that a significant land use effect on the environment would occur if a project would convert prime agricultural land to non-agricultural use or impair the agricultural productivity of a prime agricultural land.

Land Use Compatibility

Land use compatibility is primarily determined by the sensitivity of land uses to the characteristics associated with another land use, such as activity, noise, density, bulk, height, and/or appearance. Therefore, other sections of this EIR that contain analysis of these environmental changes are relevant to the analysis of land use compatibility and are referenced in this discussion.

Compatibility with Onsite and Offsite Land Uses

The proposed project would alter the site from its current conditions and result in changes to the designation of the intended use of the property, however, the site will still include the current General Plan designations of low and high density residential and commercial uses on the project site. Implementation of the proposed project would result in changes in vehicular traffic/movement (see Section 5.3, Traffic and Circulation), on-site activity, onsite noise (see Section 5.4, Noise), as well as modifications to the property's visual appearance (see Section 5.9, Aesthetics). More specifically, implementation of the proposed project would alter the site's current undeveloped character and result in the development of low-density residential housing, high-density residential housing, and general commercial uses, as well as realign planned collector and arterial streets, and provide right-of-way for the realignment of SR 178.

The realignment of SR 178 would result in the interface of residential housing along the highway. However, soundwalls could be erected or minimum setback requirements imposed to reduce potential impacts to a level that is less than significant. Proposed residential uses within the project site would also experience significant noise levels along Masterson Street, Paladino Drive, and Panorama Drive.

Soundwalls could be erected or minimum setback requirements would be imposed to reduce potential noise impacts to a level that is less than significant. Section 5.4, Noise, of this EIR addresses in further detail the interface of SR 178 and other roadways on the site with the proposed residential land uses.

The proposed project is also adjacent to the Mesa Marin Raceway. Based on the analysis in Section 5.4, during racing events, mostly on Saturdays and a few on Thursday, Friday, and Sunday, noise levels along the southern half of the project site would exceed the City's noise standard. Therefore, during these events, residences that are located in the southern half of the project site would be exposed to significant noise levels. Therefore, these onsite residential uses would not be compatible with the existing Mesa Marin Raceway.

Except for the incompatibility of the proposed residences with the Mesa Marin Raceway, all other aspects of the proposed project (i.e., activity, bulk, height, and appearance) would be compatible with surrounding uses.

Consistency with Plans, Policies, and Programs

Metropolitan Bakersfield 2010 General Plan

Land Use Element

Implementation of the proposed project would require an amendment to the Land Use Element of the General Plan because the project includes different land use designations and reorientation of land use designations compared to the existing General Plan land use plan. Even though the project would require an amendment to the General Plan, the project would be consistent with the goals of the Land Use Element as discussed below.

The proposed project would provide a mix of uses (i.e., residential and commercial) that would accommodate a growing demand of these uses within the Bakersfield metropolitan area. The provision of this mix of uses would be consistent with Goals 1 and 2 of the Land Use Element. The proposed land uses would be compatible with the existing land uses in the project vicinity as discussed above. Therefore, the project would also be consistent with Goal 3 of the Land Use Element. The project would also be consistent with Goal 4 of the Land Use Element because the infrastructure and public (including roadway) improvements would be phased to provide adequate service to the project. Implementation of the proposed project would result in less than significant environmental impacts related to the Land Use Element.

Circulation Use Element

Implementation of the proposed project would require amendments to the Circulation Element of the General Plan because the project includes redesignation and realignment of planned roadways as discussed in Section 3.4. Even though amendments to the Circulation Element are required, the implementation of the proposed project would be consistent with the goals of the Circulation Element as discussed below.

The amendments to the Circulation Element as well as implementation of internal street systems would provide essential links for the movement of people and goods and is expected to provide a safe and efficient street system for motorists, non-motorized vehicles, and pedestrians. The provision of the proposed street system is expected to contribute to the positive image of Bakersfield and contribute to the future residents' quality of life. The proposed project will result in less than significant environmental impacts.

Housing Element

Implementation of the proposed project would be consistent with the goal of the Housing Element. More specifically, development of the proposed project would provide 2,750 single family lots and 1,300 multiple family lots. This range of housing opportunities proposed on the project site would ensure the provisions of an adequate supply of sound affordable new housing units in the project area for low, moderate, and/or above moderate income families. Therefore, implementation of the proposed project would result in less than significant consistency impacts related to the Housing Element.

Conservation Element

Implementation of the proposed project would be consistent with the goals of the Conservation Element. More specifically, development of the proposed project occurs in an area primarily consisting of non-native grasslands. While the project would result in a loss of this habitat for foraging raptors, in addition to potential takes of a number of sensitive species (e.g., San Joaquin Kit fox, blunt-noised leopard lizard, burrowing owl, etc.), the location of the proposed development and the project's contribution to the MBHCP serves to conserve and enhance the City's biological resources and habitat areas designated for "sensitive" animal and plant species.

Approximately 80 acres of the western portion of the project site are located within the Kern Bluff Oil Field. The Oil Field encompasses over 3,500 acres and is located primarily west and northwest of the project site. The proposed residential and commercial uses on the 80 acres of the Kern Bluff Oil Field would not remove any existing oil production activities. Furthermore, if oil resources exist under these 80 acres, oil extraction activities could still occur offsite and access potential onsite oil resources. Development

of the proposed project would not result in conflicts with existing or potential future oil production activities.

The project site primarily consists of unirrigated grazing land and development on this parcel would not affect areas of agricultural production for food and fiber crops or nursery products. Therefore, the proposed project would be consistent with the agricultural resources goal within the Conservation Element.

The proposed project is expected to be consistent with the water resources goal in the Conservation Element because the proposed residential and commercial uses are not expected to result in the wasteful use of water resources.

The proposed project includes a mix of land uses that would result in approximately 15 percent of the project trips (9,146 daily trips) to remain on the project site. The reduction of the amount of trips leaving the project site would minimize vehicular trip length and reduce vehicular emissions within the Bakersfield area. Furthermore, the proposed project would result in less residential and commercial uses compared to the currently allowed uses under the existing General Plan land use designations, as discussed in Section 7.2. Implementation of the proposed project is considered consistent with the air quality goals in the Conservation Element.

Noise Element

Implementation of the proposed project would not be consistent with the Noise Element. The project includes residences in an area that would expose residents to noise levels that exceed the City's noise performance standard. Periodic noise from the Mesa Marin Raceway would result in significant unavoidable noise impacts on residences that are proposed on the southern half of the project site.

Safety Element

The proposed project would introduce new structures within the project area that would be susceptible to earthquake and earthquake related hazards. However, compliance with building and safety codes and regulations would assure consistency with the General Plan. Additionally, new arterial and collector streets would allow for greater and improved access to the project site, thereby improving fire safety.

City of Bakersfield Zoning Ordinance

Exhibit 3-5 presents the proposed land use changes to the Zoning Map. The zone changes have been requested to bring the zoning land use designation into conformance with the proposed General Plan land use changes. The land uses that are proposed are similar to the uses that are currently planned for the project site. Both the proposed project and planned land uses for the site include low and high density residential uses, commercial uses, and right of way area for the realignment of SR 178. The proposed

project would not represent a significant alteration to the land uses that are zoned for the site. Therefore, no significant impact to the zoning designations on the project site would occur.

Regional Planning Programs

Air Quality Attainment Plan

The project includes an amendment to the General Plan land use designations to allow more commercial and high-density residential uses in areas planned for low-density residential uses. However, as described in Section 7.2, the existing land use designations would allow more residential units and commercial square footage compared to the proposed project. The employment generated by the project and trips associated with the proposed land uses could be assumed to have been originally included in the Metropolitan Bakersfield 2010 General Plan. Moreover, this project could also have been anticipated in the SJVUAPCD AQAP. Therefore, the project would be consistent and would not be considered a significant project impact. Section 5.5, Air Quality, of this EIR provides a more detailed discussion of the project's consistency with this plan.

Regional Transportation Plan

Implementation of the proposed project would involve the construction of roadway improvements such as the installation of traffic signals and the widening or roadway segment and/or intersections on a fair-share basis. These improvements are consistent with the policies or planned projects of the RTP (see Section 5.3, Traffic and Circulation). Therefore, implementation of the proposed project would have no impact on the RTP.

Metropolitan Bakersfield Habitat Conservation Plan

The project site is located outside the habitat preserve areas designated in the MBHCP. Under the MBHCP, the development of the site would require the payment of mitigation fees for the acquisition of natural habitat areas in Kern County (see Section 5.2, Biological Resources). Implementation of the project would result in the payment of these fees. Therefore, implementation of the City in the Hills project would be consistent with the MBHCP and less than significant impacts would occur.

5.1.3 CUMULATIVE IMPACTS

Development of the proposed project and future growth in accordance with the General Plan would represent an increase level of development and intensification in the northeast Bakersfield area. Each project is subject to separate environmental review by City staff for conformance with applicable

development regulations to minimize the direct impacts of any individual project and to ensure land use compatibility. The General Plan Land Use Element has been prepared to designate areas for various land uses. Based on the General Plan designations in the project vicinity, areas designated for residential, commercial, and open space uses have been planned to allow for land use compatibility. Since specific development projects have not recently been submitted to the City for development in the project vicinity, land use compatibility impacts as well as consistency with applicable development regulations would be speculative without environmental review of each project.

5.1.4 MITIGATION MEASURES

Since the proposed project includes residential land uses in the southern portion of the project site, these residents would be exposed to significant and unavoidable noise levels from events at the Mesa Marin Raceway. These periodic noise levels would not be consistent with the City's Noise Element. No feasible mitigation measures are available for the project applicant to reduce noise levels from the Mesa Marin Raceway to less than L_{50}-55 dBA.

5.1.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Development of the proposed project would result in an incompatibility between the proposed onsite residential uses and events at the Mesa Marin Raceway. Significant unavoidable adverse noise levels would occur at residential areas on the project site as discussed in Section 5.4.

5.2 BIOLOGICAL RESOURCES

This section incorporates information contained in the Biological Resource Assessment prepared for the proposed project by Bio Resources Consulting. The complete report is contained in Appendix B of this EIR.

5.2.1 EXISTING CONDITIONS

Methodology

A list of special status species that could potentially occur in the vicinity of the project site was compiled by consulting pertinent literature, reviewing California Natural Diversity DataBase (CNDDB) (RareFind2) information regarding special status species in the area, and contacting local and regional experts.

Biological field surveys were conducted in January 2000. Transect surveys were conducted and focused on habitat evaluation and special status species detection, including San Joaquin kit fox and burrowing owl (see Exhibit 5.2-1). Plant communities and important habitat elements for special status species were noted and mapped. Plant communities were classified following the descriptions defined in Holland (1986) and Sawyer and Keeler-Wolf (1995). The classification as defined by Sawyer and Keeler-Wolf (1995) is shown in parentheses in the text.

Belt transects were walked and all observed burrows and dens were evaluated for use by special status species. Direct observations of special status species and their sign (scat, tracks, tail drags, etc.) were noted if encountered during the surveys. San Joaquin kit fox were assumed to be present in the project vicinity based on past direct observation of kit fox and presence of known kit fox dens near the project site. Known San Joaquin kit fox dens were also mapped.

General Biological Resources

Two major plant communities occur on the approximately 694-acre site: non-native grassland (California annual grassland series) and valley saltbush scrub (allscale series).

Non-native grassland community is the primary vegetation of the project site occupying approximately 684 acres. Non-native grassland is distributed throughout the site, both as a community and as an understory component to valley saltbush scrub. In the vicinity of the project site, this community is likely maintained by frequent fires. Non-native grasses dominate (bromes, foxtail, fescues, and oats), with showy annual forbs present to a varying degree depending on rainfall. Forbs which are typically present include red-stemmed filaree (*Erodium cicutarium*), owl's clover (*Castilleja exserta* and *C. attenuata*), lupines (*Lupinus* spp.),

goldfields (*Lasthenia californica*), fiddleneck, gilia, and several mustards. Cover may be sparse to dense, with annuals typically germinating in late fall and most species flowering in early to late spring. This community is widely distributed throughout California, usually below 3000 feet.

The valley saltbush scrub community occupies approximately 10 acres of the site and is typically dominated by common saltbush (*Atriplex polycarpa*). Other shrub species which may be present include spiny saltbush (*A. spinifera*), cheesebush (*Hymenoclea salsola*), and pale-leaf goldenbush (*Isocoma acradenia* var. *bracteata*). The understory typically consists of winter-germinating annuals dominated by non-native grasses such as bromes (*Bromus* spp.), wild oats (*Avena barbata* and *A. fatua*), foxtail (*Hordeum* spp.), and fescues (*Vulpia* spp.). Native spring-flowering annuals may include bird's eye gilia (*Gilia tricolor*), fiddleneck (*Amsinckia menziesii* var. *intermedia*), white layia (*Layia glandulosa*), and several species of phacelia (*Phacelia* spp.). On the project site, this community occupies a very limited area and appears to be the result of seeding along a previously disturbed pipeline right-of-way.

Sensitive Biological Resources

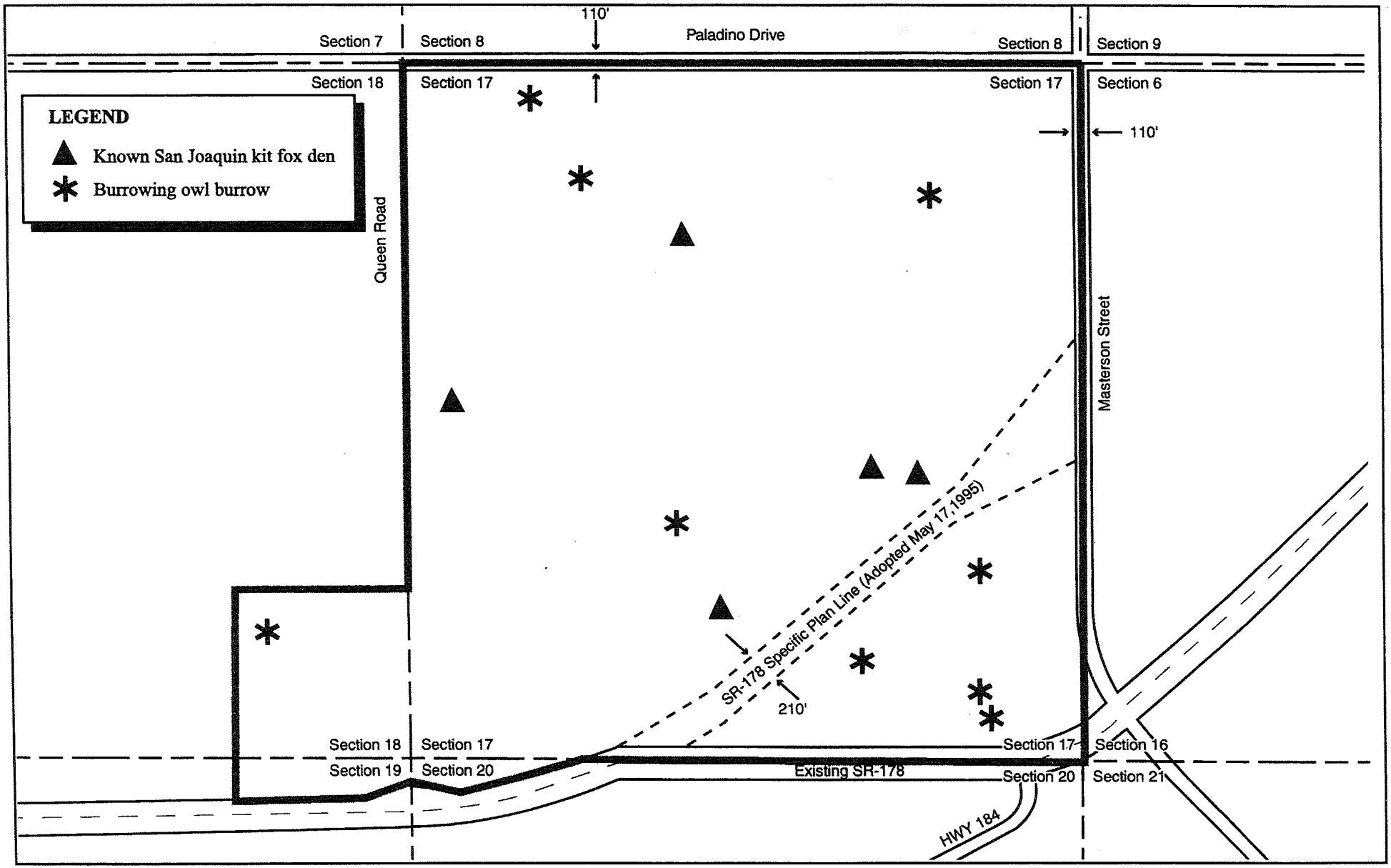
Sensitive biological resources are either special status species or sensitive habitats.

Special status species are native species that have been afforded special legal or management protection because of the concern for their continued existence. There are several different categories of protection at both federal and state levels, depending on the magnitude of threat to continued existence and existing knowledge of population levels.

A federally endangered species is one facing extinction throughout all or a significant portion of its geographic range. A federally threatened species is one likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The presence of any federally threatened or endangered species in a project area generally imposes severe constraints on development, particularly if development would result in a "take" of the species or its habitat. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct. Harm in this sense can include any disturbance to habitats used by the species during any portion of its life history.

Proposed species are those officially proposed by the USFWS for addition to the federal threatened and endangered species list. Because proposed species may soon be listed as threatened or endangered, these species could become listed prior to or during implementation of a proposed project.

The State of California considers an endangered species one whose prospects of survival and reproduction are in immediate jeopardy. A threatened species is one present in such small numbers throughout its range



SOURCE: Porter-Robertson Engineering, January 2000.

NORTH

1056 528 0 1056
SCALE IN FEET

Michael Brandman Associates

Exhibit **5.2-1**
Biological Resources

that it is likely to become an endangered species in the near future in the absence of special protection or management, and a rare species is one present in such small numbers throughout its range that it may become endangered if its present environment worsens. Rare species only applies to California native plants. State threatened and endangered species include both plant and animal species and are fully protected against take, as defined above.

Species of Special Concern is an informal designation used by the California Department of Fish and Game (CDFG) for some declining wildlife species that are not state candidates. This designation does not provide legal protection, but signifies that these species are recognized as sensitive by CDFG.

Species that are California Fully Protected include those protected by special legislation prior to the creation of State Endangered Species Act, such as the white-tailed kite, mountain lion, and blunt-nosed leopard lizard.

As one of the agencies primarily responsible for administering and enforcing the California Endangered Species Act, CDFG exercises considerable influence over sites inhabited by state listed threatened or endangered species. CDFG is also authorized to provide comprehensive habitat management including, but not limited to, protection of endangered species through natural community conservation plans.

All raptors and their nests are protected under Section 3503.5 of the California Fish and Game Code. In addition, all native breeding birds, whether or not they are considered sensitive by resource agencies, are protected by the Migratory Bird Treaty Act.

The California Native Plant Society (CNPS) is a California resource conservation organization that has developed an inventory of California's sensitive plant species (Skinner and Pavlik 1994). This inventory is the summary of information on the distribution, rarity, and endangerment of California's vascular plants. This rare plant inventory is comprised of four lists. CNPS List 1A plant species are considered extinct in California because they have not been seen in the wild for many years. CNPS List 1B species are considered rare, threatened, or endangered throughout their range. CNPS considers List 2 plants as rare, threatened, or endangered in California, but more common in other states. Plant species on lists 1A, 1B, and 2 meet CDFG criteria for endangered, threatened, or rare listing. Plant species for which CNPS needs additional information are included on List 3. List 4 plant species are those of limited distribution in California whose susceptibility to threat appears low at this time.

Sensitive habitats are vegetation communities/associations or habitats that support concentrations of special status plant or animal species, are of relatively limited distribution, or are of particularly high value to wildlife. Jurisdictional wetlands and streams are also considered sensitive habitats. Sensitive habitats are

not afforded legal protection unless they support protected species, except for jurisdictional areas, which cannot be filled without authorization from the U.S. Army Corps of Engineers (USACE) and CDFG.

Pursuant to Section 404 of the Clean Water Act, USACE regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined as: (1) all navigable waters (including all waters subject to the ebb and flow of the tide); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above.

Pursuant to Division 2, Chapter 6, Sections 1600-1603 of the California Fish and Game Code, CDFG regulates all diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake which supports fish or wildlife resources. There are some significant differences between USACE and CDFG jurisdictions. The CDFG uses less well defined and more ecologically based criteria in their jurisdiction determinations. For a watercourse to be considered under CDFG jurisdiction, it must have a terminus, banks, and channel through which water can flow, at least periodically. Historic court cases have further extended CDFG jurisdiction to include watercourses that seemingly disappear, but re-emerge elsewhere. Under the CDFG definition, a watercourse need not exhibit evidence of an OHWM to be claimed as jurisdiction.

Special-status species that occur or potentially occur on the project site are shown in Table 5.2-1.

Plants

Listed Special Status Plant Species

California Jewelflower

California jewelflower was not observed during the surveys; however, surveys were completed too late in the season to identify this annual. The nearest known location for California jewelflower is several miles to northeast. Although some marginally suitable habitat is present on site, frequent grass fires, discing, offroad vehicle use, oil development, and other disturbances make it unlikely that this species occurs in the project area.

Hoover's wooly star

The field surveys were not conducted at an appropriate time for observation of Hoover's wooly star. No

populations of this species are known within the vicinity of the project site and it is considered unlikely that it is present on site.

San Joaquin wooly threads

There is a historic record of the San Joaquin wooly threads approximately four miles west of the site (CDFG 2000). However, this population was last seen in 1905 and is very likely extirpated. No suitable habitat was observed during the surveys for the project, due to previous discing of the site. Although the survey was not conducted during an appropriate season for observation of this species, it is unlikely that it occurs on the site. In addition, other surveys conducted during the appropriate period in the vicinity of the site have not resulted in observation of this species.

Bakersfield Cactus

There is a small population of Bakersfield cactus less than 0.5-mile northwest of the site's northwestern corner and there is a population approximately one mile west of the site (CDFG 2000). Bakersfield cactus was not observed on site during the surveys.

Other Plant Species of Concern

Although the surveys were not conducted during an appropriate period for identification of sensitive annual plants, based on the disturbance history of the project site, it is considered unlikely that any of these species occur on site.

Wildlife

Listed Special Status Wildlife Species

Blunt-nosed leopard lizard

Species specific surveys for blunt-nosed leopard lizard were not conducted. However, suitable habitat for this species was observed throughout the project site, especially in sparsely vegetated grassland flats and along unpaved trails and roads. However, a large portion of the site consists of very dense annual grasses such as foxtail (*Hordeum leporinum*), bromes (*Bromus* spp.), and wild oats (*Avena barbata*), which are generally poor habitat for this species.

San Joaquin Antelope Squirrel

San Joaquin antelope squirrels were not observed during site surveys. Although suitable habitat is present,

it is unlikely that this species occurs on the project site. Despite extensive surveys in the vicinity of the project site, no San Joaquin antelope squirrels have been observed recently. No antelope squirrels have been observed north or east of Bakersfield since the 1970's (Williams 1986).

San Joaquin Kit Fox

Five known San Joaquin kit fox dens were observed in the Section 17 portion of the project site. Potential dens were common throughout the site, primarily within the widespread ground squirrel colonies in the survey area. Kit fox scat was observed throughout the site; therefore, it is likely that San Joaquin kit fox forage over the entire site.

Other Special Status Wildlife

Several burrowing owls and burrowing owl burrows were observed throughout the survey area. Loggerhead shrikes and a golden eagle were also observed during the survey. No other special status species were directly observed onsite during the surveys. No diagnostic kangaroo rat sign (scat, tracks, tail drags, burrows) was observed.

TABLE 5.2-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING ON THE PROJECT SITE

SPECIES	USFWS	CDFG	CNPS	HABITAT	POTENTIAL FOR OCCURRENCE ONSITE
PLANTS					
California jewelflower *Caulanthus californicus*	FE	CE	1B	Saltbush scrub	Unlikely to occur, low value habitat on site
Bakersfield cactus *Opuntia basilaris* var. *treleasei*	FE	EC	1B	Mesas and washes with sandy soils	Does not occur on site
gypsum-loving larkspur *Delphinium gypsophilum* ssp. *gypsophilum*	--	--	4	saltbush scrub and grasslands of low foothills, especially north-facing slopes	Unlikely to occur, low value habitat on site
cottony buckwheat *Eriogonum gossypinum*	--	--	4	Open slopes, especially south-facing	Unlikely to occur, low value habitat on site
Hoover's Wooly Star *Eriastrum hooveri*	FT	--	4	Open, sparsely vegetated areas in saltbush scrub and grassland	Unlikely to occur, low value habitat on site

TABLE 5.2-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING ON THE PROJECT SITE (CONTINUED)

SPECIES	USFWS	CDFG	CNPS	HABITAT	POTENTIAL FOR OCCURRENCE ONSITE
PLANTS					
San Joaquin Wooly-threads *Lembertia congdonii*	FE	--	1B	Grassland, primarily sandy soils	Unlikely to occur, low value habitat on site
Oil Neststraw *Stylocline citroleum*	--	--	1B	Saltbush scrub	Unlikely to occur, low value habitat on site
MAMMALS					
San Joaquin Antelope Squirrel *Ammospermophilus nelsoni*	--	CT	--	Shrublands, especially along washes	Unlikely to occur on site
American badger *Taxidea taxus*	--	CSC	--	Grasslands and shrublands	May occur, suitable habitat on site
San Joaquin pocket mouse *Perognathus inornatus inornatus*	--	CSC	--	saltbush scrub and grassland	May occur, suitable burrows on site
San Joaquin Kit Fox *Vulpes macrotis mutica*	FE	CT	--	grasslands saltbush scrub	Occurs on site
Short-nosed Kangaroo Rat *Dipodomys nitratoides brevinasus*	FSC	CSC	--	saltbush scrub and other low foothill habitats	Unlikely to occur on site
BIRDS					
Northern Harrier *Circus cyaneus*	--	CSC	--	marshlands and grasslands	Unlikely to occur on site
prairie falcon *Falco mexicanus*	--	CSC	--	open grassland areas, nests in cliff faces or on ledges	Unlikely to occur on site
Lanius ludovicianus Loggerhead shrike	FSC	CSC	--	scrub and adjacent grassland habitats, may nest in riparian woodland	Forages on site
golden eagle *Aquila chrysaetos*	BEPA	CSC	--	open grasslands and low foothills	Forages on site
sharp-shinned hawk *Accipiter striatus*	--	CSC	--	riparian areas	Unlikely to occur on site

TABLE 5.2-1
SPECIAL-STATUS SPECIES POTENTIALLY OCCURRING ON THE PROJECT SITE
CONTINUED)

SPECIES	USFWS	CDFG	CNPS	HABITAT	POTENTIAL FOR OCCURRENCE ONSITE
BIRDS					
Cooper's Hawk *Accipiter cooperii*	--	CSC	--	Open woodlands, riparian woodlands	Unlikely to occur on site
Burrowing Owl *Speotyto cunicularia*	--	CSC	--	Valley grasslands, open saltbush scrub	Occurs on site
LeConte's thrasher *Toxostoma lecontei*	--	CSC	--	mature saltbush scrub for nesting	Unlikely to occur on site
REPTILES					
Blunt-Nosed Leopard Lizard *Gambelia silus*	FE	CE	--	Open saltbush scrub and grassland habitats, roads and open washes	Unlikely to occur, poor habitat on site
California Horned Lizard *Phrynosoma coronatum*	FSC	CSC	--	Open shrublands and grasslands with sandy soils	Poor habitat on site
INVERTEBRATES					
Valley Elderberry Longhorn Beetle *Desmocerus californicus dimorphus*	FT	--	--	riparian woodlands	Unlikely; no suitable habitat onsite.

U.S. Fish and Wildlife Service USFWS Federal Listing Categories:
- FE Federal Endangered [a]
- FT Federal Threatened [a]
- FSC Federal Species Concern
- BEPA Bald Eagle Protection Act

California Department of Fish and Game CDFG State Listing Categories:
- CE California Endangered [b]
- CT California Threatened [b]
- CSC California Species of Special Concern

California Native Plant Society (CNPS) Categories: [c]
- 1B Plants rare, threatened, or endangered in California and elsewhere.
- 4 Watch List

[a] Protected under the Federal Endangered Species Act.
[b] Protected under the California Endangered Species Act.
[c] The CNPS is a private non-profit organization that works closely with CDFG throughout the state. CNPS-developed information serves as an important source of data for consideration by CDFG and USFWS in recommendations for listing of State or Federal threatened and endangered species.

Source: Bio Resources Consulting, February 2000.

Sensitive Habitats

A jurisdictional delineation to determine whether areas of the site fall under the jurisdiction of USACE or CDFG has not been conducted. There are two unnamed blueline streams on the project site that are primarily dry, with storm events being the primary time that flow. Surface water during these events typically dries quickly or percolates prior to any flow reaching any permanent water source.

5.2.2 PROJECT IMPACTS

Thresholds of Significance

Significant impacts that could occur were determined from criteria in the (CEQA) Guidelines. Impacts to biological resources could be significant if the project will:

- substantially affect a rare or endangered species of plant or animal or the habitat of such species;
- interfere substantially with the movement of any resident or migratory fish or wildlife species; or
- substantially diminish habitat for fish, wildlife, or plants;
- substantially degrade the quality of the environment;
- cause a fish or wildlife species to drop below self-sustaining levels;
- threaten to eliminate a plant or animal community;
- reduce the number or restrict the range of a rare or endangered plant or animal; or
- conflict with local, state, or federal resource conservation plans, goals, or regulations.

Impacts

Loss of Habitat

Implementation of the proposed project would eliminate approximately 684 acres of non-native grassland habitat and approximately 10 acres of valley saltbush scrub. Although much of this habitat has been disced or otherwise disturbed, these areas provide suitable habitat for a wide variety of plant and wildlife species. Development of the proposed project would eliminate suitable foraging habitat for raptors, in addition to reducing or eliminating some plant and wildlife populations on the site. However, non-native grassland habitat is regionally abundant. Therefore, this impact is not considered significant.

Special-Status Species

The site provides suitable habitat for a number of special-status wildlife species. Direct take of San Joaquin kit fox, blunt-nosed leopard lizard, and burrowing owl, could possibly occur during grading of the

approximately 694-acre-site. There would be a loss of foraging habitat for loggerhead shrike, golden eagle and other raptors. Vehicular collisions could also result in the direct take of special-status wildlife species. Because these species are protected by state and federal law, impacts on special-status wildlife species would be considered significant.

Raptor Nest Disturbance

Implementation of the proposed project may disturb active burrowing owl nests. Nests of other raptors are not expected to be impacted. All active raptor nests are legally protected under the California Department of Fish and Game Code 3503.5. Raptors are predatory birds such as falcons, hawks, and owls. Disturbance of an active raptor nest would be considered a significant impact of the project.

Sensitive Habitats/Jurisdictional Areas

Portions of the two onsite unnamed blueline streams may fall under the jurisdiction of USACE and/or CDFG. If areas on the project site fall under the jurisdiction of USACE or CDFG impacts to these areas would be considered significant.

Indirect Impacts

Following project buildout, increased vehicular traffic, noise, pollutants, and other indirect impacts are expected to adversely affect local wildlife. Wildlife mortality could occur from collisions with motor vehicle traffic. Depredation on native wildlife by dogs and cats is expected to increase. Human related impacts on wildlife such as disturbance of active nests or dens, are also expected to increase. These impacts, while adverse, would not be expected to reduce any existing wildlife populations below self-sustaining levels and are not expected to substantially or significantly affect wildlife habitat outside of the project site.

The introduction of non-native invasive plant species could occur due to project implementation. These species could adversely affect off-site habitats. Depending upon the plant species and the extent of their introduction this could be significant.

5.2.3 CUMULATIVE IMPACTS

Implementation of the proposed project, in conjunction with future developments associated with General Plan buildout would contribute to the ongoing loss of open space in the region, resulting in a decline of biological resources and species diversity. Cumulative development would also result in increase traffic and human use of the project vicinity, which would increase human intrusion and activity levels in

proximity to habitat areas and wildlife use areas and, therefore, further reduce the quantity and quality of wildlife habitat. This would be a significant impact. However, cumulative impacts to biological resources would be mitigated on a project-by-project basis, as with the proposed project.

5.2.4 MITIGATION MEASURES

The project site is within the area covered by the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP). The goal of the MBHCP is to acquire, preserve, and enhance native habitats which support endangered and sensitive species, while allowing urban development to proceed as set forth in the Metropolitan Bakersfield 2010 General Plan. The plan generally takes a broad ecosystem approach on conservation of endangered species and requires development fees to be paid as mitigation for impacts. These fees are used for the acquisition and management of lands for conservation which are held in perpetuity. The Plan also requires impact avoidance measures. The MBHCP does not eliminate the need to consider endangered species under CEQA, but it does establish programmatic mitigation for project impacts on endangered species.

Mitigations for impacts to special-status species on the site are covered by meeting the compensation and avoidance requirements of the MBHCP and associated Implementing Agreement. These are described below.

Special-status Species

BR-1 Prior to the issuance of a grading permit, the project applicant shall pay a development fee in accordance with the MBHCP.

BR-2 Prior to the issuance of a grading permit on the 694-acre site, the project proponent shall comply with all appropriate terms and conditions of the MBHCP. The MBHCP requires certain take avoidance measures for the San Joaquin kit fox. MBHCP guidelines regarding tracking and excavation shall be followed to prevent entrapment of kit fox in dens. Specific measures during the construction phase of the project shall be implemented and include the following:

a) A preconstruction survey shall be conducted prior to site grading to search for active kit fox dens. The survey shall be conducted not more than 30 days prior to the onset of construction activities in areas subject to development to determine the necessity of den excavation.

b) Monitoring and excavation of each known San Joaquin kit fox den which cannot be avoided by construction activities shall occur.

c) Notification of wildlife agencies of relocation opportunity prior to ground disturbance in areas of known kit fox dens shall be provided.

d) Excavations shall either be constructed with escape ramps or covered to prevent kit fox entrapment. All trenches or steep-walled excavations greater than three feet deep shall include escape ramps to allow wildlife to escape. Each excavation shall contain at least one ramp, with long trenches containing at least one ramp every 1/4 mile. Slope of ramps shall be no steeper than 1:1.

e) All pipes, culverts or similar structures with a diameter of four inches or greater shall be kept capped to prevent entry of kit fox. If they are not capped or otherwise covered, they will be inspected prior to burial or closure to ensure no kit foxes, or other protected species, become entrapped.

f) All employees, contractors, or other persons involved in the construction of the project shall attend a "tailgate" session informing them of the biological resource protection measures that will be implemented for the project. The orientation shall be conducted by a qualified biologist and shall include information regarding the life history of the protected species, reasons for special status, a summary of applicable environmental law, and measures intended to reduce impacts.

g) All food, garbage, and plastic shall be disposed of in closed containers and regularly removed from the site to minimize attracting kit fox or other animals.

BR-3 Because "take" of blunt-nosed leopard lizards is also currently prohibited by Section 5050 of the California Fish and Game Code, additional mitigations are necessary in addition to those required by the MBHCP. The following measures are recommended to comply with this Section 5050:

a) Surveys for blunt-nosed leopard lizards shall be conducted following CDFG protocols. These surveys should be conducted between April 15 and June 30 under the specified time and temperature conditions. This survey is necessary to determine the current status of blunt-nosed leopard lizards on the project site.

b) If blunt-nosed leopard lizards are detected, the applicant shall submit methods for compliance with Fish and Game Code Section 5050 to CDFG for review and approval.

Mitigations for impacts to special-status species on the site are covered under the terms and conditions of the MBHCP and associated Implementing Agreement. The compensation and avoidance requirements of the MBHCP are consistent and follow an ecosystem management approach for endangered species, and provide adequate compensation for covered species and all other potentially occurring special-status species.

vertebrates, important invertebrate fossils have been recovered from the Round Mountain Silt in this region. The "Barker's Ranch fauna", the largest Miocene molluscan fauna of the Pacific Coast, extends from near the base of the Olcese Sand Member to the top of the Round Mountain Silt, and is the standard for the Temblor Mmacrofossil Stage. All considered, the paleontologic sensitivity of the Round Mountain Silt in this area is extremely high.

5.6.2 PROJECT IMPACTS

Thresholds of Significance

If a proposed "project may cause damage to an important archaeological resource, the project may have a significant effect on the environment". Historical resources are considered to be significantly affected if a structure is, or potentially is, a designated historic resource. Impacts on paleontological resources are considered significant if a project may cause damage to an important peleontological resource.

Impacts

Archeological/Historical Resources

Due to the size of the site and the project's proximity to known prehistoric remains, the identification of archeological resources within the project area is not unusual. Likewise, the nature and marginal quality of the remains is not unusual considering the distance from water, the exposed nature of the property, and the lack of significant plant or other important resources.

Although two archeological sites were recorded in the project area during the field visit, the type, quantity, and quality of remains paired with the physical characteristics of the project area indicate that each site was a result of a single, one-time only activity. While it is possible that additional archeological remains may be present within the project area, it is unlikely that there are significant remains to be found. It is also possible that past grading may have occurred, thereby disturbing or destroying additional sites, though the potential for large and significant sites being present within the project area is minimal.

Paleontological Resources

Based on a records search, several vertebrate fossil localities are on the south side of the Kern River, and numerous other localities are in correlative strata in the hills north of the Kern River. The most recent localities include three major quarries in the Sharktooth Hill bonebed made in late 1981 by LACM and Kern County Museum. This bonebed, which is usually less than a foot thick, is within the upper part of the Round Mountain Silt at elevations between 600 and 700 feet. On the south side of the river, many

Quaternary Alluvium/Terraces (Upper Pleistocene-Holocene)

These stream deposits comprise most of the designated map area, particularly in the southern part. Fossil occurrences in Quaternary alluvium are very spotty; elsewhere stream deposits have yielded significant finds of mammoth, mastodon, bison, bear, lion, camel, horse, reptiles, birds, ground sloths, insects, and plants. Such discoveries are highly significant, but their infrequent occurrence suggests this unit has low paleontologic sensitivity.

Kern River Formation (upper Miocene, Pliocene, and early Pleistocene)

This unit consists of fluvio-lacustrine gravels, sands, and clays, and is described in detail by Bartow and Pittman (1983). It is exposed at high elevations in the northern half of the project area. Although there is potential to recover a diversity of significant terrestrial and freshwater fossils, the paleontologic sensitivity of these sediments is generally low.

Chanac and "Santa Margarita" Formations (upper Miocene)

The nonmarine Chanac Formation, which is distinguished by its buff to brown color, overlies the marine white sandstone of the "Santa Margarita" Formation. In the Tejon Hills, the Chanac has yielded terrestrial vertebrates (Merriam, 1916) and the "Santa Margarita" bears late Miocene mollusks (Addicott, 1970). In the Kern River area, however, these formations appear to be nonfossiliferous. Thus, their paleontologic sensitivities at the project site are probably low.

Round Mountain Silt Member, Temblor Formation (middle Miocene)

The Round Mountain Silt is the youngest member of the Temblor Formation. Microfossil and strontium isotope data indicate that the Round Mountain Silt ranges from approximately 15.9 to 14 Ma in this area (Olson, 1990). It is of particular paleontologic importance because its upper part includes the famous Sharktooth Hill bonebed. The bonebed ranges from four inches to nearly three feet in thickness, and is generally about a foot thick. One cubic foot of sediment may contain over 100 individual bones and teeth! It's vertebrate fauna of more than 100 species includes boney fish, cartilaginous fish (especially shark teeth), turtles, crocodiles, birds, sea lions, whales, and desmostylians (an extinct hippo-like aquatic mammal), and terrestrial mammals such as tapir, horses, camel, "giraffe", mastodon, and rhinoceros. At Sharktooth Hill, six miles northwest of the project area, the bonebed crops out at elevation 643 feet. It is known as "probably the most significant Miocene marine vertebrate locality in the world", and it is listed in the United States Landmark Registry. The bonebed extends over ten square miles from north of Poso Creek to south of the Kern River. In the vicinity of the project site, the unit is well exposed in the bluffs facing the Kern County Soccer Park, where it has been extensively quarried for fossils. In addition to

Area History

The aboriginal population that occupied the general region were the Yokuts. The Yokuts lived in variable sized communities throughout the San Joaquin Valley and the foothills. Their subsistence level was based on hunting and gathering, with small groups of people moving throughout their territorial range on a seasonal basis. Various plants were collected, animals trapped and hunted, and shellfish collected from the sloughs of the marsh areas. Principal villages were located in close proximity to sources of fresh water. Day use areas, seasonal camps or hunting-kill sites could be found throughout their territory, as a result of various activities engaged in by this culture. There are no known villages reported within or adjacent to the project area.

Archeological/Historical Resources

According to the archeological record files, six archeological sites and three isolated artifacts were found and recorded within a one-mile radius of the project site but none were recorded within the project area.

The on-site field survey conducted in September and October 1999 identified two archeological sites and eight isolated artifacts. Neither archeological site appeared to contain buried cultural deposit and the isolated artifacts consisting of stone flakes and small cores are not considered to be formal tools or significant cultural resources.

Paleontological Resources

Data Sources

The paleontologic assessment included an archival records check at the Los Angeles County Museum of Natural History (LACM), which included the collections data of the (1) University of California, Los Angeles, (2) California Institute of Technology, and (3) University of California Museum of Paleontology (Berkeley). Pertinent geologic and paleontologic literature was searched and reviewed.

Geology and Paleontology

Sedimentary rock units that may be encountered in the project area are the Round Mountain Silt Member of the Temblor Formation (marine; upper Miocene), Chanac Formation (nonmarine, upper Miocene), "Santa Margarita" Formation (marine, upper Miocene), Kern River Formation (nonmarine; upper Miocene, Pliocene, and early Pleistocene), and Quaternary terrace deposits (nonmarine; upper Pleistocene-Holocene). Following is a discussion of each rock unit. Only the Round Mountain Silt appears to have significant paleontologic resources in this particular area.

5.6 CULTURAL RESOURCES

This section includes information from the Archeological Investigation prepared for the proposed project by Robert A. Schiffman in October 1999. The complete report is contained in Appendix F of this EIR. MBA prepared the analysis of paleontological resources.

5.6.1 EXISTING CONDITIONS

Archaeological/Historical

Data Sources

A records search was conducted at the San Joaquin Information Center in 1998 and updated in September 1999. The records search indicated that previous archeological surveys had been conducted in the general region. These earlier studies resulted in the identification of 10 archeological sites and a number of isolated artifacts though no remains are known to be immediately adjacent to the study area. The San Joaquin Information Center recommended that prior to development, a cultural resources investigation be preformed due to the general proximity of known resources. As a result of this recommendation in September and October 1999, Robert A. Schiffman conducted an onsite field survey in accordance with CEQA guidelines with the assistance of Stephen B. Andrews.

Natural Setting

The proposed project is located in the eastern portion of the City of Bakersfield. Although residential development has taken place to the north and the southeast, and roads and a racetrack are located adjacent to the property, the project area remains undeveloped. The few impacts to the land are minimal. The principal vegetation is sparse to moderate grass cover along with low brush.

The elevation varies from 690 feet to 754 feet above sea level with the land sloping downhill from the northeast to the southwest. The southern portion of the parcel is more irregular, with gently rolling areas cut by marginal run off channels. The northern and western portions are flatter. The soil is identified as a Pilo-Pleistocene non-marine deposit on the Bakersfield Geologic Sheet. In the southwest and western portions of the property are scattered pebbles, cobbles, and rocks, mostly granitic in origin, though there are some sedimentary and meta-sedimentary rocks also onsite.

Although marginal and seasonal channels are present, there is no evidence that a usable or reliable source of fresh water existed on the property.

- Use electric equipment for construction whenever possible in lieu of fossil fuel-fired equipment.

Mobile Source Emissions

AQ-4 Prior to issuance of a building permit, transportation control measures and design features shall be incorporated into the project to reduce emissions from mobile sources. A strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling, and traffic congestion includes the following:

- Improve street and traffic signals for those intersections and street segments that the proposed project contributes traffic.

Energy Consumption Emissions

AQ-5 The project applicant shall incorporate the following in building plans.

- Use low-NO_x emission water heaters.
- Provide shade trees to reduce building cooling requirements.
- Install energy-efficient and automated air conditioners.
- Exterior windows shall all be double-paned glass.
- Energy-efficient (low-sodium) parking lights shall be used.
- Use EPA-approved wood burning stoves, fireplace inserts or pellet stoves in lieu of conventional fireplaces.

5.5.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the above mitigation measures would reduce adverse impacts during construction and operationa activities. However, emission levels subsequent to implementation of mitigation measures would continue to exceed significance thresholds for ROG and NOx.

no significant fugitive dust emissions. To ensure compliance, the following measure shall be implemented.

AQ-1 Prior to approval of a grading plan for any residential tract, multiple family project, and commercial project, the project applicant shall submit a letter to the City of Bakersfield Planning Department from the SJVUAPCD stating the dust suppression measures that shall be completed during construction activities to comply with SJVUAPCD Regulation VIII.

In addition to compliance with Regulation VIII, the following shall be implemented incorporated into building plans measures can further reduce fugitive dust emissions associated with the project.

AQ-2 The following shall be incorporated into building plans.

- Cover all access roads and parking areas with asphalt-concrete paving.
- Asphalt-concrete paving shall comply with SJVUAPCD Rule 4641 and restrict the use of cutback, slow-cure and emulsified asphalt paving materials.
- Use water sprays or chemical suppressants on all unpaved areas to control fugitive emissions.
- Enclose, cover or water all stockpiled soils to reduce fugitive dust emissions.
- Cease grading activities during periods of high winds (greater than 20 mph over a one-hour period).
- Limit construction-related vehicle speeds to 15 mph on all unpaved areas at the construction site.
- All haul trucks should be covered when transporting loads of soil.
- Wash off construction and haul trucks to minimize the removal of mud and dirt from the project sites.

Construction Equipment Exhaust Emissions

AQ-3 Prior to the issuance of a grading permit, the following shall be incorporated into the grading plan.

- Properly and routinely maintain all construction equipment, as recommended by manufacturer manuals, to control exhaust emissions.
- Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling engines.
- Encourage ride sharing and use of transit transportation for construction employee commuting to the project sites.

purpose of reducing motor vehicle emission." The AQAP for the San Joaquin Valley Air Basin identifies the provisions to accommodate the use of bicycles, public transportation and traffic flow improvements as transportation control measures.

The emissions of reactive organic gases and nitrogen oxides predicted by the model exceed the SJVUAPCD's interim threshold levels. However, Golden Empire Transit (GET) provides public (bus) transportation in the Bakersfield metropolitan area. The project area is undeveloped, therefore, is not currently served by GET. However, GET does provide service to the general area. The project could easily be serviced by GET upon completion.

A Traffic Impact Study was prepared by Crenshaw Traffic Engineering to evaluate impacts on the surrounding local roadway system due to traffic generated by the proposed development (refer to Section 5.3 and Appendix C). The Traffic Impact Study recommends mitigation measures such as street improvements and traffic signals for intersections and street segments which fall below an acceptable Level of Service due to the impact of future traffic. The study allocates a proportionate share of the mitigation measures to the project. The proposed mitigation measures are traffic flow improvements, which are recognized transportation control measures in compliance with the AQAP.

The AQAP recognized growth of the population and economy within the Air Basin. The plan predicted the workforce in Kern County to increase 40 percent and housing to increase 30 percent from 1990 to 2000. This project can be viewed as growth that was anticipated by the plan.

5.5.3 CUMULATIVE IMPACTS

The development of the proposed project with other development reflected by a 3 percent growth annual rate would produce a cumulative air quality impact. Cumulative emissions would be produced by stationary and mobile sources. Specifically, buildout of the proposed project, in conjunction with a 3 percent annual growth rate would generate natural gas consumption emissions in excess of the SJVUAPCD-recommended threshold for NOx. Cumulative development would generate mobile source emissions in excess of SJVUAPCD-recommended thresholds for ROG and NOx. Since the proposed project would contribute to the exceedance of SJVUAPCD thresholds, the project would contribute substantially to a cumulative significant air quality impact.

5.5.4 MITIGATION MEASURES

Fugitive Dust Emissions

The construction of the proposed project would result in the generation of fugitive dust. Compliance with SJVUAPCD Regulation VIII and the City of Bakersfield air quality regulations would result in

TABLE 5.5-5
AREA SOURCE EMISSIONS

Source	ROG Ton/year	NO_x Ton/year	CO Ton/year	PM_{10} Ton/year
Natural Gas	1.17	15.31	6.47	0.03
Landscaping	0.33	0.04	2.85	0.01
Total	1.50	15.35	9.32	0.03
Significance Level	10	10	N/A	N/A
Source: WZI, Inc., 2000				

As shown, area source emissions would result in significant air quality impact related to NOx emissions.

Potential Effect on Sensitive Receptors

The air quality impact of this project is not likely to affect sensitive receptors. Sensitive receptors are areas where young children, chronically ill individuals, or other individuals more sensitive than the general population are located. Examples of sensitive receptors are schools, day care centers and hospitals.

The nearest receptor is Chavez School, which is located south of SR 184, approximately one-quarter mile from the project site.

Potential Impacts from Odors and Hazardous Air Pollutants

The project consists of a mixture of residential and commercial land uses. The generation of odors and hazardous air pollutants is generally associated with certain types of industrial and agricultural activities. These activities are not included in the proposed project, therefore, the project is not expected to result in the generation of odors or hazardous air pollutants.

Conformity With The Air Quality Attainment Plan

The California Clean Air Act requires non-attainment districts with severe air quality problems to provide for a 5 percent reduction in non-attainment emissions per year. The SJVUAPCD prepared an AQAP for the San Joaquin Valley Air Basin in compliance with the requirements of the Act. The plan requires best available retrofit technology on specific types of stationary sources to reduce emissions. The CCAA and the AQAP also identify transportation control measures as methods of reducing emissions from mobile sources. The CCAA defines transportation control measures as, "any strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling or traffic congestion for the

TABLE 5.5-4
PROJECT-RELATED MOBILE SOURCE EMISSIONS – OZONE PRECURSORS

Pollutant	Reactive Organic Gas (tons/year)	Nitrogen Oxides (tons/year)	Carbon Monoxide (tons/year)	PM_{10} (tons/year)
Residential – Low Density	20.53	48.90	188.19	24.81
Residential – High Density	6.32	12.87	49.55	6.53
Commercial	20.49	61.48	204.75	30.27
Total	47.34	123.25	442.49	61.61
Level of Significance	10	10	N/A	N/A
N/A – Not applicable because SJVUAPCD has not established thresholds of significance for these particulates.				
Source: WZI, Inc., 2000.				

As shown, mobile source emissions would exceed the significant thresholds for ROG and NOx.

Mobile Source - Carbon Monoxide

Carbon monoxide emissions are a function of vehicle idling time and, thus, under normal meteorological conditions depend on traffic flow conditions. Carbon monoxide transport is extremely limited: it dispenses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations close to a congested roadway or intersection may reach unhealthful levels, affecting sensitive receptors (residents, school children, hospital patients, the elderly, etc.). Typically, high CO concentrations are associated with roadways or intersections operating at an unacceptable Level of Service (LOS). CO "Hot Spot" modeling is required if a traffic study reveals that the project will reduce the LOS on one or more streets to E or F; or, if the project will worsen an existing LOS F.

A traffic study was prepared by Crenshaw Traffic Engineering for the City in the Hills project (refer to Section 5.3 and Appendix C). The study indicates that the predicted LOS, after mitigation, does not warrant a CO Hot Spot analysis.

Area Source Emissions

Area source emissions result from fuel and personal product use. Electricity and natural gas are utilized by almost every commercial and residential development. The URBEMIS7G computer model predicted the following emissions from natural gas usage and landscape maintenance. The numbers shown below are from typical energy consumption and do not include fireplaces and consumer products such as hairspray.

Construction activity will also result in exhaust emissions from diesel-powered heavy equipment. Exhaust emissions from construction include emissions associated with the transport of machinery and supplies to and from the site, emissions produced onsite as the equipment is used, and emissions from trucks transporting excavated materials from the site and fill soils to the site. Examples of these emissions include CO, ROG, NO_x, SO_x and PM_{10}. These exhaust emissions could be considered significant.

Long-Term Emissions

Long-term emissions will be caused by mobile sources (vehicle emissions) and stationary source energy consumption (heating and cooling) emissions. The major long-term impact to air quality will be emissions caused by motor vehicles traveling to and from the project site.

Mobile Source - Ozone Precursors

The Bakersfield area is a non-attainment area for federal air quality standards for ozone and particulates. Nitrogen oxides and reactive organic gases are regulated as ozone precursors. A precursor is defined by the SJVUAPCD as "a directly emitted air contaminant that, when released into the atmosphere, forms or causes to be formed or contributes to the formation of a secondary air contaminant for which an ambient air quality standard has been adopted…"

The predicted emissions associated with vehicular traffic (mobile sources) are not subject to the SJVUAPCD's permit requirements, however, the SJVUAPCD is responsible for overseeing efforts to improve air quality within the San Joaquin Valley. The SJVUAPCD has prepared an AQAP to bring the San Joaquin Valley into compliance with the California Ambient Air Quality Standard for ozone. The SJVUAPCD reviews land use changes to evaluate the potential impact on air quality.

Vehicle emissions have been estimated for the year 2020 (expected completion date of this project) using the URBEMIS7G computer model from the California Air Resources Board. This model predicts carbon monoxide, total hydrocarbons, nitrogen oxide, sulfur oxide and particulate matter emissions from motor vehicle traffic associated with new or modified land uses. Appendix E contains the URBEMIS7G modeling results.

The predicted annual tailpipe emissions (Table 5.5-4) for reactive organic gases and nitrogen oxides attributable to this project are considered significant, based on the SJVUAPCD's levels of significance as summarized below:

- Rule 8020 – Fugitive dust requirements for control of fine particulate matter from construction, demolition, excavation, and extraction activities.
- Rule 8070 – Fugitive dust requirements for control of fine particulate matter from vehicle and/or equipment parking, shipping, receiving, transfer, fueling, and service areas of one acre or larger.

Impacts

Short-Term Emissions

Emissions produced during grading and construction activities are "short-term" in the sense that they occur during construction only. However, the proposed project is anticipated to occur in phases extending for approximately 20 years. Construction of the proposed land uses would produce PM10, CO, ROG, NOx, and SOx.

Construction activities are a source of dust (PM10) emissions that can have a substantial temporary impact on local air quality. Fugitive dust emissions are associated with land clearing, ground excavation, cut and fill operations, and truck travel on unpaved roads. Dust emissions vary substantially from day to day, depending on the level of activity, the specific operations, and weather conditions. The SJVUAPCD does not currently require quantification of PM10 emissions. However, the SJVUAPCD does require strict compliance with the SJVUAPCD's Fugitive Dust Control rules (Regulation VIII). The rules contained in Regulation VIII are listed below:

- Rule 8010 – Fugitive dust administrative requirement for control of fine particulate matter.
- Rule 8020 – Fugitive dust requirements for control of fine particulate matter from construction, demolition, excavation, and extraction activities.
- Rule 8070 – Fugitive dust requirements for control of fine particulate matter from vehicle and/or equipment parking, shipping, receiving, transfer, fueling, and service areas of one acre or larger.

In addition to SJVUAPCD regulations, the City of Bakersfield has the following requirements identified in the zoning regulations.

- Water sprays or chemical suppressants must be in all unpaved areas to control fugitive emissions.
- All access roads and parking areas must be covered with asphalt-concrete paving.

After strict compliance with SJVUAPCD's Fugitive Dust Control Rules (Regulation VIII) and the City's air quality regulations, the proposed project would not result in significant PM10 impacts.

The greatest source of operational impacts will be emissions resulting from motor vehicles traveling to and from the area. Additional long-term impacts include stationary sources of emissions associated with the generation of electricity for onsite use and the combustion of natural gas for space and water heating.

Thresholds of Significance

CEQA and the SJVUAPCD have established air pollution thresholds for projects to be evaluated and assist lead agencies in determining whether or not a project is significant.

CEQA Significance Thresholds

Appendix G of the California Environmental Quality Act (CEQA) states that a significant effect on air quality would occur when a project would:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard of contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

SJVUAPCD Significance Thresholds

The SJVUAPCD has established criteria for determining the significance of two pollutant emissions. Projects that emit the following precursor emissions of ozone above the following thresholds would normally be considered significant.

- Reactive Organic Gases (ROG) – 10 tons/year
- Oxides of Nitrogen (No_x) – 10 tons/year

The SJVUAPCD does not currently require quantification of PM_{10} emissions. However the SJVUAPCD does require strict compliance with the SJVUAPCD's Fugitive Dust Control rules (Regulation VIII). The rules contained in Regulation VIII are listed below:

- Rule 8010 – Fugitive dust administrative requirement for control of fine particulate matter.

mandated, 5-percent per year reduction in ozone precursors, and to reduce population exposures. Table 5.5-2 contains ambient air quality classifications for the Bakersfield area.

TABLE 5.5-2
AMBIENT AIR QUALITY CLASSIFICATIONS
PROJECT AREA OF THE SAN JOAQUIN VALLEY

Pollutant	State	Federal
Carbon Monoxide	Attainment	Attainment
Ozone	Non-Attainment/Serious	Non-Attainment/Serious
Oxides of Nitrogen	Attainment	Attainment/unclassified
Sulfur Dioxide	Attainment	Attainment/non-attainment
Particulate	Non-Attainment	Non-Attainment/Serious
Source: WZI, Inc., 2000.		

Local Setting

The closest air monitoring station to the project site is the Bakersfield station on Golden State Highway. The station monitors particulates, ozone, carbon monoxide, nitrogen oxide, sulfur oxide, total hydrocarbons, and methane.

Table 5.5-3 contains the maximum pollutant levels detected during 1997 and 1998 (the latest data available).

TABLE 5.5-3
MAXIMUM POLLUTANT LEVELS AT THE BAKERSFIELD, GOLDEN STATE HIGHWAY MONITORING STATION

Pollutant	Time Averaging	1998 Maximums	1997 Maximums	Standards	
				National	State
Ozone (O_3)	1 hour	0.132 ppm	0.117 ppm	0.12 ppm	0.09.ppm
Carbon Monoxide (CO)	8 hour	3.11 ppm	2.91 ppm	9 ppm	9 ppm
Nitrogen Dioxide (NO_2)	1 hr	0.097 ppm	0.076 ppm		0.25 ppm
	Annual	0.024 ppm	0.024 ppm	0.053 ppm	
Particulates (PM_{10})	24 hour		124 $\Phi g/m^3$	150 $\Phi g/m^3$	50 $\Phi p/m^3$
Source: WZI, Inc., 2000.					

5.5.2 PROJECT IMPACTS

The potential for air quality impacts of the proposed project have been analyzed using emission factors developed by the SJVUAPCD, CARB, and the EPA. Short-term air quality impacts may result from exhaust emissions and ROG emissions from the use of heavy equipment, worker vehicles, and haul trucks. PM_{10} impacts associated with airborne dust may occur during site grading and soil movement.

Ozone (O_3): Ozone is a pungent, colorless toxic gas. Ozone makes up 90 percent of the group of pollutants known as photochemical oxidants. Ozone and other photochemical oxidants are products of atmospheric reaction of nitrogen oxides and reactive organic gases with ultraviolet light. High ozone levels can adversely affect plants, and in humans, can cause respiratory irritation.

Carbon Monoxide (CO): Carbon monoxide is an odorless, colorless toxic gas produced by incomplete combustion of carbon-containing substances. Carbon monoxide interferes with the transfer of fresh oxygen from blood into body tissues.

Nitrogen Oxides (NO_x): Nitrogen oxides are formed from nitrogen and oxygen at high combustion temperatures and further reacts to form other oxides of nitrogen such as nitrogen dioxide. Nitrogen dioxide reacts with ultraviolet light to initiate reactions producing photochemical smog, and it reacts in air to form nitrate particulates. Nitrogen dioxide significantly affects visibility.

Sulfur Oxides (SO_x): Sulfur dioxide is a colorless, pungent gas primarily formed by combustion of sulfur-containing fossil fuels. High sulfur dioxide concentrations irritate the upper respiratory tract, while low concentrations of sulfur dioxide injure lung tissues. Sulfur oxides can react to form sulfates which significantly reduce visibility.

Particulates (PM_{10}): Dust, aerosols, soot, mists, and fumes make up atmospheric particulates. Sources of particulates include industrial and agricultural operations, combustion and photochemical actions of pollutants in the atmosphere. Particulates substantially reduce visibility and adversely affect the respiratory tract. PM_{10} is made up of finely divided particulate matter less than 10 microns in diameter.

Reactive Organic Gases (ROG): Organic compounds are made primarily of carbon and hydrogen. Motor vehicle emissions and evaporation of organic compounds produce hydrocarbon emissions. Hydrocarbon levels can affect plant growth. Hydrocarbon react in the atmosphere to form photochemical smog.

Regional Setting

The SJVUAPCD has jurisdiction in eight counties located in the San Joaquin Valley, including the Bakersfield area. The San Joaquin Valley Air Basin has been designated as an attainment area for carbon monoxide, and non-attainment for ozone and particulate matter (PM_{10}) by federal standards and California standards. The California Clean Air Act (CCAA) requires that all reasonable stationary and mobile source control measures be implemented in moderate non-attainment areas to help achieve a

TABLE 5.5-1
STATE AND FEDERAL
AMBIENT AIR QUALITY STANDARDS (CONTINUED)

Pollutant	Averaging Time	California Standards		National Standards		
		Concentration	Method	Primary	Secondary	Method
Nitrogen	1 hour	0.25 ppm (470 Φg/m^3)	Gas Phase Chemilumi	80 Φg/m^3	Same as	Gas Phase Chemilumi-
	Annual Average			(0.03 ppm)		
	24 hour	0.04 ppm (105 Φg/m^3)		365 Φg/m^3 (0.14 ppm)		
	3 hour				1300 Φg/m^3 (0.5 ppm)	
Sulfur Dioxide	1 hour	0.25 ppm (655 Φg/m^3)	Ultraviolet Fluorescence			Pararosaniline
Suspended Particulate Matter (PM_{10})	Annual Geometric Mean	30 Φg/m^3	Selective Inlet High Size Volume Sampler And Gravimetric Analysis			Inertial Separation and Gravimetric Analysis
	24 hour	50 Φg/m^3		150 Φg/m^3		
	Annual Arithmetic Mean			50 Φg/m^3	Same as Primary Std	
Sulfates	24 hour	25 Φg/m^3	Turbidimetric Barium Sulfate			
	30-day Average	1.5 Φg/m^3				
Lead	Calendar Quarter		Atomic Absorption	1.5 Φg/m^3	Same as Primary Std	Atomic Absorption
Hydrogen Sulfide	1 hour	0.03 ppm (42 Φg/m^3)	Cadmium Hydr-Oxide Stractan			
Vinyl Chloride (chlorothen)	24 hour	0.010 ppm (26 Φg/m^3)	Tedlar Bag Collection, Gas Chromatography			
Visibility Reducing Particles	8 hour (10 am to 6 pm, PST)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent. Measurement in accordance with ARB Method V.				

Source: WZI, Inc., 2000

The five directly emitted primary pollutants are carbon monoxide (CO), nitrogen oxides (NO_x), sulfur oxides (SO_x), reactive organic gases (ROG) and particulates (PM). Ozone (O_3) is considered a secondary pollutant because it forms from reactions involving NO_x and ROG. The following is a summary of the characteristics of the primary and secondary pollutants.

5.5 AIR QUALITY

This section describes the potential impact on air quality resulting from the proposed project. Information contained herein summarizes the Air Quality Impact Study prepared by WZI, Inc. in February 2000. The study can be found in its entirety in Appendix E of this document.

5.5.1 EXISTING CONDITIONS

The project site is located in the San Joaquin Valley Air Basin, within the City of Bakersfield, and within the jurisdiction of the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD). The topography of the air basin includes foothills and mountain ranges to the east, west, and south, and a relatively flat valley floor. The valley is characterized by long, hot, dry summers and short, foggy winters. The features of the valley produce climate episodes such as frequent temperature inversions. The topography of the project site is generally flat ranging in elevation from 690 feet to 754 feet above mean sea level, as shown on the U. S. Geological Survey topographical map, Oil Center, California, Quadrangle.

State and National Ambient Air Quality Standards

National Ambient Air Quality Standards (NAAQS) are assigned as the result of provisions of the Federal Clean Air Act. The NAAQS establish acceptable pollutant concentrations which may be equaled continuously or exceeded only once per year. California Ambient Air Quality Standards (NAAQS) are limits set by the California Air Resources Board (CARB) that cannot be equaled or exceeded. An air pollution control district must prepare an Air Quality Attainment Plan (AQAP) if the standards are not met. The California and National Ambient Air Quality Standards are shown in Table 5.5-1.

TABLE 5.5-1
STATE AND FEDERAL
AMBIENT AIR QUALITY STANDARDS

Pollutant	Averaging Time	California Standards		National Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone	1 hour	0.09 ppm (180 Φg/m^3)	Ultraviolet Photometry	0.12 ppm (235 Φg/m^3)	Same as Primary Std	Ethylene-Chemilumi-nescence
Carbon Monoxide	8 hour	9.0 ppm (10 Φg/m^3)	Non-Dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 Φg/m^3)		Non-Dispersive Infrared Spectroscopy (NDIR)
	1 hour	20 ppm (23 Φg/m^3)		35 ppm (40 Φg/m^3)		
	Annual Average			0.053 ppm (100 Φg/m^3)		

probably would suffice for most situations. When lot design and grading are established, an acoustical consultant shall establish necessary wall heights and locations.

Project-Related Offsite Traffic Noise

No feasible measures are available for the project applicant to reduce offsite traffic noise.

Mesa Marin Raceway

No feasible measures are available for the project applicant to reduce noise levels from the Mesa Marin Raceway to less than L_{50}-55 dBA.

5.4.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Onsite project traffic noise impacts in the years 2010 and 2020 will be less than significant after the implementation of the above mitigation measure (N-2).

Significant off-site project traffic noise impacts in the year 2010 will occur along SR 178 and in the year 2020 will occur along Fairfax Road, Masterson Street, and Paladino Drive. Usually, there are no feasible means to mitigate off-site traffic noise. Substantial increases in off-site traffic noise are directly related to substantial increases in traffic volumes caused by development, and are, therefore, considered an unavoidable adverse significant impact.

There are no mitigation measures that can be applied on the project site that will effectively reduce noise from the Mesa Marin Raceway to levels that satisfy the 2010 General Plan compatibility criteria. Sound walls could be constructed along the perimeter of the site, but, at best, they would reduce noise only at residences adjacent to the sound wall. Any effective mitigation measures would have to be applied at the raceway itself, such as berms or walls. Even if additional berms or walls were constructed at the raceway, it is not certain that they would substantially reduce noise impacts.

A Conditional Use Permit (C.U.P.) approved January 25, 1995 for the Mesa Marin Raceway indicates that noise from the raceway will be reduced to satisfy certain conditions specified in the C.U.P. The applicant for the C.U.P. has complied with all of the conditions of approval regarding noise reduction.

Raceway noise is, therefore, considered to be a significant unavoidable adverse impact.

TABLE 5.4-7
CUMULATIVE TRAFFIC NOISE
(CONTINUED)

Roadway	Existing	2020 w/ Project	Change, dB	Significant Impact?
Paladino Drive				
Fairfax-Morning	N/A	65.9	N	Yes
Morning-Queen	N/A	65.9	N	Yes
Queen-Masterson	N/A	65.9	N	Yes
Masterson-Alfred Harrell	N/A	65.9	N	Yes

Notes: N/A – Not applicable because street segment does not exist.
N – The change in traffic noise volumes can not be determined; however, if noise level is 65.0 dB or greater, the noise level is significant.

[1]Calculated at assumed typical residential setback (125 feet from SR 178; 75 feet for other roadways).
[2] Streets within or adjacent to project.
[3] This is a significant beneficial impact.
Source: Brown-Buntin Associates, Inc., February 2000 and Michael Brandman Associates, March 2000

5.4.4 MITIGATION MEASURES

Construction Noise Sources

No measures are required.

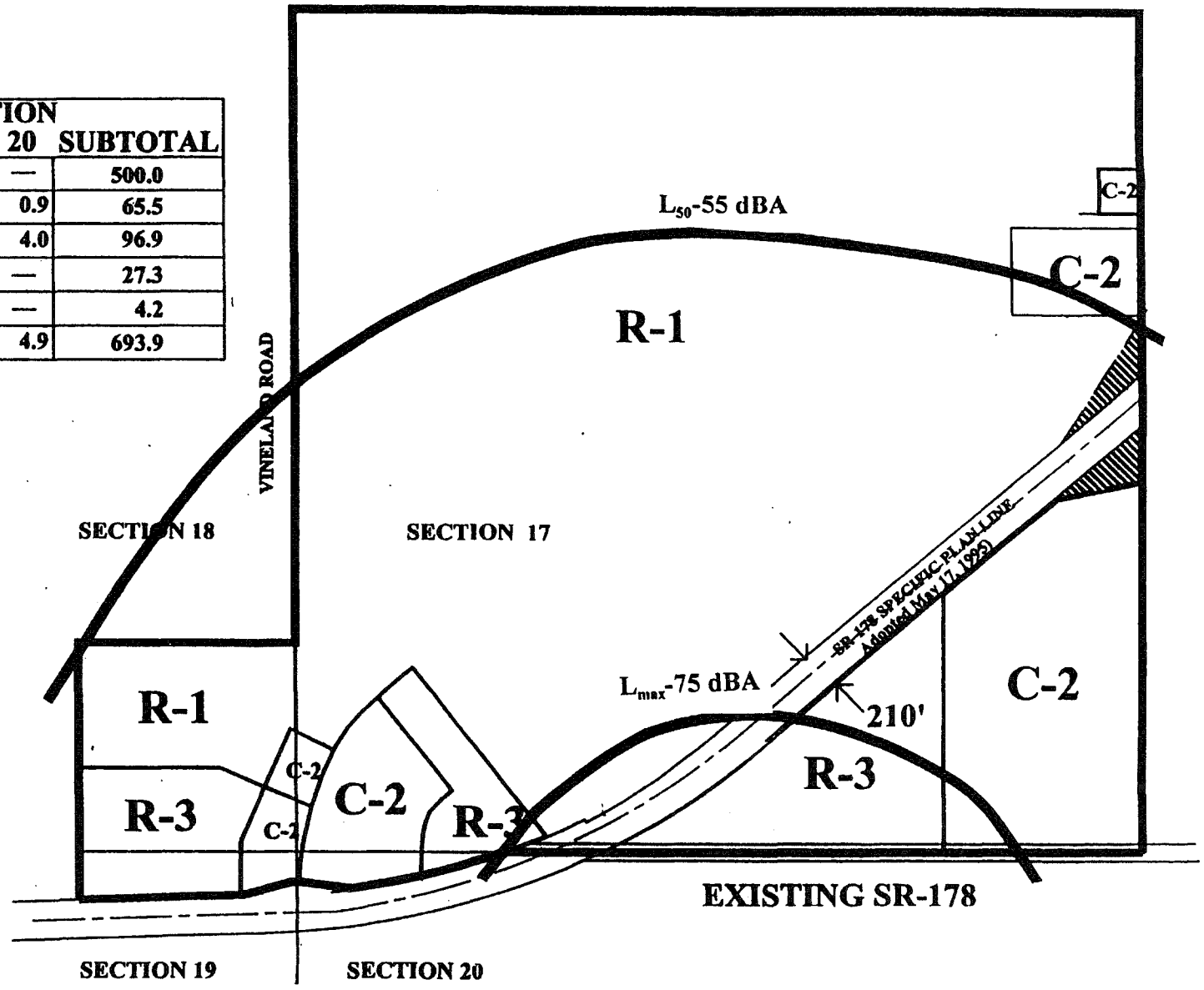
Commercial Noise Sources

N-1 Prior to the issuance of a building permit for the proposed commercial uses, the project applicant shall demonstrate that project commercial noise source impacts on nearby residences are below those indicated in the City's hourly noise level performance standards. To demonstrate commercial noise source impacts are below the City's standards, the project applicant may need to include project design features such as setbacks, barriers, building location/orientation, acoustical design of buildings, etc.

Project-Related Onsite Traffic Noise

N-2 Prior to the issuance of building permits, the project applicant shall reduce noise levels on the project residences by setting residential uses back from the roads by a distance equal to or greater than the 65 dB CNEL contour. For the future alignment of SR 178, the minimum setback distance shall be 188 feet; for Masterson Street and Paladino Drive, the minimum setback shall be 84 feet and 86 feet, respectively. As an alternative to setbacks, the project applicant could use soundwalls to mitigate traffic noise levels. The exact height and placement of soundwalls would depend on lot design and grading. Walls in the range of 6 to 10 feet

ZONE	SECTION 17	18	19	20	SUBTOTAL
R-1	476.0	24.0	—	—	500.0
R-3	44.8	12.5	7.3	0.9	65.5
C-2	87.8	3.5	1.6	4.0	96.9
FREEWAY	27.3	—	—	—	27.3
RAMP R/W	4.2	—	—	—	4.2
TOTAL	640.1	40.0	8.9	4.9	693.9



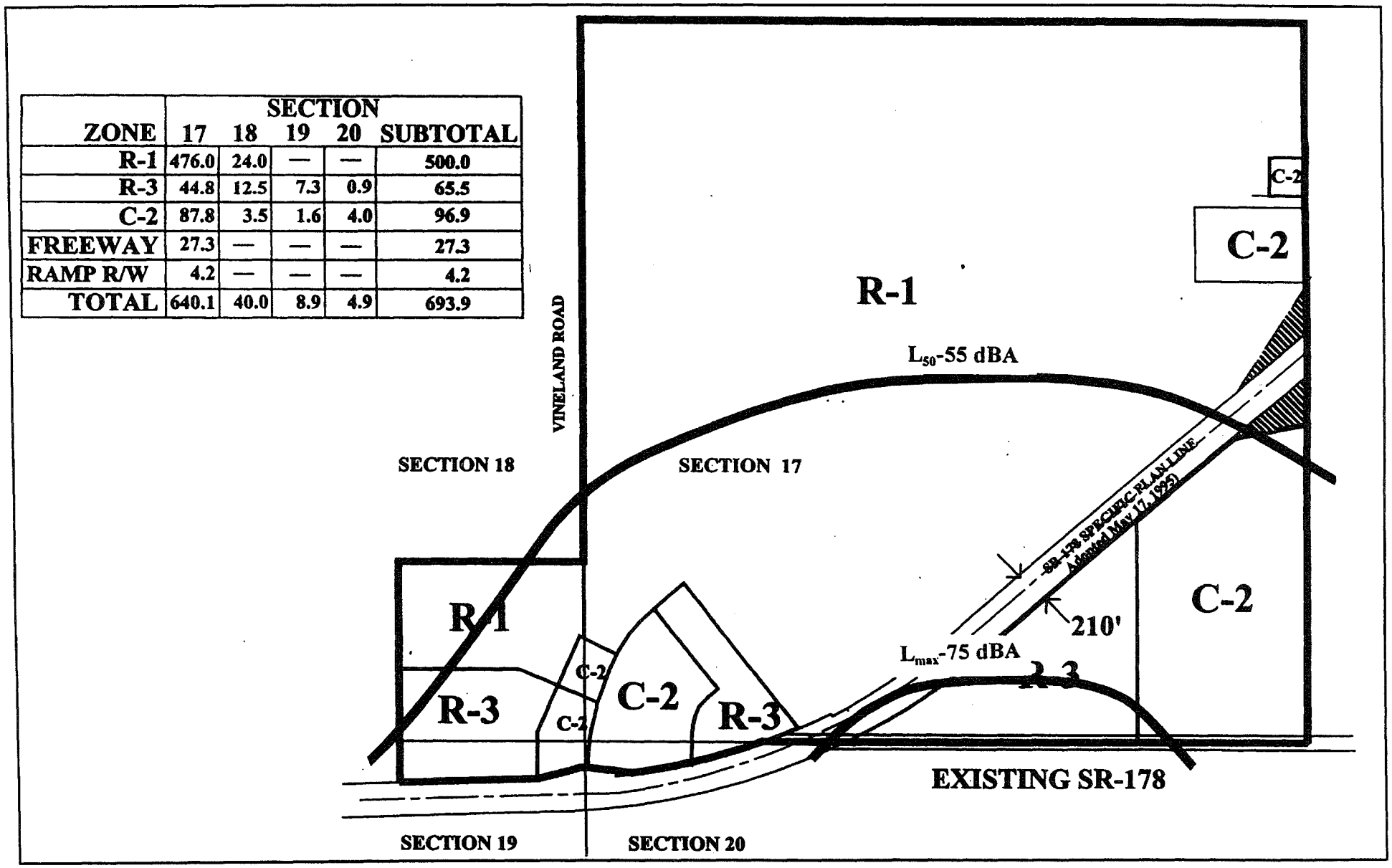
NORTH

1000 500 0 1000
SCALE IN FEET

Michael Brandman Associates

Exhibit 5.4-5
Mesa Marin Raceway Noise Contours - Calm Winds

ZONE	SECTION 17	18	19	20	SUBTOTAL
R-1	476.0	24.0	—	—	500.0
R-3	44.8	12.5	7.3	0.9	65.5
C-2	87.8	3.5	1.6	4.0	96.9
FREEWAY	27.3	—	—	—	27.3
RAMP R/W	4.2	—	—	—	4.2
TOTAL	640.1	40.0	8.9	4.9	693.9



NORTH

1000 500 0 1000
SCALE IN FEET

Michael Brandman Associates

Exhibit 5.4-4

Mesa Marin Raceway Noise Contours - 5 Knot Northwest Winds

02160011 • 5/2000

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5.4.3 CUMULATIVE IMPACTS

The development of the proposed project and future development in accordance with the City's General Plan would increase noise levels within the project vicinity. As shown in Table 5.4-7, significant cumulative noise impacts along 18 roadway segments would occur. There are 16 of the 18 roadway segments that will experience significant adverse noise impacts while one of the roadway segments will experience a significant beneficial noise impact. The project's contribution to cumulative noise levels is considered significant as shown in Table 5.4-6.

TABLE 5.4-7
CUMULATIVE TRAFFIC NOISE

Roadway	Existing	2020 w/ Project	Change, dB	Significant Impact?
Panorama Drive				
Fairfax-Morning	62.2	62.8	0.6	No
Morning-Queen	N/A	64.9	N	No
Queen-Masterson[2]	N/A	65.2	N	Yes
Auburn Street				
Fairfax-Morning	61.0	63.8	2.8	No
SR 178 (Old Alignment)				
Oswell-Fairfax	59.3	70.7	11.4	Yes
Fairfax-Morning	64.4	69.6	5.2	Yes
Morning-Vineland	64.2	68.2	4.0	Yes
Vineland-Masterson[2]	64.4	60.9	-3.5	Yes[3]
Masterson-Alfred Harrell	64.3	61.9	-2.4	No
Fairfax Road				
South of SR 178	66.8	63.3	-3.5	Yes[3]
SR 178-Auburn	66.8	67.5	0.7	No
Auburn-Panorama	65.2	68.0	2.8	Yes
Panorama-Paladino	60.5	67.5	7.0	Yes
Morning Drive				
South of SR 178	N/A	64.1	N	No
SR 178-Panorama	56.9	64.8	7.9	Yes
Vineland Road				
South of SR 178	N/A	64.4	N	No
North of SR 178[2]	N/A	64.4	N	No
SR 184				
Niles-SR 178	58.9	67.1	8.2	Yes
SR 178 (Future Alignment)				
West of Masterson[2]	N/A	67.7	N	Yes
East of Masterson	N/A	70.2	N	Yes
Masterson Street				
North of New SR 178[2]	N/A	65.8	N	Yes
Old SR178-New SR178[2]	N/A	65.7	N	Yes

Noise levels due to qualifying and racing at Mesa Marin that are used in this report were obtained from the acoustical analysis prepared for the City of Bakersfield by Gordon Bricken and Associates, Consulting Acoustical and Energy Engineers. The Bricken report is based on measured noise levels around Mesa Marin Raceway for one evening of racing (September 9, 1995). According to the report, the noise impacts vary daily and to obtain a true calculation of noise impacts it would take several years of measurements. It should be noted that the following measurements should be used conservatively in making long term land use decisions. However, although Bricken's study is based on only one evening of racing, it represents the most recent and most complete analysis of noise levels generated by Mesa Marin Raceway.

The noise levels measured on September 9, 1995 were used as a basis for plotting noise contours around the raceway that are presented in the Bricken report. The contours are based on the Late Model Stock Car race, which produced the highest noise levels. One of the most important factors that effects noise propagation, and, therefore, the extent of the noise contours, is wind speed and direction. According to National Weather Service records at Meadows Field, the wind direction is 250 degrees (west) to 350 degrees (north) 66 percent of the time in this area. The range of wind speeds 66 percent of the time is 4 to 9 knots. Additionally, 95 percent of all winds over 10 knots occur in the range of 270 degrees to 360 degrees. Although calm conditions and wind blowing from the south or southeast can occur, the prevailing wind direction is from the north and northwest.

Exhibit 5.4-4 shows L_{50} and L_{max} noise contours for 5 knot northwest winds superimposed on the project site. The noise contours are derived from Exhibit 3 and 4 of the Bricken report. The L_{50}-55 dBA and L_{max}-75 dBA contours represent the limits of noise compatibility for racing that occurs in the daytime hours (7:00 a.m.-10:00 p.m.). The nighttime (10:00 p.m.-7:00 a.m.) noise standards are an L_{50} of 50 dBA and an L_{max} of 70 dBA. The L_{50}-50 dBA contour was not presented in the Bricken report.

Exhibit 5.4-5 shows the L_{50} -55 dBA and L_{max}-75 dBA contours for calm conditions. These are derived from Exhibit 7 of the Bricken report. The noise contours for calm conditions extend further north than noise contours representing wind from the northwest. Although noise contours representing the predominate northwest wind conditions usually will prevail, the more extensive contours representing calm conditions may sometimes occur.

The critical noise contour shown in Exhibit 5.4-4 is the L_{50}-55 dBA. Residential uses proposed within the L_{50}-55 dBA contour shown in Exhibit 5.4-4 would be incompatible with the City's noise standards and, therefore, cause a significant noise impact.

TABLE 5.4-6
PROJECT-RELATED TRAFFIC NOISE[1]
(CONTINUED)

Roadway	CNEL, dB								
		2010				2020			
	Existing	2010 w/o Project	2010 w/ Project	Change, dB	Significant Impact?	2020 w/o Project	2020 w/ Project	Change, dB	Significant Impact?
Morning Drive									
South of SR 178	N/A	N/A	N/A	N/A	N/A	62.8	64.1	1.3	No
SR 178-Panorama	56.9	58.6	63.5	0.9	No	63.6	64.8		
Vineland Road									
South of SR 178	N/A	N/A	N/A	N/A	N/A	63.3	64.4	1.1	No
North of SR 178[2]	N/A	N/A	63.4	N	No	59.2	64.4	5.2	Yes
SR 184									
Niles-SR 178	58.9	62.1	63.8	1.7	No	67.3	67.1	-0.2	No
SR 178 (Future Alignment)									
West of Masterson[2]	N/A	N/A	N/A	N/A	N/A	69.4	67.7	-1.7	Yes
East of Masterson	N/A	N/A	N/A	N/A	N/A	69.0	70.2	1.2	No
Masterson Street									
North of SR New 178[2] Old SR 178	N/A	52.3	60.4	8.1	Yes	61.5	65.8	4.3	Yes
Paladino Drive									
Fairfax-Morning	N/A	N/A	N/A	N/A	N/A	64.2	65.9	1.7	Yes
Morning-Queen	N/A	N/A	N/A	N/A	N/A	64.3	65.9	1.6	Yes
Queen-Masterson	N/A	N/A	N/A	N/A	N/A	63.1	65.9	2.8	Yes
Masterson-Alfred Harrell	N/A	N/A	N/A	N/A	N/A	63.1	65.9	2.8	Yes

Note: N/A – Not applicable because the street segment does not exist.
NA – Traffic volumes for these street segments are not available.
N – The change in traffic noise levels can not be determined; however, if noise level is 65.0 dB or greater, the noise level is significant.

[1]Calculated at assumed typical residential setback (125 feet from SR 178; 75 feet for other roadways).
[2] Streets within or adjacent to project.
Source: Brown-Buntin Associates, Inc., February 2000 and Michael Brandman Associates, March 2000

Mesa Marin Raceway Noise

As shown by Exhibit 3-2, Mesa Marin Raceway is located directly south of the project site. The center of the raceway oval is approximately 1,200 feet from the southern boundary of the project site.

The raceway features NASCAR sanctioned stock car races. During the 1999 racing season, which extended from March through October, 26 evenings of racing were scheduled. Most of the events occurred on Saturdays, although a few were scheduled on Thursday, Friday, or Sunday.

Project-Related Traffic Noise Impacts

Development of the proposed land uses would result in a daily traffic volume increase of approximately 60,976 trips of which 51,830 trips would leave the project site and the remaining 9,146 trips would remain on the site. Project-related traffic noise impacts were based on a comparison of year 2010 with and without project and year 2020 with and without project. Based on the analysis in Table 5.4-6, the project would result in a significant noise impact along SR 178 between Fairfax Road and Morning Drive and along Masterson Street, north of Old SR 178 in the year 2010. The project would also result in significant noise impacts to 6 roadway segments, in the year 2020 as shown in Table 5.4-6. There are 10 of the 11 roadway segments in the year 2020 that will experience significant adverse project noise levels while the remaining street segment (new SR 178 west of Masterson Street) will experience a significant beneficial project noise impact.

TABLE 5.4-6
PROJECT-RELATED TRAFFIC NOISE[1]

Roadway	CNEL, Db								
		2010				2020			
	Existing	2010 w/o Project	2010 w/Project	Change, dB	Significant Impact?	2020 w/o Project	2020 w/ Project	Change, dB	Significant Impact?
Panorama Drive									
Fairfax-Morning	62.2	61.5	62.6	1.1	No	61.5	62.8	1.2	No
Morning-Queen	N/A	N/A	62.3	N	No	61.8	64.9	3.1	Yes
Queen-Masterson[2]	N/A	N/A	61.6	No	No	60.4	65.2	4.8	Yes
Auburn Street									
Fairfax-Morning	61.0	60.0	60.7	0.7	No	62.3	63.8	1.5	No
SR 178									
Oswell-Fairfax	59.3	66.9	68.1	1.2	No	70.1	70.7	0.6	No
Fairfax-Morning	64.4	62.4	65.2	2.8	Yes	68.7	69.6	0.9	No
Morning-Vineland	64.2	62.3	64.2	1.9	No	67.9	68.2	0.3	No
Vineland-Masterson[2]	64.4	62.3	62.9	0.6	No	59.2	60.9	1.7	No
Masterson-Alfred Harrell	64.3	62.5	63.1	0.6	No	61.8	61.9	-0.1	No
Fairfax Road									
South of SR 178	66.8	62.9	63.6	0.7	No	63.1	63.3	0.2	No
SR 178-Auburn	66.8	67.5	68.3	0.8	No	67.1	67.5	0.4	No
Auburn-Panorama	65.2	65.7	66.2	0.5	No	67.5	68.0	1.5	Yes
Panorama-Paladino	60.5	61.7	61.9	0.2	No	65.9	67.5	1.6	Yes

vehicles generate noise during clearing, excavation, grading, structure, roadway and utility construction operations associated with the development of the proposed project.

Actual noise levels generated by equipment and experienced at nearby and adjacent residences during construction would vary hourly, daily, and weekly because the number and types of equipment used would vary. Noise could be produced by diesel powered motor graders, tractors, fork lifts, loaders, rollers, asphalt pavers, generators, flatbed trucks, delivery trucks, and rollers. The proposed project would generate two types of construction noise: equipment noise and traffic noise. During the construction of the project, noise from construction activities would potentially impact noise-sensitive land uses in the immediate area. Activities involved in construction would generate noise levels in the 80s dBA at 50 feet from the sources indicated in Table 5.4-5. Construction activities would be temporary in nature and would most likely occur only during the daytime hours. Construction noise impacts could result in annoyance or sleep disruption for nearby residents if nighttime operations were to occur or if equipment is not properly muffled or maintained. Since construction noise is temporary and would be restricted to 7:00 a.m. to 7:00 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. on Saturday and Sunday, no significant short-term noise impacts would occur from construction activities.

TABLE 5.4-5
TYPICAL CONSTRUCTION EQUIPMENT NOISE LEVELS

Type of Equipment	Maximum Level, dB (50 Ft.)
Scrapers	88
Bulldozers	87
Heavy Trucks	88
Backhoe	85
Pneumatic Tools	85
Source: Brown-Buntin Associates, Inc., February 2000	

Commercial Noise Sources

Commercial zoning is proposed in the southern and eastern portions of the project site, along the future alignment of SR 178. Proposed commercial land uses would be adjacent and near proposed residential land uses. These residents would be exposed to varying amounts of commercial noise impacts. Noise sources commonly associated with commercial uses include stationary equipment (air conditioning units, trash compactors, fans, compressors, etc.) and truck deliveries. Actual noise levels generated in commercial areas and experienced at nearby and adjacent residences can not be determined at this time since specific commercial uses are not proposed at this time. Adjacent residences could experience temporary short-term noise levels in the 50s and 60s dBA from nearby commercial uses. This could result in noise levels exceeding the city's hourly noise level performance standards. Because commercial stationary equipment and truck delivery noise levels can not be determined at this time, this impact is considered to be potentially significant.

TABLE 5.4-4
HOURLY NOISE LEVEL PERFORMANCE STANDARDS
METROPOLITAN BAKERSFIELD 2010 GENERAL PLAN

Maximum Acceptable Noise Level, dBA		
Min./Hr. (L_n)	**Day (7am-10pm)**	**Night (10pm-7am)**
30 (L_{50})	55	50
15 (L_{25})	60	55
5 ($L_{8.3}$)	65	60
1 ($L_{1.7}$)	70	65
0 (L_{max})	75	70

Note: L_n means the percentage of time the noise level is exceeded during an hour. L_{50} means the level exceeded 50% of the hour, L_{25} is the level exceeded 25% of the hour, etc.
Source: Brown-Buntin Associates, Inc., February 2000

5.4.2 PROJECT IMPACTS

Thresholds of Significance

To assess long-term noise impacts, the standards in the City's Noise Element are used. A significant long-term noise impact would occur when a project results in noise levels exceeding the noise standards established by the City (i.e., 65 dB CNEL for residences) or causes a substantial degradation of the existing ambient noise environment.

The City's Noise Element establishes a maximum exposure of 65 dB CNEL at the exterior of "noise sensitive uses". Noise sensitive uses are defined in the General Plan as residences, schools, hospitals, and recreational uses. Although not noise sensitive, the General Plan requires commercial and professional uses to be consistent with the recommendations of the California Office of Noise Control. Noise exposure up to 70 dB CNEL is considered to be "normally acceptable" for commercial and professional uses.

A substantial degradation of the existing ambient environment is based on the existing noise level. For ambient noise levels of less than 60 db, between 60 db and 65 db, and greater than 65 db, a significant impact is an increase of more than 5.0 db, 3.0 db, and 1.5 db, respectively.

For non-transportation noise sources (i.e., industries), the General Plan applies hourly noise level standards at noise-sensitive uses. These standards are provided in Table 5.4-4.

Construction Noise

Construction noise impacts are considered short-term impacts in the sense that they occur only during periods of project construction. Earthmoving, materials handling, stationary, and impact equipment and

sensitive uses. Noise-sensitive uses include residences, schools, hospitals and recreational areas. Although not considered to be noise sensitive, the General Plan requires commercial and professional uses "to be consistent with the recommendations of the California Office of Noise Control" (Figure VII-3 of the General Plan). For non-transportation noise sources (e.g., industries), the Noise Element applies hourly noise levels performance standards at residential and other noise-sensitive uses (see Table 5.4-4).

TABLE 5.4-3
EXISTING TRAFFIC NOISE LEVELS
AT ASSUMED TYPICAL RESIDENTIAL SETBACK FROM ROADS[a]

Roadway	CNEL, dB	Distance to 65 dB CNEL Contour, Feet
Panorama Drive		
Fairfax-Morning	62.2	49
Morning-Queen	N/A	N/A
Queen-Masterson	N/A	N/A
Auburn Street		
Fairfax-Morning	61.0	41
Route 178		
Oswell-Fairfax	56.0	31
Fairfax-Morning	61.0	68
Morning-Vineyard	60.9	66
Vineyard-Masterson	61.1	68
Masterson-Alfred Harrell	60.9	67
Fairfax Road		
South of Route 178	61.8	46
Route 178-Auburn	66.8	99
Auburn-Panorama	65.2	78
Morning Drive		
Route 178-Panorama	56.9	22
Vineyard Road		
North of Route 178	N/A	N/A
Route 184		
Niles-Route 178	58.9	30
Route 178 (Future Alignment)		
West of Masterson	N/A	N/A
East of Masterson	N/A	N/A

Note: N/A – Not applicable because street segment does not exist.
[a] Calculated at assumed typical residential setback (125 feet from SR 178; 75 feet for other roadways)
Source: Brown-Buntin Associates, Inc., February 2000

TABLE 5.4-2
AMBIENT NOISE LEVEL MEASUREMENTS

Site No.	Time	L_{50}	L_{max}	Comments
1	10:00-10:15 a.m.	32.0	58.5	Local traffic
2	10:20-10:35 a.m.	32.6	48.8	Local traffic, aircraft
3	10:40-10:55 a.m.	33.8	45.6	Distant traffic, birds
4	11:00-11:15 a.m.	60.2	70.1	Route 178 traffic
Source: Brown-Buntin Associates, Inc., February 2000				

Existing Traffic Noise Levels

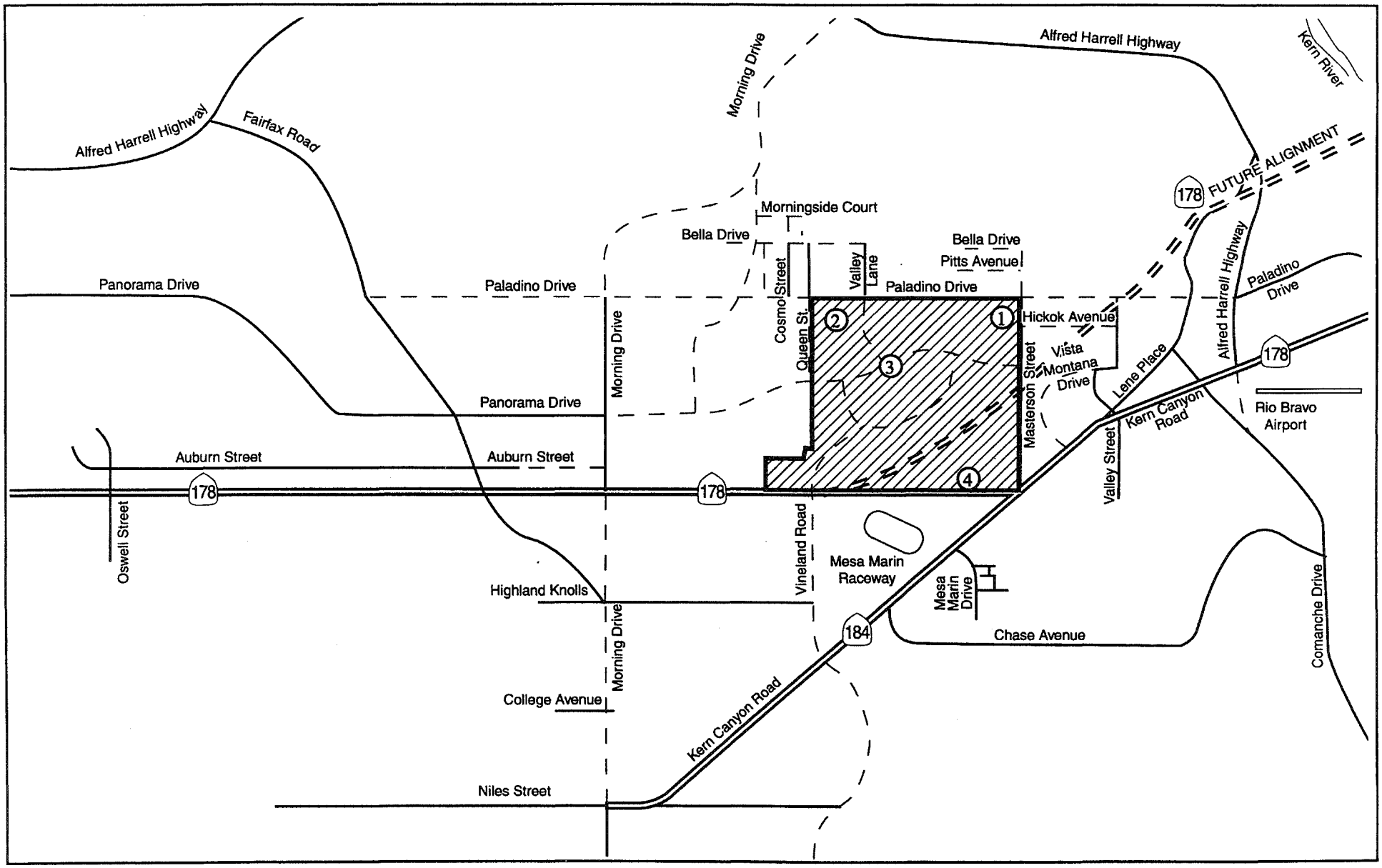
Existing traffic noise levels were calculated using the FHWA Highway Traffic Noise Prediction Model (U.S. Department of Transportation 1978). The FHWA Model is the standard methodology recommended by the FHWA and Caltrans for traffic noise prediction. Traffic data used in the FHWA Model were obtained from Crenshaw Traffic Engineering. Table 5.4-3 shows the existing traffic noise levels in the project study area. A summary of the traffic data used in the model is provided in Appendix D.

The FHWA Model is the analytical method currently favored by most state and local agencies, including Caltrans, for highway traffic noise predication. The Model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within 1.5 dB. The Model assumes a clear view of traffic with no shielding at the receiver location. To predict CNEL values, it is necessary to determine the hourly distribution of traffic for a typical day and adjust the traffic volume input data to yield an equivalent hourly traffic volume. The Calveno traffic noise emission curves were used as recommended by Caltrans to more accurately calculate noise levels generated by California traffic.

Table 5.4-3 shows calculated CNEL values at assumed typical residential setbacks (75 feet) from major roadways near the project. Also shown in Table 5.4-3 is the distance from roadway centers to the 65 dB CNEL contour. Note that existing traffic noise levels do not exceed the 65 dB CNEL compatibility standard, except along Fairfax Road from south of SR 178 to Auburn Street.

Regulatory Setting

The project site is within the City of Bakersfield. The applicable standards for overall noise levels that apply to this project are those within the Metropolitan Bakersfield 2010 General Plan. No federal or state noise standards are applicable to this project. For transportation noise sources (e.g., traffic and railway noise), the Noise Element of the General Plan sets a standard of 65 dB CNEL at the exterior of noise-



NORTH

3520 1760 0 3520

SCALE IN FEET

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Exhibit **5.4-3**

Noise Measurement Sites

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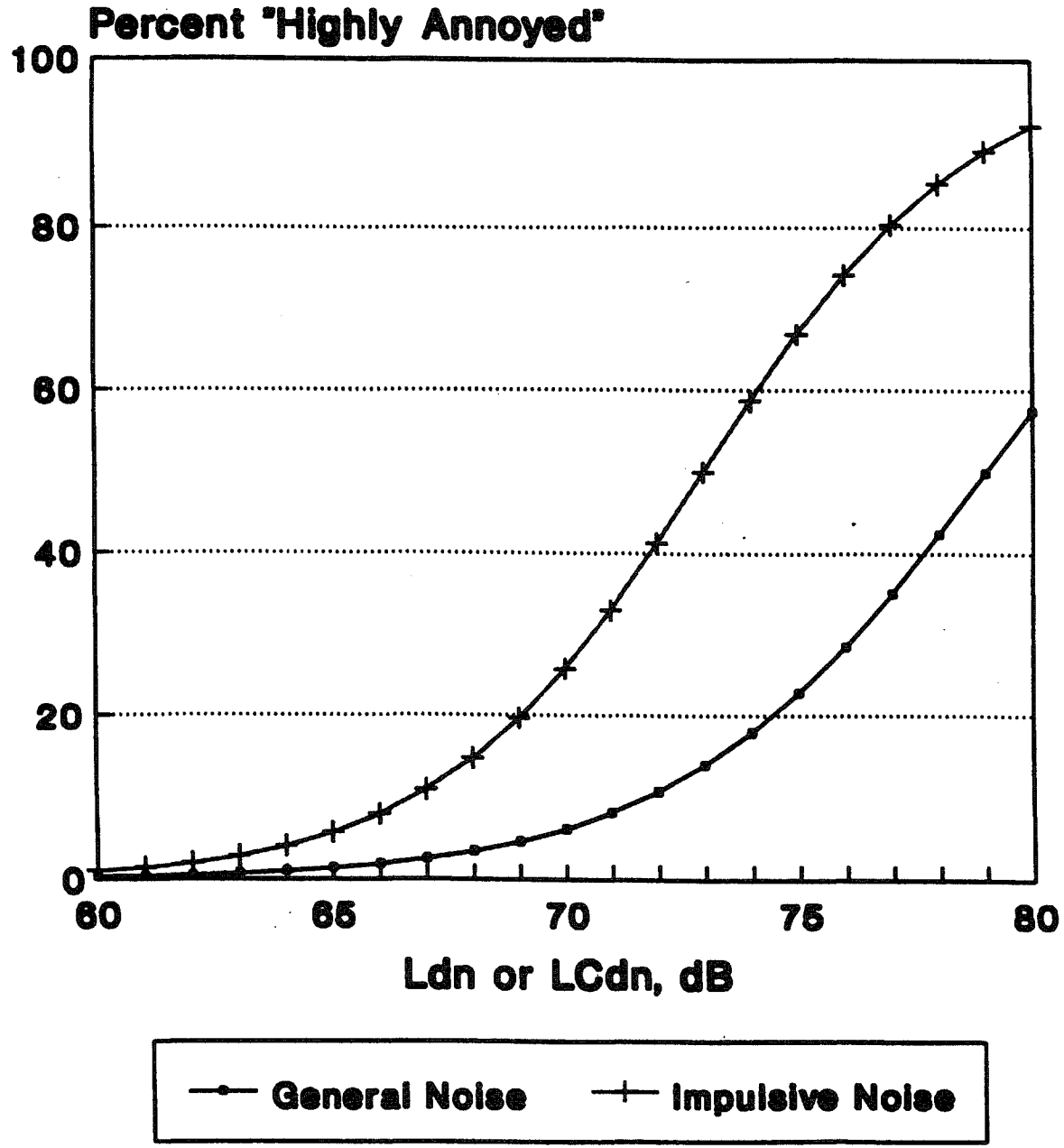

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Exhibit 5.4-2
Public Reaction to Noise

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Sound Propagation and Attenuation

For purpose of sound propagation, noise sources may be classified as "point" sources or "line" sources. Point sources usually are localized, and at a distance sound from such sources will propagate in a spherical pattern. Sound levels from point sources will attenuate or drop-off at the rate of 6 dB for each doubling of distance. Sound from line sources propagate in a cylindrical pattern. Sound levels from line sources will attenuate at the rate of 3 dB per doubling of distance. Examples of point and line noise sources are a fixed piece of machinery and a highway.

In addition to attenuation by wave spreading, sound levels also may be attenuated by air and ground absorption, and from shielding by natural or man-made obstacles in the sound path. Noise barriers (walls or earth berms) are a special obstacle that are a common strategy used to interrupt noise propagation and thereby reduce noise levels. Other factors that will also influence sound propagation are wind and atmospheric temperature inversions. Obviously, all of these factors can work together influencing sound propagation. Computer models are often used to help predict sound levels in complex environments.

Existing Noise Sources

Ambient Noise Survey

Background noise level measurements were conducted within the site on October 19, 1999. The measurement sites are located on Exhibit 5.4-3. The background noise levels at these sites are representative of locations that are removed from obvious noise sources, such as traffic from State Route (SR) 178. Table 5.4-2 identifies the results of the ambient noise level measurements. As shown on Exhibit 5.4-3, at the three sites in which measurements were taken, L_{50} noise levels ranged from approximately 32-34 dBA.

Noise monitoring equipment used for the study consisted of a Larson Davis Laboratories Model 820 integrating sound level meter equipped with a Bruel & Kjaer (B&K) Type 4176 ½" microphone. The instrumentation complies with applicable requirements of the American National Standards Institute (ANSI) for Type 1 (precision) sound level meters and was calibrated prior to use with a B&K Type 4230 acoustical calibrator to ensure the accuracy of the measurements.

TABLE 5.4-1
EXAMPLES OF A-WEIGHTED SOUND LEVELS AND RELATIVE LOUDNESS

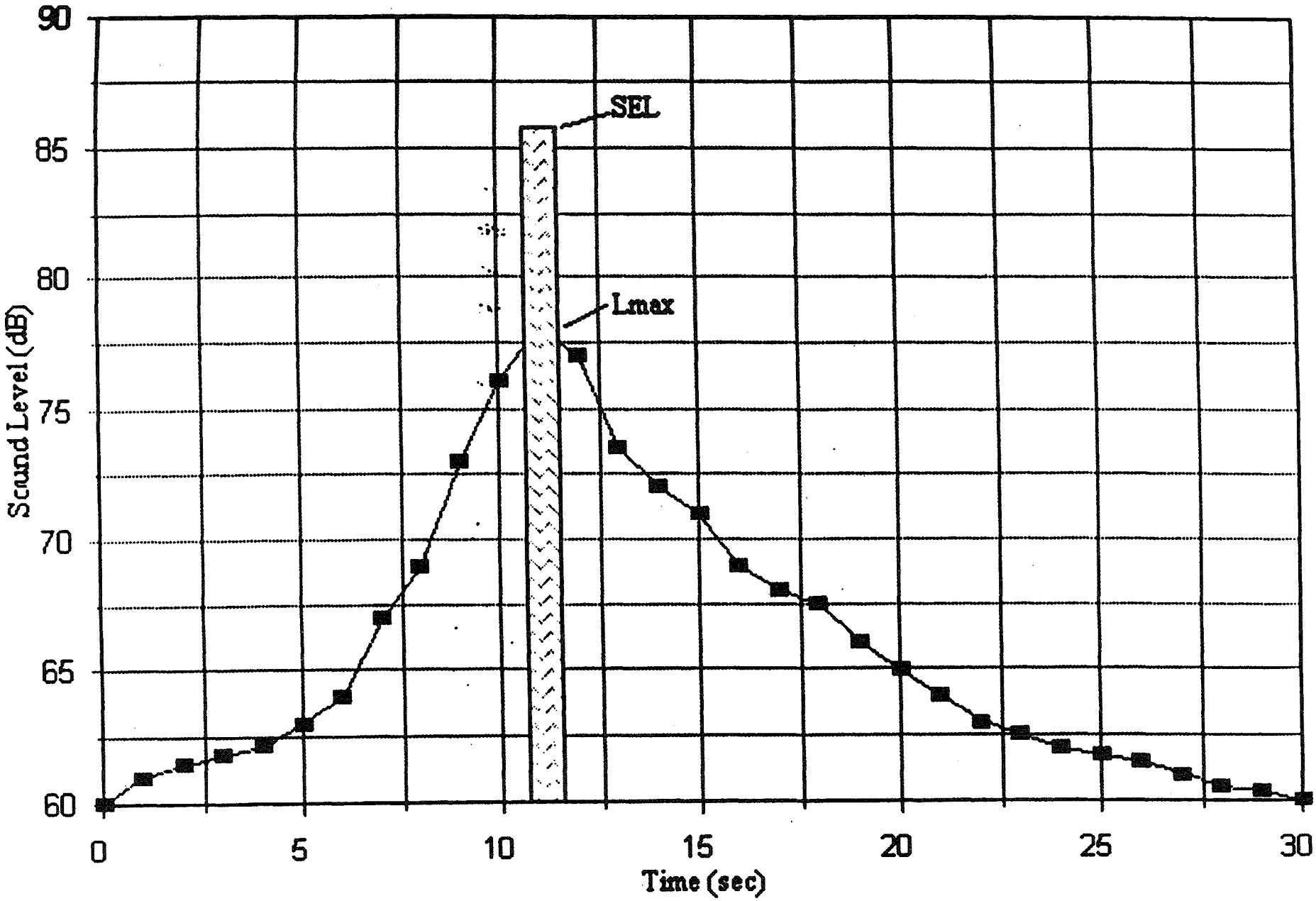
Sound	Sound Level (dBA)	Relative Loudness (approximate)	Relative Sound Energy
Jet aircraft, 100 feet	130	128	10,000,000
Rock music with amplifier	120	64	1,000,000
Thunder, snowmobile (operator)	110	32	100,000
Boiler shop, power mower	100	16	10,000
Orchestral crescendo at 25 feet, noisy kitchen	90	8	1,000
Busy street	80	4	100
Interior of department store	70	2	10
Ordinary conversation, 3 feet away	60	1	1
Quiet automobile at low speed	50	½	.1
Average office	40	1/4	.01
City residence	30	1/8	.001
Quiet country residence	20	1/16	.0001
Rustle of leaves	10	1/32	.00001
Threshold of hearing	0.00	1/64	.000001

Source: U.S. Department of Housing and Urban Development, "Aircraft Noise Impact -- Planning Guidelines for Local Agencies," 1972.

Finally, because people react not only to their perception of individual noise events, but also to how many events there are, and what time of day or night they occur, composite noise metrics have been developed to describe potential public reaction to long-term exposure to noise events. The two such common descriptors in the United States today are the Day-Night Average Sound Level (Ldn) and the Community Noise Equivalent Level (CNEL). The Ldn and CNEL include the concepts of "How loud was it?", "How long was it loud?", and "When was it loud?".

Public Reaction to Noise

Public reaction to transportation noise can be expressed as the percentage of the population which is "highly annoyed" by exposure to increasing Ldn values. Exhibit 5.4-2 shows this relationship. The number of persons "highly annoyed" represents the upper 25-30 percent of all persons who are annoyed to some degree by the noise. Widespread complaints may be expected when the transportation noise level exceeds 65 dB L_{dn} and widespread threats of legal action may be expected when the transportation noise level exceeds 70 dB L_{dn}. For impulsive noise sources, "C"-weighted sound levels are often used; the percent highly annoyed is higher for a given Lcd value.



Michael Brandman Associates

Exhibit **5.4-1**

Typical Aircraft Noise Event

frequency sounds as well as we hear higher frequency sounds, nor do we hear very high frequency sounds very well. This difference in perceived loudness varies with the sound pressure level of the sound. In general, the maximum sensitivity of the ear occurs at frequencies between about 500 and 8000 Hz. To compensate for the fact that the ear is not as sensitive at some frequencies and sound pressure levels as at others, a number of frequency weighting scales have been developed. The "A" weighting scale is most commonly used for environmental noise assessment, as sound pressure levels measured using an A-weighting filter correlate well with community response to noise sources such as aircraft and traffic.

When an A-weighting filter is used to measure sound pressure levels, the results may be expressed as *sound levels*, in decibels (dB). It is sufficient to use the abbreviation "dB" if these terms are well defined, but many people prefer to use the expressions dBA or dB(A) for clarity. For convenience, many people use the term "noise level" interchangeably with "sound level." Table 5.4-1 shows typical sound levels and relative loudness for various types of noise environments.

Environmental Noise Descriptors

Most environmental noise sources produce varying amounts of noise over time, so the measured sound levels also vary. For example, noise produced during an aircraft overflight will vary from relatively quiet background levels before the overflight to a maximum value when the aircraft passes overhead, then returning down to background levels as the aircraft leaves the observer's vicinity. Similarly, noise from traffic varies with the number and types of vehicles, speed and proximity to the observer.

Variations in sound levels may be addressed by statistical methods. The simplest of these are the maximum (L_{max}) and minimum (L_{min}) noise levels, which are the highest and lowest levels observed. To describe less extreme variations in sound levels, other statistical descriptors may be used, such as the equivalent sound level (L_{eq}). Because people tend to react to the amount of acoustical energy received during noise exposures, the equivalent sound level is calculated from the total acoustical energy measured during the sample period. The L_{eq} may be calculated for any sound level sample period, but most commonly refers to the equivalent sound level during a 1-hour period.

For noise sources consisting of more or less discrete single noise events, such as aircraft overflights or train passbys, the exposure received during a noise event is expressed as the Sound Exposure Level (SEL). The SEL represents the total amount of acoustical energy measured during a noise event as though it occurred in a 1-second period. The SEL incorporates the concept of "How loud was it?" with "How long was it loud?". Exhibit 5.4-1 shows the relationship of SEL and Lmax as applied to an aircraft noise event. The SEL is higher than the Lmax occurring during the event because the SEL compresses the acoustical energy of the event into a reference period of one second and the assumed duration of the event is greater than one second.

5.4 NOISE

This section incorporates information contained in the Environmental Noise Assessment prepared for the proposed project by Brown-Buntin Associates, Inc. in February 2000. The complete report is contained in Appendix D of this EIR.

5.4.1 EXISTING CONDITIONS

Acoustic Fundamentals

Noise is often described as unwanted sound, and thus is a subjective reaction to the physical phenomenon of sound. Sound is variations in air pressure that the ear can detect.

The ear responds to pressure changes over a range of 10^{14} to 1. This is roughly equivalent to the range of 1 second as compared to 3.2 million years, or 1 square yard compared to the entire surface area of the earth. To deal with the extreme range of pressures which the ear can detect, researchers express the amount of acoustical energy of a sound by comparing the measured sound pressure to a reference pressure, then taking the logarithm (base 10) of the square of that number. This original unit of sound measurement, named the *bel* after Alexander Graham Bell, corresponded well to human hearing characteristics if it was divided by a factor of 10. The resulting unit, one tenth of a *bel*, is called the decibel, and is abbreviated as dB.

Assuming that the reference pressure is the threshold of hearing (0 dB), the range of sounds in normal human experience can be compressed into the range of 0 to 140 dB. The complete displacement of the atmosphere would be 194 dB, which may be experienced, in close proximity to a Saturn rocket blastoff. People can detect changes of as little as 1 dB in a laboratory environment. However, as a practical matter, changes of 1-2 dB are usually required before a person can detect a change in sound level outside the laboratory with any certainty. Typically, a change of 3 dB is noticeable, a change of 5 dB is clearly noticeable, and a change of 10 dB is perceived as a doubling (or halving) of the sound level.

Because sound pressure levels are defined as logarithmic numbers, the values cannot be directly added or subtracted. For example, two sound sources, each producing 50 dB, will produce 53 dB when combined not 100 dB. This is because two sources have two times the energy of one source, and 10 times the logarithm of 2 equals 3. Similarly, ten sources produce a 10 dB higher sound pressure level than one source, as ten times the logarithm of 10 equals 10.

The ear responds to pressure variations in the air from about 20 times per second to about 20,000 times per second. The frequency of the variations is described in terms of hertz (Hz), formerly called cycles per second. The ear does not respond equally to all frequencies. For example, we do not hear very low

- Install the onsite Collector Loop Street
- Install Valley Lane between Panorama Drive and Paladino Drive
- Install Queen Street between Panorama Drive and Paladino Drive

5.3.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Subsequent to implementation of the mitigation measures described above, all study area intersections and roadway segments will operate at level of service C or better and no significant unavoidable impacts would result.

Year 2020 (Full Project Buildout)

- SR 184 and Chase Avenue
- Queen Street and Paladino Drive
- Alfred Harrell Highway/Comanche Drive and SR 178

- The following intersection improvement shall be installed at the following location.

Year 2010 (Project One-Half Buildout)

- Add one left turn lane to eastbound and westbound lanes and re-time traffic signals at the intersect of Fairfax Road and SR 178.

- The following roadway segments shall be installed in the year 2010.

Year 2010 (Project One-Half Buildout)

- Install Vineland Road between SR 178 and Collector Loop Street
- Install half width of SR 178 and Masterson Street along the project frontage.
- Install 2 lanes of pavement on Panorama Drive from Morning Drive to Queen Street
- Install 2 additional lanes of pavement on Old SR 178 from Fairfax Road to Alfred Harrell Highway/Comanche Drive.

TR-3 Prior to the issuance of a building permit, the project applicant shall provide funding for the future realigned SR 178 between Fairfax Road and Alfred Harrell Highway/Comanche Drive. The funding will be for that portion of the future realigned SR 178 which is determined to be the obligation of local development. The project's share of traffic on SR 178 is 7.5 percent.

TR-4 Prior to the issuance of building permits, the project applicant shall provide the City of Bakersfield with a phasing plan of the onsite roadway segments. The project applicant shall install the following roadway segments that are not part of the Metropolitan Bakersfield Transportation Impact Fee Program.

- Install Panorama between Queen Street and Masterson Street

TR-1 Prior to the issuance of building permits, the project applicant shall comply with the Metropolitan Bakersfield Transportation Impact Fee Program.

These improvement fees shall be used to provide the improvements listed on pages 44 and 45 in Appendix C in the Draft EIR. The following ~~im~~provements shall be included within the improvement list. Prior to issuance of building permits, the applicant's funding calculations for all improvements associated with the fee program shall be submitted to the City for review and approval.

- The following traffic signals shall be installed in the year 2020.
  - Panorama Drive and Morning Drive
  - Morning Drive and Auburn Street
  - Paladino Drive and Fairfax Road
  - Vineland Road and SR 184
  - Paladino Drive and Morning Drive

- The following roadway segment shall be installed in the year 2020.
  - Install lanes of pavement on Paladino Drive and Fairfax Road to Masterson Street.
  - Install 2 additional lanes of payment on Kern Canyon Road from SR 178 to Niles Street.

TR-2 Prior to the issuance of building permits, the project applicant shall provide its fair share funding toward the following improvements. At the time of issuing building permits, the applicant's funding calculations for all improvements associated with the fee program shall be submitted to the City for review and approval.

- Traffic signals shall be installed at the following locations in the years 2010 and 2020:

  <u>Year 2010 (Project One-Half Buildout)</u>

  - Vineland Road and Interior Collector Street
  - Panorama Drive and Interior Collector Street (2 locations)
  - Panorama Drive and Masterson Street
  - Morning Drive and SR 178
  - Masterson Street (SR 184) and Old SR 178
  - Vineland Road and SR 178

TABLE 5.3-5
2010 ONE-HALF BUILDOUT SCENARIO
ROADWAY SEGMENT
YEARS 2010 AND 2020 LEVELS OF SERVICE (CONTINUED)

ROADWAY SEGMENT	Stripping In 2010/2020	LOS 2010 Without Project	LOS 2010 With Project	LOS 2020 Without Project	LOS 2020 With Project
Morning Drive From Paladino Drive to SR 178 From SR 178 to Niles Street	2 lane art	B N/A	C N/A	C C	C C
Vineland Street From SR 178 to Kern Canyon Road (SR 184)	1 lane art	N/A	N/A	B	C
Kern Canyon Road (SR 184) From SR 178 to Niles Street	2 lane art	B	B	E	F
Alfred Harrell Hwy/Comanche Drive From SR 178 to Paladino Drive	2 lane art	A	A	A	B
Auburn Street From Fairfax Road to Morning Drive	2 lane col	B	B	B	B

Notes:
N/A – Not applicable because street segment does not exist.
Art – Arterial
Col- Collector
Fwy – Freeway Status

Source: Crenshaw Traffic Engineering, 2000.

5.3.3 CUMULATIVE IMPACTS

Development of the proposed project and future development in accordance with the City's General Plan would result in significant cumulative traffic impacts on intersections and roadway segments. Future year 2010 and 2020 traffic volumes were determined using the traffic model data from the Kern County Council of Governments. The years 2010 and 2020 with project analysis that is included in Section 5.3.2 represents cumulative traffic impacts. As described in Section 5.3.2, the proposed project will result in significant traffic impacts. Therefore, the proposed project will contribute significantly to significant cumulative traffic impacts

5.3.4 MITIGATION MEASURES

To reduce the project's contribution to the significant cumulative impacts on intersections and roadway segments in the years 2010 and 2020, the following mitigation is required.

Roadway Segment Analysis

The capacity of a roadway is affected by a number of factors, including the width of the roadway, the number of crossing arterials and collectors, the presence or absence of on-street parking, the number of turning lanes at each intersection, and the number of driveways. For purposes of this analysis, the HCM method was applied to the roadway segments within the study area. Table 5.3-5 indicates the level of service for each study area roadway segment for one-half project build-out in 2010 and full buildout in 2020.

TABLE 5.3-5
ROADWAY SEGMENT
YEARS 2010 AND 2020 LEVELS OF SERVICE

ROADWAY SEGMENT	Stripping In 2010/2020	LOS 2010 Without Project	LOS 2010 With Project	LOS 2020 Without Project	LOS 2020 With Project
Panorama Drive					
From Morning Drive to Fairfax Road	2 lane art	B	B	C	C
From Morning Drive to Queen Street	2 lane art	N/A	B	B	C
State Route 178					
From Fairfax Road to Morning Drive	2 lane art	C	F	C	C
From Morning Drive to Vineland Road	2 lane art	C	E	B	C
From Vineland Road to Masterson Street (SR 184)	2 lane art	B	D	A	B
From Masterson Street (SR 184) to Alfred Harrell Highway (Comanche Drive)	2 lane art	B	D	A	B
Old SR 178					
From Vineland Road to SR 184	2 lane art	N/A	N/A	A	B
From SR 184 to Alfred Harrell Hwy/Comanche Drive	2 lane art	N/A	N/A	A	A
Fairfax Road					
From Paladino Road to Panorama Drive	2 lane art	B	B	C	C
From Panorama Drive to SR 178	4 lane art	B	B	C	C
From SR 178 to Highland Knolls	2 lane art	C	C	C	C
Paladino Drive					
From Fairfax Road to Morning Drive	2 lane art	N/A	N/A	B	C
From Morning Drive to Queen Street	2 lane art	N/A	N/A	B	C
Highland Knolls					
From Morning Drive to Vineland Road	2 lane col	N/A	N/A	B	B

Intersections that would be significantly impacted at full project buildout in the year 2020 include:

- Fairfax Road and SR 178
- Morning Drive and SR 178
- Masterson Street (SR 184) and Old SR 178
- Alfred Harrell Highway/Comanche Drive and Old SR 178
- Panorama Drive and Morning Drive
- Paladino Drive and Fairfax Road
- Morning Drive and Auburn Street
- Vineland Road and SR 178
- SR 184 and Chase Avenue
- Vineland Road and SR 184
- Paladino Drive and Morning Drive
- Queen Street and Paladino Drive

The intersection of Queen Street and Panorama Drive was analyzed as an unsignalized intersection for the year 2020 in the a.m. and p.m because this intersection does not meet signal warrants for the year 2020. Under the year 2020 with project scenario in the p.m., the southbound left turn lane is projected to operate at LOS D. The remaining turning movements at the intersection would operate at LOS B or better. Overall, this intersection would operate at an acceptable LOS. The project would result in a less than significant impact at this intersection in the year 2020.

Traffic Signal Warrant Analysis

Traffic Signal Warrants were prepared for the unsignalized intersections within the project area and surrounding vicinity. All of the unsignalized intersections that would be significantly impacted by the project warrant signals under future with project year 2010, except Fairfax Road and Paladino Drive. All significantly impacted intersections under project year 2020 warrant traffic signals.

It should be noted that for purposes of this analysis that by the year 2020 it is assumed that SR 178 will be realigned (see Exhibit 3-5). The realigned portion of SR 178 is to be constructed to full freeway status from west of Fairfax Road to beyond the project site to the northeast. Signalized interchanges are to be developed at Fairfax Road, Morning Drive, Vineland Road, and Masterson Street.

TABLE 5.3-4
SIGNALIZED AND UNSIGNALIZED INTERSECTIONS
YEARS 2010 AND 2020 LEVELS OF SERVICE (CONTINUED)

Type of Intersection		**Existing**		**2010 W/O Project**		**2010 With Project**		**2020 W/O Project**		**2020 With Project**	
Unsignalized Intersections		**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**
Vineland Road and SR 184	NB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	F	F
	SB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	F	F
	EBL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	B
	WBL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	B
	SI	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
Morning Drive and College Avenue	EB	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B	B
	WB	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B	B
	NBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	SBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
Paladino Drive and Morning Drive	NB	N/A	N/A	N/A	N/A	N/A	N/A	C	F	F	F
	SB	N/A	N/A	N/A	N/A	N/A	N/A	F	F	F	F
	EBL	N/A	N/A	N/A	N/A	N/A	N/A	B	A	A	A
	WBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	SI	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
Queen Street and Paladino Drive	NB	N/A	N/A	N/A	N/A	N/A	N/A	B	B	F	B
	SB	N/A	N/A	N/A	N/A	N/A	N/A	C	B	E	B
	EBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	WBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	SI	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
Masterson Street and Paladino Drive	NB	N/A	N/A	N/A	N/A	N/A	N/A	C	C	C	C
	SB	N/A	N/A	N/A	N/A	N/A	N/A	C	B	C	C
	EBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	WBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A

Notes:
N/A – Not applicable because traffic movement does not exist.
SBR – Southbound Right
SBL – Southbound Left
SBT – Southbound Through
SB – Southbound

NBL – Northbound Left
NBT – Northbound Through
NB – Northbound
SI – Signalized Intersection

WBR – Westbound Right
WBL – Westbound Left
WB – Westbound
WBRP – Westbound On and Off Ramps

EBR – Eastbound Right
EBL – Eastbound Left
EB – Eastbound
EBRP – Eastbound On and Off Ramps

[1] This intersection is analyzed with the existing SR 178 for the years 2010 and 2020 and analyzed as a full freeway interchange with eastbound and westbound ramps under the year 2020.
[2] Intersections are analyzed as unsignalized for each scenario and signalized for the year 2020 scenario. These intersections are assumed to be interchanges with SR 178 and include signals at each of the eastbound and westbound ramps under the year 2020.
Source: Crenshaw Traffic Engineering, 2000 and Michael Brandman Associates, 2000.

TABLE 5.3-4
SIGNALIZED AND UNSIGNALIZED INTERSECTIONS
YEARS 2010 AND 2020 LEVELS OF SERVICE (CONTINUED)

Type of Intersection		**Existing**		**2010 W/O Project**		**2010 With Project**		**2020 W/O Project**		**2020 With Project**	
Unsignalized Intersections		**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**	**PM**	**AM**
Alfred Harrell Hwy./ Comanche Drive and Old SR 178[2]	SB	A	A	B	A	B	B	F	B	C	B
	NB	N/A	N/A	B	N/A	B	N/A	F	A	F	B
	EBL	A	A	A	A	A	A	A	A	A	A
	WBL	N/A	N/A	N/A	N/A	N/A	N/A	B	A	A	A
	SI	N/A	N/A	N/A	N/A	N/A	N/A	A	A	B	B
Panorama Drive and Morning Drive	NB	A	A	A	A	B	A	C	B	F	F
	SB	A	A	A	A	A	A	B	B	F	F
	EB	A	A	A	A	A	A	A	B	F	F
	WB	N/A	N/A	N/A	N/A	A	A	A	A	F	F
Paladino Drive and Fairfax Road	NB	A	A	A	A	A	A	F	B	F	F
	SB	A	A	A	A	A	A	F	B	F	F
	EB	A	A	A	A	A	A	A	B	A	A
	WB	N/A	N/A	N/A	N/A	N/A	A	A	A	A	A
Morning Drive and Auburn Street	NBL	A	A	A	A	B	B	C	C	F	C
	NBT	A	A	A	A	C	C	B	B	B	A
	SBT	A	A	A	A	B	B	B	B	E	B
	SBR	A	A	A	A	A	A	A	A	B	B
	EBL	A	A	A	A	A	A	A	F	A	F
Queen Street and Panorama St.	SBL	N/A	N/A	N/A	N/A	B	A	A	A	D	B
	SBR	N/A	N/A	N/A	N/A	A	A	B	A	B	A
	EBL	N/A	N/A	N/A	N/A	A	A	C	A	A	A
SR 178 and Vineland Road[2]	SBL	N/A	N/A	N/A	N/A	B	F	F	F	F	F
	SBR	N/A	N/A	N/A	N/A	A	F	F	F	F	F
	EBL	N/A	N/A	N/A	N/A	A	F	F	F	F	F
	EBRP	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	WBRP	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
Morning Drive and Highland Knolls	EB	N/A	N/A	N/A	N/A	N/A	N/A	C	B	C	B
	WB	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B	B
	NB	N/A	N/A	N/A	N/A	N/A	N/A	A	A	B	A
	SB	N/A	N/A	N/A	N/A	N/A	N/A	A	A	C	A
Vineland and Highland Knolls	EBL	N/A	N/A	N/A	N/A	N/A	N/A	C	B	C	B
	EBR	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	NBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
SR 184 and Chase Avenue[2]	WBL	N/A	N/A	N/A	N/A	N/A	N/A	E	C	F	E
	WBR	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B	B
	SBL	N/A	N/A	N/A	N/A	N/A	N/A	B	A	B	B
	SI	N/A	N/A	N/A	N/A	N/A	N/A	A	A	B	B

TABLE 5.3-4
SIGNALIZED AND UNSIGNALIZED INTERSECTIONS
YEARS 2010 AND 2020 LEVELS OF SERVICE

Type of Intersection				2010		2010		2020		2020	
		Existing		W/O Project		With Project		W/O Project		With Project	
Signalized Intersections		PM	AM	PM	AM	PM	AM	PM	AM	PM	AM
Oswell Street and EB Ramp SR 178		A	B	B	A	B	A	B	B	B	B
Oswell Street and WB Ramp SR 178		A	A	A	B	B	B	A	A	B	B
Fairfax Road and SR 178[1]		C	C	F	C	F	F	F	F	F	F
	EBRP	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B	B
	WBRP	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
Auburn Street and Fairfax Road		C	C	C	C	C	C	C	C	B	B
Niles Street and Weedpatch Hwy. (SR184)		A	B	B	B	B	B	B	B	B	B
Panorama Drive and Fairfax Road		C	C	C	C	C	C	C	C	C	C
Fairfax Road and Panorama Drive		C	C	C	C	C	C	C	C	C	C
Unsignalized Intersections											
Morning Drive and SR 178[2]	SBL	C	C	D	C	F	F	F	F	F	F
	SBR	A	A	A	A	B	F	F	F	F	F
	EBL	A	A	A	A	F	F	F	F	F	F
	EBRP	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	WBRP	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
Masterson St.(SR 184) and Old SR 178	NB	B	B	C	C	F	F	B	B	F	C
	SB	C	B	C	B	F	F	C	B	F	C
	EBL	A	A	A	A	A	A	A	A	C	A
	WBL	A	A	A	A	A	A	A	A	A	A
Masterson St. (SR 184) and SR 178	EBRP	N/A	N/A	N/A	N/A	N/A	N/A	B	A	A	B
	WBRP	N/A	N/A	N/A	N/A	N/A	N/A	A	A	N/A	N/A
Old Comanche Drive and Old SR 178	NB	B	B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	SB	B	B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	EBL	A	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	WBL	A	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Project Impact Analysis

The anticipated project-related traffic volumes were distributed onto the local roadway system based on manual count data, observation of peak hour traffic movements, the characteristics of the nearby road system, and the population distribution of the region. Exhibit 5.3-1 shows the intersections analyzed for the years 2010 and 2020, while Exhibit 5.3-2 shows the roadway segments analyzed for the same years.

Intersection Analysis

Table 5.3-4, below, shows the expected level of service with project implementation and without project implementation, under existing and future conditions during the AM and PM peak hours.

As shown on Table 5.3-4, implementation of the proposed project will result in several intersections operating at deficient levels (LOS D or worse), or the degradation of an already deficient intersection (e.g., LOS D or worse). Except for the Fairfax Road and SR 178 intersection, all of these intersections are unsignalized.

Intersections that would be significantly impacted by the portion of the proposed project that would be developed by the year 2010 include:

- Fairfax Road and SR 178
- Morning Drive and SR 178
- Masterson Street (SR 184) and Old SR 178
- Vineland Road and SR 178

Existing Plus Project Roadway Circulation System

Development of the proposed project includes the addition of new arterial, collector, and local street alignments internal to the proposed project site. Exhibit 3-5 in Section 3.2 displays the proposed changes to the General Plan Circulation Amendment that would be implemented with the proposed project.

Project Trip Generation

The daily traffic volumes estimated to be generated by the proposed development were based on the data obtained from the Institute of Transportation Engineers (ITE) Trip Generation, 6th edition, dated January 1997. At full buildout, it is estimated that the project would generate a total of approximately 60,976 vehicular trip ends per day. It is assumed that 15 percent of the trip ends will remain within the project site (i.e., from Residential to Commercial uses within the development). This 15 percent of the trips ends will remain onsite and are considered capture trips. Approximately 51,830 daily trip ends will access the surrounding roadways.

Table 5.3-3 shows the daily and peak hour trip ends generated by the project, by proposed land use. Accounting for the anticipated 15 percent of trips internal to the site, the proposed project would increase the peak a.m. hour trips on surrounding roadways by approximately 2,746 and the peak p.m. hour trips by approximately 4,939.

TABLE 5.3-3
PROJECT TRIPS

Land Use	Units/Square Footage	A.M. Peak Hour Trips	P.M. Peak Hour Trips	Total Project Trips	Total Project Trips with 15% Capture Trips
Low-Density Residential	2750 units	1,934	2,126	22,160	18,836
Multi-Family Residential	1300 units	649	722	7,926	6,737
General Commercial	1,048,706 (Gross leaseable Floor Area)	648	2962	30,890	26,257
Total	----	**3,231**	**5,810**	**60,976**	**51,830**
Source: Crenshaw Traffic Engineering, 2000 and Michael Brandman Associates, 2000					

It is assumed that before the issuance of building permits the project applicant shall comply with the Metropolitan Bakersfield Transportation Impact Fee Program.

5.3.2 PROJECT IMPACTS

The analysis of project impacts included the following assumptions regarding the proposed project.

- The proposed development will be completed before or by the year 2020 with traffic patterns established. The project will be approximately one-half developed by 2010.
- The primary access to and from the site will be from streets off of Vineland Road, Queen Street, Masterson Street, Panorama Drive, and Paladino Drive. This development will construct ultimate street improvements within the project site, including traffic signal installation at the intersection of arterial and collector streets as development access and signals are warranted.
- That the actual a.m. and p.m. peak hour traffic conditions are appropriate for this analysis.
- The growth factor of 3.0 percent per year will be appropriate to calculate future volumes to year 2010.
- 2020 volumes were developed by using KERNCOG information.
- That by year 2020, SR 178 will be constructed to full freeway status in the area and will have an interchange at Fairfax Road, Vineland Road, and Masterson Street.

Based on the above assumption relating to project build-out, the project impacts and mitigation measures described below are separated for the year 2010 (one-half build-out) and 2020 (full build-out).

Thresholds of Significance

Traffic impacts are considered significant if a project contributes traffic to a roadway segment or intersection that currently operates at a LOS C or better and degrades the level of service to LOS D or worse. If any roadway segment of intersection currently operates at LOS D or worse, a significant impact would occur if the project degrades the level of service.

TABLE 5.3-2
EXISTING STREET SEGMENTS
LEVELS OF SERVICE

Street Segments	Stripping/Existing	Geometric LOS
Panorama Drive From Morning Drive To Fairfax Road	2 Lane Collector	B
SR 178 From Fairfax Road To Morning Drive	2 Lane Arterial	B
From Morning Drive To Vineland Road	2 Lane Arterial	B
From Vineland Road To Masterson (SR 184)	2 Lane Arterial	A
From Masterson (SR 184) To Comanche Drive	2 Lane Arterial	A
Fairfax Road From Paladino Road To Panorama Drive	2 Lane Arterial	B
From Panorama Drive To SR 178	4 Lane Arterial	B
From SR 178 To Highland Knolls	2 Lane Arterial	C
Morning Drive From Panorama Drive To SR 178	2 Lane Arterial	B
Kern Canyon Road (SR 184) From SR 178 To Niles Street	2 Lane Arterial	B
Alfred Harrell Highway From SR 178 To Paladino Drive	2 Lane Arterial	A
Auburn Street Fairfax Road to Morning Drive	2 Lane Collector	B

Source: Crenshaw Traffic Engineering, 2000 and Michael Brandman Associates, 2000.

Transportation Impact Fee Program

The City of Bakersfield has established a transportation impact fee program for urban areas within the City of Bakersfield. The fee program (Metropolitan Bakersfield Transportation Impact Fee Program) is to provide intersection and roadway segment improvements as development occurs within the City.

TABLE 5.3-1
EXISTING SIGNALIZED AND UNSIGNALIZED INTERSECTIONS
LEVELS OF SERVICE
(CONTINUED)

Type of Intersection ***Signalized Intersections***		**Existing Levels of Service**	
		PM	**AM**
Morning Drive and Auburn Street	NBL	A	A
	NBT	A	A
	SBT	A	A
	SBR	A	A
	EBL	A	A

Notes:
N/A – Not applicable because traffic movement does not exist.
SBR – Southbound Right
SBL – Southbound Left
SBT – Southbound Through
SB – Southbound

NBL – Northbound Left
NBT – Northbound Through
NB – Northbound

WBL – Westbound Left
WB – Westbound

EBL – Eastbound Left
EB – Eastbound

Source: Crenshaw Traffic Engineering, 2000 and Michael Brandman Associates, 2000.

In addition, an analysis of level of service for existing roadway segments in the study area was performed. Table 5.3-2 contains a complete capacity analysis of existing volumes for all of the arterials and two collectors in the general vicinity of the project. For each arterial and collector and its various distinct segments, the table identifies the existing level of service. As noted in Table 5.3-2, the arterial network in the general area of the project currently operates at adequate levels of service (i.e., at or better than LOS C).

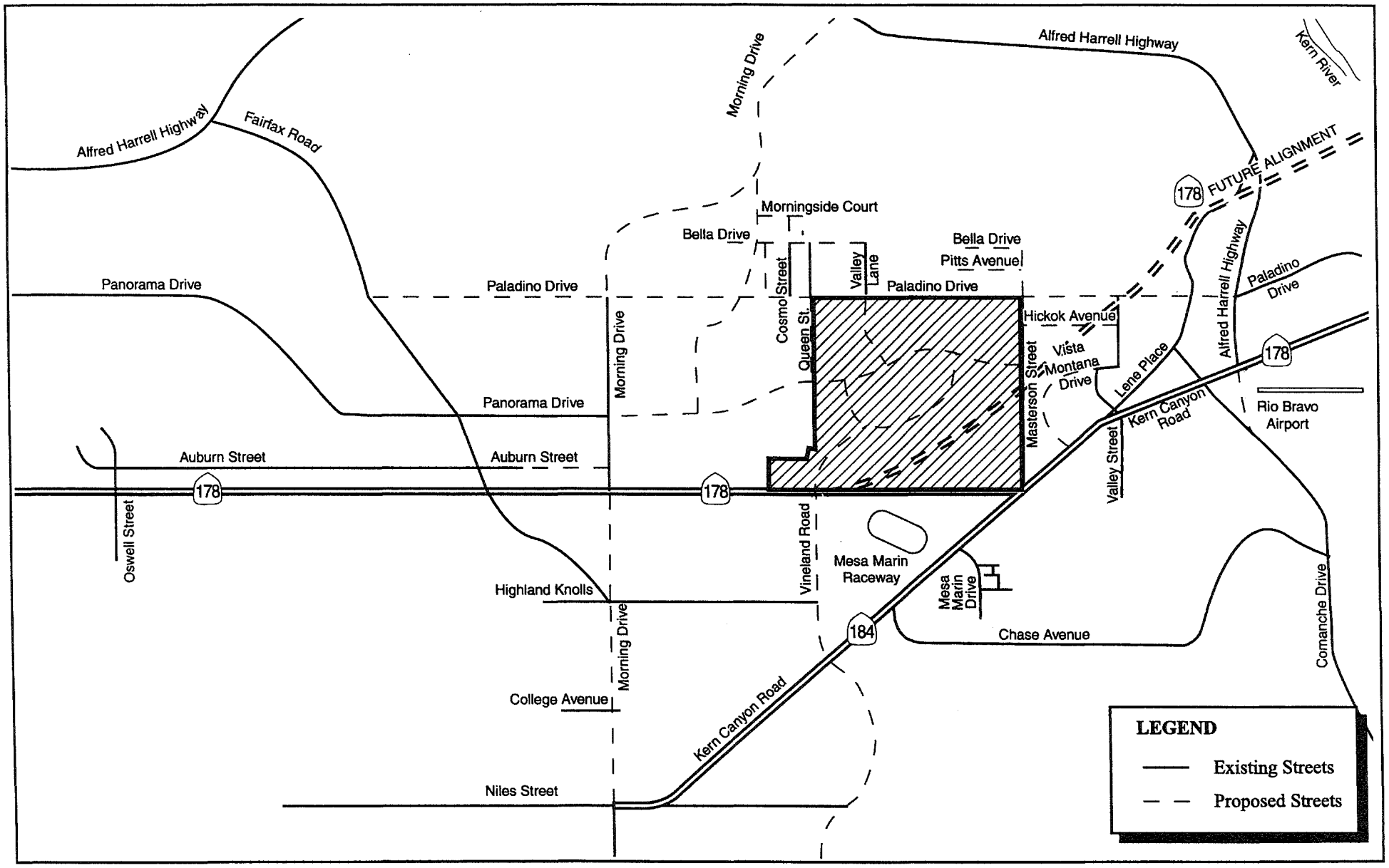
Existing Traffic Signal Warrants

Seven intersections that are not currently signalized were analyzed for possible traffic signal warrants, based upon the State Division of Highway Warrants standards. According to the results of the analysis, there are no unsignalized intersections that currently meet the signal warrant criteria in the project study area.

the existing intersections located in the project study area. All of these intersections currently operate at LOS C or better.

TABLE 5.3-1
EXISTING SIGNALIZED AND UNSIGNALIZED INTERSECTIONS LEVELS OF SERVICE

Type of Intersection		**Existing Levels of Service**	
Signalized Intersections		**PM**	**AM**
Oswell Street and E/B Ramp SR 178		A	B
Oswell Street and W/B Ramp SR 178		A	A
Fairfax Road and SR 178		C	C
Auburn Street and Fairfax Road		C	C
Niles Street and Weedpatch Hwy. (SR184)		A	B
Panorama Drive and Fairfax Road		C	C
Unsignalized Intersections			
Morning Drive and SR 178	SBL	C	C
	SBR	A	A
	EBL	A	A
Masterson St.(SR 184) and SR 178	NB	B	B
	SB	C	B
	EBL	A	A
	WBL	A	A
Comanche Drive and SR 178	NB	B	B
	SB	B	B
	EBL	A	A
	WBL	A	A
Alfred Harrell Hwy. and SR 178	SB	A	A
	NB	N/A	N/A
	EBL	A	A
	WBL	N/A	N/A
Panorama Drive and Morning Drive	NB	A	A
	SB	A	A
	EB	A	A
	WB	N/A	N/A
	SB	A	A
Paladino Drive and Fairfax Road	NB	A	A
	EB	A	A
	WB	N/A	N/A



NORTH

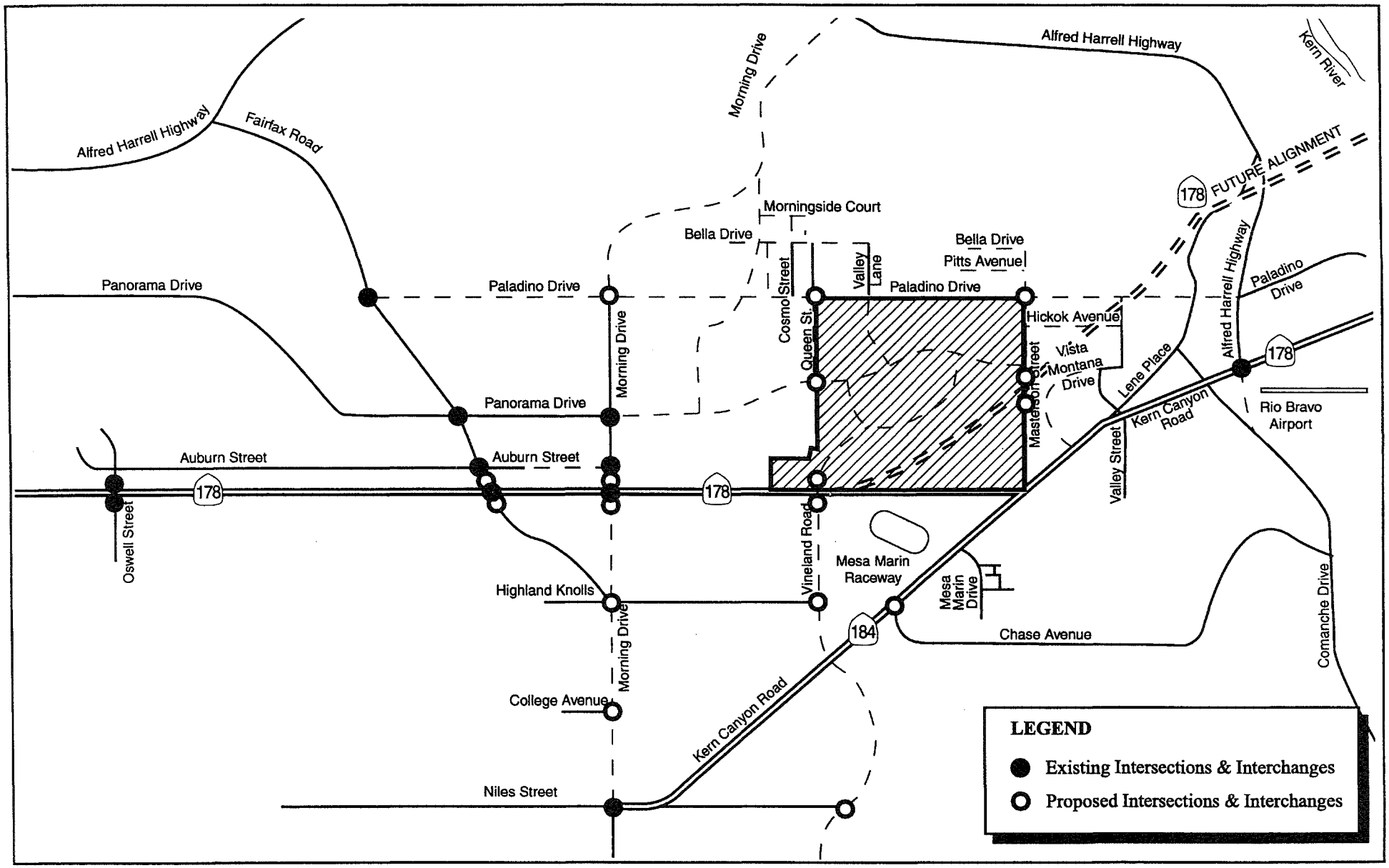
3520 1760 0 3520

SCALE IN FEET

Michael Brandman Associates

Exhibit **5.3-2**

Existing and Proposed Roadway Alignments



SOURCE: Crenshaw Traffic Engineering.

NORTH

3520 1760 0 3520

SCALE IN FEET

Michael Brandman Associates

Exhibit **5.3-1**

Existing and Proposed Intersections and Interchanges

5.3.1 EXISTING CONDITIONS

Existing Roadway Circulation System

The following is a discussion of the roadways that will directly serve the proposed project. Future planned roadways and existing roadway improvements are described for the ultimate build-out characteristics.

State Route 178 - SR 178 is a two-lane road that extends from west of Fairfax Road to Kern Canyon Road and extends west of Alfred Harrell Highway. SR 178 is a freeway west of Fairfax Road to SR 203. East of Fairfax Road, SR 178 will be realigned and developed as a freeway with limited access under future year 2020 conditions.

Panorama Drive – Panorama Drive is currently undeveloped within the project area. This roadway will be developed as a collector on the project site and is planned as a collector west of the site.

Paladino Drive – Paladino Drive is planned as an arterial within the project area. West of Masterson Street, Paladino Drive is planned to be extended to Fairfax Road as an arterial and extended east of Masterson Street as a collector. Paladino Drive is planned to be a primary east and west travel route for the project vicinity.

Vineland Road – Currently, Vineland Road is undeveloped within the project area. Vineland Road is shown as an on and off ramp access to SR 178 on the existing SR 178 Specific Plan Line. Vineland Road south of SR 178 is planned as an arterial.

Masterson Street – Masterson Street is partially developed within the project area. Masterson Street is planned as an arterial north and south of SR 178.

Existing Traffic Volumes and Level of Service

The existing circulation system within the project area is fairly undeveloped. Exhibits 5.3-1 and 5.3-2 illustrate existing and future intersections, interchanges, and roadway segments. Traffic counts were performed at seven signalized intersections and seven unsignalized intersections during both the a.m. and p.m. peak hours (see Exhibit 5.3-1). Based on the traffic data collected, the existing peak hour level of service was determined for each intersection. Table 5.3-1 below lists the level of service for

5.3 TRAFFIC AND CIRCULATION

The analysis contained in this section is based on Traffic Impact Study prepared for the proposed project by Crenshaw Traffic Engineering in March 2000. The complete report is provided in Appendix C.

Traffic Study Area

Based on a preliminary analysis of the project's impact on the surrounding roadway circulation system, the traffic study area was defined to include all intersections and roadway segments that could potentially experience significant impacts from development of the proposed project. The traffic analysis considered both project generated traffic, as well as traffic generated outside of the project area.

The study area is displayed on Exhibit 5.3-1, and includes Paladino Drive to the north, State Route (SR) 178 to the south, Alfred Harrell Highway to the east, and Fairfax Road to the west. At the project site, Vineland Road, Queen Street, and Panorama Drive do not exist and portions of Masterson Street exist. These roadways will be developed with the implementation of the project. In the project vicinity, a network of major and secondary highways and local streets will be developed that will provide access to nearby commercial, residential, and employment centers.

Performance Criteria

A "level of service" designation is the generally accepted measure utilized for determining the quality of operation of either a roadway segment or intersection. There are a total of 6 level of service (LOS) categories ranging from LOS A, free flowing traffic to LOS F, bumper to bumper traffic.

The City of Bakersfield has established a performance criteria for intersections and roadway segments of LOS C. If the existing operational level of service of a facility is worse than LOS C prior to the implementation of a proposed project and associated traffic, the City's performance criteria is to restore the intersection or roadway segment to at least its existing operational level of service.

the Department of Agriculture allowed to become established. Typical invasive exotic plants that can become problematic in this region include: water hyacinth and pampas grass.

BR-7 During construction, site boundaries shall be clearly marked with flagging, fencing, or other suitable material to prevent construction equipment and vehicles from impacting adjacent habitat areas potentially occupied by special status species.

5.2.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

After implementation of the above mitigation measures, project and cumulative impacts on biological resources would be less than significant.

Impacts to special status species that are not included in the MBHCP would be mitigated by the actions taken to meet the requirements of the MBHCP. No additional mitigations are recommended for special status species that are not included in the MBHCP.

Raptor Nest Disturbance

BR-4 Prior to the issuance of a grading permit for the approximately 694-acre site, the project applicant shall comply with the following raptor nest mitigation:

a) If site grading is proposed during the raptor nesting season (February-September), a focused survey for raptor nests shall be conducted by a qualified raptor biologist prior to grading activities in order to identify active nests in areas potentially impacted by project implementation.

b) If construction is proposed to take place during the raptor nesting/breeding season (February - September), no construction activity shall take place within 500 feet of an active nest until the young have fledged (as determined by a qualified raptor biologist). Any nests that must be removed as a result of project implementation shall be removed during the non-breeding season (October-January).

c) Preconstruction surveys shall include a survey for burrowing owl. If active burrowing owl burrows are detected outside of breeding season (September 1 through January 31), passive and/or active relocation efforts may be undertaken if approved by CDFG and USFWS. If active burrowing owl burrows are detected during breeding season (February 1 through August 31), no disturbance to these burrows shall occur without obtaining appropriate permitting through the Migratory Bird Treaty Act.

Sensitive Habitats/Jurisdictional Areas

BR-5 A formal jurisdictional delineation will be conducted. If project development would impact jurisdictional areas, a Clean Water Act Section 404 permit from USACE and/or a CDFG Section 1601 Streambed Alteration Agreement will be obtained from USACE and/or CDFG, respectively Prior to the issuance of a grading permit and/or approval of plans and specifications. USACE and CDFG typically require mitigation plans to be prepared prior to the loss of habitat within jurisdictional areas.

Indirect Impacts

BR-6 The following invasive exotic plants shall not be used in any project residential or commercial landscaping: tamarisk (all species) and pampas grass. In addition, vegetation at any ponds or water features shall be managed in a way such that none of the invasive exotic plants listed by

thousands of vertebrate fossils were recovered from the almost 40 square meters of bonebed excavated at one locality. Two fossil baleen whales were discovered just above the bonebed at another LACM locality nearby.

The Sharktooth Hill bonebed is probably the most significant Miocene marine vertebrate locality in the world. It extends more than 10 square miles and has yielded a vertebrate fauna of more than 100 species includes boney fish, cartilaginous fish (especially shark teeth), turtles, crocodiles, birds, sea lions, whales, and desmostylians (an extinct hippo-like aquatic mammal), and terrestrial mammals such as tapir, horses, camel, "giraffe", mastodon, and rhinoceros. The "Barker's Ranch fauna", the largest Miocene molluscan fauna of the Pacific Coast, extends from near the base of the Olcese Sand Member to the top of the Round Mountain Silt in this area, and is the standard for the Temblor Macrofossil Stage. All considered, the paleontologic sensitivity of the Round Mountain Silt in this area is extremely high.

The project area consists of Section 17, part of SE¼ Section 18, and small parts of section 19 and 20 where elevations range within the interval of 680 and 760 feet. The Chanac Formation and Kern River Series crop out in the northeastern half of the site, but are obscured by a veneer of Quaternary terrace deposits in the southeastern half. The lowest elevations, where the upper part of the Round Mountain Silt may be exposed, are encountered along the natural drainage in the south part of the SW¼ of Section 17 and northwest corner of section 20 between elevations 600 feet and 700 feet. These exposures may include the highly sensitive Sharktooth Hill bonebed.

5.6.3 CUMULATIVE IMPACTS

The proposed project and future projects associated with General Plan buildout are located in an area known to contain cultural resources. Therefore, implementation of the project and other projects could potentially result in significant cumulative impacts to cultural resources. However, with implementation of the mitigation measures provided below, the potential cumulative impacts to cultural resources could be reduced to a level considered less than significant.

5.6.4 MITIGATION MEASURES

Archaeological/Historical Resources

No impacts on known archaeological or historical resources are anticipated; however, the following mitigation measures will be required for development within the boundaries of the project site to minimize potential disturbance to any as yet undiscovered resources that may be encountered during construction activity.

CR-1 If cultural resources are unearthed during construction activities, all work shall be halted in the area of the find. A qualified archaeologist shall be called in to evaluate the findings and recommend any necessary mitigation measures. Proof of compliance with any recommendations resulting from such evaluation, if required, shall be submitted to the Southern San Joaquin Valley Archaeological Information Center (AIC) at California State University, Bakersfield, and to the City of Bakersfield Development Services Department.

Paleontological Resources

A paleontological monitoring program that includes the following measures shall be implemented to reduce potential impacts on the Sharktooth Hill bonebed.

CR-2. Prior to grading, a paleontologist shall be retained, attend a pre-grading meeting, and set forth the procedures to be followed during the monitoring program.

CR-3. One paleontological monitor that is trained and equipped to allow rapid removal of fossils with minimal construction delay is expected to be sufficient. Full-time monitoring of the portions of the project site that have earth-disturbing activities at elevations between 600 feet and 700 feet shall be provided.

CR-4. If fossils are found within an area being cleared or graded, earth-disturbing activities shall be diverted elsewhere until the monitor has completed salvaging of the fossils. If construction personnel make the discovery, the grading contractor shall immediately divert construction and call the monitor to the site. Major salvage time may be shortened by grading contractor's assistance (e.g., removal of overburden, lifting and removing large and heavy fossils).

CR-5. The project paleontologist shall prepare, identify, and curate all recovered fossils. Upon completion of grading, the project paleontologist shall prepare a summary report documenting mitigation and results, with itemized inventory of collected specimens. The paleontologist shall submit the report to the City of Bakersfield, designated depository, and any other appropriate agency, and transfer fossil collection to an appropriate depository. The summary report shall be submitted to the City. This submittal will signify completion of the program to mitigate impacts on paleontologic resources.

5.6.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

After implementation of the above mitigation measure, impacts to cultural resources would not be significant.

5.7 HAZARDOUS MATERIALS COMPLIANCE

This section provides baseline information pertaining to hazardous materials impacts within the project area. To determine the presence of suspected or known hazardous waste contamination sites within the project area several documents were reviewed. The documents can be found in Appendix G of this EIR and are as follows:

- Phase I Environmental Site Assessment (ESA) for the SE ¼ of SE ¼ Section 18, T29S, R29E in Bakersfield, California
- Section 17 and Section 20 Closure Letter Report
- Site Assessment Report for the Northeast Bakersfield Water Service Area

5.7.1 EXISTING CONDITIONS

Hazardous Materials Evaluation And Setting

The term "hazardous material" refers to both hazardous substances and hazardous waste. A material is defined as hazardous if it appears on a list of hazardous materials prepared by a federal, state or local regulatory agency or if it has characteristics defined as hazardous by such agency. A hazardous waste is a "solid waste" that exhibits toxic or hazardous characteristics. The U.S. Environmental Protection Agency (EPA) has defined the term "solid waste" to include many types of discarded materials, including: any gaseous, liquid, semi-liquid, or solid material which is discarded or has served its intended purpose, unless the material is specifically excluded from regulation. Such materials are considered wastes whether they are discarded, reused, recycled, or reclaimed. The EPA classifies a material as a hazardous material if it has one or more of the following properties:

- Ignitability. Oxidizers, compressed gasses, and extremely flammable liquids and solids.
- Corrosivity. Strong acid and bases.
- Reactivity. Explosives or generate toxic fumes when exposed to air or water.
- Toxicity. Materials listed by EPA as capable of inducing systemic damage in humans or animals.

To determine the presence of and potential for hazardous materials and/or waste contamination on the project site from existing onsite uses, a hazardous materials and waste analysis was conducted. This analysis included a cursory review of historic and existing onsite land uses and their associated activities.

The analysis also included a review of federal, state, and local agency's data bases of reported (suspect and/or known) hazardous materials and waste contamination sites located within the project site.

Based on a review of aerial photographs of the site for the years 1937, 1956, 1974, and 1992, the project area has historically been utilized both for the purpose of agricultural and oil production. Agricultural uses included both crops and cattle ranching-related activities. Oil production has and is presently occurring throughout the project area. Moreover, the vicinity of the proposed project, in addition to, all of Kern County, has been experiencing rapid growth for the past decade. Development could potentially encroach on locations where hazardous materials and wastes related to agricultural and oil production are currently taking place or were handled and/or disposed. As a result, sensitive receptors, such as residences, may be exposed to a variety of public health and safety hazards.

The following is a discussion of potential sources of hazardous materials and/or waste contamination that have been identified within the immediate vicinity of the project site.

Existing Setting of the Property

In 1998, a Phase I ESA was performed for the SE ¼ of the SE ¼ of Section 18 (the 40.0 acres of the project site) by Soils Engineering, Inc. The Phase I ESA was conducted to determine if the subject property has been environmentally affected by hazardous materials and/or toxic substances due to current and/or former activities onsite and on the surrounding properties.

A Phase I ESA comprises a number of individual elements whose basic nature and extent are determined in accordance with the standard of care applicable to Phase I ESAs. The standard of care is commonly defined as the care applied by the ordinary practitioner at the time and in the area where the ESA was preformed. The Phase I ESA performed complied with the applicable practices and service scope elements recommended by the American Society for Testing and Materials. It should be noted that a Phase I ESA does not include subsurface testing and, while in accordance with a Phase I ESA, invasive testing was not conducted. However, it should be noted that no technique invasive or noninvasive can eliminate the potential for risk all together.

According to the Phase I ESA, there is very low potential that hazardous materials have contaminated this portion of the project site. More specifically, this site has been vacant since at least 1937. Currently, there are no permanent structures onsite and the site may have been used for grazing. The majority of this portion of the site consists of rolling grasslands and a few dirt roads with patches of dirt and scattered rocks. A subsurface fault has been mapped in the area of the southwest section of the portion of the project site. Oilfield activities have occurred on properties to the west; however, it appears that these activities have not affected this portion of the project site. Additionally, within a one-mile radius of the site, no current

activities were found which process, store, or transport hazardous materials in sufficient quantity or in a manner that might have a measurable effect on the environmental integrity of the site. Overall, the Phase I ESA indicated that there were no suspected hazardous materials observed during the Phase I ESA and further assessments were not recommended for this portion of the project site.

According to the Section 17 and Section 20 Closure Letter Report on the remaining majority of the project site, a Phase I ESA was also conducted for both Sections 17 and 20. The Phase I ESA found that there was no indication of environmental concerns in regards to Section 20. A Phase II ESA was conducted in Section 17 due to the presence of hydrocarbon stained soils and the presence of a white chalky substance, possibly calcium carbonate. Remediation activities, including well reabandonment and excavation of the suspicious soils occurred between August and September of 1993. There is a total of six plugged and abandoned wells within the project boundary, all located within Section 17.

Well reabandonment activities in Section 17 included infill, installation of cement cappings listing the well operator and the well number, and the plating and identification of casings. In addition, the suspicious soils were excavated and transported to Chevron's Road Mix Facility and recycled for use as road mix on Chevron Roads. Likewise, stained cement and piping located within Section 17 were transported offsite to Chevron's MCI junkpile located in Section 5, T29S, R28E in Bakersfield. All six plugged and abandoned wells onsite meet the Department of Conservation's Division of Oil, Gas, and Geothermal Resources current requirements for well plugging and abandonment.

The remaining 8.9 acres of the project area are located in Section 19. This area was previously surveyed in July of 1998 by VISTA Information Services. VISTA conducted a computerized database search of various governmental lists. The VISTA search included all databases pursuant to Governmental Code Section 65962.5 (CEQA, Cal. Pub. Resources Section 21092.6) as required of lead agencies by CEQA. In addition, VISTA consulted various federal (U.S. EPA) and local (Kern County Environmental Health) hazardous waste site lists.

A review of the various lists indicated that there are no sites that are considered a hazardous materials threat within the project's 8.9 acres of Section 19.

5.7.2 PROJECT IMPACTS

Thresholds of Significance

A significant impact relative to public health and safety is considered to exist if the project would result in the exposure of people to risks beyond acceptable levels. Applicable laws and regulations (i.e. hazardous waste action levels) define such levels and relevant planning documents (i.e. General Plan Safety Element).

Impacts

Historical Use of Hazardous Materials and Waste

Implementation of the proposed project would not result in impacts associated with known and/or suspect hazardous materials. However, there is a potential that previously unknown hazardous materials contamination from historical use of this property onsite may be encountered or disturbance of abandoned or unrecovered oil wells during the project development activities. However, it should be noted that should such contamination be found or disturbance occur existing federal, state, and local policies and procedures would require the delineation and remediation of sites containing hazardous substances to the satisfaction of the designated local enforcement agency. Moreover, it is unlikely that any such contamination or disturbance would be extensive beyond the capacities of typical remediation measures. In addition, Phase I ESAs were conducted and when applicable, a Phase II ESA was conducted and remediation applied. Therefore, no significant impacts from former uses of the property are anticipated.

Future Use of Hazardous Materials and Waste

Implementation of the City in the Hills Project would introduce new land uses to the project area and hence would result in the additional use of hazardous materials and an increase in hazardous waste generated onsite. However, compliance with regulations, standards, and guidelines established by the EPA, state, county, and local agencies relating to the storage, use, and disposal of hazardous waste will reduce the potential risk of hazardous materials exposure to a level that is less than significant.

5.7.3 CUMULATIVE IMPACTS

Development of the proposed project and future development in accordance with the City's General Plan will cumulatively increase the population of the area. Compliance with federal, state, and local regulations concerning the storage and handling of hazardous materials and/or waste and the implementation project-related mitigation measures will reduce the potential for significant public health and safety impacts to occur. Therefore, the impact of the proposed project, in addition to future development within the City, is not expected to significantly impact the number of people exposed to public health and safety risks.

5.7.4 MITIGATION MEASURES

Although no significant hazardous materials compliance impacts are anticipated, the following mitigation measures are included to reduce any potential impacts associated with the project.

HMC-1 Prior to the issuance of grading permits, the grading plans shall specify that in the event that hazardous waste is discovered during site preparation or construction, the property owner/developer shall ensure that the identified hazardous waste and/or hazardous material is handled and disposed of in the manner specified by the State of California Hazardous Substances Control Law (Health and Safety Code, Division 20, Chapter 6.5) and according to the California Administrative Code, Title 30, Chapter 22.

HMC-2 The applicant shall handle and dispose of all hazardous materials and wastes during the operation and maintenance of facilities in accordance with the state codes.

HCM-3 Prior to the issuance of grading permits, the grading plans shall specify that in the event that any abandoned or unrecovered oil wells are uncovered or damaged during excavation or grading, remedial plugging operations will be required.

HCM-4 No structures are to be located over a previously plugged or abandoned well.

5.7.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the recommended mitigation measures would reduce potential hazardous material compliance impacts associated with the proposed project. No significant hazardous materials compliance impacts would occur with the project implementation.

5.8 PUBLIC SERVICES AND UTILITIES

This section provides baseline information on, and evaluates the impacts to public services and utilities, including fire and police protection, schools, solid waste disposal, electricity, natural gas, wastewater, and water services. Information in this section is based upon correspondence with the various public service providers having jurisdiction over the project site, and information contained in previous environmental documents per CEQA Guidelines Section 15150. Documents referenced in this section include *The Northeast Bakersfield Bike Path and Water Facilities Project EIR* (1998) and the *Metropolitan Bakersfield 2010 General Plan* (1990).

5.8.1 FIRE PROTECTION SERVICES

Existing Conditions

The City of Bakersfield Fire Department currently provides fire protection and emergency medical response services to the project site. The nearest fire station to the project site is located at 12100 Alfred Harrell Highway which is currently located approximately 6 roadway miles from the project site. This fire station provides primary response to the site and is equipped with two engines, one squad, one truck, and a Battalion Chief for structure fires, as well as one emergency medical vehicle outfitted with an emergency medical technicians defibrillator. In addition, private ambulance companies service the area. On a 24-hour basis, Station No. 10 is staffed with three personnel to respond to both fire and medical emergencies. Throughout the City, the available personnel at each station is three to eight personnel on a 24-hour basis (R. Fraze, 2000).

Response time to the project site from Fire Station No. 10 is nine minutes. This response time is 50 percent longer than the average response time throughout the City which is 6 minutes. The City also participates in a Joint Powers Agreement with the County of Kern so that their closest fire station (Fire Station #42 at Niles Street and Fairfax Road) would also respond to a fire or medical emergency.

The project site is located in an area designated as light fire hazard because the site is relatively flat and contains only grasses (R. Fraze, 2000). There are no fire hydrants on or directly adjacent to the project site.

Project Impacts

Thresholds of Significance

A project is considered to have a significant impact on fire and emergency services if the project will result in a substantial need for fire and medical emergency assistance that cannot be adequately met by available Fire Department personnel or equipment.

Impacts

The proposed project will introduce new and more intense land uses to the area. The currently undeveloped project site will support single and multiple family residential units as well as general commercial development. The project will result in a substantial increase in population and buildings in the project vicinity and will increase the need for fire and emergency medical services. This increase need will result from the addition of people and structures on the project site as well as in an area that contains substantial grassland that is designated as a light fire hazard. The proposed project will improve the circulation system within the project area, facilitating more efficient access. Presently, much of the project site is accessible only by unpaved access roads and undeveloped extensions of existing roadways.

The City of Bakersfield Fire Department currently staffs at a level of 0.76 fire department personnel per 1,000 residents. Development of the proposed project will result in 11,503 residents that will require 8.7 fire protection personnel based on the current City staff levels. Development of the proposed project will result in significant adverse impacts to existing fire protection services.

Cumulative Impacts

Future development resulting from future growth in the area as well as development of the proposed project will include the introduction of new structures to the area, and an increased risk of fire hazards as the area transitions from rural to urban. This cumulative development in the project vicinity will result in a substantial need for fire protection services. The proposed project along with future development will result in the development of new arterial and collector streets that will provide improved access to the project site and the surrounding areas, allowing fire and emergency vehicles greater access to the area. However, the proposed project will substantially contribute to a significant cumulative impact on fire protection personnel.

Mitigation

FPS-1 Prior to the issuance of building permits, the project applicant shall pay its fair share toward the construction of a new fire station and provision of fire department personnel that will serve the project vicinity.

FPS-2 Prior to the approval of grading plans, the project applicant shall submit emergency fire access plans to the Fire Department for review and approval to assure that service to the site is in accordance with Bakersfield Fire Department requirements.

FPS-3 Prior to the commencement of structured framing onsite, the project applicant shall install fire hydrants in accordance with the City-approval building plans.

FPS-4 Prior to the approval of street improvement plans, the project applicant shall demonstrate to the City Fire Department that the onsite water supply system is designed to provide sufficient fire flow pressure and storage in accordance with City Fire Department requirements.

Level of Significance After Mitigation

After the implementation of the above measures, impacts to fire protection services will be less than significant.

5.8.2 POLICE PROTECTION SERVICES

Existing Conditions

The Bakersfield Police Department currently provides police protection services to the project area. The Bakersfield Police Department is located at 1601 Truxton Avenue. On a 24-hour basis, manpower throughout the jurisdiction includes forty officers available to respond to calls. The equipment available includes 122 patrol vehicles assigned to the take home program, ten patrol vehicles, 21 motorcycles, five black and white traffic vehicles, 14 unmarked patrol units assigned to the gang suppression unit, one S.W.A.T. van, one S.W.A.T. special response/rescue vehicle, one bomb van, one commercial enforcement truck, and one surveillance plane. Currently, the police department is operating at a level of 1.33 officers per 1,000 population.

According to the Bakersfield Police Department, the response time to the project area is nine minutes and 13 seconds. The Department's overall response time for serious/urgent/emergency requests throughout the rest of the district is typically five minutes. Other than the occasional warrant sweep or the combining of narcotics task forces, the Bakersfield Police Department functions separately from

the Kern County Sheriff's Department. There are no other mutual aid programs that the Department participates in at this time (R. Larson, 2000).

According to the Bakersfield Police Department, there have been no crimes reported within the project area and vicinity (R. Larson, 2000).

Project Impacts

Thresholds of Significance

This project is considered to have a significant impact relative to police services if:

- Increases in development, population, or response times would require expanding the existing staff and equipment levels to maintain an adequate level of protection throughout the service area.
- A substantial amount of police emergencies that cannot be adequately served by the available Police Department personnel or equipment results.

Impacts

Implementation of the City in the Hills project will have a direct impact upon police services in the area. To date, there are no reported crimes within the project area. The introduction of residential and commercial uses will increase the likelihood of criminal activity. The proposed project is anticipated to incrementally increase criminal activity such as vandalism, burglary, and theft and will result in a significant impact on existing police protection services. According to the City of Bakersfield Police Department, the project will increase the need for police personnel, support staff, and equipment. Under the take home vehicle program instituted by the Department, each new officer hired for the project area would require a vehicle and other necessary equipment. Based upon the current ratio of 1.33 officers per 1,000 population, the proposed project would result in the need of an additional 15 police officers to maintain the current level of service.

Cumulative Impacts

The proposed project along with future development would increase the demand for police protection services in the project vicinity. As set forth by the General Plan, development in this area is predominately single family residential with commercial land uses clustered along the current alignment of SR 178. As development occurs, crimes associated with these various land uses is expected to increase. Development of the proposed project will substantially contribute to a significant cumulative impact on existing police protection services.

Mitigation Measures

PPS-1 Prior to the issuance of building permits, the project applicant shall pay its fair share toward the provision of additional police protection personnel and equipment that will serve the project vicinity.

Level of Significance After Mitigation

After the implementation of the above measures, impacts to police protection services will be less than significant.

5.8.3 SCHOOL SERVICES

Existing Conditions

The project site is located in the Bakersfield City School District (BCSD) and Kern High School District (KHSD). The BCSD serves K-8 with elementary and junior/middle schools while the KHSD serves 9-12. The nearest elementary schools are Chavez Elementary School and Thorner Elementary School. The nearest junior/middle schools are Stiern Middle School and Chipman Junior High School. The nearest high schools are Highland High School and Foothill High School. Following is a discussion of the schools that are nearest to the project site.

Elementary Schools

Chavez Elementary School

Chavez Elementary School serves K-6 grades and is located approximately 0.5 mile south of the project site along Mesa Marin Drive. The Chavez Elementary School is one of the District's newest schools, having opened in 1994, and is a Magnet Science school. The school has a current student population of 373 students with a total capacity of 480 students. To date, there are no expansion plans for the school, but there is additional infrastructure capacity to add additional buildings, if necessary (L. Varga, 2000).

Thorner Elementary School

Thorner Elementary School also serves K-6 grades and is located approximately 1.5 miles west of the project site northeast of the Panorama Drive and Thorner Street intersection. This school has a current student population of 783 students with a total capacity of 900 students.

Junior/Middle Schools

Stiern Middle School

Stiern Middle School serves 6-8 grades and is located approximately 2 miles southwest of the project site along Morning Drive and north of Highway 184. This school has a current student population of 721 students with a total capacity of 1,480 students.

Chipman Junior High School

Chipman Junior High School serves 7-8 grades and is located approximately 2.5 miles west of the project site southeast of the Eissler Street and Charger Avenue intersection. This school has a current student population of 777 students with a total capacity of 930 students.

High Schools

Highland High School

Highland High School serves 9-12 grades and is located approximately 2 miles west of the project site northwest of the Fairfax Road and Auburn Street intersection. This school has a current student population of 1,952 students with a total capacity of 1,912 students (P. Hogland, pers. comm., 2000). Highland High School is currently overcrowded and includes portable classrooms.

Foothill High School

Foothill High School also serves 9-12 grades and is located approximately 3 miles south of the project site southwest of the Foothill Road and Morning Drive intersection. This school has a current student population of 2,084 students with a total capacity of 1,877 students. Foothill High School is currently overcrowded and includes portable classrooms.

Project Impacts

Thresholds of Significance

A project can be considered to have a significant impact on public schools if the project generates more students than the capacities of the schools, leading to a condition of overcrowding.

Impacts

Implementation of the proposed project will result in the development of 2,750 single family units and 1,300 multiple family units. The development of residential uses will result in the generation of school children. As shown in Table 5.8-1, based on the student generation factors for each grade level, the proposed project is expected to generate 2,087 K-6 grade (elementary) students, 821 7-8 grade (junior/middle) students, and 1,013 9-12 grade (high school) students. As discussed previously, the existing schools that service the project area are currently over or near capacity. The implementation of the proposed project would result in significant impacts on existing school facilities.

TABLE 5.8-1
PROJECTED STUDENT POPULATION

		Student Generation Factors			Project Student Generation		
Land Use	**Dwelling Units**	**K-6[a]**	**7-8[a]**	**9-12[b]**	**K-6**	**7-8**	**9-12**
Single Family	2,750	0.551	0.221	0.250	1,515	608	688
Multiple Family	1,300	0.440	0.164	0.250	572	213	325
Total	**4,050**				**2,087**	**821**	**1,013**

[a] Louis Varga, Bakersfield City School District, pers. comm., 2000
[b] Jack Covard, Kern High School District, pers. comm., 2000
Source: Michael Brandman Associates, pers. comm., 2000

Cumulative Impacts

Implementation of the proposed project and future growth in the project vicinity is expected to result in a substantial increase in residences as well as school age children. This potential increase in students will result in a significant cumulative impact on elementary, junior/middle, and high schools.

Mitigation Measures

SS-1 Prior to the issuance of building permits, the project applicant shall pay District-adopted development impact school fees that are in effect at the time of issuing each permit. The District-adopted fees are required to be in accordance with State statutes that are in effect at the time of issuing each permit.

Level of Significance After Mitigation

After the implementation of the above measures, impacts to school services will be less than significant.

5.8.4 SOLID WASTE SERVICES

Existing Conditions

The California Integrated Waste Management Act of 1989 redefined solid waste management concerning both objectives and planning responsibilities for local jurisdiction and the State of California. The Act requires cities and counties to reduce solid waste disposal by 25% by January 1, 1995 and by 50% by January 1, 2000 through a combination of solid waste management, source reduction, recycling, composting, and market development. The law also requires that each county prepare an Integrated Waste Management Plan (IWMP). In compliance with the law, Kern County Waste Management Department prepared an IWMP in February of 1998.

According to the Waste Management Department, there are three solid waste facilities that serve the project area.

- Kern County Landfill (Bena Canyon)
- City of Bakersfield Greenwaste Facility
- Metropolitan Recycling Center for Construction Waste

The Bena Canyon Landfill is currently operating within the first of four phases that are proposed for the landfill's lifespan. Phase I, the smallest of the four phases, has a remaining capacity of approximately 3.5 million tons, accepting a permitted tonnage of 1,764 tons/day with an average of 894 tons/day as of November 1999. The Phase II expansion is expected to be completed by the end of 2000 with a total capacity of 50 million tons. Phases III and IV are anticipated to individually have capacities of 50 plus million tons, totaling over 100 million tons of future solid waste capacity at Bena Canyon Landfill.

The City of Bakersfield Greenwaste Facility and the Metropolitan Recycling Center for Construction Waste accept 200 tons/day combined.

Project Impacts

Threshold of Significance

A project is considered to have a significant impact on solid waste facilities (i.e. landfills) if the existing facilities do not have adequate capacity for the increase in solid waste, or if the disposal of project-related solid waste would result in a substantial reduction in the planned life span of the landfill.

Impacts

Implementation of the proposed project will involve site preparation activities that will generate waste materials. Hauling and disposal of these materials will occur during the construction process. Following completion and occupancy of the project site, refuse will be regularly generated. Table 8.5-2 shows the estimated daily amounts of solid waste generated within the project site.

TABLE 5.8-2
PROPOSED PROJECT SOLID WASTE GENERATION

Proposed Uses	Density	Generation Rate	Solid Waste Generation
Single Family Residential (R-1)	2750 units	2 tons/unit/year[a]	5,500 tons/year
Multi Family Residential (R-2)	1300 units	2 tons/unit/year[a]	2600 tons/year
General Commercial	1,048.076 (2,056 employees)	2 tons/employee/year	4,112 tons/year
Total			**12,212 tons/year**

[a]N. Ewert, Kern County Waste Management, pers. comm., 2000.
[b]Rate is base upon the average solid waste generation rates of similar uses permitted in the C-2 zone, and assumes one employee per 510 square feet of General Commercial (C-2)
Source: Michael Brandman Associates, 2000.

As shown in Table 5.8-2, development of the proposed project would result in the generation of 12,212 tons of solid waste per year, or 33.4 tons per day. Given the average daily capacity at the Bena Canyon Landfill of approximately 870 tons per day, the project would not substantially reduce the available capacity of this facility. Furthermore, the Bena Landfill is estimated to have a remaining capacity of 100 years (N. Ewert, pers. comm., 2000). Therefore, the project is not anticipated to have a significant impact upon existing solid waste services.

Cumulative Impacts

The study area for cumulative impacts to solid waste service is the service area of the Bena Canyon Landfill. As noted previously, the Bena Landfill is estimated to have a remaining capacity of 100-years and is currently in the first of four phases of expansion. The remaining three phases have a combined capacity of over 150 million tons. Additionally, as outlined in the Kern County IWMP, solid waste generation was to be reduced by 50 percent by the year 2000, thus implementation of the IWMP has expanded the life of local landfills. Moreover, it is assumed that the proposed project and all related projects will be required to incorporate solid waste reduction strategies into project construction and operation, thus reducing the level of any cumulative impacts, therefore, it is anticipated that there will be a less than significant cumulative impact to solid waste services.

Mitigation Measures

Implementation of the following measure will reduce the amount of solid waste that will be transported to landfills, thus reduce the loss of capacity at the landfills.

SWS-1 Prior to the issuance of building permits for residential uses, the applicant shall demonstrate how the project would participate in a waste management program, which includes but is not limited to the following:

- A commitment to contract with a recycling business for the collection and repossessing of glass, mixed and newsprint paper, plastics, and aluminum for all residential uses.
- A commitment to begin the recycling when solid waste collection begins.
- Provision of onsite receptacles for the collection of glass, mixed and newsprint paper, plastics, and aluminum for recycling purposes shall be provided. Locations of receptacles shall be indicated on building plans.
- Ensuring that hazardous waste disposal complies with federal, state, and city regulations.

Level of Significance After Mitigation

The proposed project will result in less than significant impacts on solid waste services.

5.8.5 ELECTRICITY

Existing Conditions

The project site is located within the Pacific Gas and Electric (PG&E) service area. PG&E's electricity is generated from a combination of nuclear, hydroelectric, geothermal, fossil fuel, wind generation, and solar. Existing electricity facilities are located along SR178, Masterson Street, Paladino Drive, and Morning Drive. There are currently 12 KV electrical lines along each of these roadways. A 70KV transmission line that extends to the PG&E's hydroelectric plant in the mouth of the Kern River Canyon is also located on the poles along Masterson Street (D. Lee, pers. comm., 2000).

Project Impacts

Thresholds of Significance

A project is considered to have a significant impact on electrical service if existing or planned facilities and supplies are not adequate to serve proposed land uses or existing electrical service is notably disrupted.

Impacts

PG&E periodically analyzes electrical demands and determine necessary improvements. Electrical consumption needs of the City in the Hills project would be approximately 66.3 million kilowatt hours per year as shown in Table 5.8-3.

TABLE 5.8-3
PROJECTED ANNUAL ELECTRICAL DEMAND

Land Use	Units/Area	Electrical Demand Factor (Kwh/yr)[a]	Solid Waste Generation (million Kwh/year)
Residential	4050	5,760/unit	23.3
Commercial	1,048,076	2 tons/employee/year	43.0
Total			**66.3**

Kwh/yr -kilowatt hours/year
Sf -square foot
[a] City of Bakersfield, metropolitan Bakersfield 2010 general Plan, 1990.
Source: Michael Brandman Associates, 2000.

According to PG&E staff, the existing electrical facilities adjacent to the project site would not be adequate to serve development of the proposed project (G. Rodriguez, pers. comm., 2000). Additional facilities are expected to be necessary to provide service for the entire project site. These additional facilities could be phased over the project's 20-year buildout. Given that the project site is located in an area that has a large amount of vacant land, the project may require expansion of the distribution and transmission line systems and related facilities such as upgrading substations. Coordination is typical between the applicant/developer and PG&E to avoid any notable electricity service disruptions during extension and upgrading of services and facilities. This coordination would also ensure that the nature, design and timing of electrical system improvements are adequate to serve the project. The project applicant may be required to fund improvements to the electrical system so that adequate service is provided to the site. Expansions of distribution and transmission lines are expected to occur along existing and planned roadways. These expansions are expected to result in less than significant environmental impacts.

Cumulative Impacts

Development of the proposed project and future development in accordance with the City's existing General Plan would require extensions of and connections to the existing and future electrical transmission and distribution systems. The existing and planned facilities owned by PG&E are projected to adequately serve planned growth in the City. These facilities would be constructed with a combination of applicant fees as well as fees collected by the utility provider. Less than significant cumulative impacts on future electrical facilities would occur from the development of the proposed project and future developments. As individual phases of the project are developed and other offsite developments are implemented, these developments will require extensions of electrical facilities. These future extensions would be coordinated with PG&E to avoid any notable disruptions to existing services.

Mitigation Measures

No measures are required.

Level of Significance After Mitigation

The proposed project would result in less than significant impacts to electrical services.

5.8.6 NATURAL GAS

Existing Conditions

The project site is located within the PG&E service area. Currently, the nearest natural gas line to the project site is located at SR 184 and Masterson Street. This natural gas line extends along SR 184 from Niles Street to the Rio Bravo Country Club east of Alfred Harrell Highway. A 4-inch main is also located along Panorama Drive and ends between Fairfax Drive and Morning Drive. There is also a 2-inch main located at the Fairfax Road and SR 178 intersection.

Project Impacts

Threshold of Significance

A project is considered to have a significant impact on natural gas service if a project is considered to have Existing or planned facilities are not adequate to serve proposed land uses or existing natural gas service is notably disrupted.

Impacts

PG&E periodically analyzes natural gas demands and determine necessary improvements. Natural gas consumption needs of the City in the Hills project would be approximately 61 million cubic feet per year, as shown in Table 5.8-4.

TABLE 5.8-4
PROJECTED ANNUAL NATURAL GAS DEMAND

Land Use	Units/Area	Natural Gas Demand Factor (cu.ft./yr)[a]	Annual Demand (million cu.ft./yr)
Residential	4050	9,125/unit	40.0
Commercial	1,048,076	20/sf	21.0
Total			**61.0**

Cu/ft/yr -cubic feet per year
Sf -square foot
[a] City of Bakersfield, metropolitan Bakersfield 2010 general Plan, 1989.
Source: Michael Brandman Associates, 2000.

PG&E staff has indicated that the existing facilities may not be adequate to provide adequate service to the proposed land uses (D. Othart, pers. comm., 2000). Given that the project site is located in an area that has a large amount of vacant land, the project may require expansion of distribution and transmission lines and related facilities such as gas lines and meter sites. Coordination is typical between the applicant/developer and PG&E to avoid any notable natural gas service disruptions during extension and upgrading of services and facilities. This coordination would also ensure that the nature, design and timing of electrical system improvements are adequate to serve the project. The project applicant may be required to fund improvements to the natural gas system so that adequate service is provided to the site. Expansions of distribution and transmission lines are expected to occur along existing and planned roadways. These expansions are expected to result in less than significant environmental impacts.

Cumulative Impacts

Development of the proposed project and future development in accordance with the City's existing General Plan would require extensions of and connections to the existing and future natural gas transmission and distribution systems. The existing and planned facilities owned by PG&E are projected to adequately serve planned growth in the City. These facilities would be constructed with a combination of applicant fees as well as fees collected by the utility provider. Less than significant cumulative impacts on future electrical facilities would occur from the development of the proposed project and future developments. As individual phases of the project are developed and other offsite developments are implemented, these developments will require extensions of natural gas facilities.

These future extensions would be coordinated with PG&E to avoid any notable disruptions to existing services.

Mitigation Measures

No measures are required.

Level of Significance After Mitigation

The proposed project is would result in less than significant impacts on existing and planned natural gas services.

5.8.7 WASTEWATER

Existing Conditions

The project site is within the City of Bakersfield service area and would be served by the existing City facilities in the area. The sewer service system within the project area was developed in 1993 to be compatible with the land uses set forth in the General Plan (L. Dimberg, pers. comm., 2000). The existing trunk line traverses Section 20, south of the project site, until the midway point of Section 20 where the line divides. An 18-inch sewer line follows up the middle of Section 20 and than traverses to the east and north, following the eastern boundary line of Section 17. The western trunk line follows along SR 178 and than splits again with a 15-inch line following the western border of Section 17. Within Sections 18 and 19, there are 18-inch sewer lines that are branches from the main trunk line in Section 20.

The treatment plant that serves this area is the City of Bakersfield Treatment Plant No. 2. Presently, the treatment plant has a flow of 16 million gallons per day, and has a capacity of 25 million gallons per day. According to the City of Bakersfield's Waste Management Department, treatment Plant No. 2 has an anticipated capacity until the year 2040 (J. Turner, pers. comm., 2000).

Project Impacts

Thresholds of Significance

A project is considered to have a significant impact on wastewater if:

- Wastewater flows generated by the project cannot be accommodated by the local wastewater treatment system.

- Wastewater distribution lines are not capable of conveying the sewage generated by the project to the wastewater treatment plant.

Impacts

According to the City of Bakersfield's Waste Management Department, the project site's wastewater system has been designed to accommodate growth within the project area as forecasted by the Metropolitan Bakersfield 2010 General Plan. The proposed project is substantially consistent with those uses and will not have a significant impact upon wastewater services. The proposed project will require extensions from these existing facilities to adequately serve the project site.

Table 5.8-5 calculates the proposed project's wastewater generation to be 1.50 million gallons per day. As mentioned above, the City of Bakersfield Wastewater Treatment Plant #2 has a current capacity to treat 25 million gallons per day and has a current flow of 16 million gallons per day.

TABLE 5.8-5
PROPOSE PROJECT'S 2020 WASTEWATER DISCHARGE GENERATION

Land Use	Units	Generation Factor[a] (gpd)	Wastewater Generation (mgd)
Residential	11,503 residents	100/person	1.15
General Commercial	96.9 acres	3,589/gross acre	0.35
Total Project Wastewater Generation			**1.50**

[a] M. Baumruk, Kern County Engineering and Survey Department, 2000.
gpd = gallons per day
mgd = million gallons per day
Source: Michael Brandman Associates, 2000.

Cumulative Impacts

Development of the proposed project and future development in the project area in accordance with the City's existing General Plan would substantially increase the generation of wastewater in the project area. Existing sewer lines in the project area have been installed to accommodate future growth in accordance with the existing General Plan land uses. The proposed project will require a General Plan amendment; however, the project is substantially consistent with the existing General Plan land uses. As discussed in Section 7.2, the proposed project would generate less wastewater compared to the potential land uses that could be developed on the site in accordance with the General Plan.

Cumulative development in the project area would contribute wastewater to the City's Wastewater Treatment Plant #2. According to the City, this treatment plant is expected to have capacity until the year 2040. The City has stated that additional capacity would be provided after the treatment capacity is within 5 years of full capacity (J. Turner, pers. comm., 2000).

Mitigation Measures

No measures are required.

Level of Significance After Mitigation

The proposed project will result in less than significant impacts on wastewater/sewer services.

5.8.8 WATER

Existing Conditions

The proposed project is within the service area of the California Water Company (CWC); however, currently there area no water facilities on or in the immediate vicinity of the project site. The nearest pipeline to the project site is a 16-inch diameter pipeline that extends east along Panorama Drive to Morning Drive (F. Core, pers. comm., 2000).

The California Water Company will be constructing a water treatment plant and pipeline north and west of the project site to serve new and existing customers. By the year 2002, the planned water treatment plant is expected to treat 20 mgd and distribute the potable water primarily to new and existing customers in the project vicinity. As increased water demand occurs, the water treatment plant is expected to increase its treatment to 40 mgd by 2012. The water treatment plant would receive water from the City of Bakersfield who will operate facilities that will withdraw the water from the Kern River.

Project Impacts

Thresholds of Significance

A project is considered to have a significant impact on water services if existing or planned future facilities are not adequate to serve the proposed land uses.

Impacts

Project implementation would result in increase water consumption from residential, commercial, and fire service demands. The 16-inch diameter pipeline located at the Morning Drive and Panorama Drive intersection could be adequate to provide serve to the proposed project if additional facilities such as water storage facilities are also provided. As identified in Table 5.8-6 the proposed project would result in the demand for 2.7 million gallons per day at full buildout.

TABLE 5.8-6
PROPOSED PROJECT'S 2020 WATER DEMAND

Land Use	Unit	Consumption Rate[a]	Total
Residential	11,503 residents	200 gpd	2.3 mgd (2,576 afy)
General Commercial	2,056 employees	200 gpd	0.4 mgd (461 afy)
Total			**2.7 mgd (3,037 afy)**

[a] Consumption rate derived from the Kern County Water Agency Urban Water Management Plan
gpd = gallons per day
mgd = million gallons per day
afy = acre foot per year
Source: Michael Brandman Associates, 2000.

The project applicant has entered into an agreement with the CWC to provide water facilities to the project site. The water facilities include the extension of the 16-inch water pipleine along the future alignment of Panorama Drive into the project site. The facilities also include multiple water storage tanks on or near the project site. CWC has also entered into an agreement with the City of Bakersfield to provide water to CWC. The City would supply the CWC with up to 2,500 acre feet (2.2 mgd) of water per year until the year 2009.

It is anticipated that the proposed project would achieve half buildout in the year 2010. Under this assumption, the 2,500 acre feet (2.2 mgd) of water that would be available for the project until the year 2009 will be adequate to serve half of the proposed project.

After the year 2009, it is anticipated that the proposed project will be served by the currently planned water treatment facility and pipeline being constructed north of the site. The planned water treatment plant is scheduled to be operational in the year 2003. The water pipeline serving this plant is to be completed in two phases, the inlet in 2001, and the outlet in 2003 to coincide with the completion of the treatment plant. When completed, the planned water pipeline will connect with the 16-inch diameter line along Panorama Drive. This system will have the capacity to provide adequate service for buildout of the proposed project.

Cumulative Impacts

The proposed project and future development projects will increase the long-term demand for water in the northeast Bakersfield area. Additionally, the implementation of the proposed project and future projects would require connection to a future distribution and treatment system. This future system is currently planned north and west of the project site and includes a water treatment plant and pipeline.

As stated previously, the water treatment plant is expected to have a treatment capacity of 40 mgd by 2012. The water treatment plant would receive water from the City of Bakersfield who will operate facilities that will withdraw the water from the Kern River. There would be no effect on existing water entitlements or downstream users as a result of withdrawing water from the Kern River because the City would only be using its own water entitlements and water that the City has previously stored and banked within its 2,800-Acre Groundwater Recharge area. The City would use its own water rights through the use of exchanges and direct use of miscellaneous entitlements. This future system is expected to adequately serve the proposed project and future growth in the project vicinity. Cumulative development would have a less than significant impact on water supply.

Mitigation Measures

W-1 The project applicant shall coordinate with California Water Company to establish precise locations for water distribution and storage facilities that would be constructed onsite and offsite to adequately serve each of the residential and non-residential water needs of the proposed project.

Level of Significance After Mitigation

The proposed project is anticipated to have less than significant unavoidable adverse impacts on water services.

5.8.9 STORMWATER DRAINAGE

Existing Conditions

The topography of the project site is relatively flat with an approximately a 2 percent slope from both the east and west towards the center of the project site. Stormwater on the project site is conveyed from the east and west via two drainage courses located within Section 17 of the project site. The confluence of the two drainage courses are just north of SR 1789. Downstream of the confluence, stormwater flows are conveyed under SR 178. Downstream of SR 178, stormwater continues to flow south on the west side of the Mesa Marin Raceway and continues south of SR 184.

The project site is located within an area that has been defined as the Planned Drainage Area (PDA) for Breckenridge. This PDA encompasses approximately 9 square miles. Conceptual drainage facilities have been identified throughout the PDA. The PDA identifies conceptual facilities on the project site. These facilities include storm drain pipes and detention and retention basins.

Project Impacts

Thresholds of Significance

A project is considered to have a significant drainage impact if the project would:

- substantially alter the existing drainage pattern in a manner which would result in substantial erosion or siltation onsite or offsite.
- substantially alter the existing drainage pattern of the site in a manner which would result in flooding onsite or offsite.
- create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems.:

Impacts

Implementation of the proposed project would result in an increase in impervious surfaces throughout the project site. The proposed project would substantially increase runoff from the project site and would result in increases in storm water runoff volumes and velocities. These increases in storm water runoff volumes and velocities are expected to be substantial. The existing natural drainage course and culvert under SR 178 as well as culverts downstream of the project site are not expected to be adequate to accommodate the increase in storm water runoff as a result of the proposed project. Therefore, implementation of the proposed project would result in potential significant impacts on existing drainage facilities.

The conceptual drainage facilities that are included in the PDA for the Breckenridge area are expected to be adequate to accommodate the anticipated flows associated with the proposed project. However, a drainage plan would need to be submitted for review and approval by the City of Bakersfield. The project applicant has identified that modifications to the PDA would be requested after a detailed drainage plan for the project is prepared. The specific modifications are currently unknown; however, modifications to the PDA are expected to include a conceptual drainage basin identified in the southern portion of the site. Modifications to the conceptual facilities will need to be reviewed and approved by the City of Bakersfield.

Cumulative Impacts

Implementation of the proposed project as well as future development in accordance with the City's existing General Plan would substantially increase the amount of impervious surfaces within the PDA for the Breckenridge area. This increase in impervious surfaces would substantially increase the rate

and volume of stormwater flows in the PDA. Therefore, a significant cumulative impact on existing drainage facilities would result.

The conceptual drainage facilities that are included in the PDA for the Breckenridge area are expected to be adequate to accommodate the anticipated flows associated with the proposed project and cumulative development. Modifications to the conceptual facilities will need to be reviewed and approved by the City of Bakersfield.

Mitigation Measures

SD-1 Prior to the issuance of a grading permit, the project applicant shall submit drainage plans for the project site for review and approval by the City of Bakersfield. The drainage plans shall identify all necessary onsite and offsite drainage facilities to accommodate project-related as well as cumulative (in accordance with the existing General Plan) drainage volumes and velocities. Modifications to the existing PDA for the Breckenridge area will require an approval of an amendment to the PDA by the City of Bakersfield.

Level of Significance After Mitigation

After the implementation of the above measure, the proposed project will result in less than significant drainage impacts.

5.9 AESTHETICS

The following analysis addresses visual resources from various viewing locations within and surrounding the project site and the potential for visual impacts to occur at these locations as a result of the proposed development.

5.9.1 EXISTING CONDITIONS

The project site encompasses approximately 694 acres in northeast Bakersfield. The site is located in Sections 17, 18, and 19 in Township 29 South, Range 29 East between Paladino Drive to the north, State Route 178 to the south, Masterson Street to the east and the undeveloped extensions of Vineland Road and Queen Street to the west. The site itself is undeveloped vacant grassland with a slight slope to the southwest.

The project site is bordered by residential land uses along Paladino Drive to the north, the Mesa Marin Raceway and undeveloped grasslands are located to the south, undeveloped grasslands are to the immediate east abutted by low-density residential land uses, and oil facilities to the west. The Rio Bravo Airport is located approximately one mile east of the site.

Based on a review of the Metropolitan Bakersfield 2010 General Plan, there are no designated scenic highways in the project area.

Visual Character

The project site and the immediate surrounding area are relatively flat and surrounded by rolling hillsides and ridgelines, creating viewsheds from both the immediate terrain and from the above lying hillsides. The immediate viewshed within the project site is dominated by scattered oil facilities to the north and east, the Mesa Marin Raceway to the south, undeveloped grasslands to the west, and residential homes to the north. On the hillsides to the south and east, there are residential land uses and a large water tank. The site is undeveloped and there are no trees or structures that impede views of the site itself or views across the site.

Site and Vicinity Views

Views into the project site are mainly from the residential homes on Paladino Drive directly adjacent to the site, from the Vista Fiensetra residential development located approximately 0.4 mile east of the site, and from vehicles traveling along SR 178. Homes located on a ridgeline west of Morning Drive

have distant views of the site. The project area consists of 689 acres of undeveloped grassland. The site has a slight slope to the southwest but has generally flat terrain. There are no structures on the site.

Photographs were taken to represent the existing physical characteristics and visual conditions within and around the project site. Exhibits 5.9-2 through 5.9-4, Site and Vicinity Photographs, show the identified areas. Please refer to Exhibit 5.9-1 for photograph locations. Below is a description of each photograph.

Photograph 1

This viewpoint is at a location along Valley Street east of the project site and represents the dominant viewshed of the residential homes along Valley Street. While there is some variation in the terrain due to prior disturbance, the area between these residences and the project site, as well as the project site, has a terrain that is generally flat. The undeveloped grasslands characterize both the undeveloped area directly east of the site and the project site. There are also views of above ground electricity lines and utility poles that traverse along Masterson Street.

Photograph 2

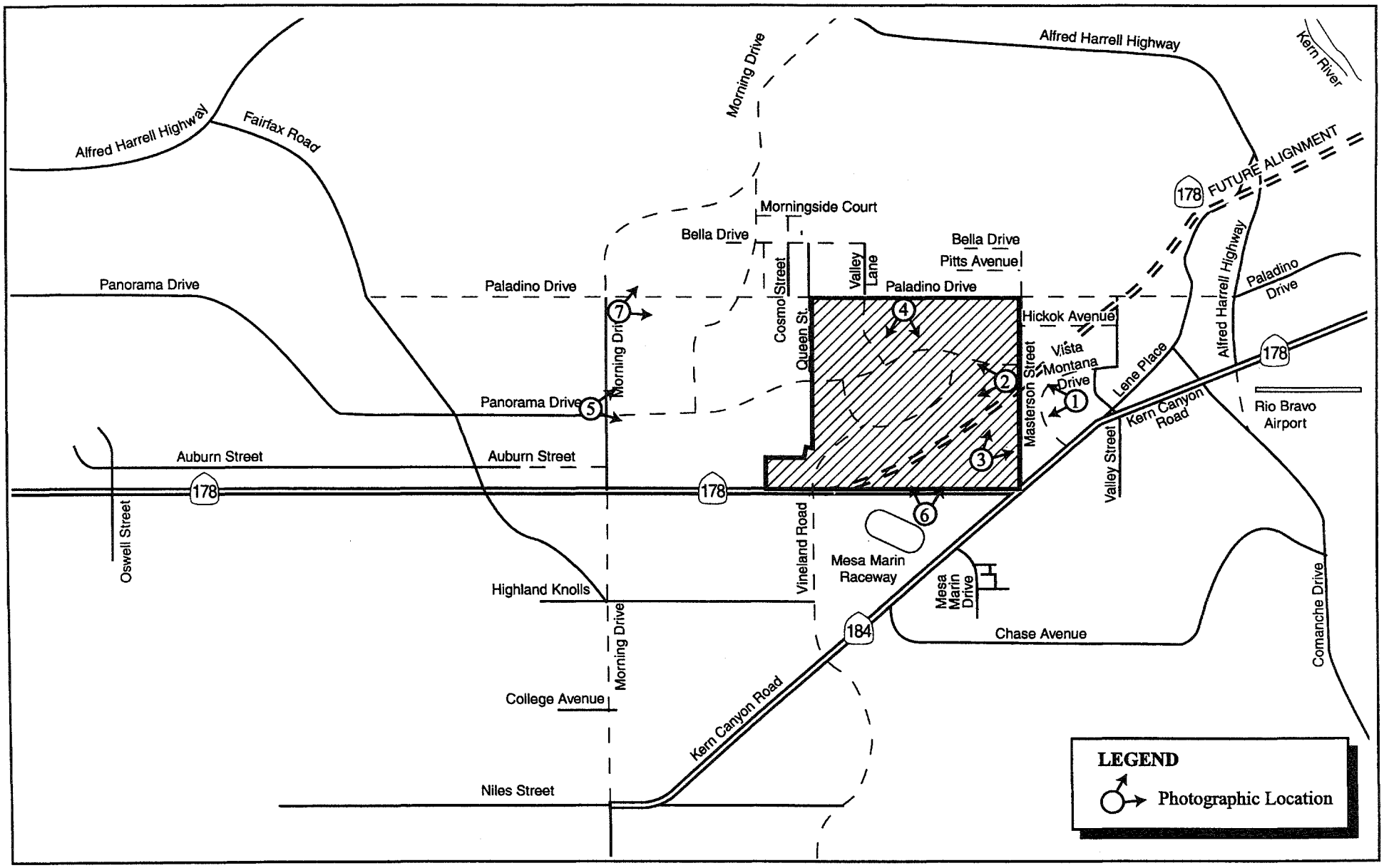
This viewpoint is along Masterson Street approximately halfway between SR 178 and Paladino Drive. This view is toward the west across the project site. As shown, the project site is dominated by grasslands on relatively flat terrain. In the background, views of the hills that are located west of Morning Drive can be seen.

Photograph 3

This viewpoint is near the intersection of SR 178 and Masterson Street. This view is toward the east to the existing residences that are located along Valley Street. Visible from this viewpoint are the rooflines of the single story homes and the upper stories of multiple story homes. Grassland currently dominates the foreground views and rolling hills can be viewed in the background.

Photograph 4

This viewpoint is along Paladino Drive and provides views to the southwest. This viewpoint represents the viewshed of the residents located along Paladino Drive. While grasslands and low-lying shrubs are apparent in the immediate foreground and middle ground, residences, a water tank, and the



NORTH

3520 1760 0 3520

SCALE IN FEET

Michael Brandman Associates

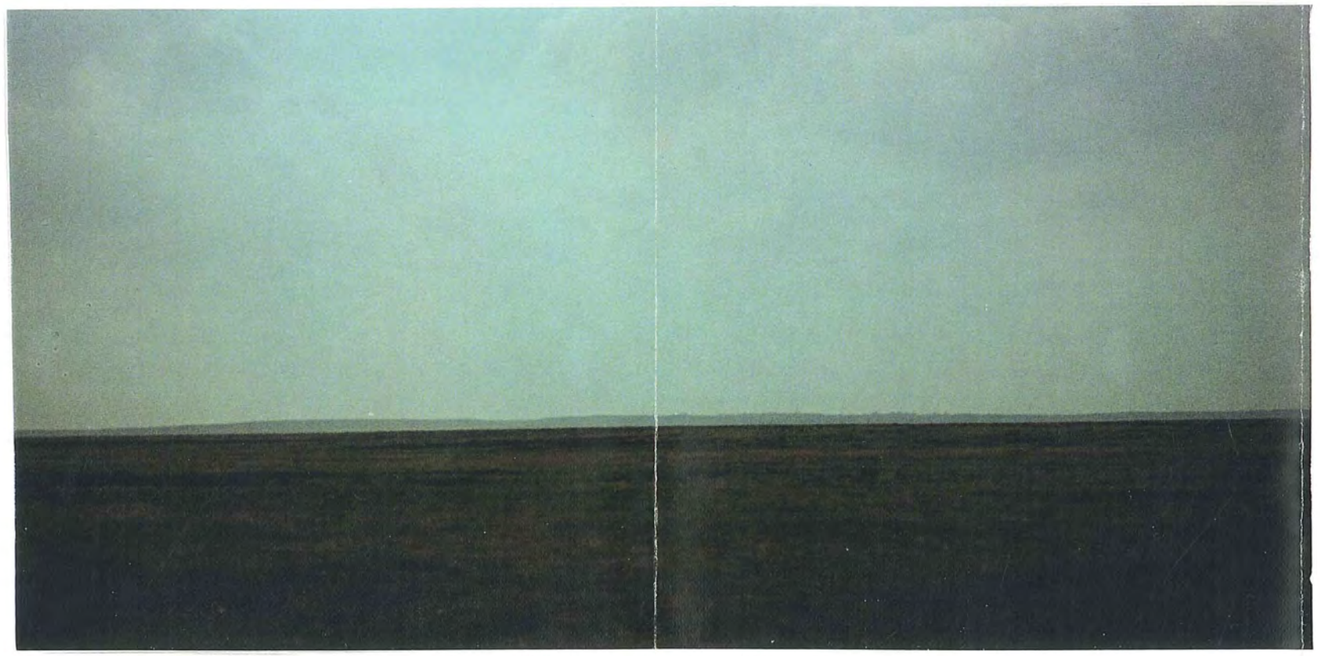
02160011 • 5/2000

Exhibit **5.9-1**

Photographic Index

CITY OF BAKERSFIELD • CITY IN THE HILLS

Photograph 1. Southwestern and western view from Valley Street toward Masterson Street and the project site.



Photograph 2. Western view of the site from Masterson Street .

Michael Brandman Associates

02160011 • 5/2000

Exhibit **5.9-2**

Site and Vicinity Photographs

CITY OF BAKERSFIELD • CITY IN THE HILLS

Photograph 3. Eastern view of the site from the corner of Masterson Street and SR 178.

Photograph 4. Southern view of the site from Paladino Drive.

Photograph 5. Eastern view from the Panorama Drive and Morning Drive intersection.

Photograph 6. Northern view of the project site from SR 178.

Photograph 7. Northeastern and eastern view of oil facilities located northwest of the site from the corner of Morning Drive and Paladino Drive.

Michael Brandman Associates

Exhibit **5.9-4**

Site and Vicinity Photographs

Mesa Marin Raceway facilities south of SR 178 are located in the background. As shown in this view, the project site has relatively flat terrain.

Photograph 5

This viewpoint is immediately west of the Panorama Drive and Morning Drive intersection. The view is toward the east and oil facilities in the middle ground can be seen. East of the oil facilities is the project site. Background views include SR 178, residences along Mesa Marin Drive, and residences along Valley Street.

Photograph 6

This viewpoint is along SR 178 adjacent to the Mesa Marin Raceway. This view is to the north toward the residences that are located north of Paladino Drive. SR 178 is in the foreground and the project site is in the middle ground. As shown, the site is covered with grassland and low-lying scrubs. The residences along Paladino Drive and Ant Hill are located in the background.

Photograph 7

This viewpoint is at the corner of Paladino Drive and Morning Drive. The view is to the northeast toward existing oil facilities that are located north of Paladino Drive. The terrain is relatively flat and includes grasslands and low-lying shrubs. Paladino Drive is a dirt road in this area and electrical lines extend along Paladino Drive as well as to the existing oil facilities. The background views include Ant Hill.

5.9.2 PROJECT IMPACTS

Thresholds of Significance

A determination that a change in visual character and aesthetics of a project site is subjective. For purposes of this analysis, an impact on visual and aesthetic nature of the project area is considered to be significant if the project would result in:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway.

- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

Development Intensity Impacts

The proposed project involves the transition of approximately 694 acres from undeveloped grassland to a mixture of single family residential, multi-family residential, and general commercial land uses. As proposed, the project would introduce 2,750 single family homes (5.5 units/acre), 1,300 multiple family homes (20.2 units/acre), and approximately 1.05 million square feet of general commercial development (10,835 square feet/acre).

According to the City of Bakersfield zoning ordinance, single family residential (R-1) and multiple family residential (R-2) may be constructed to a maximum height of 35 feet, totaling 2.5 stories. General commercial land uses are zoned to allow for a maximum height of 90 feet, totaling 6 stories.

The development of the proposed project would not impact scenic highways because there are no scenic highways designated in the project area. Furthermore, the proposed project would not affect unique scenic resources because no unique scenic resources are on or adjacent to the site.

The residential properties along Paladino Drive at the northern boundary of the project site will experience a substantial visual change. These homes face south directly onto the project site. The dominant view from these homes is the project site and distant views of the Mesa Marin Raceway. Implementation of the proposed project would alter the project area from a rural to an urban character.

In addition, there are single family homes east of the project site. Although these homes are not directly adjacent to the project site, their viewshed will be altered. These homes face west approximately one mile from the project site, with the project area dominating the viewshed of these homes. The viewshed of the west facing homes will be altered from open grasslands to a mixture of general commercial and low-density residential.

Since the project site does not currently include any development, implementation of the proposed project would alter the existing visual characteristics of the site and alter the existing viewsheds surrounding the site. This alteration of existing views is considered to result in significant adverse visual impacts.

Light and Glare

Lighting associated with the proposed development would introduce new sources of light and glare. Sources of light would include safety lighting for streets, lighting associated with the residential properties, and lighting associated with the general commercial land uses, including parking lot lighting, sign lighting, and security lighting. In addition, the increased traffic in the area will create additional sources of light and glare. Due to the existing rural nature of the project site and the surrounding areas, the proposed project will result in the introduction of substantial new light sources. These new light sources are expected to result in significant adverse night lighting impacts.

5.9.3 CUMULATIVE IMPACTS

The cumulative visual impact area for the project is considered to be the rural northeast Bakersfield planning area as defined by the Metropolitan Bakersfield 2010 General Plan. Development of the project site would result in the urbanizing of rural areas. As concluded above, implementation of the proposed project is anticipated to have a significant adverse visual and night lighting impact. Ongoing development in this area will contribute to a notable change in the existing character of the area, primarily in converting natural and rural vacant areas to urban uses. In the immediate vicinity of the project site, future development in accordance with the City's General Plan include such land uses as low-density residential and various commercial uses clustered along the existing alignment of SR 178. A transition from an area characterized as rural to urban is anticipated and is considered a significant adverse impact.

5.9.4 MITIGATION MEASURES

Implementations of the following mitigation measures are recommended to reduce significant adverse visual and night lighting impacts.

AES-1 Prior to the issuance of grading permits, the project applicant shall prepare landscape plans for the project area to provide visual relief from project structures.

AES-2 Prior to the issuance of building permits, the project applicant shall outline specifications for outdoor lighting locations and other intensely lighted areas. The specifications shall identify minimum lighting intensity needs and design lights to be directed towards intended uses. Methods to reduce light impacts may include low-intensity light fixtures and hooded shields.

AES-3 Prior to the issuance of building permits, the project applicant shall submit and obtain City approval of lighting plans. The lighting plans shall verify that outdoor lighting on private residences is designed so that all direct rays are confined to the site and that adjacent residences are protected from substantial light and glare.

5.9.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the above mitigation measures will reduce the visual and night lighting impacts associated with the proposed project. However, this reduction will still result in significant visual and night lighting impacts. Therefore, the proposed project will result in significant and unavoidable visual and night lighting impacts.

SECTION 6
SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

Section 5 of this EIR provides a description of the potential environmental impacts of the proposed project, as well as measures proposed to reduce the environmental impacts to the maximum extent feasible. After the implementation of the proposed mitigation measures, noise, air quality, and aesthetic impacts associated with the proposed project would remain significant. These significant unavoidable adverse impacts are:

- **Land Use**. The proposed project includes residential uses in the southern portion of the site where noise levels would be in excess of the City's Noise Element standards during events at the Mesa Marin Raceway. No feasible mitigation measures are available for the project applicant to reduce these noise levels from the Mesa Marin Raceway to less than the City's L_{50}-55 dBA standard.

- **Noise**. The project will result in significant offsite traffic noise levels in the year 2010 along SR 178 and in the year 2020 along Fairfax Road, Masterson Street, and Paladino Drive. As discussed above, the proposed project also includes residences in the southern portion of the project site that will be exposed to significant noise levels (i.e., greater than L_{50}-55 dBA and less than Lmax – 75 dBA) during events at the Mesa Marin Raceway.

- **Air Quality**. The project will remain in exceedance of SJVUAPCD significance thresholds for ROG and NOx after mitigation measures are implemented.

- **Aesthetics**. The proposed project will result in a substantial alteration of existing views in the project vicinity. The project will also result in a substantial increase in night lighting in the project vicinity.

These significant unavoidable impacts would occur if the development objectives identified in Section 3.3 of the Draft EIR are met.

SECTION 7
ALTERNATIVES TO THE PROPOSED PROJECT

Section 15126(d)(2) of the state CEQA Guidelines, as amended, mandates that an EIR include a comparative evaluation of the proposed project with alternatives to the project, including the No Project Alternative. As described in Section 3, Project Description, the proposed project is the implementation of the City in the Hills project. This section focuses on alternatives to the proposed project capable of avoiding or substantially lessening any significant adverse impact associated with the proposed project even if these alternatives would impede to some degree the attainment of project objectives or be more costly. Additionally, alternatives are discussed in the terms of achieving the project objectives.

Section 15126.6(a) of the state CEQA Guidelines requires a discussion of reasonable alternatives to the proposed project, or to the location of the project, which would feasibly obtain most of the objectives of the project but would reduce, avoid, or substantially lessen the significant effects of the project, and evaluate the comparative merits of the project. Further, the criteria for selecting the scope and nature of the alternatives is based upon the "rule of reason" and includes site suitability, economic viability, availability of infrastructure, general plan consistency and other regulatory limitations. The No Project/No Development Alternative was selected to comply with Section 15126 of the State CEQA Guidelines. The No Project/Development in Accordance with Existing General Plan Land Use Designations was selected so that effects associated with existing planned land uses could be determined. The Alternative Design was selected because this alternative would avoid potential excess noise levels during events at the Mesa Marin Raceway. Finally, the Less Intense Development Alternative was selected because this alternative would avoid the significant unavoidable long-term air emissions associated with the development of the proposed project.

The EIR has focused on the direct and indirect effects on the environment which will result from implementation of the proposed project. Direct significant environmental impacts of the project are related to land use and planning; biological resources; traffic and circulation; noise; air quality; cultural resources; hazardous materials compliance; public services and utilities; and aesthetics. Except for impacts associated with land use, noise, air quality, and aesthetics, all direct significant impacts can be mitigated to a level that is considered less than significant.

The project-related alternatives evaluated in this section are the following:

- No Project/No Development Alternative
- No Project/Development in Accordance with Existing General Plan Land Use Designations
- Alternative Design

- Less Intense Development Alternative

The development objectives for the proposed project are as follows.

- Provide a residential and commercial use community that includes similar uses and quantity of uses as currently identified in the Metropolitan Bakersfield 2010 General Plan Land Use Element for the project site.
- Provide a mixed use residential community that includes at least 4,000 units with an average density of less than 7.26 units per acre.
- Provide a range of housing types on the project site.
- Provide right-of-way for the future construction of the approved SR 178 Freeway and the Vineland Road interchange.
- Provide right-of-way for the future construction of the SR 178 and Masterson Street interchange.

Provide general commercial uses adjacent to the proposed SR 178 interchanges at Vineland Road and Masterson Street.

The Environmentally Superior Alternative will be selected from among these alternatives and the proposed project. An alternative that is environmentally superior will result in the fewest or least significant environmental impacts. Based on the evaluation of the four alternatives in this section, implementation of the No Project/No Development Alternative would result in no impacts and would be environmentally superior than the proposed project. CEQA states that if the environmentally superior alternative is the "no project" alternative, the EIR shall also identify an environmentally superior alternative from the other alternatives. Section 7.5 discusses the environmentally superior alternative.

The analysis of alternatives includes the assumption that all applicable mitigation measures associated with the project will be implemented with the appropriate alternatives. However, applicable mitigation measures may be scaled to reduce or avoid the potential impacts of the alternative under consideration, and may not precisely match those identified for the proposed project.

A description of each alternative and a comparative environmental evaluation the identified impacts of the City in the Hills project is provided below.

7.1 NO PROJECT/NO DEVELOPMENT

7.1.1 DESCRIPTION

The No Project/No Development alternative assumes that no new land uses (including infrastructure improvements) would be added to the project site. The undeveloped portions of the project site would remain vacant. However, SR 178 would be constructed through the project site to reflect the ultimate approved alignment of that roadway. While no other development would be permitted under this alternative, the underlying General Plan and zoning designations would be retained.

7.1.2 IMPACT EVALUATION

The No Project/No Development Alternative would result in minimal environmental impacts relative to the proposed project, related to the realignment of SR 178. Similar to the proposed project, short-term noise and air quality impacts are anticipated during construction, however the significant unavoidable noise and air quality impacts associated with the proposed project are not anticipated under this alternative.

The potential impacts associated with the proposed project related to land use and planning, biological resources, traffic and circulation, cultural resources, hazardous materials compliance, public services and utilities, and aesthetics would also not occur or be substantially reduced under this alternative. Realignment activities would occur within the approximately 27.5 acre right-of-way of SR-178 with the remainder of the project site (666.4 acres) left undeveloped.

7.1.3 CONCLUSIONS

This alternative is considered environmentally superior to the proposed City in the Hills project. However, this alternative would not meet any of the project objectives set forth in Section 3.3. Therefore, this alternative is rejected.

7.2 NO PROJECT/DEVELOPMENT IN ACCORDANCE WITH EXISTING GENERAL PLAN LAND USE DESIGNATIONS

7.2.1 DESCRIPTION

Under this alternative, the project site would be developed in accordance with the existing General Plan land use designations. The project site would consist of 586.5 acres of low density residential, 67 acres of mixed-use commercial, 13 acres of high density residential, and 27 acres of roads (i.e. SR 178 right-of-way). A total of 4,518 residential dwelling units and 1,983,200 square feet of general commercial uses could be potentially developed on the project site under this alternative. This alternative would result in 468 more residential dwelling units and 934,494 more square feet of general commercial compared to the proposed project (see Table 7-1).

TABLE 7-1
NO PROJECT/DEVELOPMENT IN ACCORDANCE WITH EXISTING GENERAL PLAN DESIGNATIONS CHARACTERISTICS

	PROPOSED LAND USES				
	LR	**HR**	**MUC**	**SR-178**	**TOTAL**
ACRES	582.4	67	13	31.5	693.9
DU/AC or SF/AC	7.26	20	29,600	N/A	N/A
DU/SF	4,228	260	1,983,200	N/A	N/A
POPULATION	12,769	640	N/A	N/A	13,499
EMPLOYMENT	N/A	N/A	3,889	N/A	3,889
TRIPS/DU or 1,000 SF	8.06	6.10	29.46	N/A	N/A
TOTAL TRIPS	34,078	1,586	58,425	N/A	94,039

7.2.2 IMPACT EVALUATION

Land Use and Planning

Implementation of this alternative would result in a similar conflict with the City's noise level performance

standard as the proposed project. This alternative includes residences within the southern portion of the project site and these residences would experience noise in excess of the City's L_{50}-55 dBA performance standard during events at the Mesa Marin Raceway. Similar to the proposed project, this alternative would be consistent with other goals of the City's General Plan. This alternative would not require a General Plan amendment; however, it would result in an increase in the density of uses on the project site. The increase in density may result in greater land use compatibility impacts with the existing residences north of Paladino Drive compared to the proposed project. Overall, this alternative may result in greater land use impacts compared to the proposed project.

Biological Resources

This project alternative would result in an increased intensity of development at the project site, but would result in an identical area of disturbance as the proposed project. Therefore, impact to biological resources at the project site would be the same as under the proposed project.

Traffic and Circulation

Development of this alternative would result in approximately 54 percent more average daily trips (ADT) compared to the proposed project, due to the increased number of housing units and greater intensity of commercial development. Since this alternative would result in a greater number of trips compared to the proposed project, this alternative would result in greater impacts to intersections and roadway segments. Similar to the proposed project, this alternative would result in significant traffic and circulation impacts. Mitigation measures similar to those identified for the proposed project would be required under this alternative to reduce these impacts to a level that is considered less than significant. Overall, this alternative would result in greater traffic and circulation impacts compared to the proposed project.

Noise

Under this alternative, noise from vehicle trips would be greater in comparison to noise levels identified with the proposed project because this alternative would generate more vehicle trips. The increase in the amount of residential units and commercial square footage onsite under this alternative would increase the project-related traffic and, therefore, will increase traffic noise. Construction impacts would be similar to the proposed project, and would not be significant. As with the proposed project, significant unavoidable impacts would occur to land uses along roadway segments offsite from the project. Feasible mitigation measures are not available to reduce the significant unavoidable noise impacts. This impact would be greater than the proposed project due to the higher ADT that would be generated from the greater intensity of land uses. Furthermore, this alternative includes residences in the southern portion of the project site

that would experience noise levels in excess of the City's L_{50}-55 dBA performance standard. As with the proposed project, this alternative would result in a significant unavoidable adverse noise impact to residences in the southern portion of the project site during events at the Mesa Marin Raceway. Overall, this alternative would result in greater noise impacts compared to the proposed project.

Air Quality

Since this alternative would significantly increase the intensity of development throughout the site, the air quality impacts related to construction activities would be greater under this alternative compared to the proposed project. Similar to the proposed project, construction-related PM10 impacts under this alternative would not be significant with the implementation of the mitigation measures identified for the proposed project. However, air quality emissions from long-term vehicle trips would be increased in comparison to the levels identified with the proposed project. The proposed increase in the amount of residential units and commercial square footage onsite would increase the project-related traffic and, therefore, will increase air quality emissions. Similar to the proposed project, impacts associated with long-term air quality emissions would be significant and unavoidable. The mitigation measures identified for the proposed project would be required under this alternative to reduce these impacts to the maximum extent feasible. Overall, this alternative would result in greater air quality impacts compared to the proposed project.

Cultural Resources

Similar to the proposed project, implementation of this alternative would still result in potentially significant impacts related to cultural resources. While a greater intensity of development would occur throughout the site, the same area of disturbance would occur under this alternative and the proposed project. The mitigation measures, as identified for the proposed project, would be required for this alternative to reduce these impacts to less than significant levels. Overall, this alternative could have the same impact on cultural resources compared to the proposed project.

Hazardous Materials Compliance

As with the proposed project, development under this alternative is not anticipated to result in any impacts related to hazardous materials compliance. Both the proposed project and this alternative would expose populations to known hazardous risks, nor result in any new hazardous materials compliance issues. However, this alternative would be subject to the same mitigation measures that would be applied to the proposed project to ensure potential impacts are reduced to a less than significant level. Overall, the impacts under this alternative would be the same as the proposed project.

Public Service and Utilities

Implementation of this project alternative would result in a greater population of residents at the project site, as well as an increase in employees, compared to the proposed project. Therefore, as with the proposed project, this alternative would result in a significant increased demand for public services and utilities at the project site. However, this alternative would be subject to the same mitigation measures that would be applied to the proposed project to ensure potential impacts are reduced to a less than significant level. The overall impact of this alternative would be greater than the proposed project.

Aesthetics

Development under this project alternative would result in an increased intensity of development at the project site, compared to the proposed project. Specifically, this alternative would develop 10 percent more housing units compared to the proposed project, and nearly double the amount of commercial space. As such, significant adverse aesthetics and night lighting impacts noted for the proposed project would be proportionately greater under this alternative. Mitigation measures applicable to the proposed project would be applied to this alternative, but significant unavoidable impacts would remain. Overall, this project alternative would result in a greater level of aesthetic and night lighting impact compared to the proposed project.

7.2.3 CONCLUSIONS

The potential impacts related biological resources, cultural resources, and hazardous materials compliance would be similar to the proposed project. However, impacts to land use and planning, traffic and circulation, noise, air quality, public services and utilities, and aesthetics would be proportionally greater than the proposed project. Therefore, this alternative is not considered environmentally superior to the proposed project. This alternative would, however, meet the objectives of the proposed project, set forth in Section 3.3.

7.3 ALTERNATIVE DESIGN

7.3.1 DESCRIPTION

This alternative includes avoidance of excessive noise levels (i.e., less than L_{50}-55 dBA) by residential uses during events at the Mesa Marin Raceway. As a result, this alternative does not include any residential uses within the L_{50}-55 dBA contour. This alternative includes 199.8 acres of low density residential, 96.9 acres of general commercial uses, 31.5 acres of SR 178 right-of-way, and 365.7 acres of vacant open space. A total of 1,450 residential dwelling units and 1,048,706 square feet of general commercial uses could be potentially developed on the project site under this alternative. This alternative would have 2,600 less residential units and the same amount of commercial uses (see Table 7.2). The project would include a substantial amount of vacant open space that would provide a buffer for residences from excessive noise levels from the events at Mesa Marin Raceway.

TABLE 7-2
ALTERNATIVE DESIGN CHARACTERISTICS

	PROPOSED LAND USES				
	LR	**MUC**	**SR-178**	**Vacant Open Space**	**TOTAL**
ACRES	199.8	96.9	31.5	365.7	693.9
DU/AC or SF/AC	7.26	29,600	N/A	N/A	
DU/SF	1,450	1,048,706	N/A	N/A	
POPULATION	4,379	N/A	N/A	N/A	4,379
EMPLOYMENT	N/A	2,056	N/A	N/A	2,056
TRIPS/DU or 1,000 SF	8.06	29.46	N/A	N/A	
TOTAL TRIPS	11,687	30,890	N/A	N/A	42,577

7.3.2 IMPACT EVALUATION

Land Use and Planning

Unlike the proposed project, the implementation of this alternative would result in no conflict with the City's noise level performance standard. This alternative does not include residences within the L_{50}-55 dBA noise contour during events at the Mesa Marin Raceway. Similar to the proposed project, this alternative would be consistent with other goals of the City's General Plan. This alternative would require a General Plan amendment for the proposed general commercial uses and the proposed SR 178 interchange at Masterson Street. This alternative would result in substantially less density, therefore, less land use compatibility impacts with surrounding land uses could occur. Overall, this alternative may result in less land use impacts compared to the proposed project.

Biological Resources

This project alternative would result in less development compared to the proposed project. Therefore, less potential biological impacts would occur because less disturbance of the site would occur. Less impacts to potential sensitive wildlife species could occur. Overall, this alternative would result in less impacts to biological resources compared to the proposed project.

Traffic and Circulation

Development of this alternative would result in approximately 30 percent less average daily trips (ADT) compared to the proposed project, due to the fewer housing units on the project site. Since this alternative would result in less trips compared to the proposed project, this alternative would result in less impacts to intersections and roadway segments. This alternative may result in significant impacts to intersections and roadway segments. These impacts could be reduce to less than significant by implementing mitigation measures that are similar to the measures recommended for the proposed project. Overall, this alternative would result in less traffic and circulation impacts compared to the proposed project.

Noise

Under this alternative, noise from vehicle trips would be less in comparison to noise levels identified with the proposed project because this alternative would generate less vehicle trips. The reduction of the number of residential units under this alternative would decrease the project-related traffic and, therefore, will decrease traffic noise. Construction impacts would also be less than the proposed project because less area on the project site would be developed. Unlike the proposed project, this alternative is not expected to

result in significant noise levels along offsite roadway segments. Furthermore, this alternative does not include residences within the City's L_{50}-55 dBA contour and, therefore, would not be exposed to excessive noise levels during events at the Mesa Marin Raceway. Overall, this alternative would result in less noise impacts compared to the proposed project.

Air Quality

Since this alternative would reduce the amount of development throughout the site, the air quality impacts related to construction activities would be less under this alternative compared to the proposed project. Similar to the proposed project, construction-related PM10 impacts under this alternative would not be significant with the implementation of the mitigation measures identified for the proposed project. This alternative would, however, result in less construction-related PM10 impacts because less grading would occur under this alternative. Air quality emissions from long-term vehicle trips would also be less in comparison to the levels identified with the proposed project, however, this alternative would still result in significant unavoidable adverse long-term air emissions of ROG and NOx. The mitigation measures identified for the proposed project would also be required under this alternative to reduce these impacts to the maximum extent feasible. Overall, this alternative would result in less air quality impacts compared to the proposed project.

Cultural Resources

Similar to the proposed project, implementation of this alternative would still result in potentially significant impacts related to cultural resources. However, since this alternative would result in less area of disturbance, there would be less potential for significant impacts on cultural resources compared to the proposed. The mitigation measures, as identified for the proposed project, would be required for this alternative to reduce these impacts to less than significant levels. Overall, this alternative would have less potential for impacts to cultural resources compared to the proposed project.

Hazardous Materials Compliance

As with the proposed project, development under this alternative is not anticipated to result in any impacts related to hazardous materials compliance. Both the proposed project and this alternative would not expose populations to known hazardous risks, nor result in any new hazardous materials compliance issues. However, this alternative would be subject to the same mitigation measures that would be applied to the proposed project to ensure potential impacts are reduced to a less than significant level. Overall, the impacts under this alternative would be less than the proposed project because less area would be developed and less uses would be implemented.

Public Service and Utilities

Implementation of this project alternative would result in less population of residents at the project site, as well as less employees, compared to the proposed project. Under this alternative, significant demands for existing public services and utilities would occur. This alternative would be subject to the same mitigation measures that would be applied to the proposed project to ensure potential impacts are reduced to a less than significant level. The overall impact of this alternative would be less than the proposed project.

Aesthetics

Development under this project alternative would result in less development at the project site compared to the proposed project. Specifically, this alternative would develop 90 percent less housing units compared to the proposed project and the same amount of commercial space as the proposed project. The development of this alternative would be expected to result in significant adverse aesthetics and night lighting impacts as noted for the proposed project. However, since the entire site would not be developed under this alternative, less aesthetic and night lighting impacts would occur. Mitigation measures applicable to the proposed project would be applied to this alternative, but significant unavoidable impacts would remain. Overall, this project alternative would result in less aesthetic and night lighting impact compared to the proposed project.

7.3.3 CONCLUSIONS

The potential impacts related land use and planning, biological resources, traffic and circulation, noise, air quality, cultural resources, hazardous materials compliance, public services and utilities, and aesthetics would be less than the proposed project. Therefore, this alternative is considered environmentally superior to the proposed project. However, this alternative would not meet many of the project objectives. This alternative would not provide a similar quantity of residential land uses as identified in the City's General Plan for the site. In addition, this alternative would not provide for a residential community of at least 4,000 units. Since these objectives were not met, this alternative has been rejected in favor of the proposed project.

7.4 LESS INTENSE DEVELOPMENT ALTERNATIVE

7.4.1 DESCRIPTION

The intent of this alternative is to avoid significant unavoidable long-term air emissions from the development of the project site. To reduce long-term air quality emissions to a level that is considered less than significant, no more than 10 tons of ROG or NOx could be generated in one year. Under the proposed project, NOx would be exceeded by approximately 113.25 tons per year. As a result, NOx would need to be reduced by approximately 92 percent so that no significant NOx emissions would be generated. This alternative assumes that all of the proposed land uses under the proposed project (i.e., low density residential, high density residential, and general commercial) would be reduced by 92 percent. Therefore, this alternative assumes the development of 223 low density residential units on approximately 41 acres, 105 high density residential units on 5 acres, and approximately 85,000 square feet of general commercial on approximately 8 acres. The developed acres for each use was derived from a similar density as identified for the proposed project. The development of this alternative would encompass 54 acres on the project site.

7.4.2 IMPACT EVALUATION

Implementation of this alternative would result in substantially less development than the proposed project and would result in less overall environmental impacts. No impacts are expected to be significant and unavoidable under this alternative because the residential uses could be located outside of the L_{50}-55 dBA noise contour during events at the Mesa Marin Raceway.

7.4.3 CONCLUSIONS

This alternative would result in less impacts than the proposed project and is considered environmentally superior. However, this alternative would not meet most the project objectives. This alternative would not include a residential and commercial community that is similar to the community that is contemplated in the City's General Plan for the project site. In addition, this alternative would not provide a residential community of at least 4,000 units. Furthermore, less than 3 acres of commercial uses would be constructed which would not meet the intent of providing general commercial uses adjacent to the proposed SR 178 interchanges at Vineland Road and Masterson Street. This alternative has been rejected in favor of the proposed project.

7.5 ENVIRONMENTALLY SUPERIOR ALTERNATIVE

Based on the above analysis, the No Project/No Development Alternative would be the environmentally superior alternative because no new impacts would occur. Section 15126.6(e)(2) of the CEQA Guidelines states that if the environmentally superior alternative is the no project alternative, the EIR should also identify

the environmentally superior alternative among the other alternatives. Since the Development of the Less Intense Development Alternative would reduce all potential impacts to less than significant, this alternative is considered the environmentally superior alternative among the development alternatives.

SECTION 8
LONG-TERM IMPLICATION OF THE PROJECT

8.1 GROWTH INDUCING IMPACTS

This section evaluates the potential for the proposed project to affect "economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment" (CEQA Guidelines, 15126.2[d]).

There are two types of growth inducing impacts a project may have, direct and indirect. To assess the potential for growth-inducing impacts, the project characteristics that may encourage and facilitate activities that individually or cumulatively may affect the environment must be evaluated.

Direct growth-inducing impacts occur when the development of a project imposes new burdens on a community that directly induces population growth or the construction of additional developments in the same area of the proposed project, thereby triggering related growth-associated impacts. Included in this analysis are projects that would remove physical obstacles to population growth (such as a new road into an undeveloped area or a wastewater treatment plant that could allow more construction in the service area). Construction of these types of infrastructure projects cannot be considered isolated from the development they trigger. In contrast projects that physically remove obstacles to growth, projects that indirectly induce growth are those which may provide a catalyst for future unrelated development in an area (such as a new residential community that requires additional commercial uses to support a residents).

Implementation of the proposed project would result in growth inducement. Direct growth inducing impacts would be generated from the residential development and the extension of public utilities and service infrastructure to the site. The provision of public utilities and service infrastructure as a result of the residential and commercial development will reduce constraints on adjacent undeveloped areas and therefore, induce growth into northeast Bakersfield. The proposed project would induce urban intensities through facilitating mechanisms such as the extension of public services and utilities, the introduction of 4,050 residential homes, and approximately 1.05 million square feet commercial development and, therefore, is considered to result in substantial growth inducing impacts.

Indirect, or secondary growth inducing impacts could occur as a result of the creation of employment opportunities on the project site. The creation of 2,056 jobs at the time of full project buildout could result in further growth in the project vicinity.

8.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES THAT WOULD BE INVOLVED IN THE PROPOSED ACTION IF IMPLEMENTED

The environmental effects associated with the development of the City in the Hills project are addressed in Sections 5.1 and 5.9 of this document. Implementation of the proposed project will require a long-term commitment of land as discussed below. More specifically the primary effect of development under the proposed project would be the commitment of approximately 694 acres of undeveloped land to residential and commercial uses. The financial and material investments that would be required of the applicant and the City would result in further commitments of land resources making it likely that the same or similar uses would continue in the future. Implementation of the proposed project represents a long-term commitment to urbanization.

Environmental changes associated with the implementation of the proposed project result in alterations of the physical environment. In order to develop the proposed project, existing undeveloped land would be irrevocably committed to urban uses. If the proposed project is approved, and subsequently implemented, new structures would be built, additional utilities would be constructed, and circulation improvements would be made. Nonrenewable resources would be committed, primarily in the form of fossil fuels, and would include fuel oil, natural gas, and gasoline used by vehicles and equipment associated with the construction of the City in the Hills project. The consumption of other nonrenewable or slowly renewable resources would result from development of the proposed project. These resources would include, but not be limited to, lumber and other forest products, sand and gravel, asphalt, petrochemical construction materials, steel, copper, lead, and water. Because alternative energy sources such as solar or wind energy are not currently in widespread local use, it is unlikely that a real savings in nonrenewable energy supplies (i.e., oil and gas) could be realized in the immediate future.

SECTION 9
ORGANIZATIONS AND PERSONS CONSULTED

9.1 PUBLIC AGENCIES

City of Bakersfield

Planning Department ..... Stanley C. Grady
Marc Gauthier
Richard Dole

Public Works Department ..... Jack LaRochelle
Marian Shaw
Lauren Dimberg

Water Department ..... Florn Gore

Transportation Department ..... Bruce Deiter

Waste Management Department ..... Jeff Turner

County of Kern

Waste Management Department ..... Nancy Ewert

Engineering and Survey Department ..... Mark Baumruk

School Districts

Bakersfield City School District ..... Louis Varga

Kern High School District ..... Jack Covard
Paul Hogland

State of California

California State University, Bakersfield ..... Robert A. Schiffman

9.2 PRIVATE ORGANIZATIONS

Bio Resources Consulting ..... Randi McCormick

Brown-Buntin Associates, Inc ..... Bill Thiessen

Crenshaw Traffic Engineering ..... Wallace E. Crenshaw

WZI, Inc. ..... Bob Langner

Porter-Robertson Engineering ..... Harold Robertson
Matt VoVilla

SECTION 10
REPORT PREPARATION PERSONNEL

MICHAEL BRANDMAN ASSOCIATES

Principal-in-Charge ..... Michael Brandman, Ph.D.

Project Manager ..... Michael E. Houlihan, AICP

Environmental Analysis ..... Jason Brandman
Steve Smith
Kara Palm

Biologist ..... Greg Miller
Graphics ..... Carey Cramer
Word Processing ..... Rhoda Castro
Reproduction ..... Jordan Brandman

BROWN-BUNTIN ASSOCIATES, INC.

Environmental Noise Assessment ..... Bill Thiessen

CRENSAW TRAFFIC ENGINEERING

Traffic Impact Study ..... Wallace C. Crensahw, P.E.

WZI, INC.

Air Quality Assessment ..... Bob Langener

PORTER-ROBERTSON ENGINEERING

Civil Engineer ..... Harold Robertson

SECTION 11
REFERENCES

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APPENDICES

APPENDIX A

Notice of Preparation and Correspondence

B A K E R S F I E L D
Development Services Department
Jack Hardisty, Director

Dennis C. Fidler
Building Director
(661) 326-3720 Fax (661) 325-0266

Stanley C. Grady
Planning Director
(661) 326-3733 Fax (661) 327-0646

NOTICE OF PREPARATION

TO: Agencies, Organizations, and Interested Parties

SUBJECT: General Plan Amendment/Zone Change P99-0647/Development Agreement and Notice of Preparation of a Draft Environmental Impact Report in compliance with Title 14, Section 15082(a) of the California Code of Regulations.

The City of Bakersfield will be the Lead Agency under the California Environmental Quality Act in the preparation of an Environmental Impact Report for the project defined below. We request the review of your agency as to the scope and content of the environmental information relevant to your agency's statutory responsibilities in connection with the proposed project. Your agency may need to use the EIR prepared by the City of Bakersfield when considering permits that your agency may issue, or other approval for the project. The project description, location, and probable environmental effects of the proposed project are contained in the attached Initial Study.

Due to the time limits mandated by State law, your response must be received no later than 30 days after the receipt of this notice. Please indicate a contact person in your response and send your response to the following:

Marc Gauthier
City of Bakersfield
1715 Chester Avenue
Bakersfield, CA 93301

PROJECT TITLE: City in the Hills

PROJECT LOCATION: The approximately 694-acre site is located in northeast Bakersfield. The project site includes all of Section 17, the SE ¼ of the SE ¼ of Section 18, and the extreme northeast portion of Section 19 (8.9 acres), the extreme northwest portion of Section 20 (4.9 acres). The site is bounded by Paladino Drive to the north, State Highway 178 to the south, Masterson Street to the east, and the undeveloped extension of Vineland Road to the west, which is (one mile east of Morning Drive).

PROJECT DESCRIPTION: The project involves (a) an amendment to the Land Use Element and Circulation Element of the Metropolitan Bakersfield 2010 General Plan (b) concurrent zone change for an approximately 694-acre site located in the northeast portion of the City of Bakersfield, and (c) a development agreement to vest development rights. Proposed Land Use Element amendments consist of redesignation and boundary realignments of the existing Low Density Residential (≤ 7.26 units per net acre) designation to High Density Residential (> 17.42 ≤ 72.6 units per net acre) and General Commercial and redesignations and boundary alignments of the existing Mixed Use Commercial and designation to High Density Residential (> 17.42 ≤ 72.6 units per net acre) and General Commercial. The proposed amendments also include redesignations and boundary alignments of the existing High Density Residential (> 17.42 ≤ 72.6 units per net acre) to General Commercial. Proposed zone changes for the site will correspond with the proposed Land Use Element designations. Through the development agreement or other mechanism, the maximum density of the High Density Residential zone is expected to be capped at twenty-one units per acre. Proposed Circulation Element amendments include the addition of new arterial and collector street alignments within the project site.

Proposed land use and zoning maps are attached as exhibits in the Initial Study. While the acreage of the proposed land use designations is not expected to change substantially, final design of the circulation element is ongoing.

The overall concept for the project site is primarily residential, with 72.1 percent of the site as Low-Density Residential uses and 9.4 percent designated as High Density Residential (HR) uses. In addition, 14.0 percent of the site will be designated General Commercial. Approximately 4.5 percent of the site will be set aside for the ultimate right-of-way alignment of State Highway 178 (Kern Canyon Freeway).

The development agreements include but will not be limited to providing a specific school site and a secondary school site, maintenance districts for street maintenance and pedestrian lighting, thematic lighting, master park plan, and pocket parks, and street landscaping.

INITIAL STUDY
For
City in the Hills

Prepared for:

City of Bakersfield
Planning Department
1715 Chester Avenue
Bakersfield, California 93301

Contact: Marc Gauthier, Principal Planner
(661) 326-3786

Prepared By:

Michael Brandman Associates
15901 Red Hill Avenue, Suite 200
Tustin, CA 92780

Contact: Michael E. Houlihan, AICP
(714) 258-8100

January 2000

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SECTION 1
ENVIRONMENTAL CHECKLIST FORM

1.1 PROJECT INFORMATION

1. **Project Title:** City in the Hills

2. **Lead Agency Name and Address:** City of Bakersfield
   1715 Chester Avenue
   Bakersfield, California 93301

3. **Contact Person and Phone Number:** Marc Gauthier (661) 326-3786

4. **Project Location:** A site of approximately 694 acres located between State Highway 178, Masterson Street, Paladino Drive, and the northerly undeveloped extension of Vineland Road (one mile east of Morning Drive).

5. **Project Sponsor's Name and Address:** Philippe Laik
   Mountain View Bravo LLC
   C/O Robert McMurray
   Nossaman, Gunther, & Knox, LLP
   18101 Von Karmen Avenue, suite 1800
   Irvine, CA 92612

6. **Description of Project:**

   Objectives The primary objective of the project is to provide additional housing with support commercial in the northeast Bakersfield area. This objective is planned to be met with the conversion of the approximately 694-acre site to Low Density Residential (LR)/ Single Family Dwelling, High Density Residential (HR), and General Commercial (GC).

   Additional objectives of the project are to provide right-of-way for the future construction of the approved realigned State Highway 178 and a circulation amendment.

   Project Components The project involves (a) an amendment to the Land Use Element and Circulation Element of the Metropolitan Bakersfield 2010 General Plan and (b) a concurrent zone change for an approximately 694-acre site located in the northeast portion of the City of Bakersfield, and (c) a development agreement to vest development rights. Proposed Land Use Element amendments consist of redesignation and boundary realignments of the existing Low Density Residential (≤ 7.26 units per net acre) designation to High Density Residential (> 17.42 ≤ 72.6 units per net acre) and General Commercial and redesignations and boundary alignments of the existing Mixed Use Commercial and designation to High Density Residential (> 17.42 ≤ 72.6 units per net acre) and General Commercial. The proposed amendments also include redesignations and boundary alignments of the existing High Density Residential (> 17.42 ≤ 72.6 units per net acre) to General Commercial. Proposed zone changes for the site will correspond with the proposed Land Use Element designations. Through the development agreement or other mechanism, the maximum density of the High-Density Residential zone is expected to be capped at 21 units per acre. Proposed Circulation Element amendments include the addition of new arterial and collector street alignments within the project site.

Proposed land use and zoning maps are attached as exhibits in the Initial Study. While the acreage of the proposed land use designations is not expected to change substantially, final design of the circulation element and land use is ongoing.

The project site includes all of Section 17, the SE ¼ of the SE ¼ of Section 18, and the extreme northeast portion of Section 19 (8.9 acres), the extreme northwest portion of Section 20 (4.9 acres). The site is bounded by Paladino Drive to the north, State Highway 178 to the south, Masterson Street to the east, and the undeveloped extension of Vineland Road to the west.

The overall concept for the project site is primarily residential, with 72.1 percent of the site as Low-Density Residential uses and 9.4 percent designated as High Density Residential (HR) uses. In addition, 14.0 percent of the site will be designated General Commercial. Approximately 4.5 percent of the site will be set aside for the ultimate right-of-way alignment of State Highway 178 (Kern Canyon Freeway).

Presently the site is primarily undeveloped, non-native grassland, with some existing oil extraction and production facilities near the southwest portion of the site. The site is currently zoned as Agricultural (A) and Single Family Residential (R-1).

7. **Surrounding Land Uses and Setting**: The project area is generally identified as the rural northeast as defined by the City of Bakersfield General Plan. Flat terrain and large-lot housing characterize this area. The primary vegetation in this area is non-native grassland. There are scattered oil facilities (i.e. oil tanks and wells) south of Paladino Drive and the cogeneration facility in Section 12 to the northwest.

8. **Local Agencies Involved:** Based on an initial review of the proposed project and location, the following agencies may be involved in project approvals.

   City of Bakersfield
   - General Plan Land Use Element Amendment
   - General Plan Circulation Element Amendment
   - Zone Change
   - Modification of Specific Plan line for State Highway 178
   - Modification of Plan Drainage Area for Breckenridge

   California Department of Fish and Game (CDFG)
   - 1603 Streambed Alteration Agreement

1.2 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 checklist on the following pages.

- ☒ Aesthetics
- ☒ Biological
- ☒ Hazards & Hazardous Materials
- ☐ Mineral Resources
- ☒ Public Services
- ☒ Utilities/Services Systems
- ☐ Agriculture Resources
- ☒ Cultural Resources
- ☐ Hydrology/Water Quality
- ☒ Noise
- ☐ Recreation
- ☒ Mandatory Findings of Significance
- ☒ Air Quality
- ☐ Geology/Soils
- ☒ Land Use/Planning
- ☐ Population/Housing
- ☒ Transportation/Traffic

1.3 ENVIRONMENTAL DETERMINATION

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 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 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measure 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.

Signature of Lead Agency Representative: Marc Hathien **Date:** Jan 26, 2000

SECTION 2
INTRODUCTION

2.1 PURPOSE

The purpose of this Initial Study is to identify the potential environmental impacts associated with the implementation of a mixed-use development on an approximately 694-acre site in northeast Bakersfield. Pursuant to Sections 15050, 15051, and 15367 of the State CEQA Guidelines, the City of Bakersfield is the Lead Agency in the preparation of this Initial Study, and any additional environmental documentation required for the project. The City has primary responsibility for approval or denial of the project. The intended use of this document is to determine whether the project may have a significant effect on the environment. Another use of this document is to determine the level of environmental analysis required to adequately prepare the project Environmental Impact Report (EIR) and to provide the basis for input from members of the public and public agencies.

Actions identified to achieve approval of the proposed project include, but are not limited to, 1) an amendment to the Metropolitan Bakersfield's 2010 General Plan Land Use Element from LR, HR and MUC to LR, HR, and GC; 2) an amendment to the Metropolitan Bakersfield's 2010 General Plan Circulation Element; 3) concurrent zone changes from A and R-1 to R-1, R-3, and C-2 and 4) a development agreement to vest development rights. The development agreement provisions include but will not be limited to providing a specific school site and a secondary school site, maintenance districts for street maintenance and pedestrian lighting, thematic lighting, master park plan, and pocket parks and street landscaping. Additional actions that may be needed include a modification of the Plan Drainage Area for Breckenridge and a California Department of Fish and Game 1603 Streambed Alteration Agreement. This Initial Study provides a preliminary environmental assessment of both project construction activities and operational characteristics (e.g., traffic, noise, etc.) resulting from approval of the project.

The remainder of this section provides a description of the project location and the characteristics of the proposed project. Section 3 includes an environmental checklist that gives an overview of the potential impacts that may result from project implementation. Section 4 elaborates on the information contained in the environmental checklist, providing justification for the responses provided in the environmental checklist.

2.2 PROJECT LOCATION

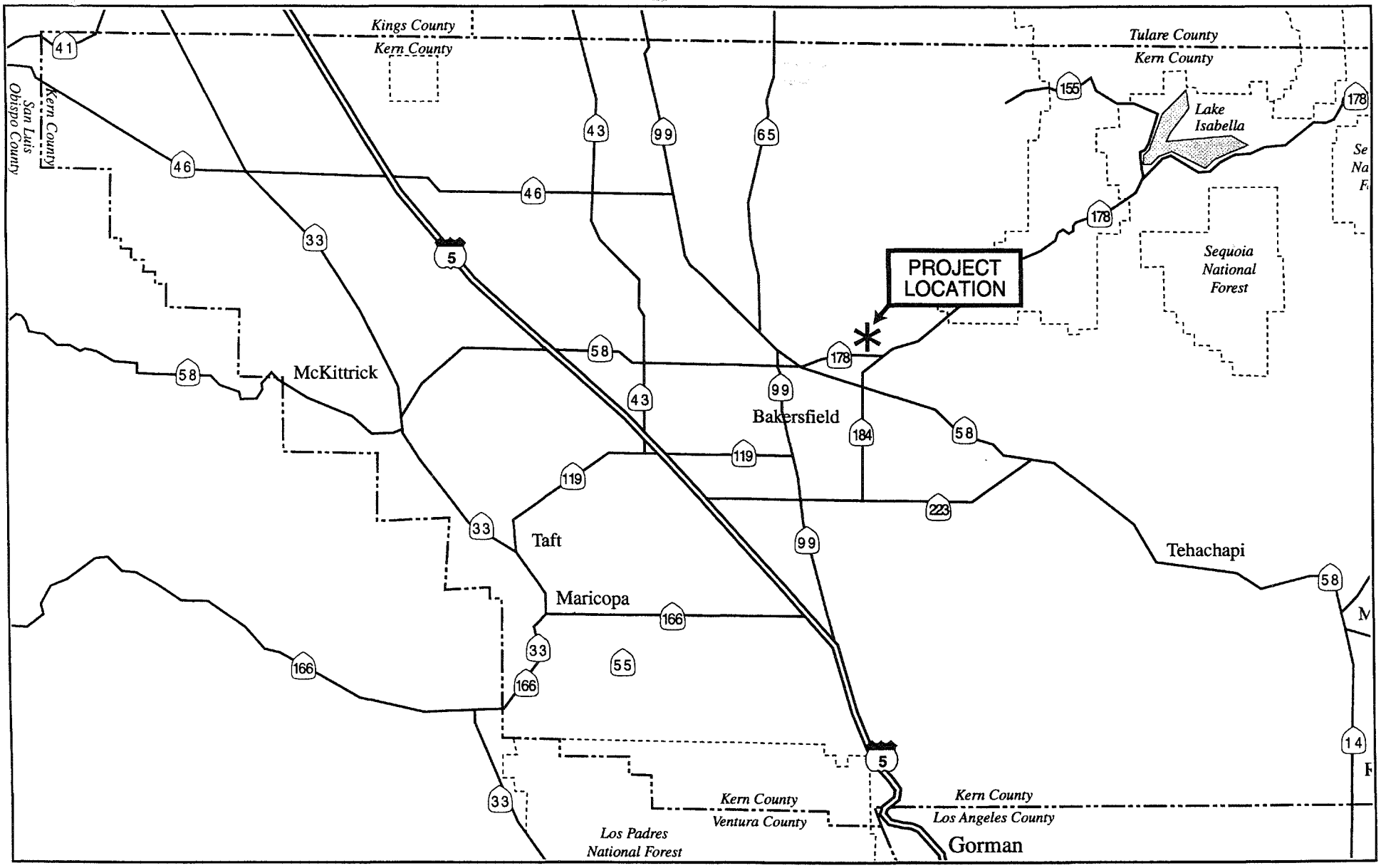
The approximately 694-acre site is located in northeastern Bakersfield (see Exhibit 1). The site is bounded by Paladino Drive to the north, State Highway 178 to the south, Masterson Street to the east and the undeveloped northerly extension of Vineland Road located one mile east of Morning Drive (see Exhibit 2).

2.3 PROJECT DESCRIPTION

Implementation of the proposed project involves the development of approximately 694 acres. The development would consist of 96.9 acres of mixed-use regional commercial, 500 acres of low density/single-family residential, 65.5 acres of high density/limited multi-family residential, and 31.5 acres of freeway setaside. Table 1, below, provides a breakdown of the existing and proposed land use and zoning designations, and the associated acreage involved. Exhibits 3 and 4 illustrate the proposed changes to the existing land use and zoning designations, respectively. The project also includes changes to the existing General Plan circulation maps illustrated in Exhibit 5.

TABLE 1
PROPOSED LAND USE AND ZONING CHANGES

Existing Land Use Element Designations	Proposed Land Use Element Designations	Existing Zoning Designations	Proposed Zoning Designations	Acreage
MUC (Mixed Use Commercial) LR (Low Density Residential) HR (High Density Residential)	GC (General Commercial)	A (Agriculture), R-1 (One Family Dwelling)	C-2 (Regional Commercial)	96.9
LR (Low Density Residential)	LR (Low Density Residential ≤ 7.26 dwelling units per net acre)	A (Agriculture)	R-1 (One Family Dwelling)	500
LR (Low Density Residential)	HR (High Density Residential >17.42 - ≤ 72.60 dwelling units per net acre)	A (Agriculture), R-1(One Family Dwelling)	R-3 (Limited Multi-Family)	65.5
Various	Roads	Various	Roads	31.5
TOTAL GENERAL PLAN/ZONING DESIGNATION CHANGES				**693.9**



NORTH

12 6 0 12

SCALE IN MILES

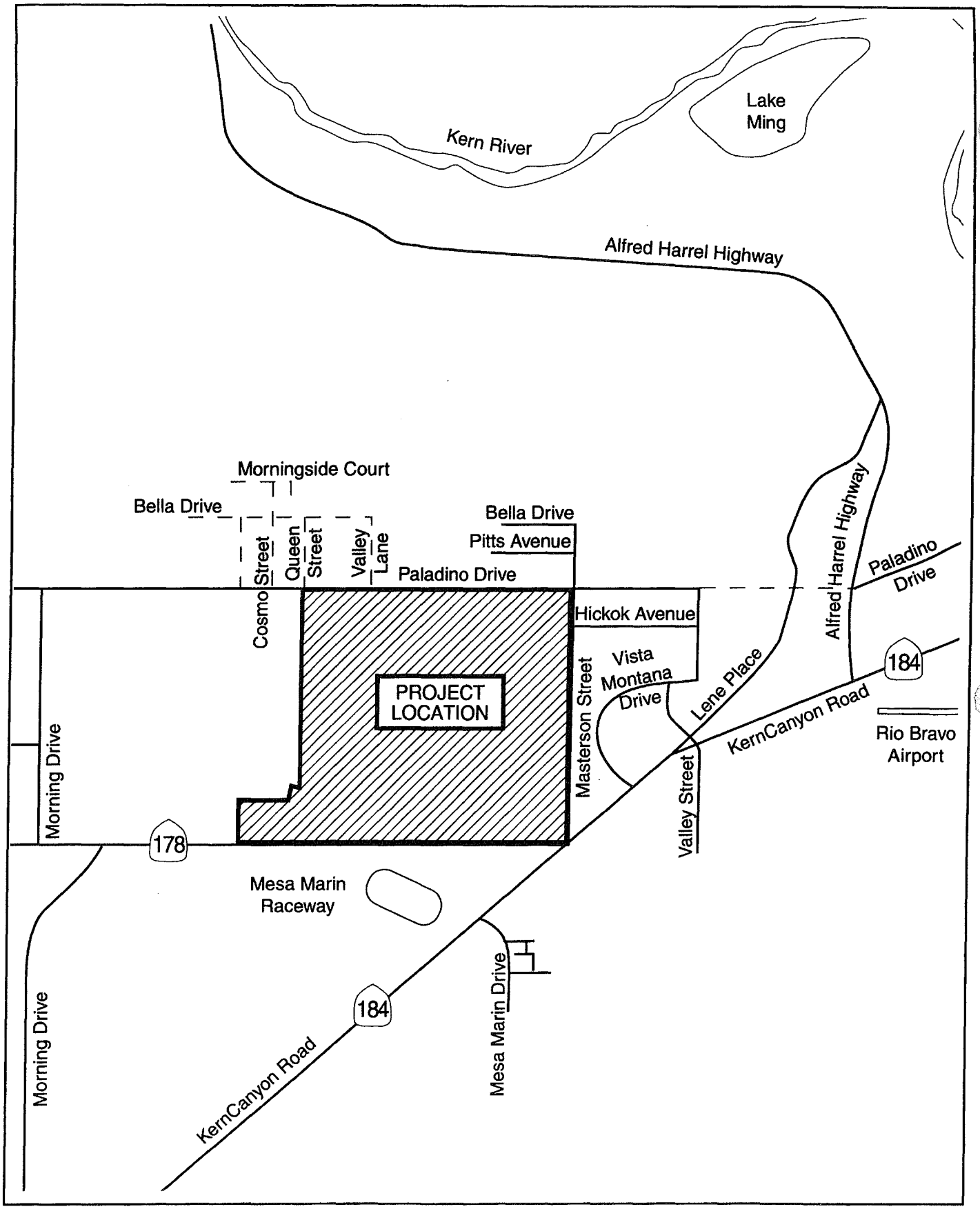
Michael Brandman Associates

Exhibit 1

Regional Location Map

02160011 • 1/2000

CITY OF BAKERSFIELD • CITY IN THE HILLS



NORTH

0.5 0.25 0 0.5

SCALE IN MILES

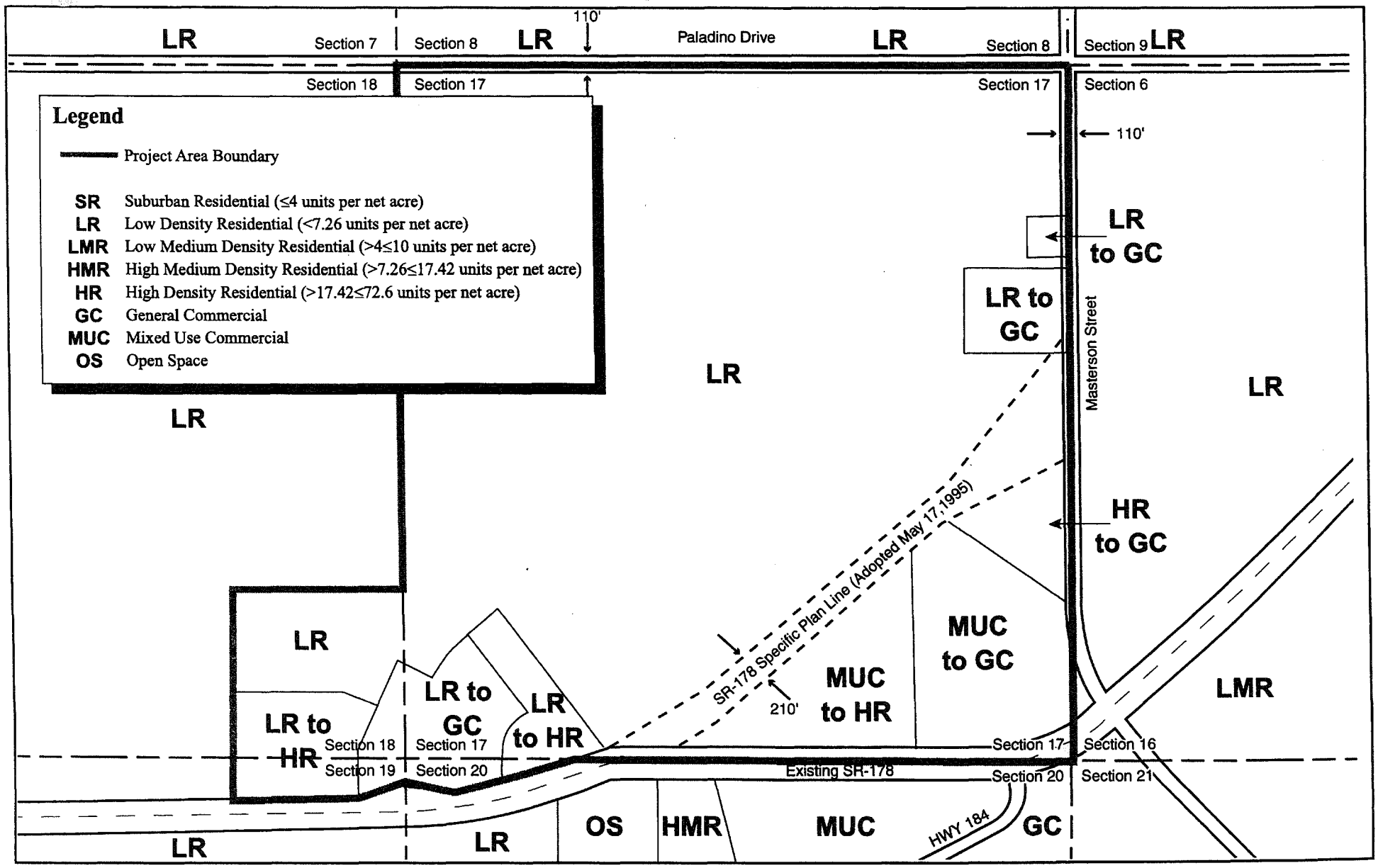
Michael Brandman Associates

Exhibit 2

Local Vicinity Map

02160011 • 1/2000

CITY OF BAKERSFIELD • CITY IN THE HILLS



SOURCE: Porter Robertson Engineering, January 2000.

Michael Brandman Associates

NORTH

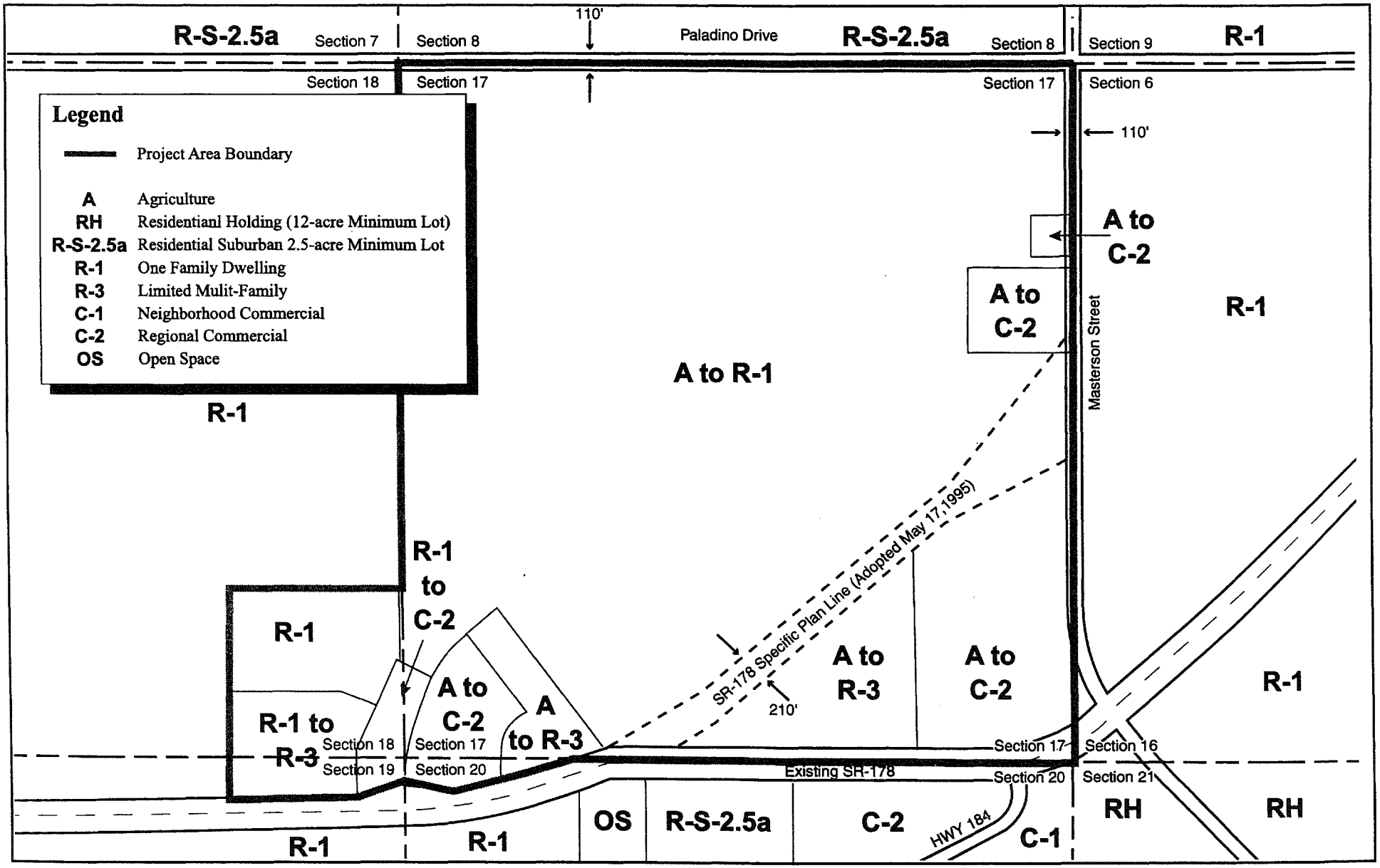
1056 528 0 1056
SCALE IN FEET

Exhibit 3

Proposed General Plan Amendment

02160011 • 1/2000

CITY OF BAKERSFIELD • CITY IN THE HILLS



SOURCE: Porter Robertson Engineering, January 2000.

NORTH

1056 528 0 1056

SCALE IN FEET

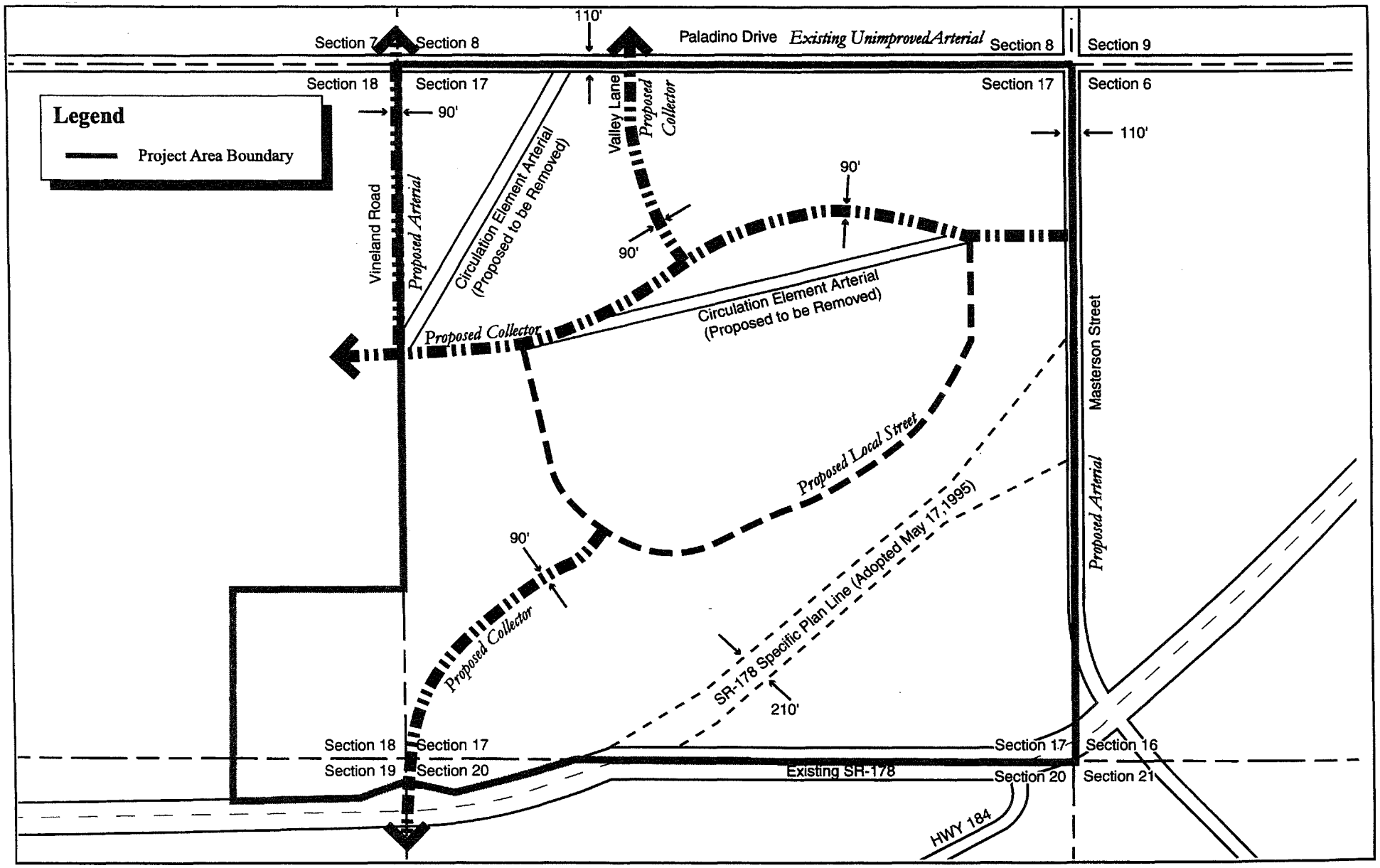
Michael Brandman Associates

Exhibit 4

Proposed Zone Change

02160011 • 1/2000

CITY OF BAKERSFIELD • CITY IN THE HILLS



SOURCE: Porter Robertson Engineering, January 2000.

NORTH

1056 528 0 1056
SCALE IN FEET

Michael Brandman Associates

Exhibit 5

Proposed Circulation Element Amendment Map

2.4 INTENDED USE OF THIS DOCUMENT

This Initial Study document has been prepared to determine the appropriate scope and level of detail required in completing the environmental analysis for the proposed project. This document will also serve as a basis for soliciting comments and input from members the public and public agencies regarding the proposed project, following the distribution of the Notice of Preparation (NOP) of the EIR. The NOP will be circulated for a total of 30 days, during which period comments regarding the forthcoming EIR for the proposed project are invited to be sent to:

City of Bakersfield
Development Services Department
1715 Chester Avenue
Bakersfield, CA 93301
Attn: Marc Gauthier

2.5 ENVIRONMENTAL SETTING

The project site is located in northwest Bakersfield and is relatively undeveloped and contains non-native grassland. Located in the vicinity of the project site are a few oil facilities west and northwest of the project site, the Mesa Marin Raceway and a commercial use south of the site, and large-lot residential homes east and north of the site: The area surrounding the project site primarily contains non-native grassland. The cogeneration facility is located approximately 1.5 miles northwest of the site. The Mojave Gas Line is located along the interface of the project site and State Route 178. At this location the gas line is 25 inches in diameter.

SECTION 3
ENVIRONMENTAL EVALUATION

	ENVIRONMENTAL ISSUES (see attachments for information sources)	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I.	**AESTHETICS** -- Would the project:				
	a) Have a substantial adverse effect on a scenic vista?	☑	☐	☐	☐
	b) Substantially damage scenic resources, including, but not limited to trees, rocks, outcroppings, and historic buildings within a state scenic highway?	☑	☐	☐	☐
	c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☑	☐	☐	☐
	d) Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area?	☑	☐	☐	☐
II.	**AGRICULTURE RESOURCES** -- 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 Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. 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 non-agricultural use?	☐	☐	☐	☑
	b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☑	☐
	c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use?	☐	☐	☐	☑
III.	**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?	☑	☐	☐	☐
	b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☑	☐	☐	☐

ENVIRONMENTAL ISSUES (see attachments for information sources)	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions, which exceed quantitative thresholds for ozone precursors)?	☑	☐	☐	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☑	☐	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☑	☐	☐	☐
IV. BIOLOGICAL RESOURCES. 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?	☑	☐	☐	☐
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?	☑	☐	☐	☐
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?	☑	☐	☐	☐
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 wildlife nursery sites?	☑	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☑	☐	☐	☐
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?	☑	☐	☐	☐
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	☑	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☑	☐	☐	☐

ENVIRONMENTAL ISSUES (see attachments for information sources)	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☑	☐	☐	☐
d) Disturb any human remains, including those interred outside of formal cemeteries?	☑	☐	☐	☐
VI. 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 off-site 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?	☐	☐	☑	☐
VII. 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?	☐	☐	☑	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the likely release of hazardous materials into the environment?	☐	☑	☐	☐

ENVIRONMENTAL ISSUES (see attachments for information sources)	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☑	☐	☐
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?	☐	☐	☑	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☑
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?	☐	☐	☐	☑
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☑	☐
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?	☐	☐	☑	☐
VIII. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☑	☐
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?	☐	☐	☑	☐
c) Substantially alter the existing drainage pattern of area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	☐	☑	☐	☐
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 on- or off-site?	☐	☐	☑	☐

ENVIRONMENTAL ISSUES (see attachments for information sources)	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☐	☐	☑	☐
f) Otherwise substantially degrade water quality?	☐	☐	☑	☐
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?	☐	☐	☐	☑
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	☐	☐	☐	☑
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?	☐	☐	☐	☑
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☑
IX. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☐	☑
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?	☑	☐	☐	☐
c) Conflict with any applicable habitat conservation plan or natural communities conservation plan?	☐	☐	☑	☐
X. MINERAL RESOURCES. 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?	☐	☐	☑	☐
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?	☐	☐	☑	☐
XI. NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☑	☐	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☑	☐	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☑	☐	☐	☐

ENVIRONMENTAL ISSUES (see attachments for information sources)	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☑	☐	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☑	☐	☐	☐
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?	☑	☐	☐	☐
XII. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☑	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☑
XIII. PUBLIC SERVICES. Would the project 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 other performance objectives for any of the public services:				
a) Fire Protection?	☑	☐	☐	☐
b) Police Protection?	☑	☐	☐	☐
c) Schools?	☑	☐	☐	☐
d) Parks?	☑	☐	☐	☐
e) Other public facilities?	☑	☐	☐	☐
XIV. RECREATION.				
a) Would the project 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?	☐	☐	☑	☐

	ENVIRONMENTAL ISSUES (see attachments for information sources)	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
	b) Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☑	☐
XV.	**TRANSPORTATION/TRAFFIC.** Would the project:				
	a) Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?	☑	☐	☐	☐
	b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	☑	☐	☐	☐
	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?	☐	☐	☑	☐
	d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☑	☐	☐	☐
	e) Result in inadequate emergency access?	☐	☐	☑	☐
	f) Result in inadequate parking capacity?	☐	☐	☑	☐
	g) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	☑	☐	☐	☐
XVI.	**UTILITIES AND SERVICE SYSTEMS.** Would the project:				
	a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☑	☐	☐	☐
	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?	☑	☐	☐	☐
	c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☑	☐	☐	☐
	d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☑	☐	☐	☐

ENVIRONMENTAL ISSUES (see attachments for information sources)	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
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?	☑	☐	☐	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☑	☐	☐	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☑	☐	☐	☐
XVII. 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, 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?	☑	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☑	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☑	☐	☐	☐

SECTION 4
DISCUSSION OF ENVIRONMENTAL EVALUATION

AESTHETICS

The project site includes relatively flat terrain that has non-native grassland habitat. The open space characteristics of the project site will be visually altered with the residential development of the proposed and commercial uses. This visual alteration may be considered significant. A discussion of the aesthetic and visual effects of project development and applicable mitigation measures, if necessary, will be provided in the EIR.

AGRICULTURE

The approximately 694-acre project site is located in an area that is considered unirrigated grazing land as designated by the California Resources Agency. The loss of this designated unirrigated grazing land will have no impact on existing agriculture and farmland. This project would not result in any new impacts to prime farmland from the development contemplated in the 2010 General Plan.

AIR QUALITY

The proposed project will have a potentially significant impact upon air quality in the short-term (construction activities) and long-term (vehicle emissions); however, the extent of these impacts are presently unknown until further studies are conducted in accordance with the preparation of the EIR. The EIR will address these impacts and the associated mitigation measures necessary to reduce air quality impacts.

BIOLOGICAL RESOURCES

The proposed project entails the conversion of approximately 694 acres of predominately open space to residential and commercial uses. As such, the proposed City in the Hills project has the potential to affect sensitive and/or special status species, sensitive habitat, and the Metropolitan Bakersfield Habitat Conservation Plan. The EIR will include a detailed evaluation of the biological impacts of the proposed project recommend appropriate mitigation measures to reduce those impacts.

CULTURAL RESOURCES

The project site lies in a relatively undisturbed area. Previous studies conducted for the Draft EIR for the Northeast Bakersfield Bike Path and Water Facilities concluded that areas between elevations 600 feet and 700 feet are likely candidates to contain paleontologic resources associated with the Sharktooth bonebed. There is a lesser probability of archaeological resources to be identified on the proposed site, based upon previous research in the surrounding area. However, since the area is rural in nature and the likelihood of the presence of cultural resources unknown, further studies will be conducted to determine

the presence or absence of cultural resources. This information will be presented in the EIR and mitigation measures will be recommended, as appropriate.

GEOLOGY AND SOILS

Bakersfield, located in the San Joaquin Valley, has been a seismically active area. According to the City of Bakersfield's General Plan, major active fault systems border the southern portion of the San Joaquin Valley. Among these fault systems are the San Andreas (38 miles from project site), the Breckenridge-Kern Canyon (25 miles from project site), the Garlock (35 miles from project site), the Pond Poso (8 miles from project site) and the White Wolf (19 miles from project site). There are numerous additional faults suspected to occur within the Bakersfield region that may or may not be active. The active faults have a maximum credible Richter magnitude that ranges from 6.0 (Breckenridge-Kern Canyon) to 8.3 (San Andreas). Additionally, according to earthquake fault zone maps, there is an Alquist-Priolo earthquake fault zone located in the northeast quarter of Section 19. Within this general area, this zone is aligned in a northwesterly-southeasterly orientation beginning in Section 5, Range 29 East Township 29 South MDB and M, a distance of approximately eight miles. Potential seismic hazards in the proposed project area involve strong ground shaking, fault rupture, liquefaction, and earthquake induced landslides. Other geologic hazards in the planning area include landslides and subsidence.

Future structures proposed on the project site will be constructed in accordance with the Uniform Building Code, and will adhere to all modern earthquake standards, including those relating to soil characteristics. This will ensure that all seismically related hazards remain less than significant. In addition, because of the relatively flat topography (0.005% slope) of the project site, landslides are not considered to be a potentially significant geologic hazard.

HAZARDS AND HAZARDOUS MATERIALS

Federal, State, and local agencies compile lists of potential and/or known hazardous materials and/or waste contamination sites. CEQA requires that the lead agency consult the lists currently being compiled by the State of California pursuant to Government Code Section 6592.5 (California Public Resources Code Section 21092.6). This will occur during preparation of the EIR. Any identification of a designated hazardous site within the project area will be properly addressed and mitigation measures will be provided in the EIR.

There are abandoned oil production facilities located throughout the southwest portion of the project area. Due to the presence of existing and historic oil production activities in the project area, there is a potential for hazardous materials and/or waste contamination to be present in shallow soils within the project area. Potential impacts resulting from an individual being exposed to these substances, if at all, could occur during grading and construction of the proposed project. It is not currently known as to the level of potential contamination in the project area from these activities but, if any contamination does exist there are readily available technologies that can be applied to reduce potential impacts to a level less than significant.

The proposed project could introduce substances typical of a mixed-use planned community. However, hazardous waste facilities guidelines have been adopted by the County of Kern to provide for adequate designation of hazardous waste disposal facilities to serve the residents and the industries of Kern County and its various incorporated cities thus, reducing the impacts to less than significant.

HYDROLOGY AND WATER QUALITY

The proposed project will be implemented in accordance with all applicable water quality standards and waste discharge requirements, which will ensure that the quality and quantity of surface water flowing from the site would not be substantially affected. A portion of the project site has been previously approved as a Plan Drainage Area for future development. As the Breckenridge area is being proposed for development, an alternative design concept for drainage is being evaluated. As a result, the project may include a revision to the Plan Drainage Area. Implementation of the proposed project would not interfere with groundwater recharge and would not substantially deplete groundwater supplies in the City of Bakersfield metropolitan area. In addition, the project site is not located within a 100-year floodplain and would not be substantially affected by flooding or mudflows. The project site is not located near any major body of water and is, therefore, not susceptible to a seiche or tsunami.

LAND USE AND PLANNING

Implementation of the proposed project will require an amendment to both the Land Use Element and Circulation Element of the City of Bakersfield General Plan and a concurrent zone change. This may result in potentially significant environmental impacts.

The General Plan amendments will not alter the types of land uses within the project area, as designated in the General Plan, but will re-designate the acreage under various uses, which include; general commercial, high density residential, and low density residential. Additionally, the proposed collector roadways would deviate from the General Plan Circulation Element in that they would not be aligned along half-sections, but would be more curvilinear in design. However, the arterial roadways would, for the most part, remain generally aligned along the section lines as outlined in the General Plan.

The proposed project will result in a zone change through the elimination of the A (Agricultural) zoning designation, reduction of the R-1 (Single Family Dwelling) zoning designation, and introduction of the C-2 (Regional Commercial) and R-3 (Limited Multi-Family Dwelling) zoning designations.

The impacts to Land Use and Planning will be further evaluated in the EIR, and mitigation measures will be recommended, as needed.

MINERAL RESOURCES

A portion of the project site is located within an area known as the Kern Bluff Oil Field. Concerning that portion of the project located in Sections 17, 19, and 20 (USGS Oildale Quadrangle) totaling 645

acres, the mineral rights owner has waived any surface extraction rights and waived the right to extract any minerals within the first 500 feet of the surface. Therefore, no surface access will be permitted for mineral extraction within these areas. Similar to many areas within the city, surface extraction rights still exist within that portion of the project situated in Section 18 totaling 40 acres (1,320 feet by 1,320 feet). The mineral rights owner could request surface extraction within 500 feet of existing residences on this 40-acre portion of the site. Due to the required distance of 500 feet from existing residences, potential surface extraction activities are not expected to result in significant environmental impacts. Furthermore, potential impacts to significant future oil extraction activities are not expected to occur.

NOISE

The proposed project will add vehicles to existing and proposed roadways, increasing traffic related noise. Other sources of noise will be those that accompany a mixed land use development. Noise that is associated with the construction of the proposed project includes, but is not limited to, the operation of construction equipment and the construction of the individual structures and proposed infrastructure (e.g., roadways). The EIR will evaluate the short-term and long-term noise impacts and mitigation measures will be recommended, if necessary.

POPULATION AND HOUSING

The proposed project may induce substantial population growth within the project area both directly and indirectly. However this growth is not expected to be significantly different than the growth that is contemplated in the City of Bakersfield General Plan projections. Further, the proposed project will not displace people or existing homes. Therefore, there will be no impact upon existing population and housing resources.

PUBLIC SERVICES

The development of the proposed project will result in a greater need for fire and police facilities, and may result in an increased need for other facilities such as schools, parks, and various public facilities that will service the needs of the development. The EIR will examine the impact that the proposed project will have upon such services and provide mitigation measures, if necessary.

RECREATION

The proposed project is not anticipated to result in a substantial physical deterioration of existing recreational facilities due to an increased demand associated with the proposed project. However, the impact on existing recreational facilities will be addressed as a component of the Public Services analysis within the EIR. Any ancillary recreational facilities constructed or expanded upon as a part of

the proposed project would be subject to all applicable mitigation measures identified within the EIR. This would ensure that any associated environmental impacts would be adequately addressed.

TRANSPORTATION/TRAFFIC

The proposed project will add traffic to the existing circulation in the area. The increase in traffic will have an effect upon existing and proposed roadway infrastructure. The EIR will include a traffic assessment of the proposed project to determine the impacts, and will recommend mitigation measures to reduce potentially significant impacts.

The Rio Bravo Airport is located approximately 0.6 mile east of the project site. Based on the proposed zoning designations, project structures would be restricted to a maximum of 90-feet in height. Structures that are 90-feet in height on the project site would not result in significant impacts to aircraft patterns.

Development of the project would increase emergency access to the project vicinity, resulting in a beneficial impact. Furthermore, as development occurs in accordance to the zoning ordinance, parking is expected to be adequately provided for the proposed land use.

UTILITIES AND SERVICE SYSTEMS

The proposed project may have a significant effect upon utilities and service systems (i.e., sewer, water, drainage, and sold waste) since it would introduce new uses to the project area. Any impacts upon utility and service systems will be addressed in the EIR and appropriate mitigation measures will be provided.

MANDATORY FINDINGS OF SIGNIFICANCE

The project site is currently undeveloped and implementation of the proposed project may result in significant impacts to the quality of the natural environment. A biological study is being prepared for the EIR will address the impacts that the proposed project will have on the surrounding environment. Furthermore, archaeological and paleontological studies will be prepared to determine potential impacts to cultural resources. Information from these studies will be provided in the EIR.

The proposed project may contribute to cumulative impacts that could be potentially significant. A discussion of the cumulative impacts will be provided in the EIR to consider the project's impacts in combination with past, present, or reasonable foreseeable future projects.

The EIR will also evaluate potentially significant impacts, which may cause substantial adverse effects on human beings either directly or indirectly.

CITY OF BAKERSFIELD
CITY IN THE HILLS
NOTICE OF PREPARATION
DISTRIBUTION LIST

State Agencies

Governor's Office of Planning and Research
State Clearinghouse
1400 Tenth Street
Sacramento, CA 95814

Vernon H. Persson
Department of Water Resources
Division of Safety of Dams
2200 "X" Street, #200
Sacramento, CA 95818

CA Dept of Conservation
Div of Mines/Geology
801 K Street
Sacramento, CA 95814

Caltrans – 06 Systems Planning
Attention: Jeff Sorensen
PO Box 12616
Fresno, CA 93778

CA Dept of Fish & Game
1234 E Shaw Avenue
Fresno, CA 93726

Joe O'Bannon
San Joaquin Valley Unified Air Pollution
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Jason Marshall
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Sacramento, CA 95821-6340

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Kern County Clerk
Public Services Unit
115 Truxtun, 1st Floor
Bakersfield, CA 93001

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County of Kern Planning Department
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Bakersfield, CA 93301-2323

Barry Hayslett
County of Kern Roads Department
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Bakersfield, CA 93301-2323

Thomas N. Clark
Kern County Water Agency
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Bakersfield, CA 93302-0058

Kern County Community Development
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Bakersfield, CA 93001

Stephen Hartsell
Kern County Superintendent of Schools
1300 17th Street
Bakersfield, CA 93001

Tom Jones, Superintendent
Kern High School District
2000 24th Street
Bakersfield, CA 93301

Dr. Young, Chancellor
Kern Community College District
2100 Chester Avenue
Bakersfield, CA 93301

Kern COG
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Bakersfield, CA 93301

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Pacific Bell Engineering
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Pacific Gas & Electric Company
Land Department
1918 H Street
Bakersfield, CA 93301

Golden Empire Transit
1830 Golden State Avenue
Bakersfield, CA 93301

Beale Library
701 Truxtun Avenue
Bakersfield, CA 93301

Law Library
1415 Truxtun Avenue
Bakersfield, CA 93301

CSUB Archaeology Inventory
9001 Stockdale Highway
Bakersfield, CA 93311

Samuel A. McLeod, Ph.D.
Natural History Museum of Los Angeles County
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Los Angeles, CA 90007

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Bakersfield, CA 93309

Stan Ford
City of Bakersfield Parks Division
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Bakersfield, CA 93301

Marian Shaw
City of Bakersfield Public Works/
Engineering Services
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Bakersfield, CA 93301

Donny Youngblood
Kern County Sheriff's Office
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Bakersfield, CA 93301

Carolyn Belli
Kern Equestrian for Preservation of Trails
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Bakersfield, CA 93306

Mike Metz
Buena Vista Museum of Natural History
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Bakersfield, CA 93301

Becky Bayless
The Sharktooth Hill Foundation
8500 Round Mountain Road
Bakersfield, CA 93308

Jeannie Denning
Bakersfield Police Department
1601 Truxtun Avenue
Bakersfield, CA 93307

Al Annan
Kern County Environmental Health
2700 M Street, Suite 500
Bakersfield, CA 93301

Mike McMasters
Cal Water
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Bakersfield, CA 93304

Ron Fraze
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Bakersfield, CA 93301

Florn Core
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Bakersfield, CA 93311

Kern County Fire Department
5642 Victor Street
Bakersfield, CA 93308

So Ca Edison – Electric Tower Line
Glenn Larson, Real Property Agent
2425 S Blackstone Street
Tulare, CA 93274-6953

P G & E Gas Transmission Line
Mike Teare
Atten Shaw Avenue
650 O Street
Fresno, CA 93720

(cont'd)

Nature Conservatory
C/O Roberta Phillips
201 Mission Street 4th Floor
San Francisco, CA 94105

Kevin Barnes
Solid Waste
4101 Truxtun Avenue
Bakersfield, CA 93309

Bakersfield City School District
Attn: Dr Kenneth Garland
1300 Baker Street
Bakersfield, CA 93305

Southern CA Gas Co
Attention: Jack Hendrick-Planning Associate
1510 North Chester Avenue
Bakersfield, CA 93308

CA Native American Heritage Commission
915 Capitol Mall #364
Sacramento, CA 95814

Sierra Club Kern Kaweah Chapter
C/O Arthur Unger
2815 La Criesta
Bakersfield, CA 93305

Steve Walker
Traffic Engineering
1501 Truxtun Avenue
Bakersfield, CA 93301

Resource Management Agency
Public Works
2700 M Street Suite 350
Bakersfield, CA 93301

Smart Growth Coalition of Kern County
441 Vineland Road
Bakersfield, CA 93307

Kern Audubon Society
PO Box 3581
Bakersfield, CA 93385-3581

STATE OF CALIFORNIA Gray Davis, Governor

NATIVE AMERICAN HERITAGE COMMISSION
916 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-4082
(916) 657-5390 - Fax

March 7, 2000

RECEIVED
MAR - 9 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Marc Gauthier
City of Bakersfield
1715 Chester Avenue
Bakersfield, CA 93301

RE: SCH# 2000011101—City of the Hills

Dear Mr. Gauthier:

The Native American Heritage Commission has reviewed the above mentioned NOP. To adequately assess the project-related impact on archaeological resources, the Commission reccomends the following action be required:

1. Contact the appropriate Information Center for a records search. The record search will determine:
   - Whether a part or all of the project area has been previously surveyed for cultural resources.
   - Whether any known cultural resources have already been recorded on or adjacent to the project area.
   - Whether the probability is low, moderate, or high that cultural resources are located within the project area.
   - Whether a survey is required to determine whether previously unrecorded cultural resources are present.

2. The final stage of the archaeological inventory survey is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
   - Required the report containing site significance and mitigation be submitted immediately to the planning department.
   - Required site forms and final written report be submitted within 3 months after work has been completed to the Information Center.

3. Contact the Native American Heritage Commission for:
   - A Sacred Lands File Check.
   - A list of appropriate Native American Contacts for consultation concerning the project site and assist in the mitigation measures.

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. Lead agencies should include provisions for accidentally discovered archeological resources during construction per California Environmental Quality Act (CEQA) §15064.5 (f). Health and Safety Code §7050.5 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 and should be included in all environmental documents. If you have any questions, please contact Debbie Pilas-Treadway at (916) 653-4038.

Sincerely,

Larry Myers
Executive Secretary

CC: State Clearinghouse

KERN COUNTY
WATER AGENCY

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CITY OF BAKERSFIELD
PLANNING DEPARTMENT

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Directors:

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Division 3

Michael Radon
Division 4

Adrienne J. Mathews
Division 5

Henry C. Garnett
Vice President
Division 6

Gene A. Lundquist
Division 7

Thomas N. Clark
General Manager

John F. Stovall
General Counsel

March 7, 2000

Mr. Marc Gauthier
City of Bakerfield
1715 Chester Avenue
Bakersfield, CA 93301

RE: Notice of Preparation for a draft Environmental Impact Report for the "City in the Hills" Project

Dear Mr. Gauthier:

The Kern County Water Agency (Agency) has reviewed the above proposed project in relation to groundwater quality and levels, water supply and proximity to Agency owned and/or operated facilities, and believe the following areas of concern should be fully addressed in the forthcoming draft Environmental Impact Report (EIR).

The Agency understands that the project proposes development of 694 acres of land northeast of Bakersfield, located 1 mile east of Morning Drive along Highway 178. The project will include commercial, low density residential (single family dwelling), high density residential (limited multi-family), schools, a maintenance district, parks and public services. The Agency also understands that the proposed project lies just outside of our Improvement District No. 4 boundary and hence, will receive water service from another entity. The Agency has estimated based on the information provided that approximately 3,900 families will live in the development at full build-out of the project. This equates to a annual water demand of 2,000 acre-feet to 4,000 acre-feet.

Water Supply

This project as contemplated may contribute to the overdraft of the Kern County portion of the Southern San Joaquin Valley groundwater basin and a detailed discussion of how this project proposes to operate with a balanced water supply should be prepared. In reviewing the Notice of Preparation (NOP), it is unclear, as to how and where water service will come from. If the project is to receive a water supply from the City's new Water Facility Project, of particular interest to the Agency would be a detailed description of the plan for delivering such water prior to 2012, when the City's existing agricultural water contracts for Kern River water expire. The description should provide detail on the contractual, environmental and physical aspects of this water supply.

For example, City staff has indicated through prior discussions with Agency staff that prior to 2012, no "firm" or guaranteed supply of Kern River water will be available to

Mailing Address:
P.O. Box 58
Bakersfield, CA 93302-0058
Phone: 661/634-1400
Fax: 661/634-1428

the Water Facility. The City staff will make "miscellaneous" Kern River water available to the Facility and utilize groundwater from the 2800-Acre Recharge Facility to provide additional supplies to the Water Facility when miscellaneous Kern River water is unavailable. Based on historical hydrological records, use of the 2800-Acre Recharge Facility to supply water to the Water Facility may be required in one out of every four years. This type of operation would require exchanges with Kern River water users and/or use of additional surface water facilities. Reliance on the 2800-Acre Recharge Facility also may have an environmental impact to the groundwater basin in the area of the Kern Fan. Since a number of exchanges of Kern River water are already in place, this type of information would be important to insure that additional exchange opportunities exist for the Agency's Henry Garnett Water Purification Plant. It would be useful to present a detail of the delivery plan under these types of conditions, i.e., wet year/dry year, including presentation of potential exchanges and use of other surface water facilities. Also, a discussion of the hydrologic assumptions used to determine the estimated frequency of use of the 2800-Acre Recharge Facility is requested so that any environmental effects associated with this project can be evaluated.

Water Quality

The method and type of sewage disposal, storm runoff, and other disposal of waste water in relation to potential groundwater quality impacts should be presented and thoroughly discussed in the EIR.

Thank you for the opportunity to provide comments on this documents. Please contact Kane Totzke of my staff at (661) 634-1468 with any questions regarding this matter.

Sincerely,

James Beck
Assistant General Manager

KERN COUNTY SUPERINTENDENT OF SCHOOLS

LARRY E. REIDER, Superintendent

RECEIVED
MAR - 1 2000
CITY OF BAKERSFIELD
PLANNING DEPT

March 1, 2000

Our File #: CI00-0006

Marc Gauthier
The City of Bakersfield
Development Services Department
1715 Chester Avenue
Bakersfield, CA 93301

RE: GPA/Zone Change P99-0647 ("City in the Hills")

Dear Mr. Gauthier:

This office represents the Bakersfield City and Kern High School Districts. The districts have been advised that Government Code Sections 65995, 65996, and 65997 (as amended with an operative date of November 4, 1998) now prohibit the City of Bakersfield from denying or refusing to approve a project such as this on the basis of the adequacy of school facilities. For this reason, neither district expects the City to impose any condition related to the financing of public school facilities at this time.

Pursuant to Government Code Sections 65995, 65996, and 65997, 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, 65995.5, 65995.6, and 65995.7 (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 $1.93 per square foot, an amount subject to COLA adjustment every two years. However, if either or both districts adopt the alternative fees authorized by Government Code Sections 65995.5 and/or 65995.7, fees required for this project may be significantly higher than the current amount. For example, the alternative fee under Government Code Section 65995.5 is nominally 50 percent of construction cost, while that under Government Code Section 65995.7--which can be levied when the State's school facilities program runs out of money--is nominally 100 percent of construction cost.

The method specified in newly added Government Code Sections 65995.5, 65995.6, and 65995.7 for calculating the alternative fees is quite different than that utilized by the districts to calculate both the current fee and mitigation requirements under the Kern County Plan for Adequate Schools and Affordable Housing ("Kern County Plan"). For this reason, and since the districts have not had the opportunity to obtain the data and make the calculations specified in those sections, no estimates can be provided at this time as to what those fees might actually be.

Although the districts do not expect the City to impose any condition related to the financing of public school facilities at this time, they would like to take this opportunity put into the public record the impacts which this project would have in the area of school facilities. In responding to similar projects in the past, the Bakersfield City and Kern High School Districts have provided substantial evidence to the City of Bakersfield that projects of this type will have a significant environmental effect on the District's facilities. That evidence is hereby incorporated by reference into this letter.

Based on the information provided by your department, this project will result in the construction of 3,600 single-family residences, plus approximately 4,750 multi-family residences. The evidence previously provided to the City by the districts demonstrate that this project's environmental impact will definitely be significant. In their most recent resolutions regarding the Kern County Plan, the districts determined that full mitigation of these impacts would require payment of $11,235 per residence. However, in accordance with the Kern County Plan, the districts would be limited to payment of an amount equal to $4.26 per square foot or $11,235, whichever is less.

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 feel free to contact me at 636-4599, or through e-mail at sthartsell@kern.org.

Sincerely,

Larry E. Reider
County Superintendent of Schools

Stephen L. Hartsell, Director
School District Facility Services

SLH/MLW
cc: Districts
G:\DIVADMIN\SOFS\CORRES\00 City\CI00-0006.BCSD.wpd

STATE OF CALIFORNIA – THE REBOURCES AGENCY GRAY DAVIS, Governor

DEPARTMENT OF CONSERVATION
801 K Street, MS 24-02
Sacramento, CA 95814
(916) 445-9733 Phone
(916) 324-0948 Fax
(916) 324-2555 TDD

February 29, 2000

Mr. Marc Gauthier
Planning Department
City of Bakersfield
1715 Chester Avenue
Bakersfield, California 93301

Subject: Notice of Preparation (NOP) for the City in the Hills Project in the City of Bakersfield, Kern County - **SCH# 2000011101**

Dear Mr. Gauthier:

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. We offer the following comments for your consideration.

The proposed project lies partially within the administrative boundaries of the Kern Bluff oil field (see enclosure). There are six plugged and abandoned wells within the boundaries of the project. The specific well locations are provided in the following table.

OPERATOR	LEASE/WELL NO.	LOCATION (SEC. 17 T29S/R29E)
Chevron U.S.A. Inc.	2-10	720' N & 720' E from SW cor. Sec. 17
Chevron U.S.A. Inc.	4-7	2080' N & 1680' E from SW cor. Sec. 17
Chevron U.S.A. Inc.	5-7A	2250' S & 1551' E from NW cor. Sec. 17
Chevron U.S.A. Inc.	14-17	2245' S & 332' E from NW cor. Sec. 17
Chevron U.S.A. Inc.	36-17	1650' N & 1650' E from SW cor. Sec. 17
Chevron U.S.A. Inc.	38-17	1650' S & 1650' W from NE cor. Sec. 17

All six wells meet the Division's current requirements for well plugging and abandonment. Nevertheless, if any abandoned or unrecorded wells are uncovered or damaged during excavation or grading, remedial plugging operations may be required. If

such damage or discovery occurs, the Division's Bakersfield district office must be contacted to obtain information on the requirements for, and approval to perform remedial operations.

The Division recommends that no structure be located over or in proximity to a previously plugged and abandoned well. If this cannot be avoided, please be aware that the State Oil and Gas Supervisor is authorized to order the reabandonment of a previously plugged and abandoned well when construction of a structure over or in the proximity of the well could result in a hazard (Section 3208.1 of the Public Resources Code). If reabandonment is required, the cost of operations is the responsibility of the owner of the property upon which the structure will be located. If a well requiring reabandonment is on an adjacent property and near the common property line, the Division recommends that the structure be set back sufficiently to allow for future access to the well.

Prior to commencing operations, the project applicant will need to provide the Division's Bakersfield office with specific plans indicating development locations relative to the well locations. If the wells are located near the proposed development, the Division will require the wells to be exposed before construction begins to investigate the condition of the wellhead and check for leakage. If reabandonment work is required, the Division will furnish the necessary specifications. When the developer cannot locate a wellhead, the Division must be notified so that assistance can be provided in well location.

Finally, the Division recommends that the wells within or in proximity to project boundaries be accurately plotted on all future maps related to this project. Also, a legible copy of the final project map should be submitted to the Division's Bakersfield office.

Thank you for the opportunity to comment on the NOP. If you have questions on our comments, or require technical assistance or information, please contact Jack Truschel at the Bakersfield district office: 4800 Stockdale Highway, Suite 417, Bakersfield, CA 93309; or, phone (661) 322-4031. You may also call me at (916) 445-8733.

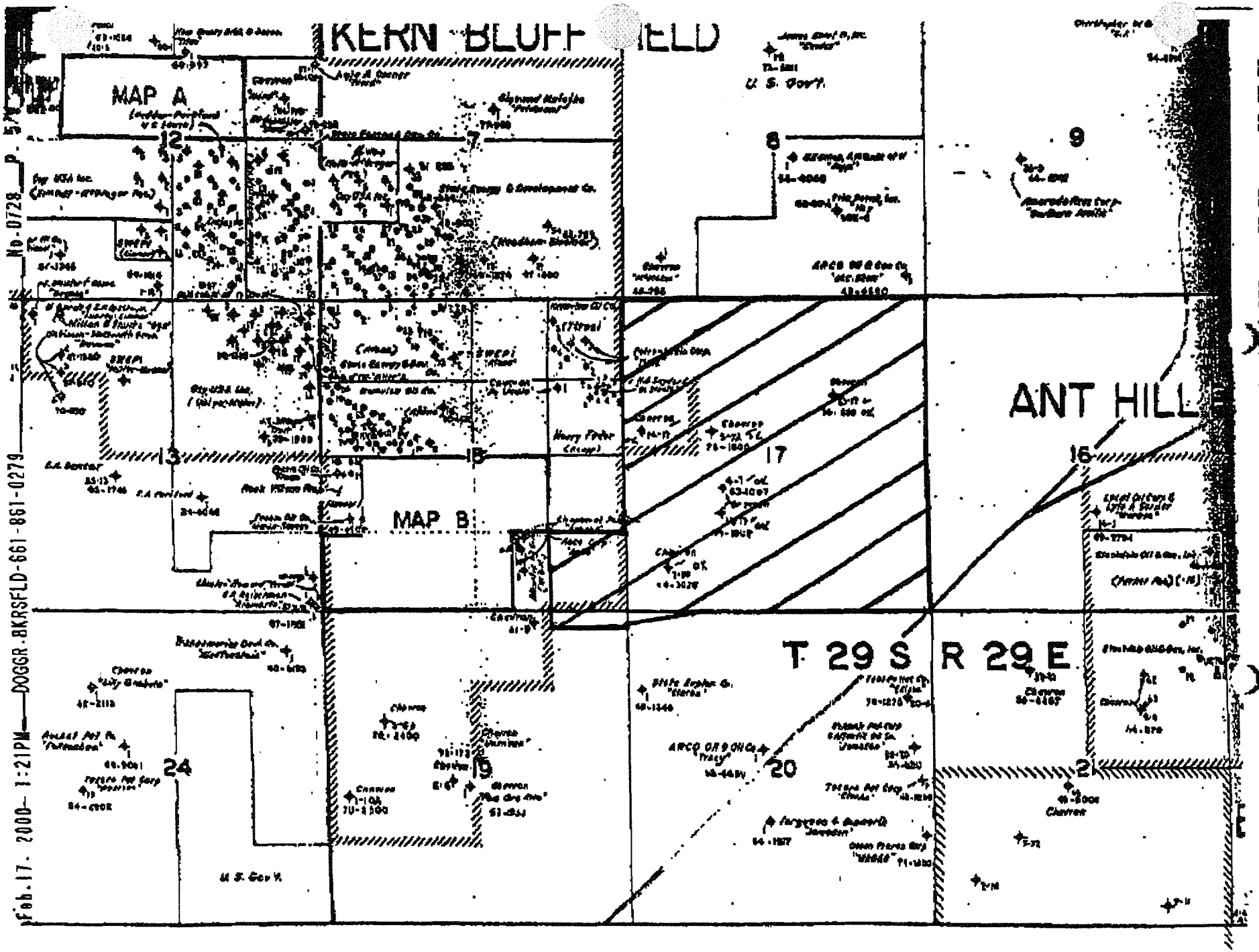
Sincerely,

Kenneth E. Trott

for Jason Marshall
Assistant Director

Enclosure

cc: Jack Truschel
Division of Oil, Gas, and Geothermal Resources, Bakersfield
Linda Campion
Division of Oil, Gas and Geothermal Resources, Sacramento



For Adjoining Oilfields see Map No. 434, Mountain View, Edison

ROADS DEPARTMENT
CRAIG M. POPE, P.E., Director
2700 "M" STREET, SUITE 400
BAKERSFIELD, CA 93301-2370
Phone: 661-862-8850
FAX: 661-862-8851
Toll Free: 800-552-5376 Option 5
TTY Relay: 800-735-2929
E-Mail: *roads@co.kern.ca.us*

RESOURCE MANAGEMENT AGENCY
DAVID PRICE III, RMA DIRECTOR
Community Development Program Department
Engineering & Survey Services Department
Environmental Health Services Department
Planning Department
Roads Department

February 25, 2000

Ref: 7-8.1 General Plan Amendment and Zone Change for proposed City in the Hills

RECEIVED
FEB 28 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Marc Gauthier
City of Bakersfield Planning Department
1715 Chester Avenue
Bakersfield, CA 93301

Mr. Gauthier:

This Department has reviewed the Notice of Preparation and Initial Study for the proposed City in the Hills. Since development of this project may have a significant impact on roadways that are maintained by this Department, we request that a copy of the traffic impact study and Draft for this project be forwarded to this Department for review and comment.

If you have any questions, please contact Barry Nienke of this office.

Very truly yours,

Barry Hayslett

Barry Hayslett
Traffic Engineer

BH:BN:ab
I:\ann\L1891

STATE OF CALIFORNIA – THE RESOURCES AGENCY GRAY DAVIS, Governor

DEPARTMENT OF CONSERVATION
801 K Street, MS 24-02
Sacramento, CA 95814
(916) 445-8733 Phone
(916) 324-0948 Fax
(916) 324-2555 TDD

RECEIVED
MAR
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

February 29, 2000

Mr. Marc Gauthier
Planning Department
City of Bakersfield
1715 Chester Avenue
Bakersfield, California 93301

Subject: Notice of Preparation (NOP) for the City in the Hills Project in the City of Bakersfield, Kern County - **SCH# 2000011101**

Dear Mr. Gauthier:

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. We offer the following comments for your consideration.

The proposed project lies partially within the administrative boundaries of the Kern Bluff oil field (see enclosure). There are six plugged and abandoned wells within the boundaries of the project. The specific well locations are provided in the following table.

OPERATOR	LEASE/WELL NO.	LOCATION (SEC. 17 T29S/R29E)
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Chevron U.S.A. Inc.	14-17	2245' S & 332' E from NW cor. Sec. 17
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Chevron U.S.A. Inc.	36-17	1650" S & 1650' W from NE cor. Sec. 17

All six wells meet the Division's current requirements for well plugging and abandonment. Nevertheless, if any abandoned or unrecorded wells are uncovered or damaged during excavation or grading, remedial plugging operations may be required. If

such damage or discovery occurs, the Division's Bakersfield district office must be contacted to obtain information on the requirements for, and approval to perform remedial operations.

The Division recommends that no structure be located over or in proximity to a previously plugged and abandoned well. If this cannot be avoided, please be aware that the State Oil and Gas Supervisor is authorized to order the reabandonment of a previously plugged and abandoned well when construction of a structure over or in the proximity of the well could result in a hazard (Section 3208.1 of the Public Resources Code). If reabandonment is required, the cost of operations is the responsibility of the owner of the property upon which the structure will be located. If a well requiring reabandonment is on an adjacent property and near the common property line, the Division recommends that the structure be set back sufficiently to allow for future access to the well.

Prior to commencing operations, the project applicant will need to provide the Division's Bakersfield office with specific plans indicating development locations relative to the well locations. If the wells are located near the proposed development, the Division will require the wells to be exposed before construction begins to investigate the condition of the wellhead and check for leakage. If reabandonment work is required, the Division will furnish the necessary specifications. When the developer cannot locate a wellhead, the Division must be notified so that assistance can be provided in well location.

Finally, the Division recommends that the wells within or in proximity to project boundaries be accurately plotted on all future maps related to this project. Also, a legible copy of the final project map should be submitted to the Division's Bakersfield office.

Thank you for the opportunity to comment on the NOP. If you have questions on our comments, or require technical assistance or information, please contact Jack Truschel at the Bakersfield district office: 4800 Stockdale Highway, Suite 417, Bakersfield, CA 93309; or, phone (661) 322-4031. You may also call me at (916) 445-8733.

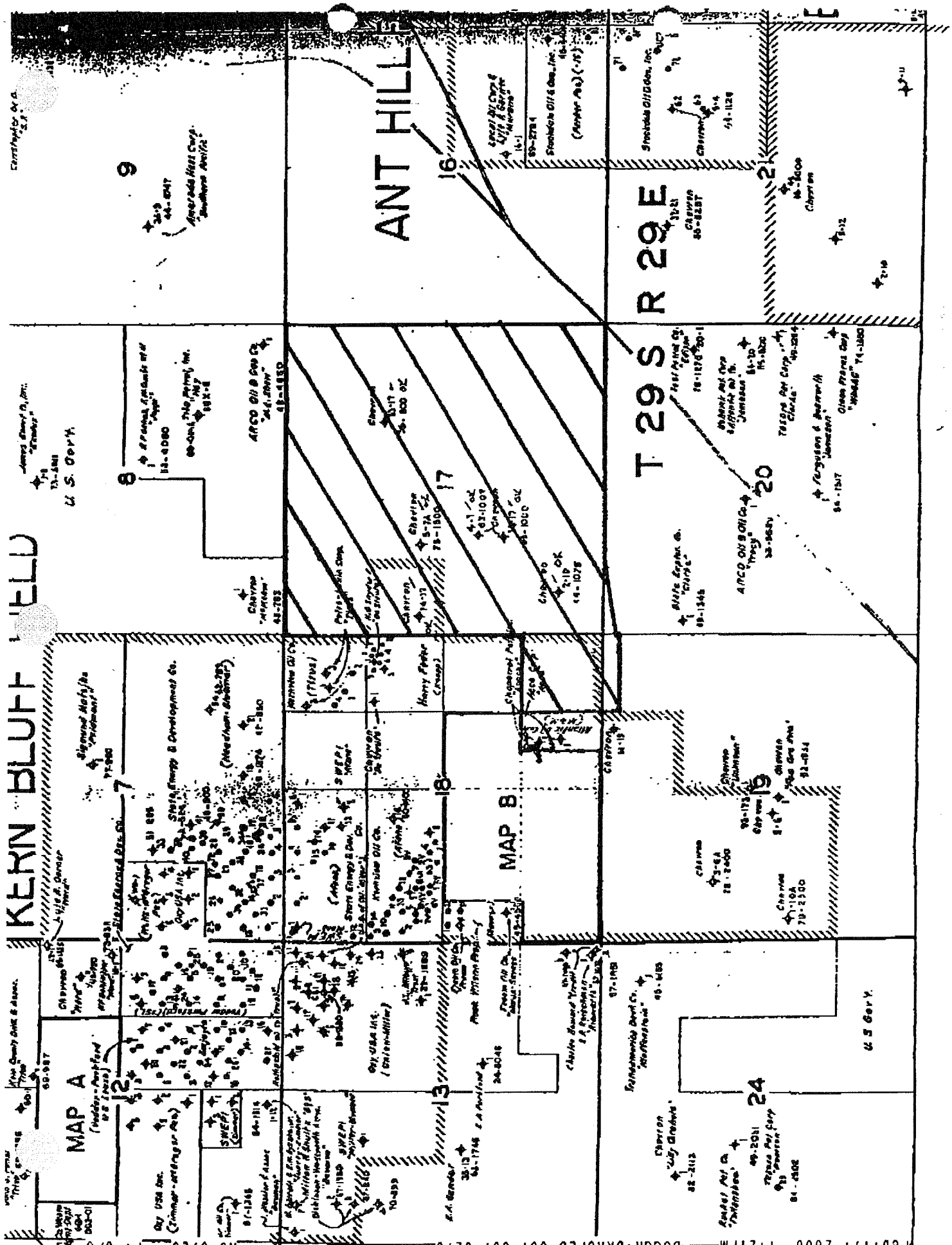
Sincerely,

Kenneth E. Trott

for Jason Marshall
Assistant Director

Enclosure

cc: Jack Truschel
Division of Oil, Gas, and Geothermal Resources, Bakersfield
Linda Campion
Division of Oil, Gas and Geothermal Resources, Sacramento



For Adjoining Oilfields see Map No. 434, Mountain View, Edison

STATE OF CALIFORNIA-BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor
DEPARTMENT OF TRANSPORTATION
1352 West Olive Avenue
Post Office Box 12616
Fresno, California 93778

(209) 444-2583
TDD: (209) 488-4066
FAX: (209) 488-4088

RECEIVED
FEB 25 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

February 23, 2000

2132-IGR/CEQA
6-KER178-9.614
NOP-GPA/ZC P99-0647
694 ACRE CITY IN THE HILLS

City of Bakersfield
Planning Department
1715 Chester Avenue
Bakersfield, CA 93301

Attn: Marc Gaither

Thank you for the opportunity to review the Notice of Preparation (NOP) for General Plan Amendment/Zone Change P99-0647 for the proposed 694 acre City in the Hills project. Caltrans has reviewed the NOP and offers the following comments.

- Existing State Route 178 should be planned for development with a 110-foot right-of-way. Future State Route 178 through the project area is planned as a 210-foot right-of-way. Geometrics for the intersections at Masterson Street and the Proposed Collector should be developed to determine the needed right-of-way for these interchanges.

- Page 1-2 of the City in the Hills Initial Study 8. references a "Modification of Specific Plan line for State Highway 178." What is the modification to SR 178 or the adjacent street system?

- The "NOISE" section of the initial study should consider noise impacts from future State Route 178, i.e. setbacks, sound walls, etc.

- Page 4-3 of the initial study under Hydrology indicates changes "may" require revisions to the plan drainage area. Any changes would need to be studied to determine that the proposal will not affect the crossings at both State Routes 178 and 184.

- The traffic study prepared for this project should follow "Caltrans Guide for Traffic Impact Studies." The applicant and/or traffic consultant should meet with Caltrans prior to commencement of the TIS to determine the scope of the study.

Please feel free to contact me if you have any questions in regard to these comments.

Sincerely,

Jeff Sorensen

Jeff Sorensen

RECEIVED
FEB 17 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

KERN COUNTY WASTE MANAGEMENT DEPARTMENT
Daphne H. Washington, Director
2700 "M" Street, Suite 500
Bakersfield, CA 93301-2370
(661) 862-8900
(800) 552-KERN (option 6)
Fax: (661) 862-8901
http://www.co.kern.ca.us/wmd/wmd.htm

February 16, 2000

Mr. Marc Gauthier
City of Bakersfield
1715 Chester Avenue
Bakersfield, CA 93301

Dear Mr. Gauthier:

SUBJECT: Response to Notice of Preparation of a Draft Environmental Impact Report for General Plan Amendment/Zone Change P99-0647 (City in the Hills)

Thank you for the opportunity to review this project. Kern County Waste Management Department (KCWMD) has reviewed the initial study and has these comments.

A development of the type and size proposed will generate a minimum of 11,000 tons of solid waste per year. This figure only accounts for the residential portion of the project. KCWMD has adequate disposal capacity, on a countywide basis, to handle this increase in waste stream.

However, the project description should discuss the City's existing efforts to promote recycling and waste diversion, including the provision of curbside greenwaste collection and processing for all residences. Additionally, this development is not convenient to any of the City's existing recycling drop-off centers. A suitable recycling drop-off location should be provided to enhance the City's ongoing program.

Please call Susan Reid at (661) 862-8948, if you have any questions or would like further information.

Sincerely,
DAPHNE H. WASHINGTON, Director

By: Nancy L. Ewert, P.E.
Technical Resources Manager

NLE:SLR:cls
F:\LETTERS\00-58-NLE.wpd
cc: Chuck Magee
File

ENVIRONMENTAL HEALTH SERVICES DEPARTMENT

STEVE McCALLEY, R.E.H.S., Director
2700 "M" STREET, SUITE 300
BAKERSFIELD, CA 93301-2370
Voice: (661) 862-8700
Fax: (661) 862-8701
TTY Relay: (800) 735-2929
e-mail: *eh@co.kern.ca.us*

RESOURCE MANAGEMENT AGENCY

DAVID PRICE III, RMA DIRECTOR
Community Development Program Department
Engineering & Survey Services Department
Environmental Health Services Department
Planning Department
Roads Department

February 14, 2000

RECEIVED
FEB 17 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Marc Gauthier
City of Bakersfield
1715 Chester Avenue
Bakersfield, CA 93301

SUBJECT: Draft Environmental Impact Report
City in the Hills

Dear Mr. Gauthier:

The Kern County Environmental Health Services Department has reviewed the Draft Environmental Impact Report for the subject project and affirms the proposal for public water and sewer service. However, this Department would like to see the potential noise impacts from Mesa Marin Raceway addressed in the Environmental Impact Report.

If you should have any questions, please call me at 862-8768.

Sincerely,

Steve McCalley, Director

By: Thomas Hardy, R.E.H.S.
Environmental Health Specialist III
Land Development Program

TH:jrw

(land\hardy\cityinhills ltr.wpd)

COUNTY OF KERN
DEPARTMENT OF AIRPORTS

RAYMOND C. BISHOP
Director

Meadows Field Airport
1401 Skyway Drive, Suite 200 • Bakersfield, CA 93308
Telephone 661-393-7990 • FAX 661-861-3322 • email: airports@lightspeed.net

System Airports
Elk Hills - Buttonwillow
Poso • Kern Valley • Wasco
Lost Hills • Taft • Meadows Field

RECEIVED
FEB - 8 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

7 February, 2000

Mr. Marc Gauthier
City of Bakersfield
1715 Chester Avenue
Bakersfield, CA 93301

Dear Mr. Gauthier:

SUBJECT: General Plan Amendment/Zone Change P99-0647/Development Agreement and Notice of Preparation of a Draft Environment Impact Report in Compliance with Title 14, Section 15082(a) of the California Code of Regulations

The Kern County Department of Airports has reviews the document reference above and has no objections or further comment.

We appreciate the referral and the opportunity to review this matter.

Respectfully,

Raymond Bishop

Raymond C. Bishop, CAE
Director

E:\DATA\SHARED\WORD\DAY\LUP99064.doc
GEN AD 23000

STATE OF CALIFORNIA–BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
AERONAUTICS PROGRAM M.S. #40
120 N STREET - ROOM 3300
P.O. BOX 942874
SACRAMENTO, CA 94274-0001
(916) 654-4959
FAX (916) 653-9531

RECEIVED
MAR 20 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

March 15, 2000

CORRECTION

Mr. Marc Gauthier
City of Bakersfield
1715 Chester Avenue
Bakersfield, CA 93301

Dear Mr. Gauthier:

Re: *City of Bakersfield's Notice of Preparation for the City in the Hills; SCH# 2000011101*

The California Department of Transportation (Caltrans) Aeronautics Program offers the following comments as a correction to our March 7, 2000 letter.

It has been brought to our attention that the Rio Bravo Airport, now owned by Tom Carosella Properties Inc., is closed. With no based aircraft and no aircraft activity at the former airport, the project site should not be affected by noise and safety impacts associated with occasional aircraft overflights.

If you have any questions regarding our comments, please call me at 916/654-5314.

Sincerely,

Sandy Hesnard

SANDY HESNARD
Environmental Planner

c : State Clearinghouse, Judy Westphal-Wells Fargo Bank, Tom Carosella Properties Inc.

STATE OF CALIFORNIA–BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
AERONAUTICS PROGRAM M.S. #40
1120 N STREET - ROOM 3300
P.O. BOX 942874
SACRAMENTO, CA 94274-0001
(916) 654-4959
FAX (916) 653-9531

RECEIVED
MAR 14 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

March 7, 2000

Mr. Marc Gauthier
City of Bakersfield
1715 Chester Avenue
Bakersfield, CA 93301

Dear Mr. Gauthier:

Re: *City of Bakersfield's Notice of Preparation for the City in the Hills; SCH# 2000011101*

The California Department of Transportation (Caltrans) Aeronautics Program has reviewed the above-referenced document with respect to CEQA. The following comments are offered for your consideration.

The proposal includes a change in zoning on approximately 694 acres to allow 500 acres of low density residential (< 7.26 units per net acre), 65.5 acres of high density residential (> 17.42 ≤ 72.6 units per net acre), 96.9 acres general commercial and 31.5 acres for roads. The project site appears to be located approximately a mile west of the Rio Bravo Airport. Rio Bravo is a privately owned public-use airport with a current State Airport Permit issued by the Aeronautics Program. According to the most recent information we have on file, Rio Bravo has approximately 3,000 annual aircraft operations. The project site may be subject to aircraft-related noise and safety impacts associated with occasional aircraft overflights. This should be addressed in the draft EIR.

Thank you for the opportunity to review and comment on this proposal. If you have any questions regarding our comments, please call me at 916/654-5314.

Sincerely,

Sandy Hesnard

SANDY HESNARD
Environmental Planner

c : State Clearinghouse, Rio Bravo Airport c/o Wells Fargo Bank

WELLS FARGO BANK

Commercial ORE
417 Montgomery Street, 5th Floor
MAC A0108-052
San Francisco, CA 94104

Telephone: (415) 396-6972
Facsimile: (415) 677-9018

RECEIVED
MAR 13 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

March 3, 2000

Ms. Sandy Hesnard
Department of Transportation
Aeronautics Program MS #40
P.O. Box 942874
Sacramento, CA 94274-0001

Re: Rio Bravo Airport

Dear Ms. Hesnard:

This will serve to confirm our telephone conversation of today regarding your letter dated March 7, 2000 to Mr. Marc Gauthier of the City of Bakersfield. Wells Fargo Bank no longer owns Rio Bravo Airport. The land which includes the airport was sold to Carosella Properties, Inc., 1412 17th Street, Suite 554, Bakersfield, CA 93301, (661) 631-2692. The contact there is Mr. Tom Carosella. This sale took place on July 26, 1999.

Prior to the sale of this land, Wells Fargo had suspended the permit for this airport and the runway was marked in the appropriate manner to indicate the airport was not operational. This suspension was confirmed by Department of Transportation letter dated October 23, 1997. Mr. Carosella should be contacted to determine the current status of the airport.

Please let me know if you have any questions or need any further information.

Sincerely,

WELLS FARGO BANK, N.A.

Judy A. Westphal
Assistant Vice President

cc: Mr. Tom Carosella – Carosella Properties
Mr. Marc Gauthier – City of Bakersfield

San Joaquin Valley
Air Pollution Control District

RECEIVED
MAR 14 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

March 9, 2000

Marc Gauthier
CITY OF BAKERSFIELD
Planning Department
1715 Chester Avenue
Bakersfield, CA 93301

Re: Notice of Preparation of a Draft Environmental Impact Report for the City in the Hills (General Plan Amendment/Zone Change P99-0647)

The San Joaquin Valley Unified Air Pollution Control District (District) has reviewed this Notice of Preparation and has the following comment.

The District agrees with your conclusion that the project will "have a potentially significant impact" and is satisfied that level of detail committed to in the Air Quality Section (pg. 4-1) of your Environmental Evaluation will be sufficient to evaluate the potential impact of this project on the air quality of the region. The District recommends our Guide for Assessing and Mitigating Air Quality Impacts for reference.

The District recognizes that this comment letter is past the date set by your agency to end receipt of comments. These comments are late due to unforeseen circumstances and if they are too late to be included in your process, please disregard.

The District appreciates the opportunity to comment on this Notice of Preparation. If you have any questions, please do not hesitate to contact me at (661) 326-6980.

Joe O'Bannon
Air Quality Planner, Southern Region

APCD Ref #: S000014

David L. Crow
Executive Director/Air Pollution Control Officer

Northern Region Office
4230 Kiernan Avenue, Suite 130
Modesto, CA 95356-9321
(209) 557-6400 • FAX (209) 557-6475

Central Region Office
1990 East Gettysburg Avenue
Fresno, CA 93726-0244
(559) 230-6000 • FAX (559) 230-6061

Southern Region Office
2700 M Street, Suite 275
Bakersfield, CA 93301-2370
(661) 326-6900 • FAX (661) 326-6985

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse

Gray Davis
GOVERNOR

Loretta Lynch
DIRECTOR

Notice of Preparation

February 2, 2000

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CITY OF BAKERSFIELD
PLANNING DEPARTMENT

To: Reviewing Agencies

Re: City in the Hills
SCH# 2000011101

Attached for your review and comment is the Notice of Preparation (NOP) for the City in the Hills 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:

Marc Gauthier
City of Bakersfield
1715 Chester Ave.
Bakersfield, CA 93301

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
Project Analyst, State Clearinghouse

Attachments
cc: Lead Agency

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Document Details Report
State Clearinghouse Data Ba

SCH# 2000011101
Project Title City in the Hills
Lead Agency Bakersfield, City of

Type nop Notice of Preparation

Description The project involves (a) an amendment to the Land Use Element and Circulation Element of the Metropolitan Bakersfield 2010 General Plan (b) concurrent zone change for an approximately 694-acre site located in the northeast portion of the City of Bakersfield, and (c) a development agreement to vest development rights. Proposed Land Use Element amendments consist of redesignation and boundary realignments of the existing Low Density Residential (> 7.26 units per net acre) designation to High Density Residential (> 17.42 < 72.6 units per net acre) and General Commercial and redesignations and boundary alignments of the existing Mixed Use Commercial and designation to High Density Residential (> 17.42 <72.6 units per net acre) and General Commercial. The proposed amendments also include redesignations and boundary alignments of the existing High Density Residential (>17.42 <72.6 units per net acre) to General Commercial. Proposed zone changes for the site will correspond with the proposed Land Use Element designations. Through the development agreement or other mechanism, the maximum density of the High Density Residential zone is expected to be capped at twenty-one units per acre. Proposed Circulation Element amendments include the addition of new arterial and collector street alignments within the project site.
The overall concept for the project site is primarily residential, with 72.1 percent of the site as Low Density Residential uses and 9.4 percent designated as High Density Residential (HR) uses. In addition, 14.0 percent of the site will be designated General Commercial. Approximately 4.5 percent of the site will be set aside for the ultimate right-of-way alignment of State Highway 178 (Kern Canyon Freeway).

Lead Agency Contact

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Phone 661-326-3786 **Fax**
email
Address 1715 Chester Ave.
City Bakersfield **State** CA **Zip** 93301

Project Location

County Kern
City Bakersfield
Region
Cross Streets State Highway 178, Materson Lane, Paladino Drive, Vineland Road
Parcel No.
Township 29S **Range** 29E **Section** 17-20 **Base** USGS

Proximity to:

Highways
Airports
Railways
Waterways
Schools
Land Use Open Space
A (Agriculture), R-1 (Low-Density Residential)
MUC (Mixed Use Commercial), LR (Low-Density Residential), HR (High-Density Residential)

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

Document Details Report
State Clearinghouse Data Ba

Project Issues	Aesthetic/Visual; Air Quality; Archaeologic-Historic; Minerals; Noise; Public Services; Recreation/Parks; Schools/Universities; Sewer Capacity; Soil Erosion/Compaction/Grading; Solid Waste; Toxic/Hazardous; Traffic/Circulation; Vegetation; Water Quality; Wildlife; Growth Inducing; Landuse; Cumulative Effects
Reviewing Agencies	Resources Agency; Department of Conservation; Office of Historic Preservation; Department of Parks and Recreation; Department of Food and Agriculture; Department of Fish and Game, Region 4; Native American Heritage Commission; State Lands Commission; Caltrans, District 6; Department of Housing and Community Development; Caltrans, Division of Aeronautics; California Highway Patrol; Regional Water Quality Control Bd., Region 5 (Fresno)

Date Received 02/02/2000 ***Start of Review*** 02/02/2000 ***End of Review*** 03/02/2000

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SCH# 2000011101

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APPENDIX B

Biological Assessment

BIOLOGICAL RESOURCE ASSESSMENT

for the proposed

Mountain View Bravo, LLC - Kern Canyon Ranch

Prepared for:

Nossaman, Guthner, Knox & Elliott, LLP
18101 ~~12101~~ Von Karman, Suite 1800
Irvine, California 92612-1047

Prepared by:

Bio Resources Consulting
1801 Oak Street
Bakersfield, California 93301

February 2000

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Appendix A Brief Descriptions of Special Status Species Known to Occur (historically and currently) in the Vicinity of the Project Site in Similar Habitats

Appendix B Wildlife Observed During Surveys for the Proposed Kern Canyon Ranch Project

Appendix C Vascular Plants Observed During Surveys for the Proposed Kern Canyon Ranch Project

1.0 INTRODUCTION

1.1 Purpose

This biological resource assessment has been prepared by Bio Resources Consulting at the request of the Nossaman, Guthner, Knox & Elliott, LLP (NGKE) to assist the law firm in evaluating the potential impacts to special status biological resources which may be affected by the proposed Mountoun View Bravo, LLC Kern Canyon Ranch project. The proposed project is generally located in a rural area within the city limits of Bakersfield in the northeast quadrant of the city. The activities associated with the implementation of the proposed project have the potential to impact special status species and their habitat. This report is intended solely for use by NGKE as part of its background data for advising Mountain View Bravo concerning California Environmental Quality Act compliance.

This biological resource assessment includes: a discussion of the potentially occurring special status plant and wildlife species, survey methods and results, potential impacts to special status species, and mitigation measures intended to minimize impacts to listed species to less than significant levels. Potentially occurring state and federal-listed threatened and endangered species were the focus of the field surveys. Other special status species, such as California Department of Fish and Game (CDFG) species of special concern, were noted if encountered.

1.2 Project Description

The proposed project is located in the northeast portion of the City of Bakersfield in Kern County, California (Figure 1). Implementation of the Kern Canyon Ranch project would result in the eventual buildout of approximately 694 acres in Sections 17, 18, 19, and 20, Township 29 South, Range 29 East, Mount Diablo Base and Meridian. Proposed land uses include residential and commercial, as well as a realignment of State Route 178. The area included in the biological resource assessment consisted of the following areas and their associated approximate acreages: Section 17 (640 acres), and portions of Sections 18 (40 acres), 19 (9 acres), and 20 (5 acres).

1.3 Regulatory Framework

The primary regulations affecting biological resource impacts are discussed in this section. Activities associated with construction and operation of facilities associated with the proposed project have the potential to impact federal and/or state-listed species. Therefore, the project is subject to the California Endangered Species Act (CESA) and the Federal Endangered Species Act (FESA). The project would also be subject to the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Section 5050 (Fully Protected Reptiles and Amphibians). Finally, the project also has two intermittent streams within the site which may be subject to the Clean Water Act and California Fish and Game Code Sections 1600-1603. The following paragraphs provide a brief summary of the applicable provisions of these regulations.

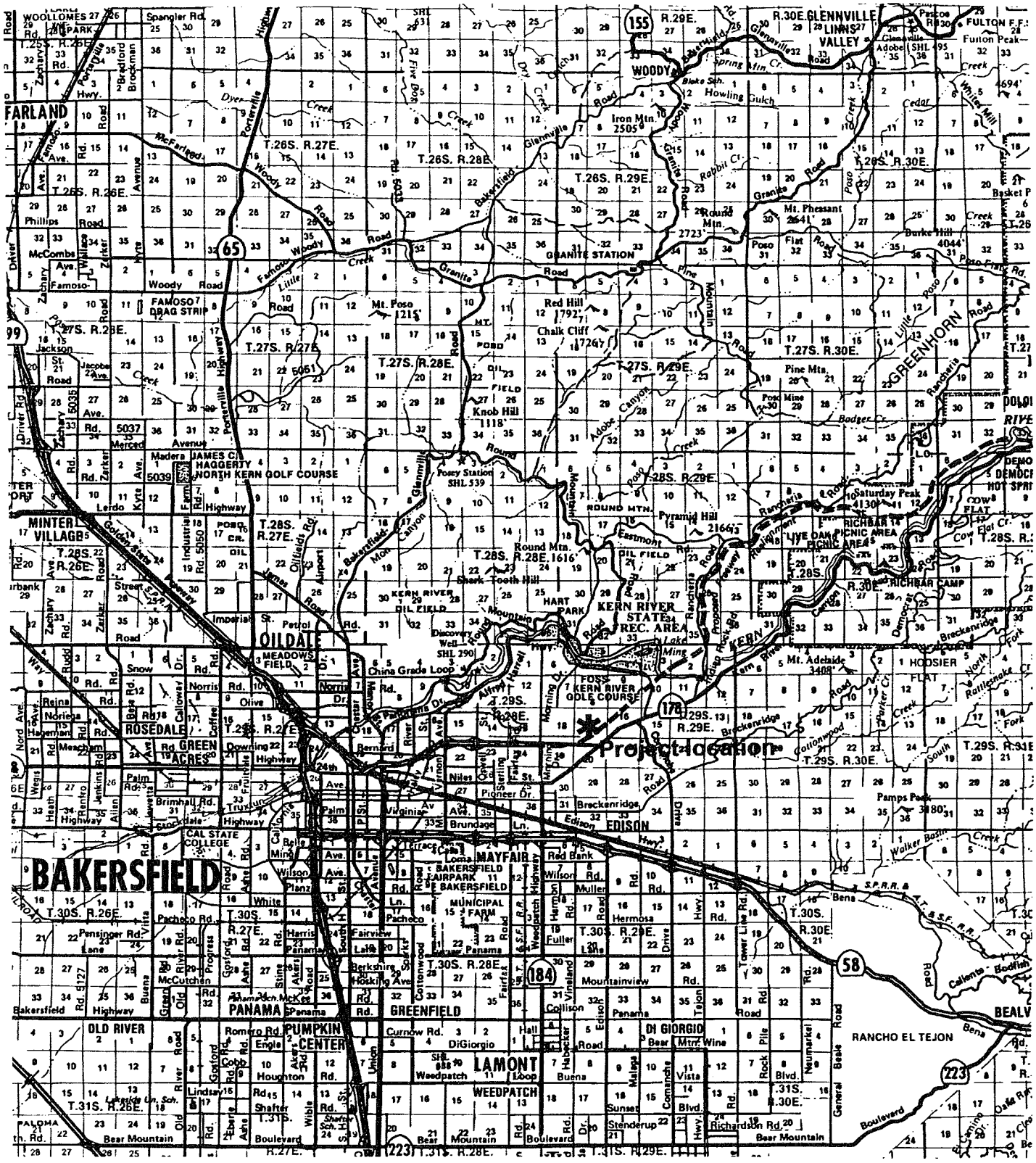


Figure 1 - Project Location
Mountain View Bravo, LLC - Kern Canyon Ranch

Bio Resources Consulting

1.0 INTRODUCTION

Federal and State Endangered Species Acts

FESA protects federally-listed threatened and endangered species. Section 9 of FESA prohibits acts which result in "take" of threatened or endangered species. "Take" is defined as killing, harming, or harrassment of listed species. "Harm" has been further defined to include killing or injuring due to significant obstruction of essential behavior patterns (i.e. breeding, feeding, or sheltering) through significant habitat modification or degradation.

Two sections of FESA contain provisions for allowing "take" which is incidental to otherwise lawful activities. Under Section 7, a federal agency which proposes to conduct, fund or approve an action which may result in "take" of listed species is required to consult with the U.S. Fish and Wildlife Service (USFWS). The result of this formal consultation is a Biological Opinion, which includes either a jeopardy or nonjeopardy decision issued by USFWS to the consulting federal agency. Included in the Biological Opinion is the possible issuance of authorization for "incidental take". Section 10(a) of FESA provides a method for permitting a state or private action which may result in "incidental take". Under Section 10(a), the project proponent must provide the USFWS with a Habitat Conservation Plan for the affected species, and publish notification of the application for a permit in the Federal Register.

CESA provisions to permit impacts of California-listed rare, threatened, or endangered species are similar in that there is a permit process. The applicant must enter into a management agreement with the California Department of Fish and Game (CDFG). This management agreement specifically defines the permitted activities and how the applicant must act to protect affected species.

The project area lies within the geographic area covered by an existing HCP, the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP). The MBHCP was implemented in August 1994 by the City of Bakersfield and the County of Kern to allow development and similar activities to occur in exchange for habitat conservation for the affected species.

Section 404 of the Clean Water Act (CWA)

The U.S. Army Corps of Engineers (ACOE), under Section 404 of the Clean Water Act, regulates discharges of dredged or fill material in "waters of the United States." The term "waters" includes wetlands and non-wetland bodies of water that meet specific criteria as defined in the Code of Federal Regulations (CFR). The definition of "waters of the United States" includes "...intrastate lakes, rivers, streams (including intermittent streams)...the use, degradation or destruction of which could affect interstate or foreign commerce..." and tributaries of water defined as waters of the United States.

Some intermittent washes may also qualify as waters of the United States. Areas which meet the definition of waters of the United States, or the definition of wetlands, could be under ACOE jurisdiction. At the discretion of the ACOE, impacts to these areas could require a permit,

depending on the type and size of the activity within ACOE jurisdiction.

California Fish and Game Code: Sections 1600 - 1603

Any activity that will divert or obstruct the natural flow or change the bed, bank, or channel of any river, stream, or lake must provide a Streambed Alteration Notification to CDFG. Additionally, Streambed Alteration Notification is required if streambed material is proposed for removal. Providing Streambed Alteration Notification to CDFG may result in a Streambed Alteration Agreement between the project applicant and CDFG. Construction activities in intermittent streams may also require a Streambed Alteration Agreement.

Migratory Bird Treaty Act

Among other provisions, this treaty prohibits destruction of nests, eggs, and/or young of all designated migratory bird species. With very limited exceptions, all birds are included in this prohibitions.

California Fish and Game Code Section 5050

This section designates the blunt-nosed leopard lizard, among other reptiles and amphibians, as a "fully protected" species. As a "fully protected" species, "take" of blunt-nosed leopard lizards is specifically prohibited, even though other sections of the code may provide for "incidental take" of the species.

2.0 ENVIRONMENTAL SETTING

The information presented in this section is a summary of pertinent information regarding the climate, rivers and drainages, vegetation, and special status species of the project vicinity.

2.1 Climate

The project site is located in the southern San Joaquin Valley, a broad treeless plain in the rain shadow of the Coast Ranges. The region's climate can be characterized as Mediterranean, with hot, dry summers and cool, moist winters. Summer high temperatures typically exceed 100° Fahrenheit (F), with an average of 110 days per year over 90° F. Winter temperatures in the San Joaquin Valley are mild, with an average of 16 days per year with frost (Twisselmann 1967).

Rainfall varies increases from west to east, with the west side of the valley receiving an average of around 4 inches per year and the east side averaging about 6 inches per year. Winter fog, called "tule fog", sometimes forms during the months of November, December, and January, supplementing the annual precipitation. On average, approximately 90 percent of the rainfall occurs between November 1 and April 1. The region periodically experiences drought cycles, the most recent occurring during the mid and late 1980's (Twisselmann 1967).

These conditions have contributed to the formation of vegetation adapted to dry conditions, and which is distinguishable from the Mojave Desert to the east due to tule fog, higher humidity, and isolation from continental climatic influences by mountain ranges (Twisselmann 1967).

2.2 Rivers and Drainages

There are no rivers within the project area.

Two unnamed intermittent streams are located within the project area and indicated on the USGS topographic map for the Oil Center quadrangle. These drainages originate on Section 17 and Section 18 and merge just south of the project site. Combined these drainages total approximately 1 1/4 miles long and extending south off of the project site. Both drainages are primarily dry, with storm events being the primary time that flow may be present. Surface water during these events typically quickly dries or percolates prior to any flow reaching any permanent water source.

2.3 Vegetation

For purposes of this biological resource assessment, the vegetation of the project area may be adequately described utilizing the descriptions defined in Holland (1986). Where an equivalent series has been identified by Sawyer and Keeler-Wolf (1995), the series is shown in parentheses.

Non-native grassland (California annual grassland series)

This community is the primary vegetation of the survey area, and is distributed throughout the project area, both as a community and as an understory component to valley saltbush scrub and riparian vegetation. In the vicinity of the project site, this community is likely maintained by frequent fires. Non-native grasses dominate (bromes, foxtail, fescues, and oats), with showy annual forbs present to a varying degree depending on rainfall. Forbs which are typically present include red-stemmed filaree (*Erodium cicutarium*), owl's clover (*Castilleja exserta* and *C. attenuata*), lupines (*Lupinus* spp.), goldfields (*Lasthenia californica*), fiddleneck, gilia, and several mustards. Cover may be sparse to dense, with annuals typically germinating in late fall and most species flowering in early to late spring. This community is widely distributed through California, usually below 3000 feet.

Valley Saltbush Scrub (allscale series)

In the project area, shrub cover in this vegetation community is typically dominated by common saltbush (*Atriplex polycarpa*). Other shrub species which may be present include spiny saltbush (*A. spinifera*), cheesebush (*Hymenoclea salsola*), and pale-leaf goldenbush (*Isocoma acradenia* var. *bracteata*). The understory typically consists of winter-germinating annuals dominated by non-native grasses such as bromes (*Bromus* spp.), wild oats (*Avena barbata* and *A. fatua*), foxtail (*Hordeum* spp.), and fescues (*Vulpia* spp.). Native spring-flowering annuals may include bird's eye gilia (*Gilia tricolor*), fiddleneck (*Amsinckia menziesii* var. *intermedia*), white layia (*Layia glandulosa*), and several species of phacelia (*Phacelia* spp.). On the project site, this community is very limited and appears to be the result of seeding along a previously disturbed pipeline right-of-way.

2.4 Special Status Species

Conversion and development of natural vegetation found in the southern San Joaquin Valley have occurred for a variety of urban, agricultural, petroleum, and other land uses which have resulted in substantial population declines for several plant and wildlife taxa. These population declines have resulted the listing of several species as rare, threatened or endangered under the respective state and federal endangered species acts.

The occurrence of state- and federal-listed rare, threatened, and endangered species with the potential to be affected by the proposed project were included in this biological resource assessment. In addition, species considered to have "special status" which are not formally listed but which meet the definition of "rare" or "endangered" pursuant to the California Environmental Quality Act should be considered. For this reason, impacts to species classified as rare and endangered by the California Native Plant Society and CDFG species of special concern are evaluated in this report. Special status wildlife and plant species for which suitable habitat is found on the proposed project site are shown in Tables 2.1 and 2.2, respectively. Species accounts for these special status taxa are contained in Appendix A.

Table 2.1
Special Status Wildlife Species with Potential to Occur within the Vicinity of the Kern Canyon Ranch Project

Species	Status* Federal/State	Habitat
Reptiles		
Gambelia sila blunt-nosed leopard lizard	E/E	Open saltbush scrub and grassland habitats, roads and open washes
Phrynosoma coronatum California horned lizard	SC / CSC	Open shrublands and grasslands with sandy soils
Birds		
Accipiter cooperi Cooper's hawk	- / CSC	Regular migrant and winter visitor in open woodlands, riparian areas
Accipiter striatus sharp-shinned hawk	- / CSC	Frequently seen during winter in riparian areas
Aquila chrysaetos golden eagle	BEPA / CSC	Resident of open grasslands and low foothills
Athene cunicularia burrowing owl	- / CSC	Valley grasslands and open saltbush scrub
Circus cyaneus Northern harrier	- / CSC	Common resident of marshlands and grasslands
Falco mexicanus prairie falcon	- / CSC	Resident which forages in open grassland areas, nests in cliff faces or on ledges
Lanius ludovicianus Loggerhead shrike	SC / CSC	Resident which forages in scrub and adjacent grassland habitats, may nest in riparian woodland
Toxostoma lecontei LeConte's thrasher	- / CSC	Prefers mature saltbush scrub for nesting
Mammals		
Ammospermophilus nelsoni San Joaquin antelope squirrel	- / T	Shrublands, especially along washes
Dipodomys nitratoides brevinasus short-nosed kangaroo rat	SC/CSC	Western and southern San Joaquin Valley, saltbush scrub and other low foothill habitats
Perognathus inornatus inornatus San Joaquin pocket mouse	CSC	Sacramento and San Joaquin valleys, surrounding foothills; saltbush scrub and grassland habitats
Taxidea taxus American badger	- / CSC	Grasslands and shrublands of the San Joaquin Valley and surrounding low foothills
Vulpes macrotis mutica San Joaquin kit fox	E / T	Grassland and scrub habitats of the San Joaquin Valley and surrounding foothills

*** STATUS ABBREVIATIONS:**

Federal	E - federally listed as endangered
	T - federally listed as threatened ([1] - Bald eagle and golden eagle are also protected by the Bald Eagle Protection Act)
	C - federal candidate category 1 for listing as threatened or endangered; sufficient information is available to publish a proposed rule regarding listing
	SC - former Category 2 Candidates for listing; now "federal species of concern"
State	E - state-listed as endangered
	T - state-listed as threatened
	CSC - CDFG species of special concern

NOTES:

1. All bird species included in this table are also protected by the federal Migratory Bird Treaty Act

2. Sources: CDFG (2000), CDFG (1992), MBHCP Steering Committee (1994), and Zeiner (1988)

Table 2.2
Special Status Plant Species with Potential to Occur within the Vicinity of the Kern Canyon Ranch Project

Species	Status* Fed/State/CNPS	Habitat
Caulanthus californicus California jewelflower	E/E/1B	Saltbush scrub
Delphinium gypsophilum ssp. *gypsophilum* gypsum-loving larkspur	- / - / 4	saltbush scrub and grasslands of low foothills, especially north-facing slopes
Eriastrum hooveri Hoover's wooly star	T[1]/ - / 4	Open, sparsely vegetated areas in saltbush scrub and grassland
Eriogonum gossypinum cottony buckwheat	-- / --/ 4	Open slopes, especially south-facing
Lembertia congdonii San Joaquin wooly threads	E/ - /1B	Grassland, primarily sandy soils
Opuntia basilaris var. *treleasei* Bakersfield cactus	E/E/1B	Mesas and washes with sandy soils
Stylocline citroleum Oil neststraw	-- / -- /1B	Saltbush scrub

*** STATUS ABBREVIATIONS:**

Federal — E - federally listed as endangered
T - federally listed as threatened ([1] Hoover's wooly star was recently announced as one of several species to be "downlisted"; however, a federal register notice has not yet been published)

State — E - state-listed as endangered

CNPS — 1B - plants which are considered to be rare and endangered in California and elsewhere by the California Native Plant Society
4 - a watch list

Sources: CDFG (2000), CDFG (1997), Skinner and Pavlik (1994), and MBHCP Steering Committee (1994)

3.0 METHODS

The list of special status species which could potentially occur in the vicinity of the project site was compiled by consulting pertinent literature, accessing the CDFG Natural Diversity Data Base, and contacting certain persons familiar with local and regional biological resources.

Biological field surveys were conducted in January, 2000. After an initial evaluation, it was determined that listed small mammals were very unlikely to occur on the proposed project site. Therefore, the transect surveys were focused on habitat evaluation plus detecting San Joaquin kit fox and burrowing owl. The surveys were not conducted at an appropriate time for detecting blunt-nosed leopard lizard or special status annual plant species. Two hundered-foot belt transects were walked with each observer being responsible for evaluating all burrows and dens within 100 feet of the centerline of the transect. If observed, important habitat elements for special status species were noted and mapped (i.e. open ground for blunt-nosed leopard lizard). In addition, plant communities were mapped.

Direct observations of special status species and their "sign" (scat, tracks, tail drags, etc.) were noted if encountered during the surveys. San Joaquin kit fox were assumed to be present in the project vicinity based on past direct observation of kit fox and presence of known kit fox dens near the project site. Therefore, scent station surveys and spotlighting were not conducted for this species.

Only known San Joaquin kit fox dens were mapped, including suspected pupping dens. Known dens are those burrows or artificial structures which measure between approximately 4 and 12 inches in height, which exhibit sign (scat, tracks, claw marks, prey remains) indicating past or present kit fox use, or other characteristics which, in the judgement of the biologist, are characteristic of dens which have been used by kit fox.

Potential San Joaquin kit fox dens are burrows or artificial structures which meet the same size criteria as known dens, but exhibit no sign of kit fox use. Due to the large number of squirrel colonies within the survey containing burrows meeting the criteria for potential dens and the length of time before project construction is likely to commence, potential kit fox dens were not mapped.

4.0 RESULTS

4.1 Wildlife

A list of wildlife species observed during the surveys is included in Appendix B. No listed threatened or endangered wildlife species were directly observed during the surveys. However, other sign of site utilization by listed wildlife species was observed.

4.1.1 Listed Wildlife Species

Blunt-nosed leopard lizard (*Gambelia sila*)

Species specific surveys for blunt-nosed leopard lizard were not conducted. Suitable habitat for this species was distributed throughout the project site, especially in sparsely vegetated grassland flats and along unpaved trails and roads. However, a good portion of the project site consisted of very dense annual grasses such as foxtail (*Hordeum leporinum*), bromes (*Bromus* spp.), and wild oats (*Avena barbata*), which are generally poor habitat for this species.

Direct observations by the author and discussions with other biologists familiar with the area resulted in several known locations for this species in the vicinity of the project site which did not appear in the CNDDB report. Three of these sightings were reported along the western boundary of Section 17, within the proposed Kern Canyon Ranch project (Rado and Mitchell 1993).

San Joaquin Antelope Squirrel (*Ammospermophilus nelsoni*)

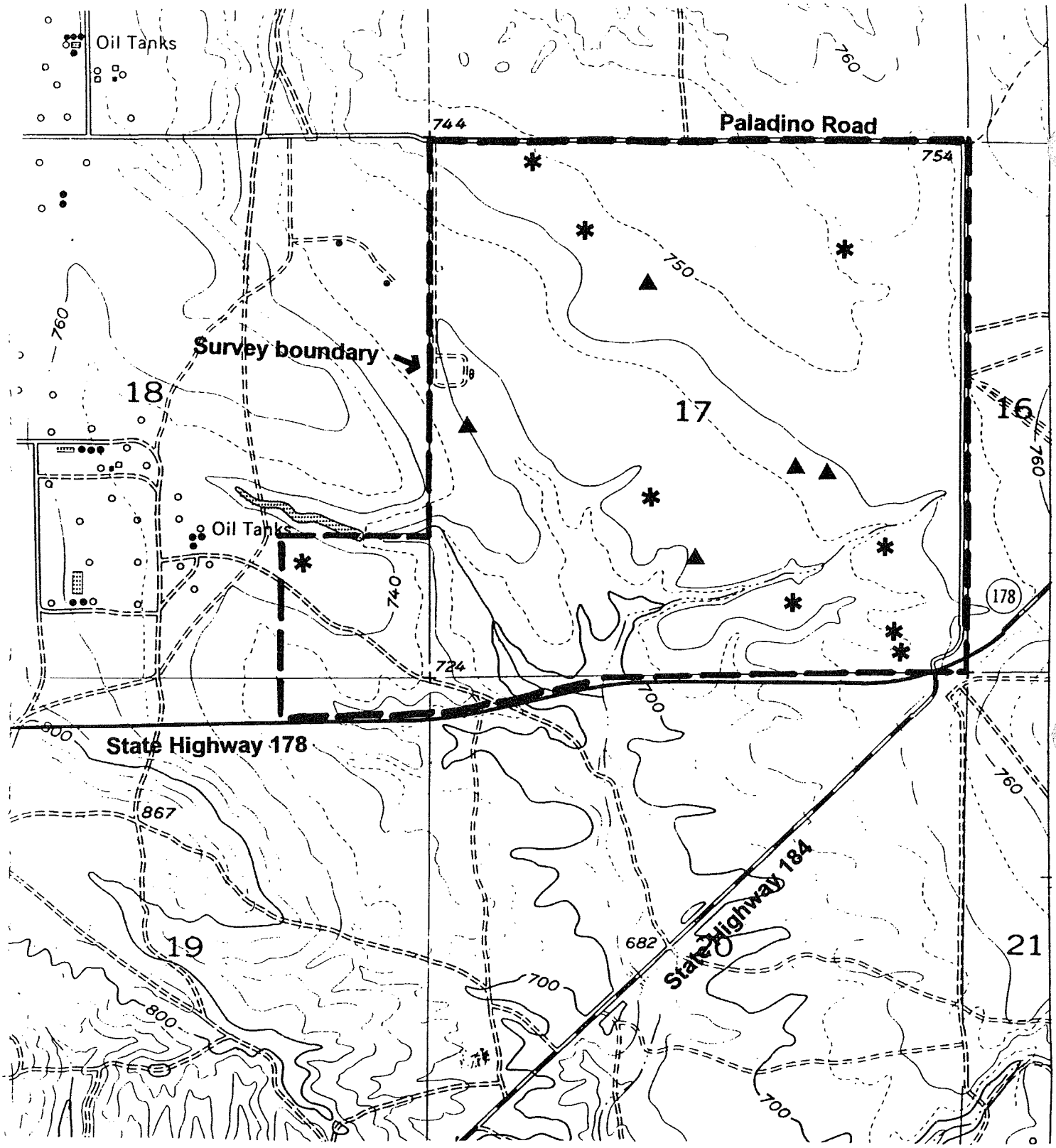
Surveys were conducted under appropriate conditions to observe this species. However, San Joaquin antelope squirrels were not observed during site surveys. Although suitable habitat is present, it is unlikely that this species occurs on the project site. Despite extensive surveys in the vicinity of the project site, no San Joaquin antelope squirrels have been observed recently. It is thought that they may be extirpated from this area based on the fact that no antelope squirrels have been observed north or east of Bakersfield since the 1970's (Williams 1986).

San Joaquin Kit Fox (*Vulpes macrotis mutica*)

Five known San Joaquin kit fox dens were observed in the Section 17 portion of the proposed project (Figure 2). Potential dens were common throughout the survey area, primarily within the widespread ground squirrel colonies in the survey area. Kit fox scat was observed throughout the survey area; therefore, it is likely that San Joaquin kit fox forage over the entire site.

4.1.2 Other Wildlife Species of Concern

Several burrowing owls and burrowing owl burrows were observed throughout the survey area (Figure 2). Loggerhead shrikes and a golden eagle were also observed during the survey. No other unlisted species of concern were directly observed during the surveys. No diagnostic kangaroo rat sign (scat, tracks, tail drags, burrows) was observed.



▲ - Known San Joaquin kit fox den

✱ - Burrowing owl burrow

N

4.0 RESULTS

4.2 Vegetation

4.2.1 Plant Communities

Plant communities are described in Section 2.3, Vegetation. In addition, plants observed during the surveys are listed in Appendix C. This plant list is extremely limited, based on the winter season of the the survey. The survey area consisted primarily of non-native grassland with some areas of saltbush scrub present along the western boundary of Section 17 in an area that appeared to have been reseeded in association with a pipeline right-of-way.

4.2.2 Listed Plant Species

California Jewelflower (*Caulanthus californica*)

California jewelflower was not observed during the surveys; however, surveys were completed too late in the season to identify this annual. The nearest presumed extant location for California jewelflower is several miles to northeast, off of Rancheria Road in the low Greenhorn Range foothills. Although some marginally suitable habitat was present, frequent grass fires, discing, offroad vehicle use, oil development, and other disturbances make it unlikely that this species occurs in the project area.

Hoover's wooly star (*Eriastrum hooveri*)

The survey was not conducted at an appropriate time for observation of Hoover's wooly star. No populations of this species are known from the vicinity of the project site and it is considered unlikely that it is present.

San Joaquin wooly threads (*Lembertia congdonii*)

An occurrence for San Joaquin wooly threads is recorded by the CNDDB approximately four miles west of the proposed project site. However, this population was last seen in 1905 and is very likely extirpated. No suitable habitat was observed during the surveys for the project, primarily due to the fact that the entire site has been disced in the past. Although the survey was not conducted during an appropriate season for observation of this species, it is unlikely that it occurs within the project area. In addition, other surveys conducted during the appropriate period in the vicinity have not resulted in observation of this species (Rado and Mitchell 1993, BRC 1998).

Bakersfield Cactus (*Opuntia basilaris* var. *treleasei*)

Sixteen existing populations of Bakersfield cactus are reported by the CNDDB on the USGS Oil Center Quadrangle. The nearest existing population is found in Section 24, T. 29 S., R. 28 E., M.D.B. and M., approximately one mile west of the proposed project site (CDFG 2000). In

addition, a small population was reported less than ½ mile northwest of the project site's northwestern corner (BRC 1998). These populations represent remnant populations of this cactus, which once formed "dense almost impenetrable colonies" throughout the area (Moe and Twisselmann 1994).

Surveys for Bakersfield cactus may be conducted at any time during the year. Bakersfield cactus was not observed within the proposed project area during the surveys.

4.2.3 Other Plant Species of Concern

Although the surveys were not conducted during an appropriate period for identification of sensitive annual plants, based on the disturbance history of the project site, it is considered unlikely that any of these species would be impacted by the proposed project.

5.0 IMPACTS

5.1 Impact Significance

Impacts to biological resources may be considered significant if a project has the potential to substantially degrade the environment, substantially reduce the habitat of a fish or wildlife species or cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. Additionally, Appendix G of the California Environmental Quality Act Guidelines lists several effects which may result in a project being deemed "to have a significant effect on the environment", with the following pertaining to biological resources:

- Conflict with adopted environmental plans and goals of the community where it is located;
- Substantially affect an endangered, rare, or threatened species of animal or plant or the habitat of the species;
- Interfere substantially with the movement of any resident or migratory fish or wildlife species; or,
- Substantially diminish habitat for fish, wildlife, or plants.

The word "substantial", in the case of effects on rare or endangered plants and animals would depend on the sensitivity and status of the species potentially affected, as well as the type and magnitude of the effect. Generally, "take" of any listed threatened or endangered species would constitute a significant effect. For other than listed species, significance depends on the duration and intensity of the impact and, absent statutory protection, would be the responsibility of the local lead agency to determine. For this report, losses of habitat or population that are expected to be measurable 5 or more years after the initial impact are considered to be long term, and impacts of lesser duration are considered short term. Impacts that are short term or small in scope are typically less likely to be significant, but the threshold for significance will be lower for resources of concern to the public and regulatory agencies. All impacts to biological resources associated with the proposed project would be considered long term.

5.2 Direct Impacts

5.2.1 Special Status Species Included in the MBHCP

"Take" of listed threatened and/or endangered species may occur in association with implementation of the proposed Kern Canyon Ranch project. Based on the current survey results, the only listed species likely to occur on the proposed project site are San Joaquin kit fox and blunt-nosed leopard lizard. Four known San Joaquin kit fox dens were observed in Section 17. Potential kit fox dens would be impacted by project construction. Destruction or disturbance to burrows or dens could displace threatened and endangered species into adjacent areas which are

either unsuitable or already occupied. Individual kit foxes and/or blunt-nosed leopard lizards could be crushed in burrows within the construction area. An increase in vehicle traffic and access to offroad areas in the project area would also expose wildlife to an increased probability of vehicular mortality.

Other special status species which may occur within the project area which are also covered under the MBHCP include San Joaquin pocket mouse. Although direct observations of this species cannot be made without conducting small mammal trapping, many small mammal burrows suitable for this species were observed during the survey throughout the proposed project site.

5.2.2 Special Status Species not Included in the MBHCP

Other upland special status species which are likely to occur in the project area would be subject to the same potential direct impacts as listed species. Species which were observed during surveys or are likely to occur within the project area include Cooper's hawk, sharp-shinned hawk, burrowing owl, northern harrier, prairie falcon, and loggerhead shrike. Impacts to these species could occur as a result of all project implementation.

Other special status species not included in the MBHCP which are unlikely to be impacted due to the small amount of suitable habitat or probable infrequent use of the site vicinity include, golden eagle and LeConte's thrasher.

It is unlikely that any unlisted special status plant species would be impacted by the proposed project.

5.2.3 Breeding Birds

Grasslands and saltbush scrub contain habitat elements which potentially support breeding birds, their nest and young. Species such as burrowing owls use burrows in grassland habitats and several ground-nesters, such as western meadowlark and killdeer, use this habitat type as well. If project construction occurs during bird nesting season (for most species, March 15 through July 31), nests, eggs, and/or young of species protected by the Migratory Bird Treaty Act could be disturbed, in violation of this statute.

5.2.4 Vegetation

Habitat loss through conversion to agricultural, urban, and oilfield uses is the primary reason for the listing of threatened and endangered species of the southern San Joaquin Valley. The implementation of the proposed project would result in permanent loss of approximately 684 acres of non-native grassland and approximately 10 acres of saltbush scrub vegetation.

5.2.5 Rivers and Drainages

Although no riparian or wash vegetation is present, areas potentially regulated by ACOE and CDFG within the unnamed blueline streams within the proposed project area would be impacted by project activities. Project impacts to these blueline streams would be potentially significant.

5.3 Indirect Impacts

5.3.1 Offsite Habitat Degradation

Increased human activity along the margins of the project area are likely to result in degradation of adjacent habitat. Increased litter, noise, vegetation trampling, and the potential for wildlife harassment are likely to occur.

Maintenance of vegetation free areas adjacent to facilities favors introduction of alien plant species into these and adjacent areas. Landscaping could result in introduction of invasive alien plant species to adjacent habitat areas, decreasing the habitat quality for native species.

These impacts would be potentially significant.

5.4 Cumulative Impacts

The continuing loss of non-native grassland and saltbush scrub habitats which support special status species endemic to the southern San Joaquin Valley represents a cumulative impact of the project. The urban development which could follow the proposed project would serve to exacerbate this habitat loss. All of the lands that would be served by the proposed water facilities are included within the City of Bakersfield 2010 boundary, the limits of the MBHCP. Compensation for habitat loss through this habitat conservation plan would reduce these impacts. Cumulative impacts from development in general within the 2010 boundary have additionally been analyzed in the MBHCP (MBHCP Steering Committee 1993).

6.0 PROPOSED MITIGATION

6.1 Measures to Mitigate Direct Impacts

6.1.1 Special Status Species Included in the MBHCP

The proposed project site is within the plan area for the Mettropolitan Bakersfield Habitat Conservation Plan (MBHCP). Therefore, for upland species included within the MBHCP, primary mitigation would consist of participation in this program through compensation for habitat disturbance and implementation of take avoidance measures.

The following is a summary of measures in the MBHCP which pertain to this project site:

- Compensation for each acre of disturbance at the current mitigation fee;
- Monitoring and excavation of each known San Joaquin kit fox den which cannot be avoided by construction activities; and
- Notification of wildlife agencies of relocation opportunity prior to ground disturbance in areas where known kit fox dens.

To implement measures regarding San Joaquin kit fox, a map of the known dens observed during this survey shall be submitted to the MBHCP Implementation Trust Group. In addition, a preactivity survey shall be conducted not more than 30 days prior to the onset of construction activities in areas subject to development to determine the necessity of den excavation.

The following measures shall be implemented to further reduce impacts to these species:

- All pipes, culverts, or similar structures with a diameter greater than 4 inches shall be capped or blocked to prevent entry by San Joaquin kit fox and other wildlife. If pipe is not capped (i.e. short pipe segments stockpiled prior to use), it should be inspected for kit fox. If any kit fox are observed within pipe, they shall be allowed to escape unimpeded;
- all trenches or steep-walled excavations greater than three feet deep shall include escape ramps to allow wildlife to escape. Each excavation shall contain at least one ramp, with long trenches containing at least one ramp every 1/4 mile. Slope of ramps shall be no steeper than 1:1;
- all employees, contractors, or other persons involved in the construction of the project shall attend a "tailgate" session informing them of the biological resource protection measures which will be implemented for the project. The orientation shall be conducted by a qualified biologist and shall include information regarding the life history of the protected species, reasons for special status, a summary of applicable environmental law, and measures intended to reduce impacts.

Because "take" of blunt-nosed leopard lizards is also currently prohibited by Section 5050 of the California Fish and Game Code, additional measures are necessary to comply with this section:

- Surveys for blunt-nosed leopard lizards shall be conducted following CDFG protocols. These surveys should be conducted between April 15 and June 30 under the specified time and temperature conditions. This survey is necessary to determine the current status of blunt-nosed leopard lizards on the project site.

- If blunt-nosed leopard lizards are detected, the applicant shall submit methods for compliance with Fish and Game Code Section 5050 to CDFG for review and approval.

The MBHCP covers the following listed species which have been identified as being potentially impacted by the proposed project: blunt-nosed leopard lizard and San Joaquin kit fox. Based on the broad, ecosystem-based approach of the MBHCP, compensation through participation in this plan would be sufficient to mitigate for loss of habitat for other potentially occurring upland non-listed special status species potentially occupying the project area.

6.1.2 Special Status Species not Included in the MBHCP

No additional mitigation measures are necessary.

6.1.3 Breeding Birds

Native bird and raptor nests are protected under the Migratory Bird Treaty Act. If possible, all site grading and activities which could directly impact native bird and/or raptor nests (including burrowing owl) should be conducted between September 1 and January 31, during the non-breeding season for most bird species. If these activities must be conducted during the breeding season (February 1 through August 31), a biologist shall survey the vegetation for bird nests prior to grading. If no active bird nests are located, grading in areas where no active nests are present could occur during breeding season. The following measure will be implemented to reduce potential impacts to native birds and raptors:

- In compliance with Sections 3503 and 3503.5 of the California Fish and Game Code, if grading is to occur during the native bird and raptor nesting breeding season (February 1 through August 31), a qualified biologist shall determine the presence of any native bird and raptor nests prior to or concurrent with grading activities. In addition, CDFG will be contacted to obtain and comply with all appropriate procedures relative to grading operations in proximity to any active nests identified. Resulting mitigation measures may include restricting construction activities near native bird and raptor nesting sites during and immediately following the breeding season.

- A preconstruction survey shall include a survey for burrowing owl. If active burrowing owl burrows are detected outside of breeding season (September 1 through January 31), passive and/or active relocation efforts may be undertaken if approved by CDFG and USFWS. If active burrowing owl burrows are detected during breeding season (February 1 through August 31), no disturbance to these burrows shall occur without obtaining appropriate permitting through the Migratory Bird Treaty Act.

6.1.3 Vegetation

Loss of vegetation associated with non-native grassland and valley saltbush scrub would be adequately mitigated through implementation of measures included in Section 6.1.1, above.

6.1.4 Rivers and drainages

CDFG and ACOE should be contacted to determine whether the intermittent streams on the project site fall within the jurisdiction of either of these agencies. Subsequent to the formal delineation, the following mitigation measure will be implemented to reduce potential impacts to jurisdiction streambeds to a less than significant level:

- Prior to the issuance of a grading permit and/or approval of plans and specifications, there will be a determination as to whether the proposed project could potentially affect jurisdictional streambeds. If there is a potential to affect jurisdictional streambeds, California Fish and Game Code, Section 1601 Streambed Alteration Agreement and/or a Clean Water Act permit from ACOE will be obtained from CDFG and/or ACOE, respectively. The CDFG and ACOE typically require mitigation plans to be prepared prior to the loss of habitat within streambeds.

6.2 Measures to Mitigate Indirect Impacts

6.2.1 Offsite Habitat Degradation

- During construction, site boundaries shall be clearly marked with flagging, fencing, or other suitable material to prevent construction equipment and vehicles from impacting adjacent habitat areas potentially occupied by special status species.

- All trash and food waste shall be disposed of in closed containers and regularly removed from the project construction site. Absolutely no deliberate feeding of wildlife shall be allowed.

- The following invasive exotic plants shall not be used in any project residential or commercial landscaping: tamarisk (all species) and pampas grass. In addition,

vegetation at any ponds or water features shall be managed in a way such that none of the invasive exotic plants listed by the Department of Agriculture allowed to become established. Typical invasive exotic plants that can become problematic in this region include: water hyacinth and pampas grass.

6.3 Significance of Impacts After Mitigation

Implementation of the mitigation measures included in this section will reduce potential project impacts to identified biological resources to less than significant levels.

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APPENDIX A

Brief Descriptions of Special Status Species Known to Occur (historically and currently) in the Vicinity of the Project Site in Similar Habitats

Reptiles

Gambelia sila
blunt-nosed leopard lizard

The blunt-nosed leopard lizard is a relatively robust lizard with a large head and blunt snout. It was historically distributed over the San Joaquin Valley adjacent lower foothills, plains, and valleys. Adult total length may reach up to 13 inches. Coloration consists of a light grayish, tan, or brown background with a conspicuous pattern of dark overlaying spots and/or pale crossbars. During the spring courtship season both sexes may develop reddish markings on the sides, tail, and ventral surfaces. Juveniles usually show a similar, but more yellowish pattern.

Blunt-nosed leopard lizards are active during the day, primarily between the months of April and October. Peak daily activity usually occurs when air temperatures are between 75 and 95 degrees Fahrenheit. Animals overwinter underground in rodent burrows. Food consists primarily of insects such as grasshoppers, although smaller lizards may also be consumed.

Leopard lizards occur on sparsely vegetated plains, lower canyon slopes, on valley floors, and in washes. Associated vegetation may include a variety of grasses, saltbush, golden bush, iodine bush, and seepweed.

Phrynosoma coronatum
California horned lizard

The California horned lizard is a flat bodied lizard that is up to 6 inches in length. It has a large crown of spines on the posterior portion of its head. The cranial spines of the California horned lizard tend to be similar in size, whereas the central two spines tend to be longer in the other subspecies. There are large dark spots on the side of its neck and there are two rows of pointed scales at the fringe of its trunk. Coloration is reddish, brown, yellow, or gray with dark blotches on the back; coloration is variable and is possibly dependent upon soil coloration. This lizard lays a clutch of 6 to 12 eggs in May or June, and hatchlings emerge in July or September. Their main food source is ants.

This lizard is diurnal and will inflate with air when frightened to avoid predation. Other defensive strategies include threatening would-be enemies with an open mouth and hissing noises, tilting its head to expose the cranial spines, biting, and spraying blood from the corner of its eyes.

The California horned lizard occurs along the coast north of San Francisco Bay to Los Angeles, and inland into the Sacramento and San Joaquin valleys. It inhabits open areas of sandy soil with low sparse vegetation.

Birds

Accipiter cooperi
Cooper's hawk

This medium-sized hawk (length = 14-20 inches; wing span = 29-37 inches) is mostly brown above, with the male being more bluish above and more heavily marked (barred) below. The tail is strongly barred on the underside. Juveniles are lighter below, with fine streaks in the chest area. As in most raptors, the female is substantially larger than the male (app 1/4 to 1/3 larger). The long tail and short, rounded wings are characteristic of the genus *Accipiter*. Also diagnostic of the genus is the flight profile, which consists of a series of strong, rapid beats followed by a glide. Cooper's hawks can be confused with the similar but smaller sharp-shinned hawk, as these two species have similar coloration and body proportions. However, the larger size, proportionately larger head, more distinaive black cap, and longer, more rounded tail distinguishes the Cooper's hawk.

Accipiter striatus
Sharp-shinned hawk

Sharp-shinned hawks are similar in appearance to Cooper's hawks, but smaller. Their diet consists primarily of birds. In the project area, riparian woodlands provide suitable habitat for this species.

Aquila chrysaetos
Golden eagle

The golden eagle is a large, brown raptor (length = 30-40 inches; wing span = 80-88 inches) that, in the western states, occurs primarily in open, mountainous areas, foothills, canyons, and plains. Large size and flat-winged soaring distinguish the golden eagle from large hawks. Immature golden eagles may be distinguished from immature bald eagles by their thinner bills and relatively smaller heads. In flight, as viewed from below, immature golden eagles show more clearly defined white patches at the base of the primaries and also a distinctive white tail with a dark terminal band.

The golden eagle is a circumpolar species that occurs over much of the United States and southem Canada. In the westem United States, it is a year-round resident. Nesting occurs in trees and on cliff faces. Their diet consists primarily of mammals (mostly lagomorphs and ground squirrels), birds, and snakes.

Athene cunicularia
Burrowing owl

Adult burrowing owls are sandy colored over the head, back, and wings, with barring on the breast and belly. Juveniles are smaller, and buffy below. Burrowing owls are medium-sized (body length averages 9.5 inches), yellow-eyed owls with disproportionately long legs. The tail is very short; the head is rounded and lacks ear tufts. The long, exposed lower legs, and the characteristic "bowing" behavior that the bird displays when approached or otherwise disturbed, quickly distinguish this owl from all other small owls. During the nesting season, the burrowing owl often perches on a low post or at the entrance to a burrow. Calls are often synchronized with bowing behavior. When approached or flushed, both sexes commonly give a sharp "chatter" call.

Resident burrowing owls begin pair formation as early as December, and migratory birds begin upon their arrival in the breeding area, usually in March and April. Six to eleven eggs are laid during late March to early

May. Incubation lasts about four weeks. Nests are generally located in bare, level ground in abandoned mammal burrows.

Burrowing owls inhabit dry, open grasslands, rolling hills, desert floors, prairies, savannas, agricultural land, and other areas of open, bare ground. These owls will also inhabit open areas near human habitation, such as airports, golf courses, shoulders of roads, railroad embankments, and the banks of irrigation ditches and reservoirs.

Buteo swainsoni
Swainson's hawk

Swainson's hawk is a medium-sized (to 18 inches), dark breasted hawk of grasslands and open woodlands in California, preferring riparian trees for nesting. Certain types of agricultural fields adjacent to riparian areas also provide foraging habitat for nesting pairs. Diet includes rabbits, lizards, snakes, frogs, and occasionally insects.

Reduction of riparian habitat in California has reduced the nesting range of this species to primarily the Sacramento Valley, with occasional nesting to the south through Kern County. Fairly large numbers of these hawks migrate through the Central and San Joaquin valleys to their wintering grounds in South America.

Circus cyaneus
Northern harrier

The northern harrier is a medium-sized (length = 17-24 inches; wing span = 38-48 inches), relatively slender hawk that is most easily recognized by its conspicuous white rump. Wings are comparatively long, as in falcons, but are more rounded. This raptor is unusual in that sexual dichromatism is pronounced: females are mostly brown above and white with brown streaks below, whereas males are generally grayish above, white below, and the wing tips are black. Also diagnostic is the erratic flight of leisurely wing beats and swift glides, usually low to the ground, and with wing tips up-turned. Harriers also often perch close to the ground.

Northern harriers range throughout North America, and in California they are usually year-round residents (some southern California birds may be over-winter visitors). Formerly known as the marsh hawk, these birds primarily inhabit marshes, fields, and prairies. Diet consists primarily of small rodents, though frogs, reptiles, and insects are also taken (Ehrlich *et al* 1988).

Falco mexicanus
Prairie falcon

The prairie falcon is a medium-sized falcon (length = 15 -20 inches; wing span ~ 35-43 inches) of mostly brown coloration. The underside is creamy white and heavily spotted with brown. Long, pointed wings and long tail distinguish this species from other, non-falcon raptors. Prairie falcons are very powerful flyers, and are among the fastest of birds. Among similar species, the peregrine falcon has a darker dorsal surface and more black on the face. In flight the Prairie Falcon is easily identified by the presence of dark patches in the axillary region (= wingpits).

Prairie falcons occur in arid portions of western North America. Northern individuals (e.g., from eastern Washington and southem Canada) may winter in Mexico, whereas in California the species is a year-round resident. This is a bird of generally dry, open country such as plains, prairies, and deserts, and can be relatively common in canyon country, where it is attracted to the nesting sites afforded by cliffs and rock

outcrops. The diet of prairie falcons consists primarily of small mammals and birds, although a variety or other prey species may also be taken (e.g, lizards, insects) (Ehrlich *et al* 1988).

Lanius ludovicianus
Loggerhead shrike

The loggerhead shrike is a robin-sized bird (length = 9 inches) with a raptor-like, hooked bill. Dorsal coloration is bluish-gray, and ventral coloration is whitish, with very faint barring. Juveniles are more brownish. Most distinctive is the black eye mask, and in flight, the white wing patches on the contrasting dark wings. Distinguished from the northern mockingbird, which it resembles in flight, by darker wing and smaller white wing patches. The mockingbird also lacks conspicuous eye patch and hooked bill, and has slower wing beats.

This shrike occurs over most of the U.S., Mexico, and central Canada. In California, the shrike occurs as a resident over most of the state, being absent from high mountain regions. Habitat consists of open areas, such as savannas and deserts, where bushes, small trees, or other perch sites are available. Lacking talons, the shrike impales its prey to facilitate feeding, or to store it for future consumption. Diet includes a variety of insects and spiders, small reptiles, rodents, and small birds (Ehrlich *et al* 1988).

Toxostoma lecontei
LeConte's thrasher

LeConte's thrasher is the palest in color of all the thrashers. It has sandy gray plumage with a somewhat dark tail. The bill and eye are dark and it has a yellowish tinge on the rump. Its bill is down-turned and it is often observed perching atop saltbush shrubs, other tall shrubs, and fence posts.

LeConte's thrashers inhabit arid, sparsely vegetated deserts of southern Nevada, western Arizona, extreme northwestern Mexico, and southeastern California. It is also found in the arid SanJoaquin Valley. It runs with surprising speed across open desert or along washes. It is uncommon throughout most of its range and is rare in the San Joaquin Valley.

Mammals

Ammospermophilus nelsoni
San Joaquin antelope squirrel

The San Joaquin antelope squirrel is a small, yellow-brown squirrel with two distinguishing white stripes along dorsal side of the body. In contrast to other listed mammals in their range, these squirrels are diurnal and are active year-round. Their young are apparently born in March and appear above ground in early April (Kakiba-Russell et al. 1991). San Joaquin antelope squirrels are most often found in grasslands or open shrublands. Associated shrubs include saltbush, ephedra, bladder pod (*Isomeris arborea*), goldenbush (*Isocoma acradenius = Haplopappus a.*), snakeweed (*Gutierrezia bracteata*), and others. San Joaquin antelope squirrels are omnivorous, with a diet consisting primarily of grass and herb seeds and insects (CDFG 1989). It appears that San Joaquin antelope squirrels rarely occupy burrows they have dug; instead, they tend to use burrows dug by kangaroo rats. In grassy, shrubless areas, Harris and Stearns (1990) found San Joaquin antelope squirrels only in areas with high kangaroo rat densities.

The San Joaquin antelope squirrel originally occurred on the western side of the San Joaquin Valley from southern Merced County south to Kern County, the Carrizo Plain in San Luis Obispo County, and the Cuyama Valley in San Luis Obispo and Santa Barbara counties (CDFG 1980). Prior to cultivation of the San

Joaquin Valley, the San Joaquin antelope squirrel occupied approximately 3,456,000 acres (Williams 1980). More than 80 percent of this estimated original geographic range is now under cultivation, with this species having been nearly extirpated on the eastern side of the San Joaquin Valley (Wlliams 1980). No large tracts of prime habitat remain, and only about 15 percent of the remaining habitat is considered to be good to fair in quality. San Joaquin antelope squirrels now occur only in the southwestern portion of the San Joaquin Valley and in adjacent valleys to the west (Williams 1980).

Dipodomys nitratides brevinasus
Short-nosed kangaroo rat

The short-nosed kangaroo rat is a small species of the genus *Dipodomys*, measuring up to 9 inches in total length. It is one of three recognized subspecies of the San Joaquin kangaroo rat (*Dipodomys nitratoides*). Overall appearance is that of a compact rodent, with a flattened head, small ears, short neck, and cylindrical body. The hind legs are elongated and serve as the principal means of locomotion. The long tufted tail, comprising about one-half of the total length of the animal, provides balance. Coloration is brownish above changing to whitish ventrally. The presence of four toes on the feet of this taxon helps to distinguish it from other sympatric kangaroo rat species (Uptain 1989).

Short-nosed kangaroo rats excavate shallow burrows from which animals emerge at night to forage for seeds. Often, all or a significant portion of the nightly harvest is cached for later use. When foraging, kangaroo rats hold seeds in fur-lined pouches on the sides of the mouth. Little information is available on the population densities of short-nosed kangaroo rats.

Short-nosed kangaroo rats are generally found on flat and gently sloping terrain and on hill tops in scrub vegetation (primarily saltbush). They are found on friable, sometimes alkaline soils. Light to moderate grazing by livestock probably enhances habitat for short-nosed kangaroo rats (Wlliarns 1986).

Short-nosed kangaroo rats are found on the western side of the San Joaquin Valley, from near Los Banos, Merced County, southward west of the San Joaquin River in a line approximately coincident with the Kettleman Hills, Lost Hills, and Elk Hills of the southern end of the Valley. They also occur in the Panoche Valley, San Benito County, the Sunflower Valley, Kings County, the Antelope Plain in Kern County, the Carrizo Plain in San Luis Obispo County, the Cuyama Valley in San Luis Obispo and Santa Barbara counties, and at the edge of the valley floor around the southern end of the San Joaquin Valley from the vicinity of Maricopa on the west, to east of Bakersfield on the east (Hall 1981, Williams 1985, and unpubl data. in Williams 1986).

Perognathus inornatus inornatus
San Joaquin pocket mouse

San Joaquin pocket mouse is a small buff-brown pocket mouse with some guard hairs but no bristles or spines as in some other pocket mice. This species has an indistinct lateral line along its side and a unicolored tail. The San Joaquin pocket mouse measures between 5 and 6.2 inches long with a 2.5 to 3 inch long tail (Jameson and Peeters 1988).

San Joaquin pocket mice are found throughout all habitat types in the San Joaquin Valley and surrounding foothills. The species' distribution is not well-defined and they have been historically found from the Sacramento Valley south through the San Joaquin Valley and into the lower elevations of the Sierra and Coast Ranges (Thomas Reid and Associates 1990).

Taxidea taxus
American badger

American badgers are low, squat animals with conspicuous silver-tipped pelage dorsally and a short, black-tipped tail. The most striking visual feature of this species is its striped face, consisting of a median white stripe proceeding from the tip of its nose to the back of its head. This stripe is flanked by alternating white and dark stripes giving way to bright, white-outlined ears. The badger's wide flattened body is supported by short but powerful legs. The front feet are fitted with noticeably long claws that are especially well-suited for digging out the burrows of the rodents on which it feeds.

Historically, badgers are thought to have been fairly widespread in the open grassland habitats of the lower San Joaquin Valley. Their modern San Joaquin Valley distribution is essentially restricted to the limited, often isolated and remote tracts of native grassland and shrubland habitats. Cultivated lands have been reported to provide little usable habitat for this species, and badgers are believed to be declining throughout California (Williams 1986).

Badgers are solitary animals. They usually forage for burrowing prey such as gophers, ground squirrels, marmots, and kangaroo rats, although they are known to take a variety of nesting mammals, reptiles, and birds.

Vulpes macrotis mutica
San Joaquin kit fox

The San Joaquin kit fox is one of the eight recognized subspecies kit fox. It resembles a small lanky dog in appearance, with disproportionately large ears containing an abundance of large, white inner guard hairs. The San Joaquin kit fox is the largest subspecies of kit fox, with adults weighing 4.5 to 5 pounds (2-2.3 kg). Total length is about 32 inches, including up to a 12-inch black-tipped tail. Coloration ranges from light buff to grayish along the back and tail, gray, rust, or yellowish along the sides, and white on the belly (O'Farrell 1983).

San Joaquin kit foxes are generally nocturnal and are opportunistic carnivores. They feed on rodents, lagomorphs, birds, reptiles and insects, as well as on carrion such as road kills. Studies indicate that the primary food items may vary geographically and seasonally (Kakiba-Russell et al. 1991).

Dens are typically excavated in loose soil (O'Farrell 1983), but also occur in harder clay soils in the northern portion of their range. Dens are not found in saturated soils or in areas subjected to periodic flooding (Kakiba-Russell et al. 1991). Individual animals may utilize from 3 to 24 separate dens (Morrell 1972). Number of den entrances may range from 1 to 36 (O'Farrell 1983), and may extend into several tunnels and chambers reaching depths of up to 10 feet (O'Farrell 1987). Most dens are vacant at any given time. During times when dens are unoccupied kit fox, they may be occupied by other burrowing animals such as badger, ground squirrels, skunks, and burrowing owls (Kakiba-Russell et al. 1991). Although occupied dens may show freshly excavated soil, scats, and prey remains (O'Farrell 1987), sign may also be inconspicuous or absent (Hall 1983). Typical den entrances are characteristically higher than wide, and are small enough to prevent access by large carnivores such as coyotes. Den entrance hole dimensions are generally about 8 to 10 inches in height and less than 8 inches in width (O'Farrell 1987), but may be as small as 4 inches in width. Burrows of other animals, particularly California ground squirrels (Spermophilus beecheyi), are opportunistically enlarged and utilized as den sites by San Joaquin kit foxes (Balestreri 1981). Most dens are found in areas with slope angles of less than 40 degrees, and natal and pupping dens are found more frequently on gentle slopes or in flat terrain. Man-made structures such as culverts and pipes may also be used as dens (O'Farrell 1983).

Individual San Joaquin kit foxes have an average home range of 1 to 2 square miles (Knapp 1978; Morrell 1972). Courtship and mating occur in December and January. Pups are typically born in February and March, and begin to disperse at around five months of age (Morrell 1972; O'Farrell 1983). About 75% percent of kit fox pups die before the age of eight months (O'Farrell 1984).

San Joaquin kit foxes occur in Valley Saltbush Scrub, Valley Sink Scrub, Interior Coast Range Saltbush Scrub, Upper Sonoran Sub-shrub Scrub, Non-native Grassland, and Valley Sacaton Grassland. In general, kit fox are not found in densely wooded areas, wetland areas, or areas subject to frequent periodic flooding. Habitats altered by agricultural and urban developments are unsuitable for long-term kit fox inhabitance (Kakiba-Russell et al. 1991).

The San Joaquin kit fox was historically distributed over a large portion of central California, extending roughly from southeastern Contra Costa County south along the eastem flanks of the Interior Coast Range to the southem San Joaquin Valley, including major portions of western Kern County and Tulare County. San Joaquin kit fox were also distributed through adjacent valleys, foothills, and plains, including portions of San Luis Obispo County, Monterey County, and the Santa Clara Valley on the westem side of the Interior Coast Range (Morrell 1975).

Habitat conversion for agricultural and a variety of urban uses has been the principal cause of kit fox population declines, and the reason for both state and federal listing of this species. O'Farrell (1983) estimated that approximately 42 percent of suitable kit fox habitat was lost as a result of such developments. Since that estimate was made, substantial additional habitat loss has occurred. Mortality of kit foxes has been documented from attacks by coyotes, road kills, conversion of habitat, shooting, drowning, entombment, pneumonia, and starvation (Morrell 1975; Knapp 1978; O'Farrell et al. 1986; Berry et al. 1987). Additionally, the use of certain rodenticides has resulted in secondary mortality, since kit foxes are vulnerable to poisoning through consumption of poisoned rodents (USFWS 1985b).

Plants

Caulanthus californicus
California jewelflower

The California jewelflower is an annual reaching a height of 6 to 15 inches. Foliage is gray-green, with heart-shaped clasping stem leaves and wavy margined strap-shaped basal leaves. Unopened flowers appear deep maroon in color. Open flowers are white to greenish-yellow. Suitable habitat for this species is non-alkaline to slightly alkaline sandy loam soils of relatively undisturbed grassland communities below an elevation of 3,000 feet.

Historically, the range of the species included the upper San Joaquin and adjacent valleys from Coalinga in the northwest to the Cuyama Valley in the southwest. Of 55 historical locations, approximately twenty extant populations remain (Skinner and Pavlik 1994). Recently, extant populations have been found on the Carrizo Plain in San Luis Obispo County, and in the Kreyenhagen Hills of Fresno County. An attempt has been made to establish an artificial population at the Paine Wildflower Preserve, Kem County.

Delphinium gypsophilum ssp. *gypsophilum*
Gypsum-loving larkspur

Gypsum-loving larkspur is a perennial in the buttercup family which reaches a height of up to 4 ½ feet. It has a white, inconspicuous flower within generally white sepals along the flowering raceme.

As its name implies, gypsum-loving larkspur frequently occurs on gypsum-rich soils in chenopod scrub and grassland habitats. In favorable years, it occurs on north-facing slopes with other soil types as well.

Eriastrum hooveri
Hoover's wooly star

Hoover's wooly star is a small annual species that reaches a height to 6 inches. Stems typically support erect branches. Leaves are entire and linear, three-cleft with two lateral lobes. The small and inconspicuous flowers are organized into small heads. Corollas range in color from pale bluish to white or cream yellow. Capsules are oblong-ellipsoid with two to four seeds each. Flower usually appear in mid-to late spring (April to May). The habitat for Hoover's wooly star is valley grassland with scattered saltbush (*Atriplex polycarpa* or *A. spinifera*). The plants are often found in openings in Atriplex Scrub where cryptogamic crusts have developed on the soil surface. Associated species include red brome, annual fescue, and goldfields (*Lasthenia californica*).This small, ephemeral, annual species was once fairly widespread on the crusty alkaline soils of the San Joaquin Valley.Much of its native habitat has been converted to agriculture. Hoover's wooly star is known to occur from Fresno County and Kern County (Bakersfield area and west and northwest of Bakersfield). It is known from the Carrizo Plain (San Luis Obispo County) and the Cuyama Valley Santa Barbara County). The species has subsequently been found at many sites bordering the Elk Hills in Kern County (R. Lewis, pers. comm 1996) and is in the process of being downlisted.

Eriogonum gossypinum
Cottony buckwheat

Cottony buckwheat is a small annual buckwheat with wooly, gray-green leaves and a conspicuously cottony inflorescence. The flower is white to rose and glandular. The species grows on exposed clay hills, typically south-facing. Its general distribution includes the southwestern San Joaquin Valley and low foothills of the Greenhorn Range.

Lembertia congdonii
San Joaquin wooly threads

San Joaquin wooly-threads is a small, inconspicuous annual which may be 1 to 10 inches in height at maturity. Stems are multiple, decumbent and often somewhat succulent. Leaves and stems are typically loosely floccose to woolly-haired. Leaves are 1.5 inches long by about 0.25 inch wide with wavy margins. Individual flowers are arranged in heads that are clustered towards the ends of branches. Each head has four to seven phyllaries that are commonly blacktipped. Tiny yellow ray and disk flowers appear in late February or March. Ray flowers and their akenes are clearly distinguished from those of the disk.

San Joaquin wooly-threads are found in valley grassland habitat types with silty sand or sandy loam soils at elevations ranging from 400 feet to 1,200 feet. Valley saltbush is often the dominant shrub in these habitat types. The preferred microhabitat for this species consists of areas with reduced annual grass competition. It is generally not found where annual grasses are extremely dense and tall (Taylor 1987). This species is somewhat prostrate, allowing it to persist under grazing pressure. Known extant populations in Kern County occur along the Kern River near I-5, near Lost Hills, and on the Belridge Plain.

This species was once fairly common in the San Joaquin Valley. Jepson (1923) described it as being much more common during years of high spring rainfall, an observation that is consistent with other reports. Various land conversion activities have eliminated most of its habitat, which is why it was listed by the USFWS as an endangered species.

Opuntia basilaris var. *treleasei*
Bakersfield cactus

Bakersfield cactus is a beavertail-type cactus with bright, magenta-pink flowers. It generally flowers between April and May. The pads differ from the common beavertail cactus in that Bakersfield cactus has spines. Spine length is highly variable through the range of this cactus. Bakersfield cactus occurs primarily on sandy soils of alluvial plains, washes, and ridges, in grassland and saltbush scrub vegetation.

Although it was once common from just north of Bakersfield south along the western flank of the foothills to the vicinity of Wheeler Ridge, much of the cactus has been eliminated through urbanization and disking of grazing lands. Remaining populations are fragmented, occurring in pockets which have been less disturbed.

APPENDIX B

Wildlife Observed During Surveys for the
Proposed Kern Canyon Ranch Project

Scientific name	Common name
Amphibians and Reptiles	
Cnemidophorus tigris	Western whiptail
Uta stansburiana	Side-blotched lizard
Birds	
Ardea herodias	Great blue heron
Buteo jamaicensis	Red-tailed hawk
Calypte anna	Anna's hummingbird
Carpodacus mexicanus	House finch
Cathartes aura	Turkey vulture
Charadrius vociferus	Killdeer
Corvus corax	Common raven
Eremophila alpestris	Horned lark
Euphagus cyanocephalus	Brewer's blackbird
Falco sparverius	American kestrel
Lanius ludovicianus	Loggerhead shrike
Mimus polyglottos	Northern mockingbird
Passer domesticus	House sparrow
Passerculus sandwichensis	Savannah sparrow
Sturnella neglecta	Western meadowlark
Sturnus vulgaris	European starling
Zenaida macroura	Mourning dove
Zonotrichia albicollis	White-crowned sparrow
Mammals	
Canis latrans	Coyote
Lepus californicus	Black-tailed jackrabbit
Spermophilus beecheyi	California ground squirrel
Sylvilagus audubonii	Desert cottontail

APPENDIX C

Vascular Plants Observed During Surveys for the
Proposed Kern Canyon Ranch Project

Scientific Name	Common Name
ASTERACEAE	
Ambrosia acanthicarpa	Annual bur-sage
Centaurea melitensis	Tocalote
Conyza coulteri	Mare's tail
Heterotheca grandiflora	Telegraph weed
Hymenoclea salsola	Cheeseweed
Isocoma acradenia var. *bracteosa*	Pale-leaf goldenbush
Lactuca serriola	Prickly lettuce
BORAGINACEAE	
Amsinckia sp.	Fiddleneck
BRASSICACEAE	
Hirschfeldia incana	Summer mustard
Sisymbrium sp.	
CHENOPODIACEAE	
Atriplex polycarpa	Common saltbush
Atriplex serenana	
Salsola tragus	Russian thistle
EUPHORBIACEAE	
Chamaesyce ocellata ssp. *ocellata*	Yerba golondrina
Eremocarpus setigerus	Dove weed
GERANIACEAE	
Erodium sp.	filaree
LAMIACEAE	
Marrubium vulgare	Horehound

Trichostema lanceolatum	Vinegar weed
Trichostema ovatum	San Joaquin turpentine weed

MALVACEAE

Malva parviflora	Cheeseweed

POACEAE

Avena barbata	Slender wild oats
B. diandrus	Ripgut brome
B. hordeaceus	Downy brome
B. madritensis ssp. *rubens*	Red brome
Cynodon dactylon	Bermuda grass
Distichlis spicata	Salt grass
H. murinum ssp. *leporinum*	Foxtail
Schismus sp.	

SOLANACEAE

Datura wrightii	Jimson weed
Solanum eleagnifolium	Bull nettle

ZYGOPHYLLACEAE

Tribulus terrestris	Puncture vine

APPENDIX C

Traffic Impact Study

TRAFFIC IMPACT STUDY

MIXED USE DEVELOPMENT

NORTH OF SR178
WEST OF MASTERSON STREET
EAST AND WEST OF VINELAND ROAD AND SOUTH OF PALADINO
CITY OF BAKERSFIELD

REVISED:

March 10, 2000

PREPARED FOR:

Porter-Robinson Engineering
1200 21st Street
Bakersfield, CA 93301

CTE CRENSHAW TRAFFIC ENGINEERING Traffic and Transportation Consulting
29950 Pinedale Drive Tehachapi, California 93561 (661) 821-3909
Fax (661) 821-1740

9-137R

TRAFFIC IMPACT STUDY

MIXED USE DEVELOPMENT

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WEST OF MASTERSON STREET
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Porter-Robinson Engineering
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PREPARED BY:

CRENSHAW TRAFFIC ENGINEERING

WALLACE W. CRENSHAW, P.E. TR# 0366

9-137R

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EXHIBIT ADDENDUM

NO.

1. LOCATION MAP (IN REPORT PAGE 3)

1A. PLOT PLAN (IN REPORT PAGE 4)

2. AM EXISTING VOLUMES

3. PM EXISTING VOLUMES

4. PEAK HR DISTRIB PROJECT GENERATED VOLS. ONLY YEAR 2010

5. PEAK HR DISTRIB. PROJECT GENERATED VOLS. ONLY YEAR 2020

6. PROJECT GENERATED VOLUMES AM 2010

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11. FUTURE YEAR 2010 WITH PROJECT PM

12. PROJECT GENERATED VOLUMES 2020 AM

13. PROJECT GENERATED VOLUMES 2020 PM

14. AM FUTURE YEAR 2020 WITHOUT PROJECT

15. PM FUTURE YEAR 2020 WITHOUT PROJECT

16. AM FUTURE YEAR 2020 WTH PROJECT

17. PM FUTURE YEAR 2020 WITH PROJECT

TRAFFIC IMPACT STUDY

MIXED USE DEVELOPMENT

NORTH OF STATE ROUTE 178

WEST OF MASTERSON STREET
EAST AND WEST OF VINELAND ROAD AND SOUTH OF PALADINO
CITY OF BAKERSFIELD

INTRODUCTION

This traffic study has been prepared to determine the traffic impact on the local roadway system from traffic generated by the proposed Mixed Use Development. The proposed project will be located north of State Route 178, west of Masterson Street, South of Paladino Drive and East and West of Vineland Road, in the City of Bakersfield, California. The traffic (trips) estimated to be generated by this project has been added to the existing on-street traffic volumes and their impact has been analyzed on the existing and proposed street network within the area of this project as well as key intersections in the general vicinity of the site. Future traffic volumes have also been added to this scenario. The following material sets forth existing traffic counts, estimated trip generation, distribution of project related traffic and capacity analysis at key intersections and street segments for projected conditions before and after the proposed Development.

PROJECT

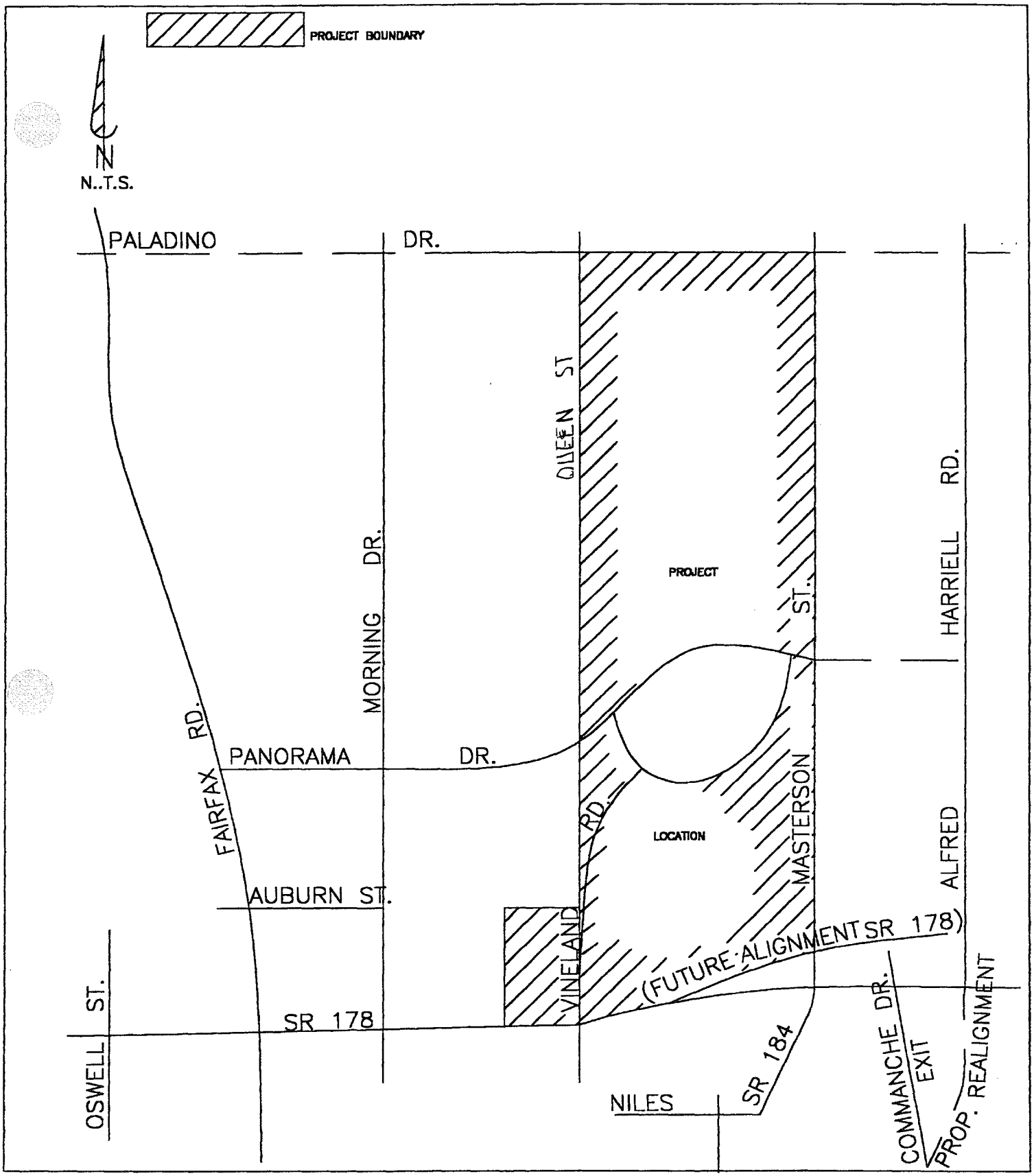
The proposed project consists of a Mixed Use Development containing approximately 2750 Single Family lots, 1300 Multi Family lots and 1,048.706 SF (Gross Leasable Floor Area) of Commercial. Project covers approximately 666 acres of land. The site is presently undeveloped.

SITE LOCATION

The proposed project is a Mixed Use Development that is located in the City of Bakersfield. The project is adjacent to and north of State Route 178, West of Masterson Road, South of Paladino Drive and East and West of Vineland Road. Main access to the site will be by entrance street into the development from Vineland Road, Paladino Drive, Masterson Road and Panorama Drive. See Exhibit 1.

TRAFFIC AND CIRCULATION

At the present time State Route 178 is a two-lane street in the vicinity of the project. In the future State Route 178 will be a Freeway with limited access. Vineland Road, Masterson Street and Panorama Drive do not exist in the project area but will be developed with this project. A network of major and secondary highways and local streets will be developed in the area. In the project vicinity, these future street networks will provide access to nearby commercial, residential and employment centers.

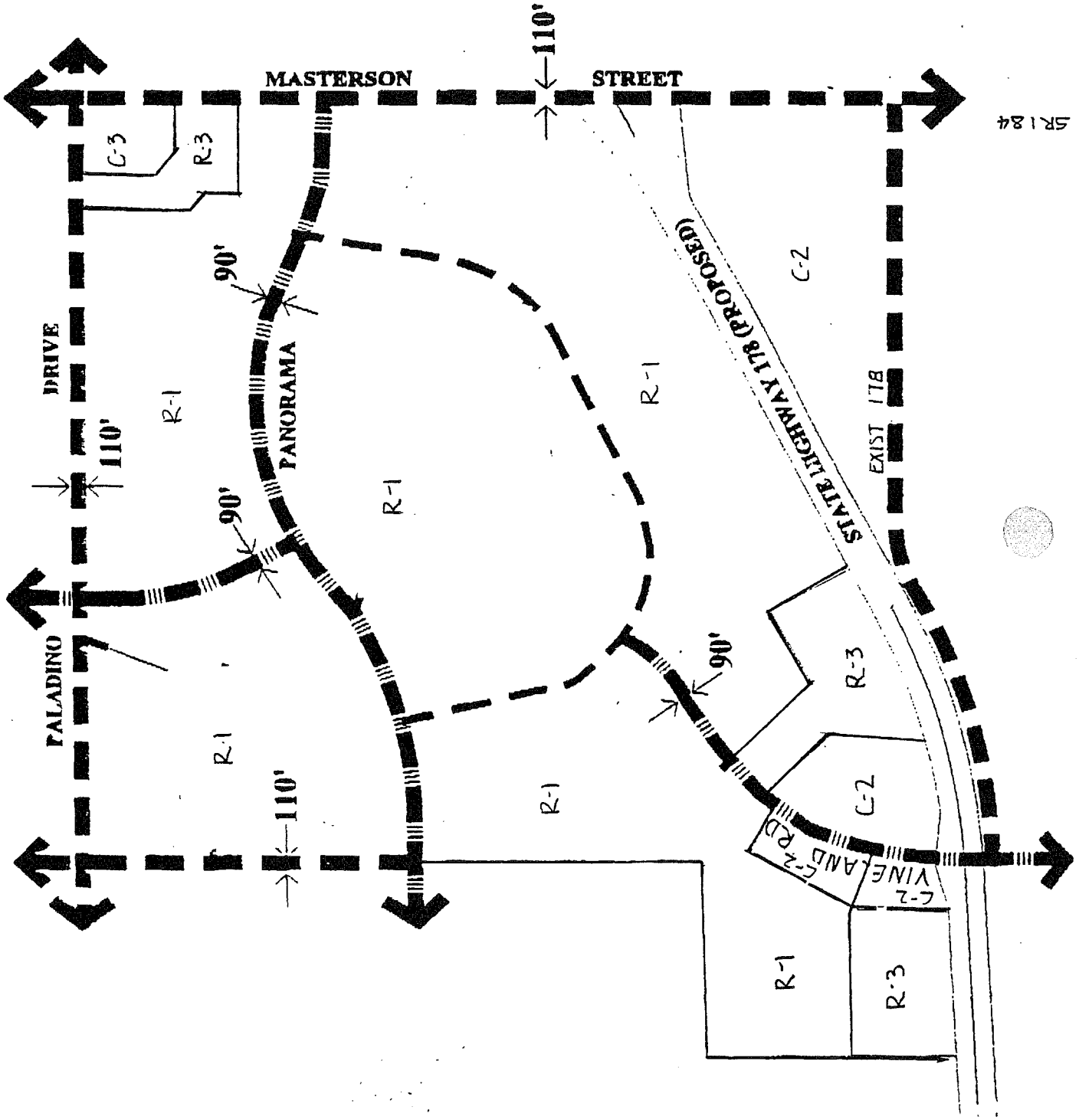


CRENSHAW TRAFFIC ENGINEERING
TRAFFIC AND TRANSPORTATION CONSULTING
2995 PINEDALE DR., TEHACHAPI, CA. 93561
(661)821-3909

LOCATION MAP

J.N.9-111

EXIBIT 1



PLOT PLAN

EXHIBIT 1A

Regional transportation to this area and the Bakersfield area is provided by State Route 58. State Route 178, and State Route 184. Near the project site, Fairfax Road and State Route 184 connects with State Route 58. State Route 178 changes from Primary Highway to Freeway approximately 1 miles west of the development.

STREETS AND HIGHWAYS

Following is a summary description of the streets and highways which will serve the proposed project, and which could be affected by project traffic.

State Route 178 currently is a two-lane road that extends from West of Fairfax Road to the Kern Canyon and is a Freeway West of Fairfax Road to State Route 203.

Panorama Drive within the project will be secondary Highway and will eventually connect with the existing Panorama Drive at Morning Drive.

Paladino Drive is a major arterial within the project, and will be extended to Fairfax Road as area development. Paladino Drive is designated as a major arterial and planned to be a primary east and west travel route for the vicinity.

Vineland Road will be constructed with the project from State Route 178 northerly as a secondary street. Vineland Road is shown on General Plan to have on and off access with State Route 178 and will continue southerly of State Route 178.

Masterson Street is at present, partially developed in the area of the project. Masterson street is shown on the 2010 Circulation Element to be a major north and south of State Route 178. Masterson will have on and off Ramp access to Future state Route 178 Freeway.

RECENT AREA TRAFFIC COUNTS

Traffic volumes on State Route 178, Fairfax Road and other major thoroughfares in the area show typical peak periods associated with major streets in this area.

The volumes show a peak during the morning commuter period, another peak during the noon hour, and a third peak during the evening commuter period. The evening peak has the highest volume of traffic during the three peak periods. Table 1 and Exhibits 2 and 3 show a summary of recent traffic counts taken in the area. These counts were conducted at the key intersection in the vicinity of the project. Manual counts were conducted during the PM peak hours at all intersections studied in the analysis to determine the turning movements at key intersections. These turning movements were used in the intersection analysis. The average PM peak hour of these counts was found to be between 4:00 PM and 6:00 PM. The AM and

PM peak hours were used for analysis purposes on intersections, as they represent the highest peak volumes. (See Appendix for details of manual count data.)

TABLE 1

A.M. MANUAL TURN MOVEMENT COUNTS

STREET LOCATION	COUNT HOUR DATE	DIR.	A.M. PEAK BEGAN	VOL.
SR 178 - Fairfax Road	12.02.99	SB	7:00	939
		WB		431
		NB		733
		EB		529
SH 178 E/B - Oswell Street	12.21.99	SB	7:00	282
		WB		0
		NB		442
		EB		186
SH 178 W/B - Oswell Street	12.21.99	SB	7:00	697
		WB		75
		NB		512
		EB		0
Morning Drive - Niles Street	12.29.99	SB	7:00	23
		WB		151
		NB		159
		EB		107
Morning Drive - Auburn Drive	11.02.99	SB	7:00	109
		WB		0
		NB		48
Fairfax Drive - Panorama Drive	11.02.99	SB	7:00	301
		WB		294
		NB		363
		EB		333

TABLE 1 (Cont'd)

A.M. MANUAL TURN MOVEMENT COUNTS

STREET LOCATION	COUNT HOUR DATE	DIR.	A.M. PEAK BEGAN	VOL.
Fairfax Drive - Auburn Drive	11.03.99	SB	7:00	621
		WB		255
		NB		573
		EB		299
SR 178 - Masterson (SR 184)	10.26.99	SB	7:00	15
		WB		462
		NB		125
		EB		265
Fairfax Road - Paladino Drive	10.26.99	SB	7:00	75
		WB		0
		NB		110
		EB		4
SR 178 - Alfred Harrell Hwy	10.27.99	SB	7:00	69
		WB		271
		NB		0
		EB		199
SR 178 - Comanche Dr	10.27.99	SB	7:00	2
		WB		335
		NB		74
		EB		222
Morning Drive - Panorama Drive	10.28.99	SB	7:00	6
		WB		0
		NB		95
		EB		91

A.M. MANUAL TURN MOVEMENT COUNTS

STREET LOCATION	COUNT DATE	DIR.	A.M. PEAK HOUR BEGAN	VOL.
SR 178 - Morning Drive	10.28.99	SB	7:00	86
		WB		409
		NB		0
		EB		231

P.M. MANUAL TURN MOVEMENT COUNTS

STREET LOCATION	COUNT DATE	DIR.	P.M. PEAK HOUR BEGAN	VOL.
SR 178 - Fairfax Road	12.02.99	SB	5:00	736
		WB		267
		NB		618
		EB		1304
SH 178 W/B - Oswell Street	12.21.99	SB	4:30	999
		WB		183
		NB		1576
		EB		0
SH 178 E/B - Oswell Street	12.21.99	SB	5:00	832
		WB		0
		NB		1217
		EB		1279

P.M. MANUAL TURN MOVEMENT COUNTS

STREET LOCATION	COUNT DATE	DIR.	P.M. PEAK HOUR BEGAN	VOL.
Morning Drive - Niles Street	12.29.99	SB	4:30	22
		WB		230
		NB		335
		EB		444
Morning Drive - Auburn Drive	11.02.99	SB	4:45	69
		WB		0
		NB		119
		EB		30
Fairfax Drive Panorama Drive	11.02.99	SB	5:00	240
		WB		286
		NB		567
		EB		264
Fairfax Drive Auburn Drive	11.03.99	SB	5:00	513
		WB		182
		NB		862
		EB		338
Fairfax Road Paladino Drive	10.26.99	SB	4:45	127
		WB		0
		NB		80
		EB		6
SR 178 - Masterson (SR 184)	10.26.99	SB	4:45	13
		WB		323
		NB		123
		EB		395

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P.M. MANUAL TURN MOVEMENT COUNTS

STREET LOCATION	COUNT DATE	DIR.	P.M. PEAK HOUR BEGAN	VOL.
SR 178 - Alfred Harrell Hwy	10.27.99	SB	4:30	81
		WB		206
		NB		0
		EB		351
SR 178 - Comanche Dr	10.27.99	SB	4:30	2
		WB		265
		NB		93
		EB		373
SR 178 - Morning Drive	10.28.99	SB	4:45	63
		WB		295
		NB		0
		EB		426
Morning Drive - Panorama Drive	10.28.99	SB	4:45	7
		WB		0
		NB		88
		EB		59

TRAFFIC GENERATION AND DISTRIBUTION

The daily traffic volumes estimated to be generated by the proposed development were based on the data obtained from the Institute of Transportation Engineers (ITE), "Trip Generation", 6th Edition, dated January, 1997. At full buildout, it is estimated that this project will generate a total of approximately 60,976 vehicular trip ends per day. It is assumed that 15% of the Trip ends will remain within the development. Approximately 51,830 Daily trip ends will access street in the area.

Table 2 shows the daily and peak hour generation factors and resulting trip ends for the proposed project. Table 2 also shows an increase of 2777 vehicles arriving and 2161 vehicles leaving the site during the PM commuter peak hour. AM increase in volume is 836 in and 1910 out.

The expected project-related traffic volumes were distributed onto the local roadway system based on manual count data, observation of peak hour traffic movements, the characteristics of the nearby road system and the population distribution of the region.

The project is expected to be developed to ½ of it's final buildout by year 2010. Exhibit shows the percentage of trip distribution for year 2010. Exhibit 5 shows the percentage of trip distribution on a regional scale for year 2020. Exhibit 6 and 7 shows the project

related traffic distribution for year 2010 on the local roadway system for the peak hours. Exhibit 8 shows project distribution for year 2010 without project, Exhibit 9 is AM with project, 2010 PM without project is shown on Exhibit 10, PM peak hour distribution year 2010 with project is Exhibit 11. AM 2020 project is in Exhibit 12, AM 2020 is shown in Exhibit 13. PM peak hour distribution project is shown on Exhibit 14, PM year 2020 with project is Exhibit 15.

TABLE 2

RESIDENTIAL DEVELOPMENT TRAFFIC GENERATION

2750 Single Family Units		
Average Daily Trips:	Equation Volume	22,160 TPD
AM Peak Hour Trips: (25% in, 75% out)	Equation Volume	1934 TPD
	Volume In	484
	Out	1450
PM Peak Hour Trips: (64% in, 36% out)	Equation Volume	2126
	Volume In	1361
	Out	765
1300 Multi Family Units		
Average Daily Trips:	Equation Volume	7926 TPD
AM Peak Hour Trips: (16% in, 84% out)	Equation Volume	649 TPD
	Volume In	104
	Out	545
PM Peak Hour Trips: (48% in, 52% out)	Equation Volume	722 TPD
	Volume In	484
	Out	238

Commercial
1,048,700 Leaseable Square Feet

Average Daily Trips:	Equation Volume	30,890 TPD
AM Peak Hour Trips: (61% in, 39% out)	Equation Volume	648 TPD
	Volume in	395
	out	253
PM Peak Hour Trips: (48% in, 52% Out)	Equation Volume	2962 TPD
	Volume in	1422
	out	1540

Total Generated Trips

	TOTAL	IN	OUT
ADT	60,976	30,488	30,488
AM	3231	983	2248
PM	5810	3267	2543

It is assumed that 15% of the Generated trips will be Captured Trip (i.e. from Residential to Commercial within the development) so therefore the trips generated to outside of the development will be reduced by 15%. These reduced trip were used in this study.

Reduced Generated Trips

	TOTAL	IN	OUT
ADT	51,830	25,915	25,915
AM	2746	836	1910
PM	4938	2777	2161

OTHER KNOWN PROJECTS

The City of Bakersfield's records were reviewed to obtain any known projects in the area. The City of Bakersfield has agreed to a 3% growth factor rate per annum to be used for this area.

Expected trip distribution of the future trips generated by applying the growth factor of 3.0% per year to study intersections is shown in Exhibit 11 and 12 entitled "Future Without Project". For AM and PM distribution to 2010. Exhibit 13 and 14 show AM and PM Volumes with Project to year 2010. Exhibit 15 shows Future 2020 AM volume for project only. Exhibit 16 shows Future volume of year 2020 PM volume for project only. Exhibit 17 and 18 shows Future 2020 volume with Project, AM and PM volume.

TRAFFIC ANALYSIS AND IMPACT

This project is expected to be completed by 2020. Analysis assumptions include the following:

1. The proposed development will be completed before or by the year 2020, with traffic patterns established. The development will be approximately one-half developed by year 2010.
2. The primary access to and from the site will be from streets off of Vineland Road, Masterson Street, Panorama Drive and Paladino Drive. This development will construct ultimate street improvements within the project site, including Traffic Signal installation at intersection of major and secondary streets as development access and signals are warranted.

3. That the actual AM and PM peak hour traffic conditions are appropriate for this analysis.
4. The growth factor of 3.0% per year will be appropriate to calculate future volumes to year 2010.
5. 2020 Volumes were developed by using KERNCOG information.
6. That by year 2020 State Route 178 will be constructed to full Freeway Status in the area and will have interchange at Fairfax Road, Vineland Road and Masterson Street.

INTERSECTION ANALYSIS

The intersection analysis was based on information obtained from observation of traffic patterns and manual counts of turning movements at these key intersections:

1. Oswell Street and State Route 178 off and on ramps.
2. Fairfax Road and State Route 178.
3. Morning Drive and State Route 178.
4. Masterson Street/SR 184 and State Route 178.
5. Comanche Drive and State Route 178.*
6. Alfred Harrell Highway and State Route 178.
7. Panorama Drive and Fairfax Road.
8. Paladino Drive and Fairfax Road.
9. Auburn Drive and Fairfax Road.
10. Weedpatch Highway (SR 184) and Niles Street.
11. Panorama Drive and Morning Drive.

12. Highland Knolls and Morning Drive
13. College Avenue and Morning Drive
14. Niles Street and Morning Drive
15. Highland Knolls and Vineland Road
16. SR 184 and Vineland Road
17. Chase Avenue and SR 184

LEVEL OF SERVICE

Intersections

The capacity and Level of Service (LOS) of these intersection as well as other intersection that will be constructed as part of the development were determined for existing conditions and conditions in 2010 and 2020 with and without project, using the 1995 Highway Capacity Manual (Special Report 209) method for signalized and unsignalized intersections. Table 3 presents a summary of results of this analysis for all studied intersections. Table 4 shows Level of Service for these intersections after mitigation measures are satisfied. This Mitigation consists of:

1. Upgrade Fairfax Road and State Route 178 intersection to accommodate 2 left turn lanes for east bound traffic; upgrade Traffic Signals.
2. Install Traffic Signals at Morning Drive and State Route 178.
3. Install Traffic Signal at Vineland Road and State Route 178.
4. Install Traffic Signal at Masterson (SR 184) and State Route 178.

5. Install Traffic Signal at Panorama Drive and Morning drive.

6. Install Traffic Signal at Morning Drive and Auburn Street.

7. Install Traffic Signals at all Major and Secondary intersection within the project. Queen Street and Panorama Drive has a LOS of "D" for SBL but does not meet signal warrants (see table 6) The overall delay is insignifigant, no mitigation required.

The comprehensive circulation plan 2010 for Metropolitan Bakersfield shows other planned arterial and collector streets in the vicinity of this project. These streets will, in the future, service this project from all directions. Because they are not essential to the project and some are dirt roads, or non-existent streets with negligible volumes of traffic, Level of Service analyses were not conducted for these streets.

* The level of service for Comanche Drive and State Route 178 was calculated for Existing Volumes only as the street will be relocated to align with Alfred Harrell Highway prior to year 2010.

TABLE 3
LEVEL OF SERVICE (LOS)
SIGNALIZED AND UNSIGNALIZED INTERSECTIONS

SIGNALIZED INTERSECTIONS	EXISTING		2010 W/O PROJECT		2010 WITH PROJECT		2020 WITHOUT PROJECT		2020 WITH PROJECT	
	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM
Oswell Street and E/B Ramp SR 178	A	B	B	A	B	A	B	B	B	B
Oswell Street and W/B Ramp SR 178	A	A	A	B	B	B	A	A	B	B
Fairfax Road and SR 178	C	C	F	C	F	F	B*	B *	B*	B*
Auburn Street and Fairfax Road	C	C	C	C	C	C	C	C	B	B
Niles Street and Weedpatch Hwy. (SR184)	A	B	B	B	B	B	B	B	B	B
Panorama Drive and Fairfax Road	C	C	C	C	C	C	C	C	C	C
Fairfax Road and Panorama Drive	C	C	C	C	C	C	C	C	C	C

UNSIGNALIZED INTERSECTIONS

Morning Drive and SR 178	SBL	C	C	D	C	F	F	F	F	F	F
	SBR	A	A	A	A	B	F	F	F	F	F
	EBR	A	A	A	A	B	F	F	F	F	F

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TABLE 3 (Cont'd)

		EXISTING		2010 W/O PROJ		2010 WITH PROJ		2020 W/O PROJ		2020 WITH PROJ	
		PM	AM	PM	AM	PM	AM	PM	AM	PM	AM
Masterson St.(SR 184) and SR 178	NB	B	B	C	C	F	F	B	B	F	C
	SB	C	B	C	B	F	F	C	B	F	C
	EBL	A	A	A	A	A	A	A	A	C	A
	WBL	A	A	A	A	A	A	A	A	A	A
Comanche Drive and SR 178	NB	B	B	N/A	N/A	N/A	N/A	N/A	N/A	N/A	NA
	SB	B	B	"	"	"	"	"	"	"	"
	EBL	A	A	"	"	"	"	"	"	"	"
	WBL	A	A	":	"	"	"	"	"	"	"
Alfred Harrell Hwy. and SR 178	SB	A	A	B	A	B	B	F	B	C	B
	NB	-	-	-	-	-	-	F	A	F	B
	EBL	A	A	A	A	A	A	A	A	A	A
	WBL	-	-	-	-	-	-	B	A	A	A
Panorama Drive and Morning Drive	NB	A	A	A	A	B	A	C	B	F	F
	SB	A	A	A	A	A	A	B	B	F	F
	EB	A	A	A	A	A	A	A	B	F	F
	WB	-	-	-	-	A	A	A	A	F	F
Paladino Drive and Fairfax Road	NB	A	A	A	A	A	A	F	B	F	F
	SB	A	A	A	A	A	A	F	B	F	F
	EB	A	A	A	A	A	A	A	B	A	A
	WB	-	-	-	-	-	A	A	A	A	A
Morning Drive and Auburn St	NBL	A	A	A	A	B	B	C	C	F	C
	NBT	A	A	A	A	C	C	B	B	B	A
	SBT	A	A	A	A	B	B	B	B	E	B
	SBR	A	A	A	A	A	A	A	A	B	B
	EBL	A	A	A	A	A	A	A	F	A	A
Queen Street and Panorama St.	SBL	N/A	N/A	N/A	N/A	B	A	A	A	D	B
	SBR	N/A	N/A	N/A	N/A	A	A	B	A	B	A
	EBR	N/A	N/A	N/A	N/A	A	A	C	A	A	A

TABLE 3 (Cont'd)

		EXISTING		2010 W/O PROJ		2010 WITH PROJ		2020 W/O PROJ		2020 WITH PROJ	
		PM	AM	PM	AM	PM	AM	PM	AM	PM	AM
SR 178 and Vineland Road	SBL	N/A	N/A	N/A	N/A	B	F	F	F *	F	F
	SBR	N/A	N/A	N/A	N/A	A	F	F	F	F	F
	EBL	N/A	N/A	N/A	N/A	A	F	F	F	F	F
Morning Drive Higland Knolls	EB	N/A	N/A	N/A	N/A	N/A	N/A	C	B	C	B
	WB	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B	B
	NB	N/A	N/A	N/A	N/A	N/A	N/A	A	A	B	A
	SB	N/A	N/A	N/A	N/A	N/A	N/A	A	A	C	A
Vineland and Highland Knolls	EBL	N/A	N/A	N/A	N/A	N/A	N/A	C	B	C	B
	EBR	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	NBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
SR 184 and Chase Avenue	WBL	N/A	N/A	N/A	N/A	N/A	N/A	E	C	F	E*
	WBR	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B	B
	SBL	N/A	N/A	N/A	N/A	N/A	N/A	B	A	B	B
Vineland Road And SR 184	NB	N/A	NA	N/A	N/A	N/A	N/A	N/A	N/A	F	F
	SB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	F	F
	EBL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	B
	WBL	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C	B
Morning Drive And College Ave	EB	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B	B
	WB	N/A	N/A	N/A	N/A	N/A	N/A	B	B	B	B
	NBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	SBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
Paladino Dr and Morning Drive	NB	N/A	N/A	N/A	N/A	N/A	N/A	C	F	F	F
	SB	N/A	N/A	N/A	N/A	N/A	N/A	F	F	F	F
	EBL	N/A	N/A	N/A	N/A	N/A	N/A	B	A	A	A
	WBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
Queen Street and Paladino Drive	NB	N/A	N/A	N/A	N/A	N/A	N/A	B	B	F	B
	SB	N/A	N/A	N/A	N/A	N/A	N/A	C	B	E	B
	EBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	WBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A

TABLE 3 (Cont'd)

		EXISTING		2010 W/O PROJ		2010 WITH PROJ		2020 W/O PROJ		2020 WITH PROJ	
		PM	AM	PM	AM	PM	AM	PM	AM	PM	AM
Masterson Street And Paladino Dr.	NB	N/A	N/A	N/A	N/A	N/A	N/A	C	C	C	C
	SB	N/A	N/A	N/A	N/A	N/A	N/A	C	B	C	C
	EBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A
	WBL	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	A

* See 2020 With Project below

Assume at year 2020 State Route 178 will be full Freeway status with interchanges at Fairfax Road, Morning Drive, Vineland Road and Masterson Street (SR 184)

Signalized	2020 WITHOUT PROJECT PM	2020 WITHOUT PROJECT AM	2020 WITH PROJECT PM	2020 WITH PROJECT AM
SR 178 and E/B Ramps Fairfax Road	B	B	B	B
SR 178 and W/B Ramps Fairfax Road	A	A	A	A
SR 178 and E/B Ramps Morning Drive	A	A	A	A
SR 178 and W/B Ramps Morning Drive	A	A	A	A
SR 178 and E/B Ramps Vineland Road	A	A	A	A

Table 3 (Cont'd)

Signalized	2020 WITHOUT PROJECT PM	2020 WITHOUT PROJECT AM	2020 WITH PROJECT PM	2020 WITH PROJECT AM
SR 178 and W/B Ramps Vineland Road	A	A	A	A
SR 178 and E/B Ramps Masterson Street (SR 184)	B	A	A	B
SR 178 and W/B Ramps Masterson Street (SR 184)	A	A	A	A
Chase Ave. and SR 184	A	A	B	B

TABLE 4
LEVEL OF SERVICE (LOS)
INTERSECTIONS WITH MITIGATION

YEAR 2010

UPGRADE INTERSECTIONS	AFTER MITIGATION
Fairfax Road and State Route 178	C

SIGNALIZED INTERSECTIONS	
Morning Drive and State Route 178	C
Masterson Street and State Route 178	C
Panorama Drive and Morning Drive	C
Panorama Drive and Fairfax Road	C
Western Street and Panorama Drive	A
Vineland Road and State Route 178	B

All major and Secondary intersection within development will be constructed as development occurs:

Panorama Drive and interior Secondary st. (2 location)	A
Masterson Street and Interior Secondary st.	A
Vineland Road and Interior Secondary st.	A
Masterson Street and Panorama Drive (East)	A

YEAR 2020

SIGNALIZED INTERSECTIONS	AFTER MITIGATION
Paladino Drive and Fairfax Road	B
Morning Drive and Highland Knolls	B
SR 184 and Chase Avenue	A
Vineland Road and SR 184	A
Morning Drive and Paladino Drive	A
Morning Drive and Auburn Street	A

TRAFFIC SIGNAL WARRANT ANALYSIS

Traffic Signal Warrants were prepared for the unsignalized intersection as studied here in. Warrants for this analysis were Warrant #1 and Warrant #2. (State Division of Highway Warrants). Results of these warrant analyses are shown in Table 5.

The intersections of State Route 178 and Masterson (SR 184) warrant a signal under future without project and all future conditions. All of the unsignalized intersection studied herein warrant Signals under future with project year 2010 except Fairfax Road and Paladino Drive. All intersection warrant Traffic Signals under year 2020 condition. See Conclusion Section for discussion of additional factors that influence this intersection.

STREET SEGMENT ANALYSIS

Descriptions of Assumed Roadway Capacities

The capacity of a roadway is affected by a number of factors, including the width of the roadway, the number of crossing arterioles and collectors, the presence or absence of on-street parking, the number of turning lanes at each intersection an the number of driveways.

An urban major arterial provides higher capacity than a normal major arterial does. The higher capacity accounts for higher geometric standards, fewer access points to abutting properties, greater running speed as a result of signal coordination, raised median island, and wider travel lanes. Level of Service "E" is considered to be the ultimate capacity of the street. By policy for daily traffic

TABLE 5

SIGNAL WARRANT ANALYSIS

AM AND PM PEAK HOUR VOLUMES

INTERSECTIONS	SIGNAL WARRANTS SATISFIED			
Warrant #	1		2	
	AM	PM	AM	PM
Existing Volumes				
Morning Drive and State Route 178	No	No	No	No
State Route 178 and Masterson (SR 184)	No	No	No	No
State Route 178 and Comanche Road	No	No	No	No
State Route 178 and Alfred Harrell Hwy.	No	No	No	No
Fairfax Road and Paladino Drive	No	No	No	No
Panorama Drive and Morning Drive	No	No	No	No
Auburn Street and Morning Drive	No	No	No	No
2010 Future Volumes Without Project				
Morning Drive and State Route 178	No	No	No	No
State Route 178 and Masterson (SR 184)	Yes	No	No	No
State Route 178 and Alfred Harrell Hwy. (Comanche Road)	No	No	No	No
Fairfax Road and Paladino Drive	No	No	No	No
Panorama Drive and Morning Drive	No	No	No	No
Auburn Street and Morning Drive	No	No	No	No
2010 Future Volumes With Project				
Morning Drive and State Route 178	Yes	Yes	Yes	Yes
State Route 178 and Masterson (SR 184)	Yes	Yes	Yes	Yes
State Route 178 and Alfred Harrell Hwy. (Comanche Road)	No	Yes	Yes	Yes
Fairfax Road and Paladino Drive	No	No	No	No
Panorama Drive and Morning Drive	No	Yes	No	Yes
Auburn Street and Morning Drive	No	No	No	No
Queen Street and Panorama Road	No	No	No	No
Vineland Rd and SR 178	Yes	Yes	Yes	Yes

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Table 5 (Con't)

INTERSECTIONS	SIGNAL WARRANTS SATISFIED			
Warrant #	1		2	
	AM	PM	AM	PM
2020 Without Project				
Old SR 178 and Masterson Street	Yes	Yes	Yes	Yes
Old SR 178 and Alfred Harrel Hwy (Comanche Drive	Yes	Yes	Yes	Yes
Chase Avenue and SR 184	Yes	Yes	Yes	Yes
Vineland Avenue and SR 184	Yes	Yes	Yes	Yes
Highland Knolls and Vineland	No	No	No	No
Morning Drive and Highland Knolls	No	No	No	No
Morning Drive and College Avenue	No	No	No	No
Fairfax Road and Paladino Drive	Yes	Yes	Yes	No
Auburn Street and Morning Drive	Yes	Yes	Yes	Yes
Queen Street and Paladino Drive	No	No	No	No
2020 With Project				
Old 178 and Masterson Street	Yes	Yes	Yes	Yes
Old State Route 178 and Alfred Harrell Hwy. (Comanche Road)	Yes	Yes	Yes	Yes
Fairfax Road and Paladino Drive	Yes	Yes	Yes	Yes
Panorama Drive and Morning Drive	Yes	Yes	No	Yes
Auburn Street and Morning Drive	Yes	Yes	Yes	Yes
Paladino Drive and Morning Drive	Yes	Yes	Yes	Yes
Queen Street and Paladino Drive	Yes	Yes	Yes	Yes
Masterson Street and Paladino Drive	No	No	No	No
Chase Avenue and SR 184	Yes	Yes	Yes	Yes
Vineland Avenue and SR 184	Yes	Yes	Yes	Yes
Highland Knolls and Vineland Road	No	No	No	No
Morning Drive and Highland Knoll	No	No	No	No
Morning Drive and College Avenue	No	No	No	No
Queen Street and Panorama Drive	No	No	No	No

analysis, Level of Service "C" is the basis for identifying whether a capacity problem exists at a midblock location. A complete definition of Levels of Service, as they relate to various ranges of volume-to-capacity ratios is indicated in the Appendix. The HCM Method was used for all street segments analyzed herein.

Arterial Operations

Table 6 contains a complete capacity analysis of existing volumes for all of the major and minor arterial in the general vicinity of the project. For each arterial and its various distinct segments, this table identifies the existing capacity, the future capacity with and without project volumes and the level of service. A level of service column is included to show LOS after mitigation is applied, if applicable. (Also see worksheets in Appendix.)

As noted in Table 6, the arterial network in the general area of the project currently operates at adequate levels of service, i.e., at or better than Level of Service "C"

TABLE 6

LEVELS OF SERVICE - STREET SEGMENTS

STREET SEGMENTS	STRIPPING/ GEOMETRIC	EXISTING VOLUMES	2010 WOUT PROJ	2010 WITH PROJ	2020 WOUT PROJ	2020 WITH PROJ
Panorama Drive	2 Lane					
From Morning Drive to	Major					
Fairfax Road	Art	B	B	B	C	C
From Morning Drive	2 Lane					
to Queen Street	Major					
	Art	N/A	N/A	B	B	C
State Route 178						
From Fairfax Road	2 Lane					
to Morning Drive	Major					
	Art	B	C	F	*	*
From Morning Drive	2 Lane					
to Vineland Road	Major					
	Art	B	C	E	*	*
From Vineland Road	2 Lane					
to Masterson (SR 184)	Major					
	Art	A	B	D	*	*
From Masterson (SR 184)	2 Lane					
to Comanche Drive	Major					
	Art	A	B	D	*	*

TABLE 6 (Cont'd)

STREET SEGMENTS	STRIPPING/ GEOMETRIC	EXISTING VOLUMES	2010 W/O PROJ	2010 WITH PROJ	2020 W/O PROJ	2020 WITH PROJ
Old SR 178 From Vineland Road to SR 184	2 Lane Major	N/A	N/A	N/A	A	B
From SR 184 to Alfred Harrell Hwy (Comanche Rd)	2 Lane Major Art	N/A	N/A	N/A	A	A
Fairfax Road From Paladino Road to Panorama Drive	2 Lane Major Art	B	B	B	C	C
From Panorama Drive to State Route 178	4 Lane	B	B	B	C	C
From SR 178 to Highland Knolls	Major Art	C	C	C	C	C
Paladino Drive From Fairfax Road to Morning Drive	2 Lane Major Art	N/A	N/A	N/A	B	C
From Morning Drive To Queen Street	2 Lane	N/A	N/A	N/A	B	C
Highland Knolls From Morning Drive To Vineland	2 Lane	N/A	N/A	N/A	B	B

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TABLE 6 (Cont'd)

STREET SEGMENTS	STRIPPING/ GEOMETRIC	EXISTING VOLUMES	2010 W/O PROJ	2010 WITH PROJ	2020 W/O PROJ	2020 WITH PROJ
Morning Drive						
From Paladino Drive to State Route 178	2 Lane Major Art	B	B	C	C	C
From SR 178 to Niles Street	2 Lane Major Art	N/A	N/A	N/A	C	C
Vineland Street						
From SR 178 to Kern Canyon Road (SR 184)	2 Lane Major Art	N/A	N/A	N/A	B	C
Kern Canyon Road (SR 184)						
From SR 178 to Niles Street	2 Lane Major	B	B	B	E	F *
Alfred Harrell Highway						
From SR 178 to Paladino	2 Lane Major	A	A	A	A	B
Auborn Street	2 Lane Secondary	B	B	B	B	B
SR 178 Freeway						
From Oswell Street to Morning Dr		-	-	-	C	C
From Morning Dr to Vineland		-	-	-	B	C
From Vineland to Alfred Harrel Hwy		-	-	-	A	B

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TABLE 7

LEVELS OF SERVICE - STREET SEGMENTS WITH MITIGATION

STREET SEGMENTS	STRIPPING/ GEOMETRIC	2010 WITH PROJ EB	2010 WITH PROJ WB	2020 WITH PROJ EB	2020 WITH PROJ WB
State Route 178					
From Fairfax Road to Morning Drive	4 Lane Major	A	B	*	*
From Morning Drive to Vineland Road	4 Lane Major	B	B	*	*
From Vineland Road to Masterson Street (SR 184)	4 Lane Major	A	A	*	*
From Masterson Street to Comanche Drive	4 Lane Major	A	A	*	*
From Comanche Drive to Alfred Harrell Hwy	4 Lane Major	A	A	*	*
Fairfax Road					
State Route 178 to Highland Knolls	4 Lane Major	A	A	B	B

TABLE 7 (Con't)

<u>SR 184</u>					
From Morning Drive to SR 178	4 Lane Major	-	-	B	B

By year 2020, State Route 178 will be constructed to Full Freeway status in the area.

FUTURE WITHOUT PROJECT

This section describes the future circulation and operating conditions, and potential capacity deficiencies in the study area, based on the forecast volumes without project, to buildout. Table 6 depicts this analysis.

As noted in Table 6, all studied street sections are at or above Level of Service "D".

FUTURE WITH PROJECT

In order to assess the effect of developing will have in the year 2010 and 2020, this project volume was added to expected growth volume at the target date of 2005 and 2020.

The capacity analysis for this scenario is shown in Table 6 entitled "Future With Project". This analysis assumes that the same geometrical patterns that now exist will be present at this future date. See table 7 for Street Segments LOS. After mitigation.

MITIGATION MEASURES

Improvements

To Year 2010 (Project One-Half Buildout)

1. For better access to and from the development, install required street improvements along:

   North side of State Route 178, and West side of Masterson Street.

2. Install Primary and Secondary Arterial street within development to City of Bakersfield standards.

3. Install 2 Lane of pavement on Panorama Drive from Morning Road to Westerly Tract Boundary (Queen Street).

4. Install 2 additional lanes of pavement on State Route 178 from Fairfax Road to Alfred Harrell Highway.

5. Install traffic signals at:
   Morning Drive and State Route 178.
   Vineland Road and State Route 178.
   Masterson Street (SR 184) and State Route 178.
   State Route 178 and Alfed Harrell Hwy. (Comanche Road)
   Panorama Drive and Morning Drive.
   At intersection of Primary and Secondary Street within project as development warrants, i.e. Vineland Road / Interior Secondary Street, Interior Secondary Street / Panorama Drive (2 locations), Masterson Street / Panorama Drive.
6. Upgrade intersection of Fairfax Road and SR 178: add 1 Left turn lanes to east and west bound lanes and retime signals.

This development should contribute it's fair share toward the cost of items 3, 4 and 5. See Conclusion Section for development's proportionate share.

Note: It is assumed that by year 2020 State Route 178 will be constructed to full Freeway status in it's new alignment from West of Fairfax Road to beyond this development, to East, and that interchanges will be developed at Fairfax Road, Morning Drive, Vineland Road and Masterson Street.

Improvements
To Year 2020

1. Mitigation shown in Improvements 2010

2. Install Traffic Signals at:
   Old State Route 178 and Masterson Street.
   Fairfax Road and Paladino Drive.
   Highland Knolls and Morning Drive.
   Chase Avenue and State Route 184
   Vineland Road and SR 184
   Paladino Drive and Morning Drive
   Queen Street and Paladino Drive
   Morning Drive and Auburn Street

3. Install Street Improvements at:
   Morning Drive from Panorama Drive to Paladino Drive.
   Paladino Drive from Westerly Tract Boundary to Fairfax Road.
   Kern Canyon Road (SR 184) from Niles to SR 178

4. Prior to issuance of a Building Permit, the Project applicant shall provide funding for SR 178 Freeway between Fairfax Road and Alfred Harrell Hwy/Comanche Drive. The funding will be for the project's prorata share of the amount that is determnined to be the obligation of local development. The project's share of traffic on SR 178 Freeway is 7.5 percent.

This development should contribute it's fair share of year 2020 items number 1, 2, 3 and 4. See conclusion Section for development proportionate share.

CONCLUSION

The overall traffic volumes expected to be generated from the proposed development will require traffic mitigation measures as stated herein.

Planned arterial and collector streets shown in Plan 2010 should be developed in the area as future development requirements arise.

This development should comply with all requirements of the Congestion Management Plan for the City of Bakersfield and State of California. This may include, but is not limited to: trip reduction, deficiency plan, traffic and public transportation requirements and improvements, and impact fees requirements as applicable.

This report shows the project at one-half developed stage at 2010 and at fully developed at 2020.

The developer's percent of impact of the cost of these traffic signals and street segments is computed as:

State Jurisdiction
Project Generated Volumes
2010 or 2020 Volumes - Existing Volumes

City Jurisdiction
Project Generated Volumes
2010 or 2020 Volumes

SIGNAL UPGRADE TRAFFIC CALCULATIONS

2010

Fairfax Road / State Route 178 $\frac{1025}{(4940 - 2925)\ 2015} = 0.508 \times 100 = 51\%$

NEW TRAFFIC SIGNAL INSTALLATION CALCULATIONS

Morning Dr / State Route 178 $\frac{980}{(2030 - 7840)\ 1246} = 0.508 \times 100 = 78\%$

Vineland Rd / State Route 178 $\frac{2057}{2310}$ $= 0.90 \times 100 = 90\%$
(1810 – 715) 1095

Masterson St / State Route 178 $\frac{530}{(1715 - 854)\ 861} = 0.61 \times 100 = 62\%$

Alfred Harrell (Comanche Dr) / State Route 178 $\frac{190}{(1120 - 730)\ 390} = 0.148 \times 100 = 48\%$

Panorama Dr / Morning Dr $\frac{580}{785} = 0.74 \times 100 = 74\%$

NEW TRAFFIC SIGNAL INSTALLATION CALCULATIONS (Con't)

Morning Dr / Auburn St	$\frac{380}{970} = 0.39 \times 100 =$	39%
Queen St / Panorama Dr		100%
Vineland Road / Interior Secondary St		100%
Panorama Drive / Interior Secondary St. (2 locations)		100% each
Masterson Street / Panorama Drive		100%

Street Improvement

Panorama Drive from Morning Drive to Queen Street	2 Lane Pavement	100%

Install 2 additional lanes of pavement on SR 178 from Fairfax Road to Masterson Street.

Year 2020 Mitigation

Install Traffic Signals at:

Old State Route 178 and Masterson Street	$\frac{1260}{1575}$	= 0.165 x 100 = 16%
Fairfax Road and Paladino Drive	$\frac{270}{2285}$	= 0.118 x 100 = 12%
Highland Knolls and Morning Drive	$\frac{190}{1690}$	= 0.112 x 100 = 11%
Chase avenue and State Route 184	$\frac{515}{2145}$	= 0.24 x 100 = 24%
Vineland Road and State Route 184	$\frac{150}{890}$	= 0.168 x 100 = 17%
Kern Canyon Road (SR 184) add two lanes From SR 178 to Niles Street	$\frac{405}{2020}$	= 0.20 x 100 = 20%
Queen Street and Paladino Drive	$\frac{385}{1460}$	= 0.26 x 100 = 26%
Paladino Drive and Morning Drive	$\frac{470}{1730}$	= 0.27 x 100 = 27%
Morning Drive and Auburn St	$\frac{380}{1135}$	= 0.33 x 100 = 33%

REGIONAL TRANSPORTATION FACILITY IMPACT

This project will affect other locations within the City of Bakersfield and some impact will be expected.

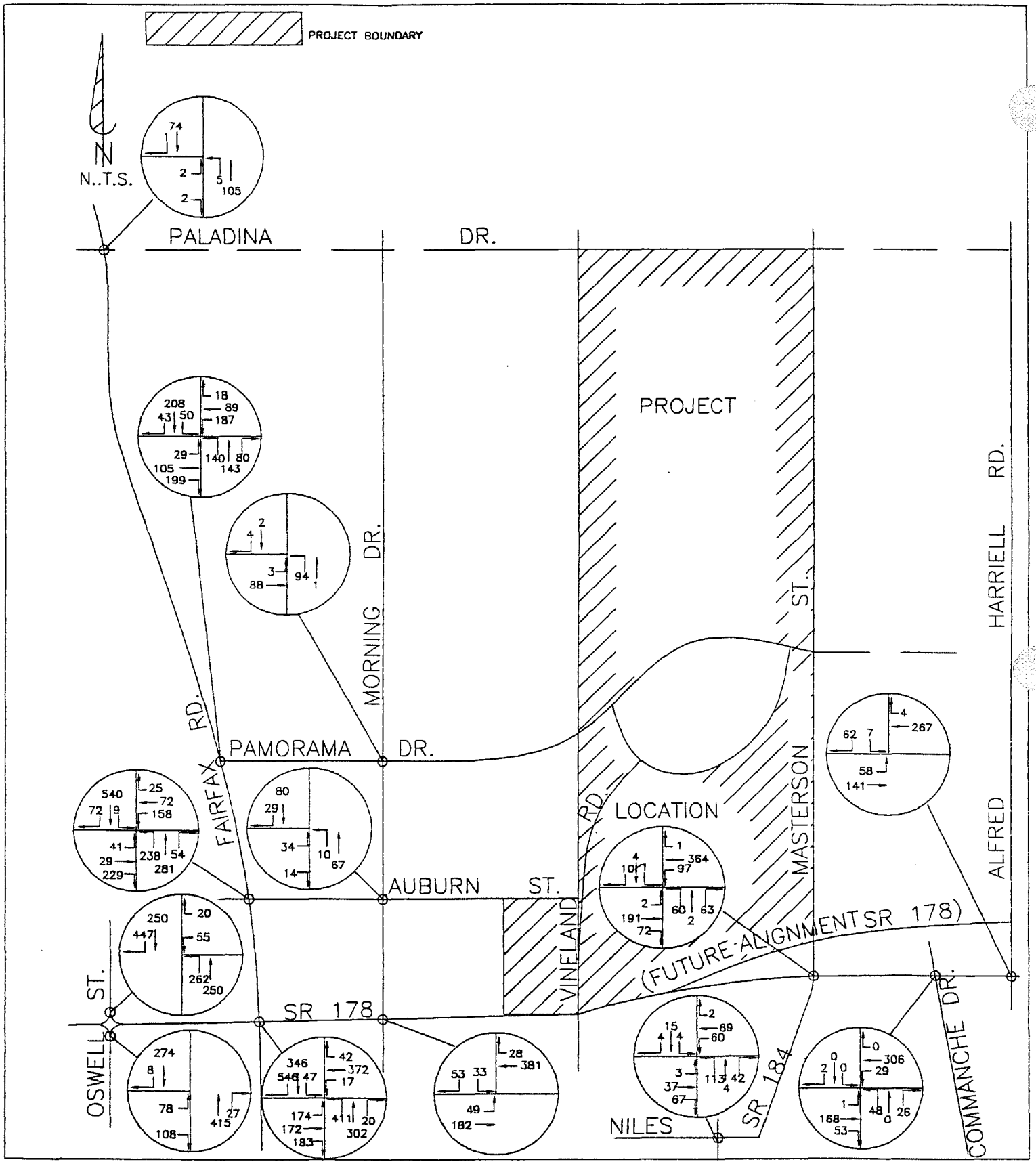
The following locations listed on the City of Bakersfield "Regional Transportation Facility List - Metro Bakersfield Transportation Impact Fee Program" may be affected by this project with five (5) Peak Hour Trips or more.

		Dev. Traffic	Total Traffic	Dev. Share	Improv. Cost	Dev. Share
Edison Road						
SR 178 / Breakenbridge	St. Imp	24	2050	0.012	1,463,500	17,135
Breakenbridge / SR 158	St. Imp	12	2046	0.0059	507,108	2,974
Fairfax Road						
SR 178	Inter	335	3145	0.106	1,700,000	181,081
Paladino / Alf. Harrell	St. Imp	7	1670	0.004	716,072	3,195
Panorama to Niles	St. Imp	68	1697	0.040	107,500	4,308
Highland Knolls Dr.	Tr. Signal	36	2112	0.017	120,000	2,045
College Avenue	Tr. Signal	28	1966	0.0142	120,000	1,709
Kern Canyon Road						
Morning Dr. / Vineland	St. Imp	85	2711	0.031	747,489	23,436
Vineland Rd /Edison	St. Imp	90	1709	0.053	747,489	39,364
Edison Rd / SR 178	St. Imp	100	1614	0.062	373,745	23,156
@ Vineland Road	Tr. Signal	85	2210	0.038	120,000	4,615
@ Mesa Marin Dr.	Tr. Signal	90	1614	0.056	120,000	6,691
@ Edison	Tr. Signal	100	1613	0.062	120,000	7,440
Morning Drive						
Alfred Harell / Paladino	St. Imp	10	805	0.12	1,794,000	21,530
Paladino / Panorama	St. Imp	110	821	0.13	601,298	60,564
Panorama / SR 178	St. Imp	530	821	0.64	1,086,080	695,195
SR 178	Inter	485	2109	0.23	1,700,000	390,944
SR 178 / College	St. Imp	145	784	0.185	387,000	71,575
@ College Dr.	Tr. Signal	130	800	0.163	120,000	19,500
College / Niles	Tr. Signal	125	777	0.160	107,500	17,294

		Dev. Traffic	Total Traffic	Dev. Share	Improv. Cost	Dev. Share
Mount Vernon						
Belle Tr. /	St. Imp	7	1381	0.005	753,125	3,817
@ SR 58 Ramps	T. Signal	10	1113	0.009	240,000	2,156
@ SR 178 E/B Ramp	St. Imp	28	2380	0.011	250,000	2,750
Oswell Street						
SR 178 / Brundage	Med. Imp	38	2508	0.015	430,000	6,515
@ Virginia Avenue	Tr. Signal	12	2976	0.004	120,000	484
@ Brundage Lane	Tr. Signal	11	3197	0.0034	120,000	412
@ SR 58 Ramps	Tr. Signal	10	1554	0.006	240,000	1,544
@ Sunset RR	Grade Sep	14	3138	0.005	100,000	447
Paladino Drive						
Fairfax / Morning	St. Imp	90	1180	0.076	1,059,143	80,782
@ Fairfax Road	Tr. Signal	90	1460	0.061	120,000	7,397
@ Morning Drive	Tr. Signal	275	1460	0.188	120,000	2,260
0.3 Mile E/O Edison to 1 Mile E/O Alfred Harrell	St. Imp	27	1614	0.017	1,116,124	18,670
State Route 184						
@ Edison Hwy	Tr. Signal	22	4780	0.004	120,000	552
Edison Hwy/Pioneer Dr.	St. Imp	26	2982	0.009	574,859	5,012
Pioneer / Niles	St. Imp	30	2547	0.012	383,239	4,514
@ SPRR	Grade Sep	22	3487	0.006	500,000	3,155
@ Breakenridge Rd.	Tr. Signal	24	3354	0.007	120,000	858
@ Eucalyptus Dr.	Tr. Signal	25	2776	0.009	120,000	1,080
Vineland Road						
SR 58 / Edison Hwy	St. Imp	20	2400	0.008	100,078	833
Edison / Eucalyptus	St. Imp	24	2400	0.010	443,077	4,430
@ SPRR	St. Imp	22	2400	0.009	100,000	916
Eucalyptus / Pioneer	St. Imp	24	2400	0.010	115,076	1,150
				Total		$1,352,542

9-137R

APPENDIX



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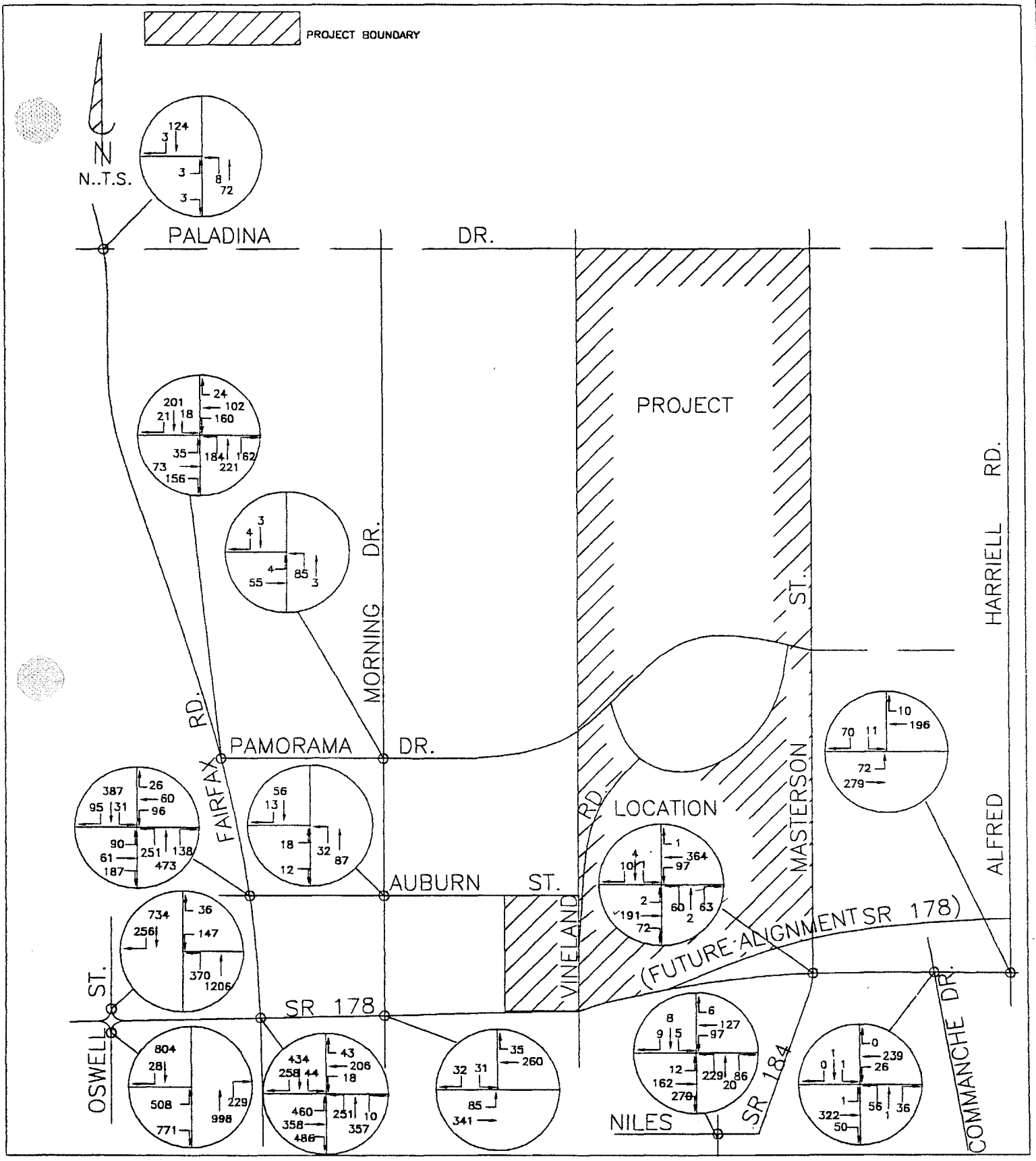

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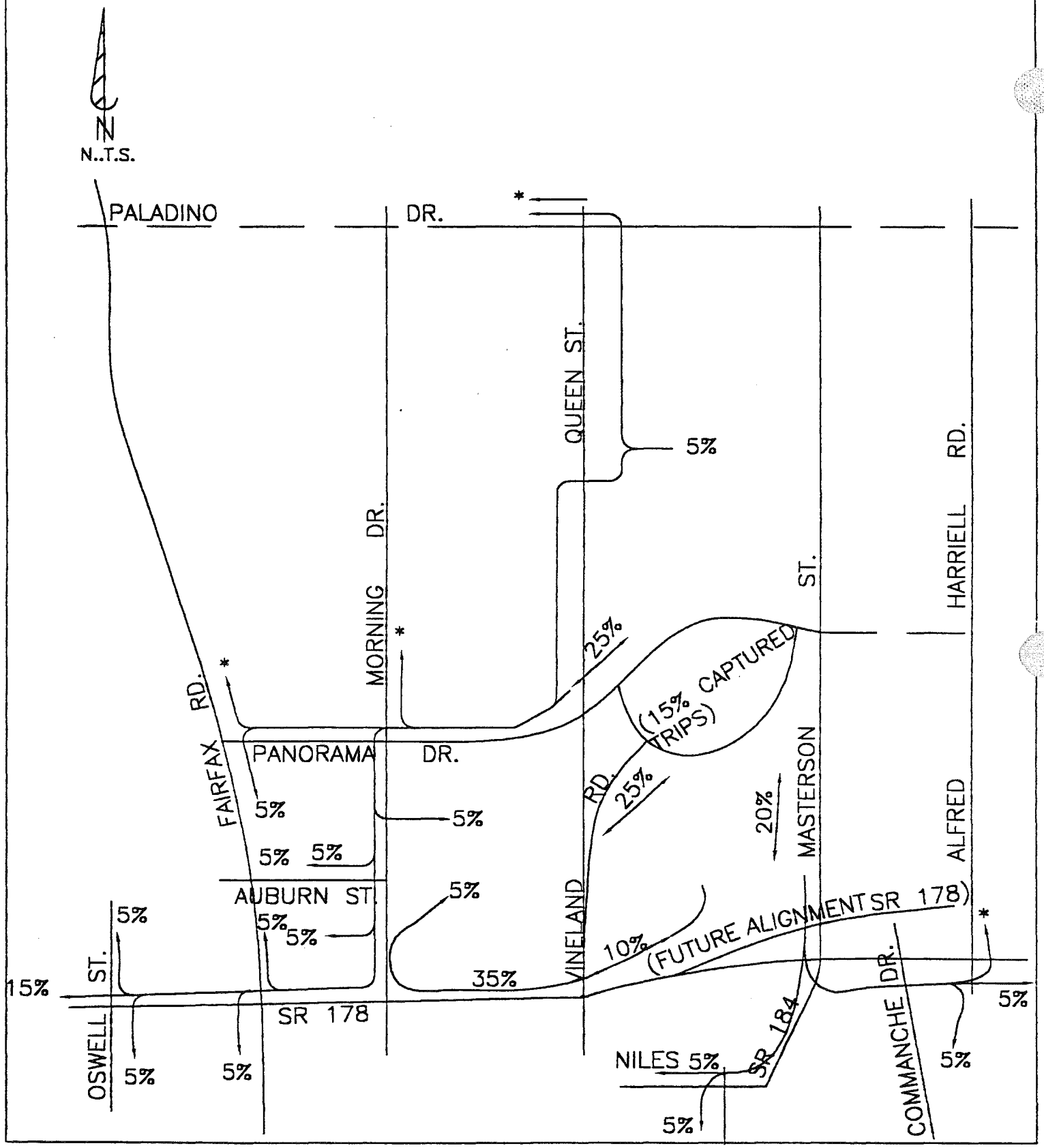

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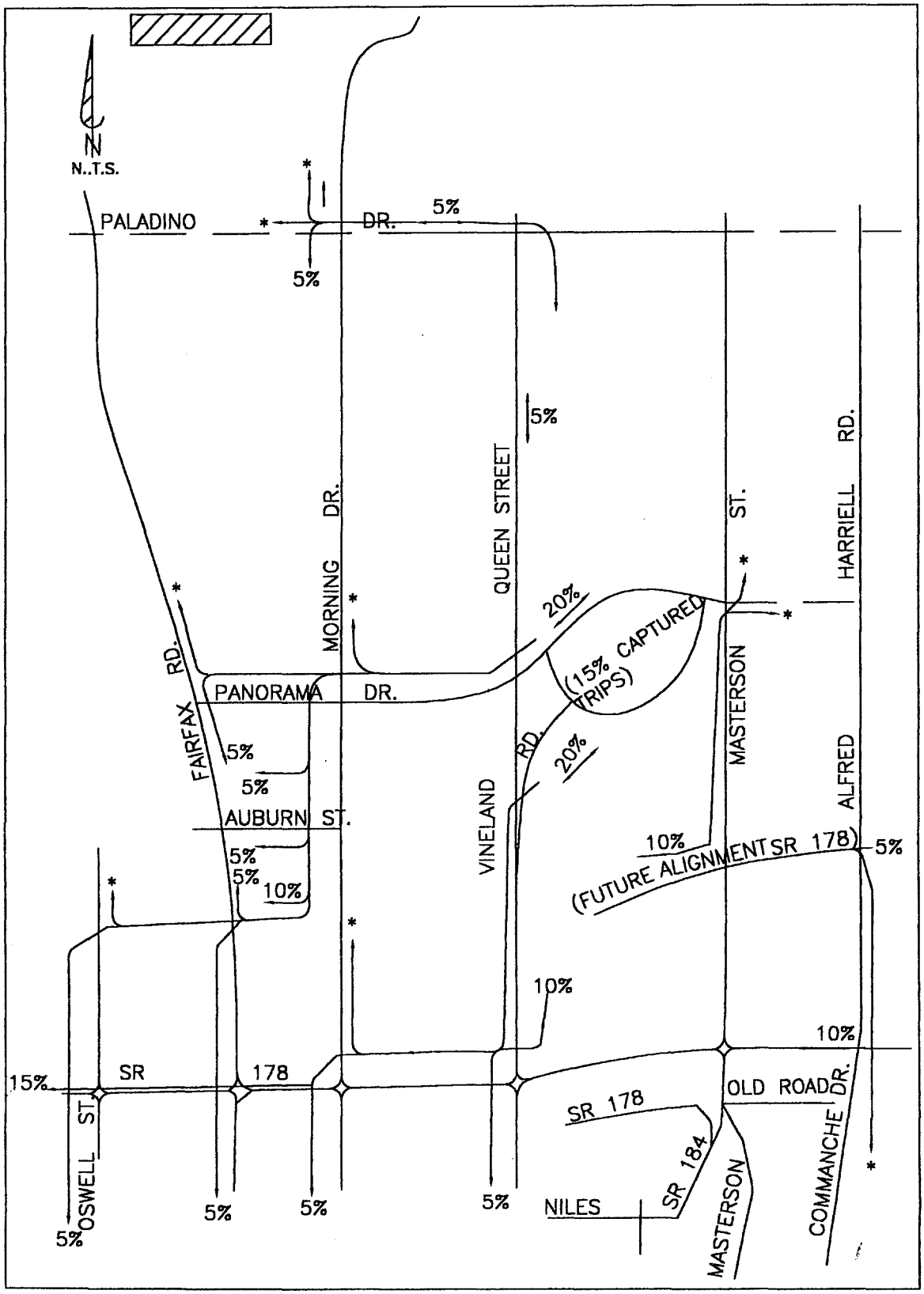

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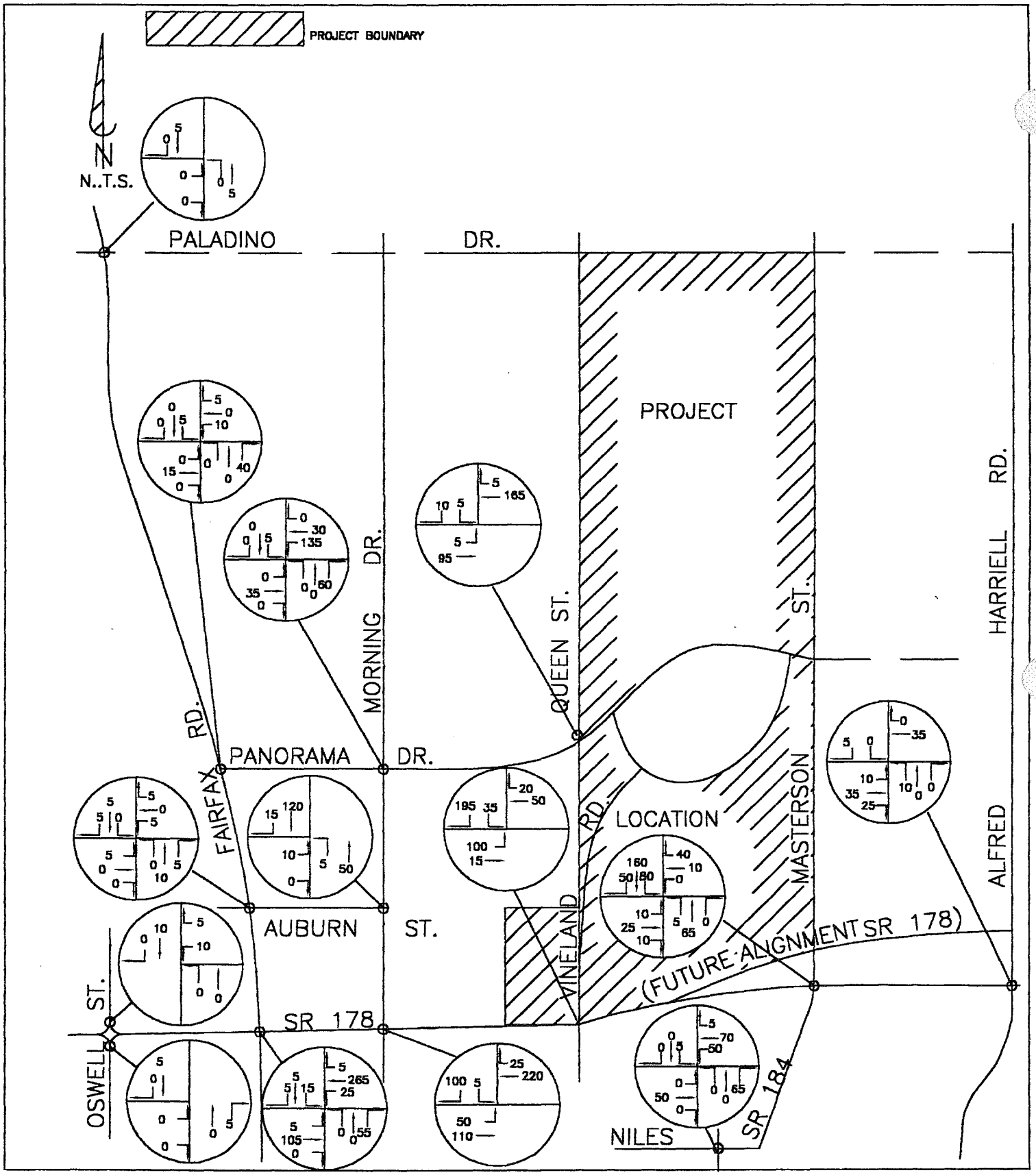

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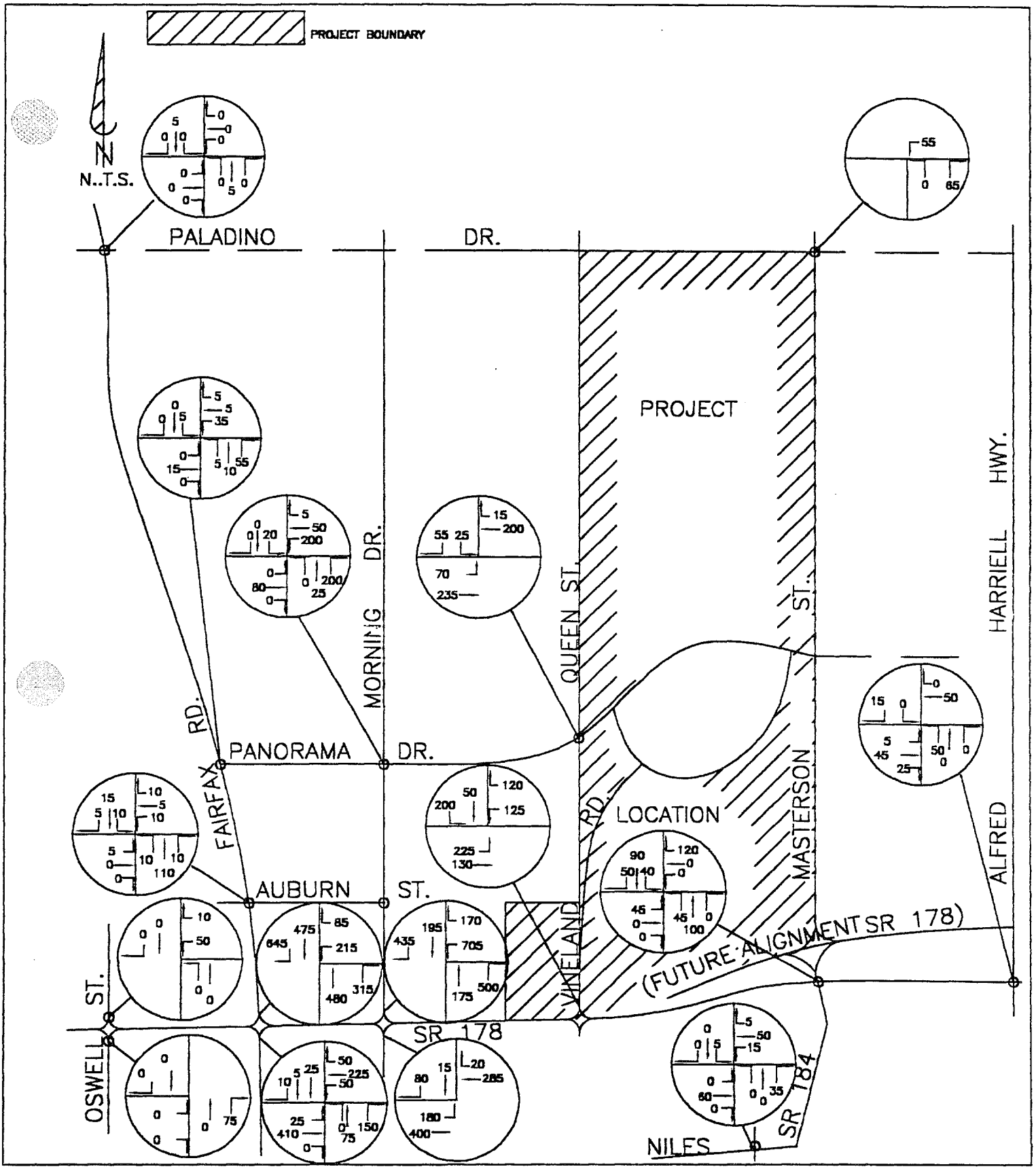

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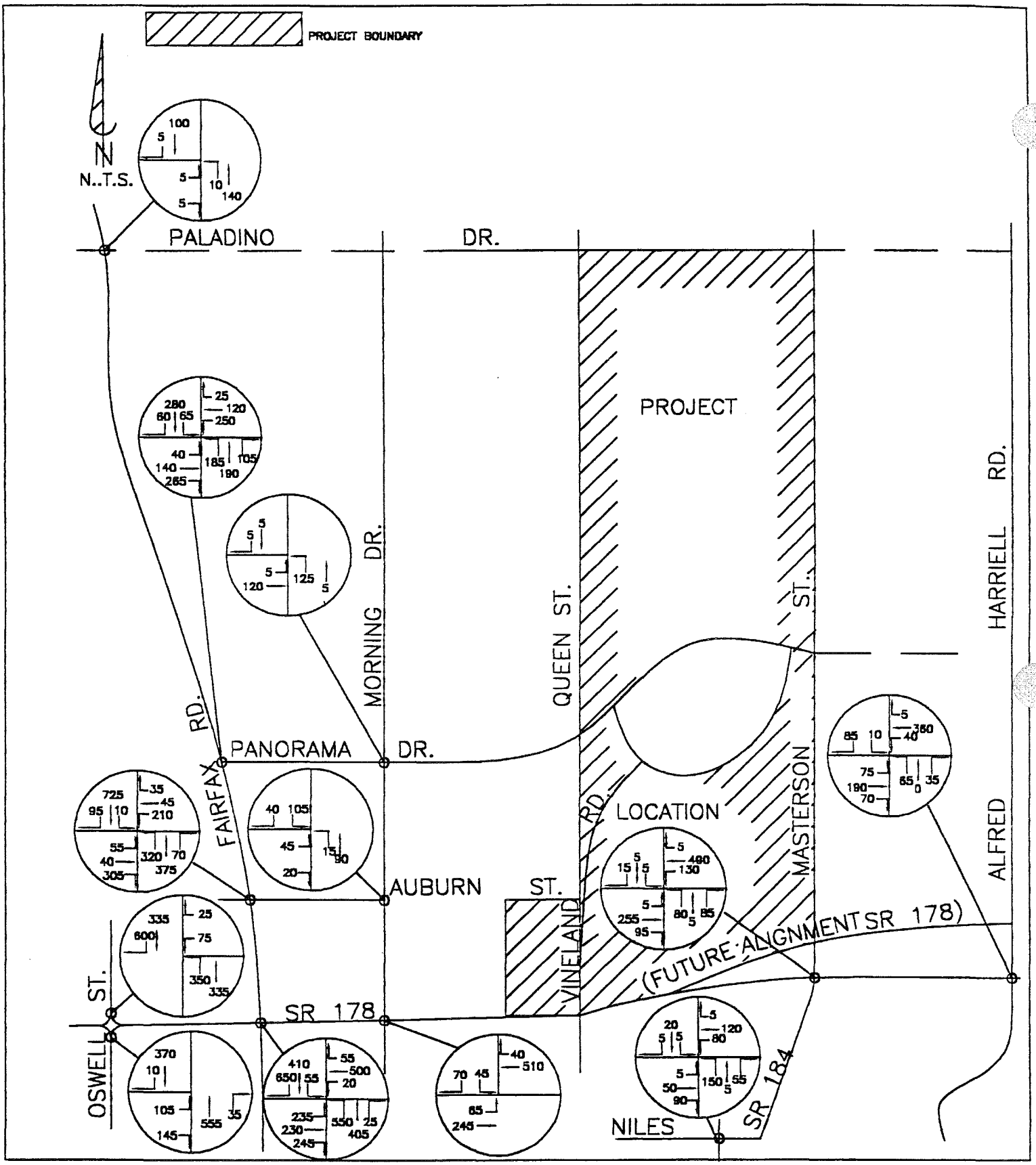

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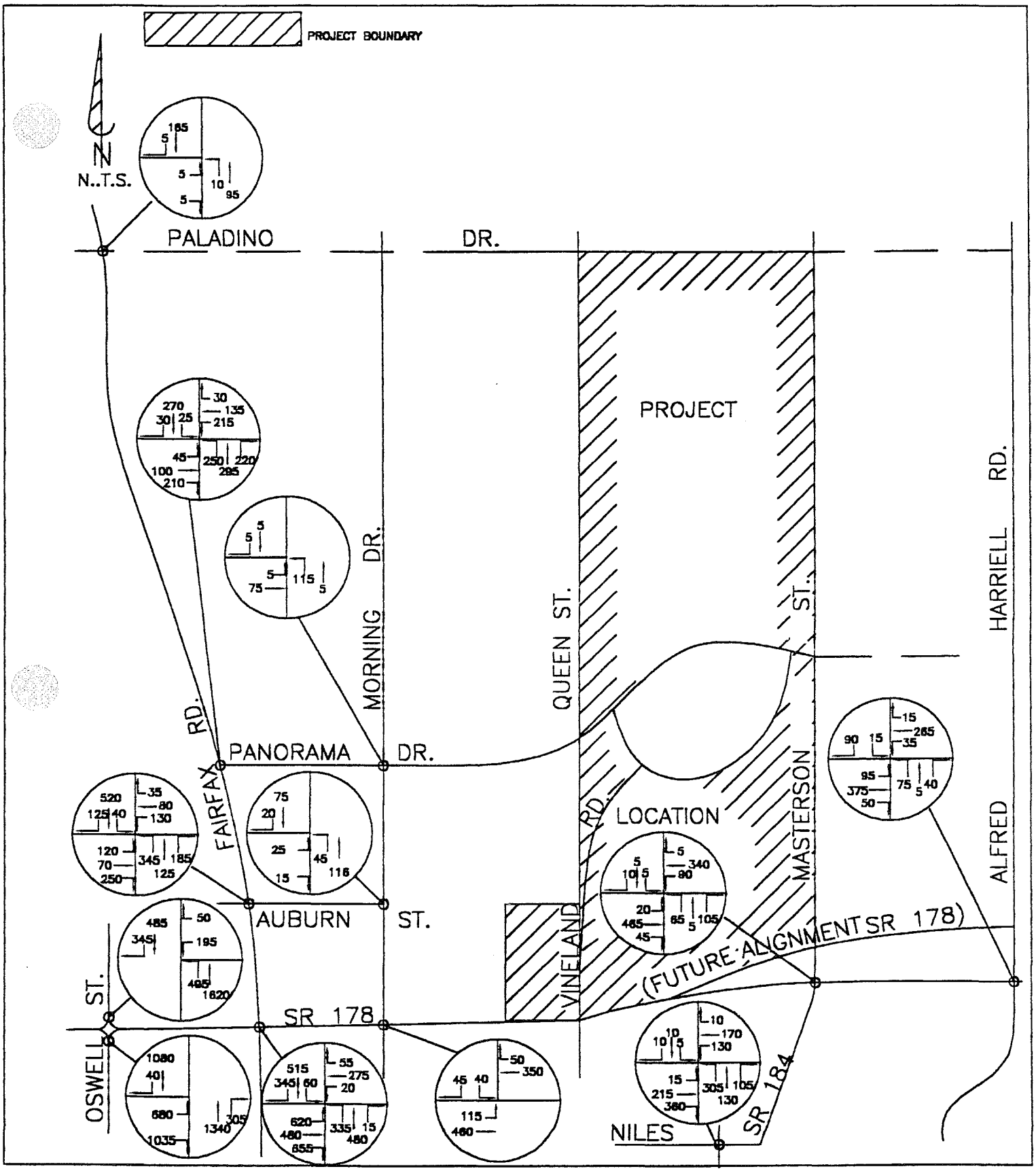

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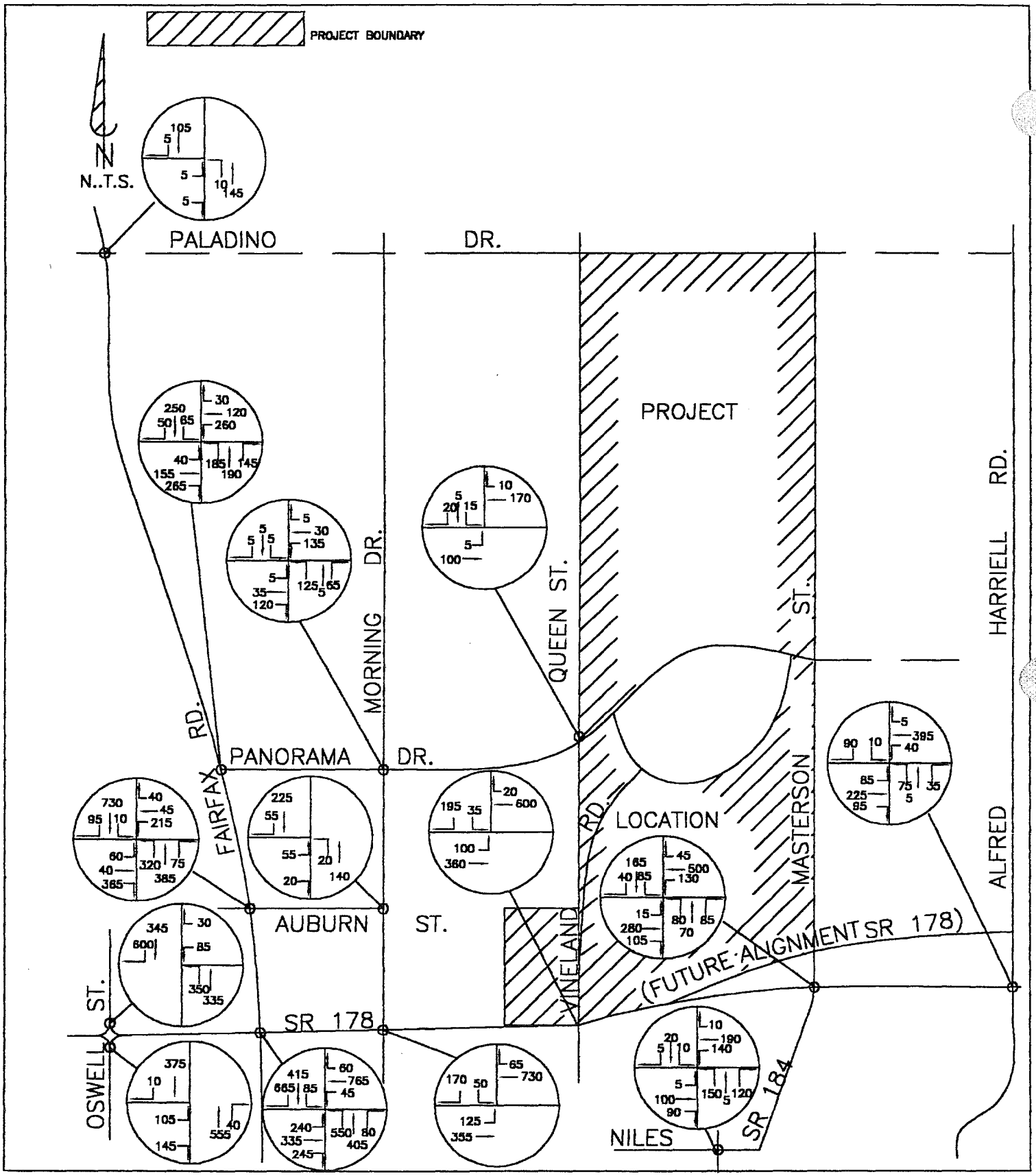

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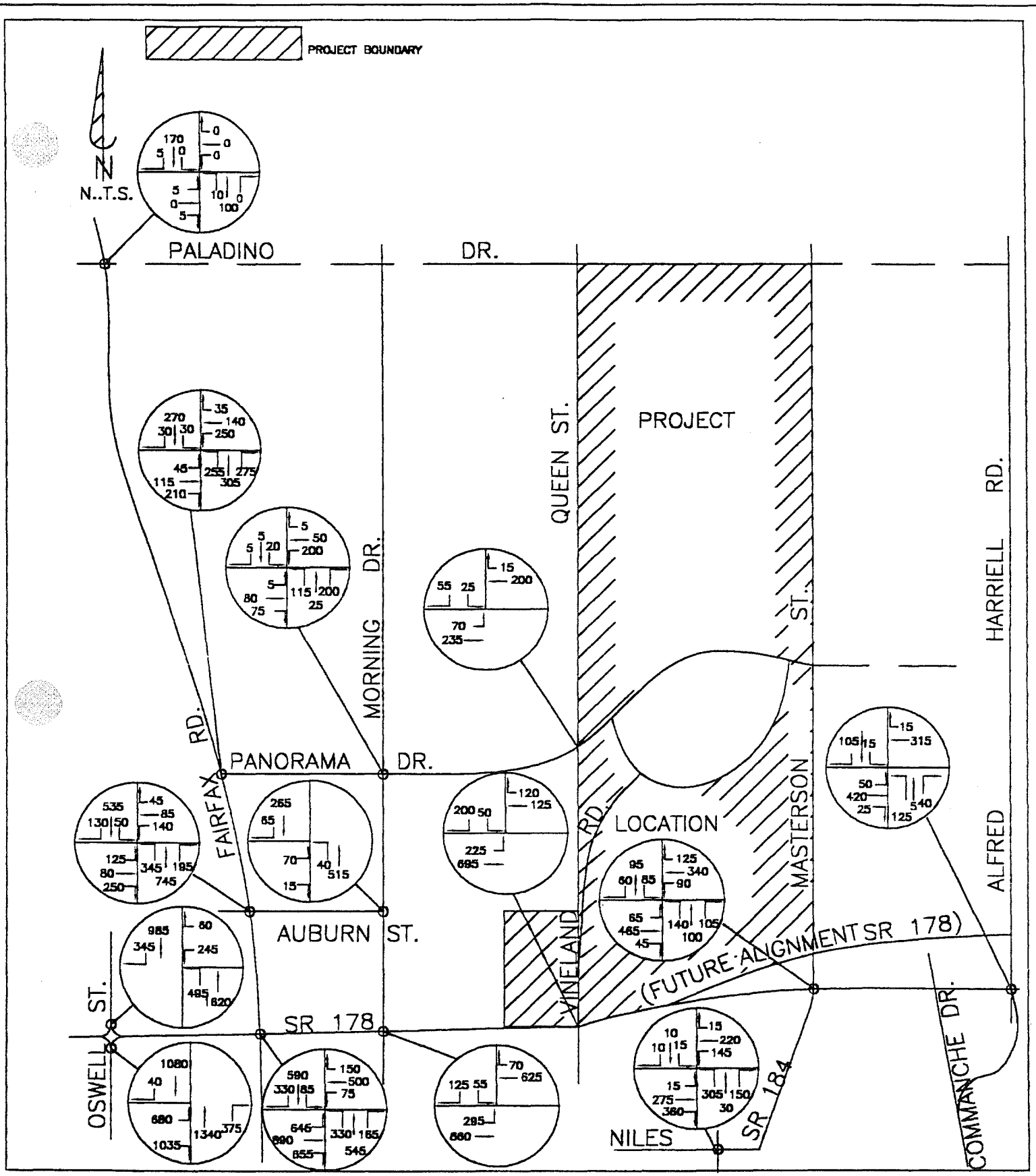

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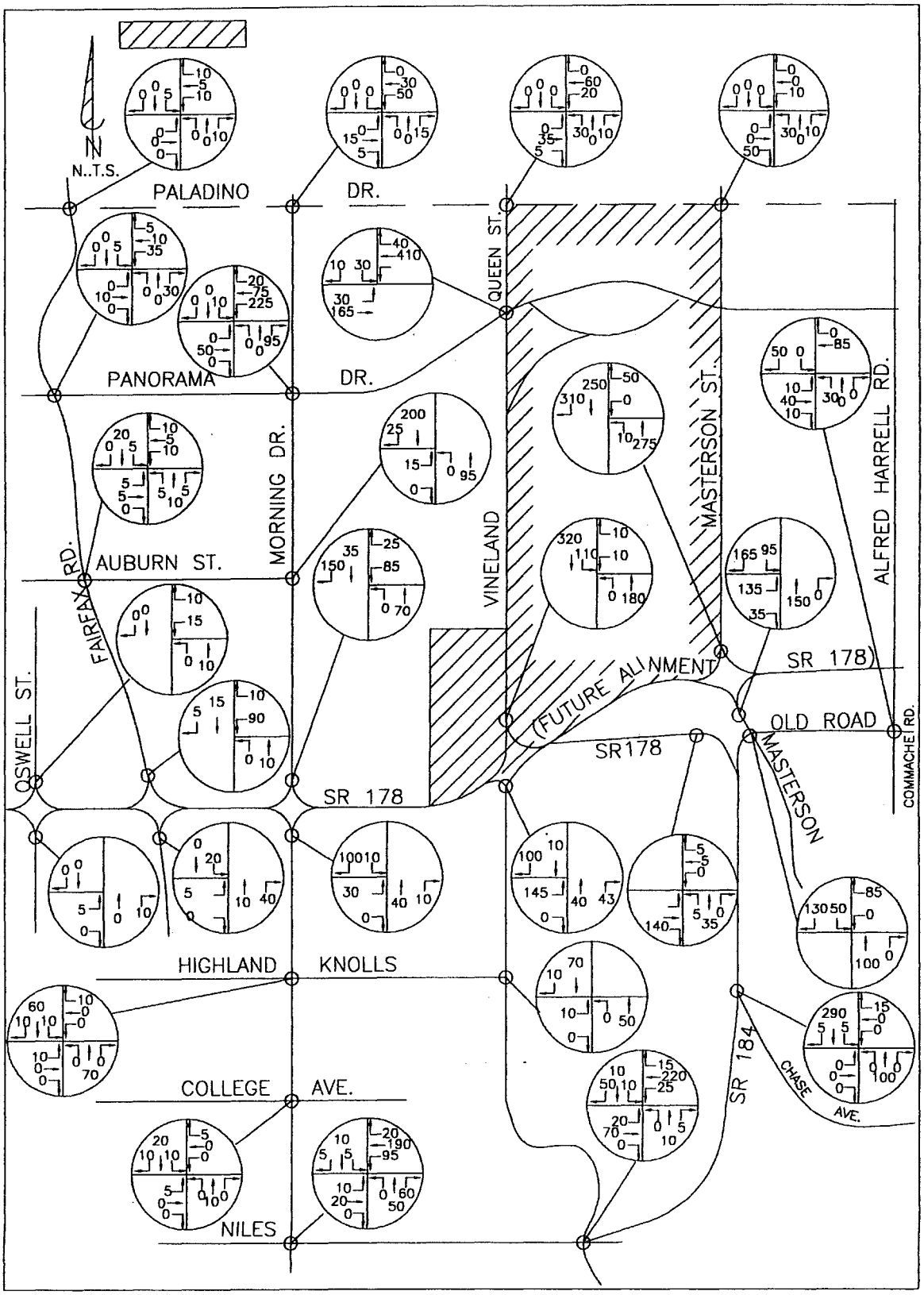

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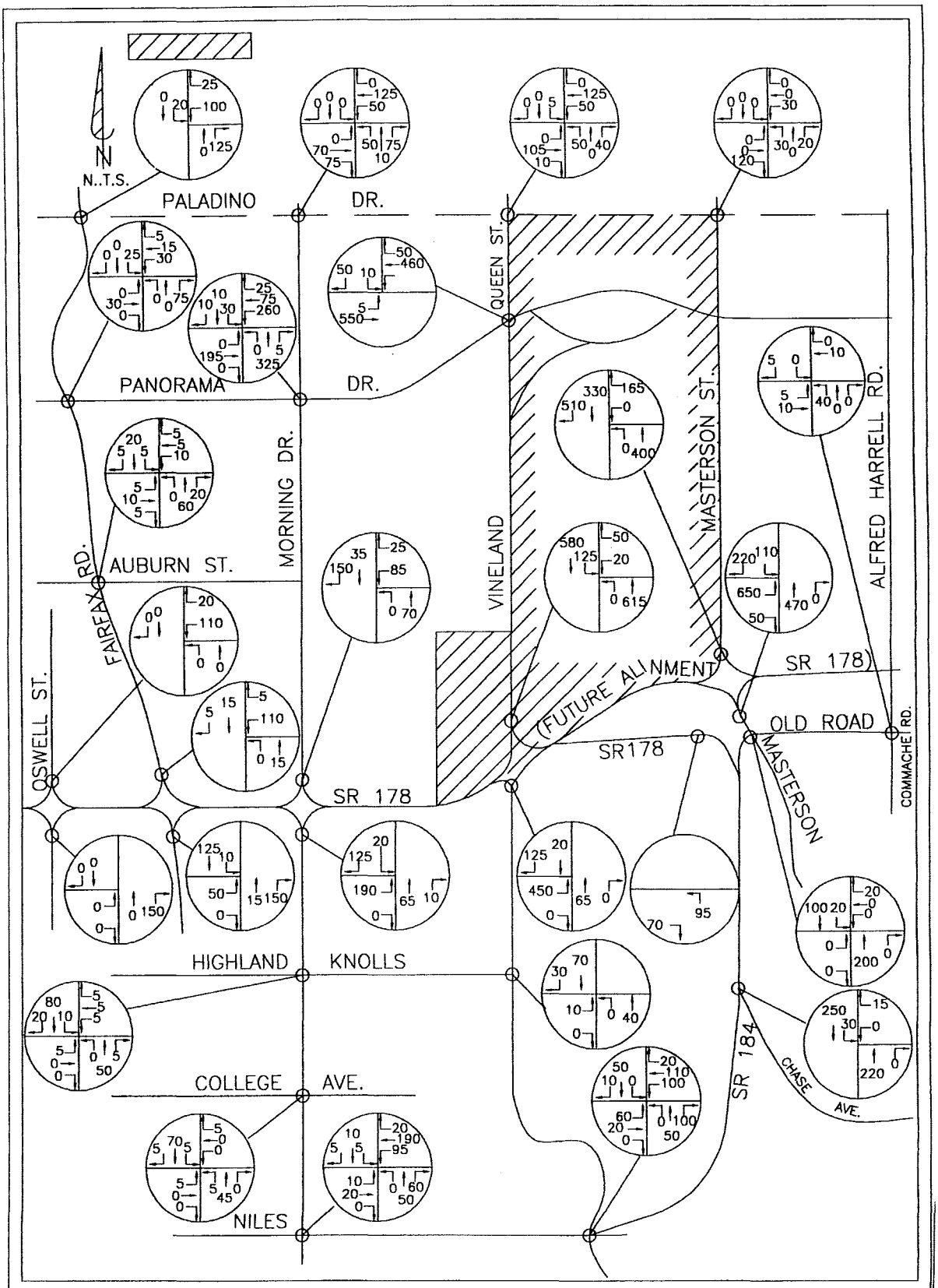

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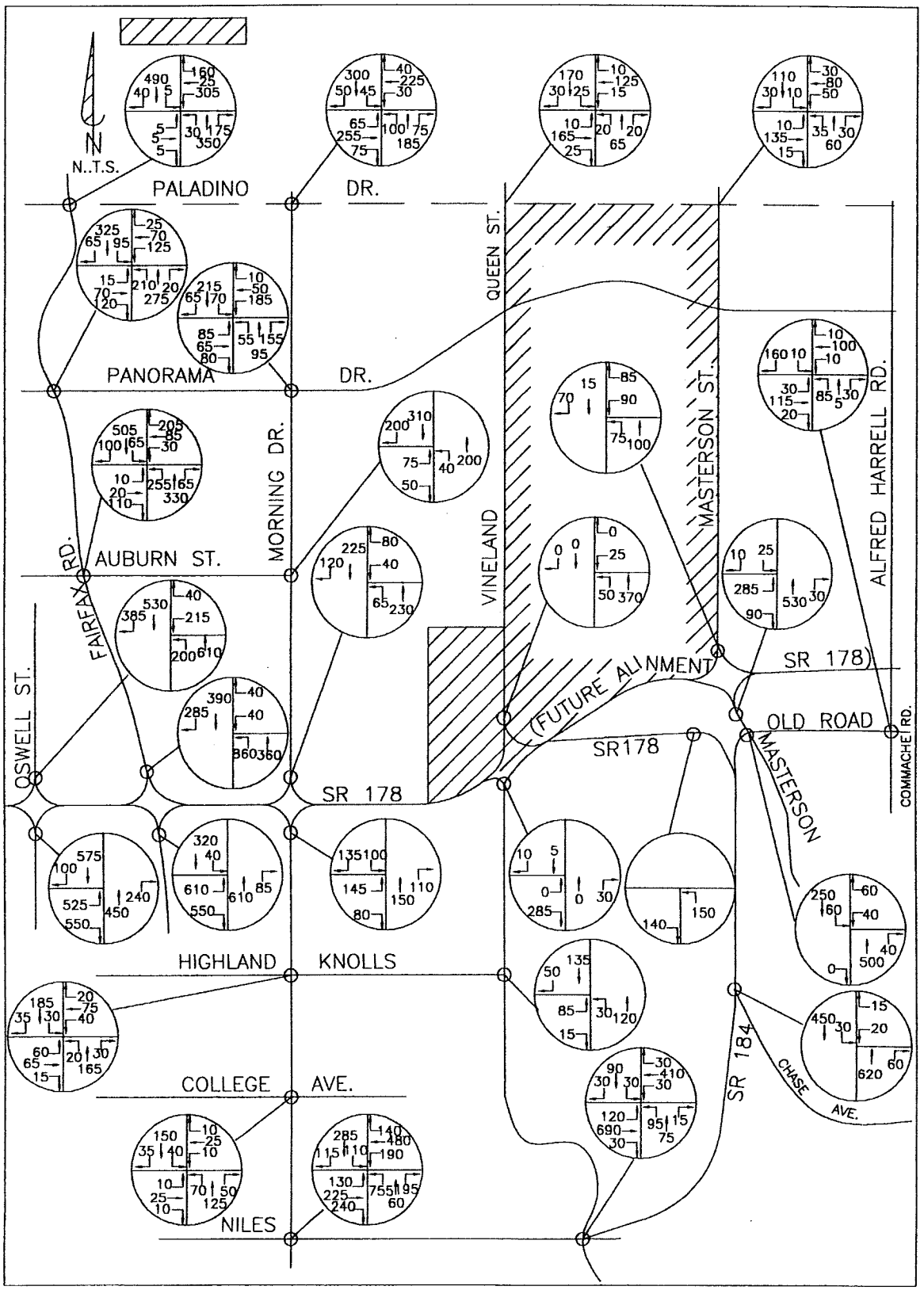

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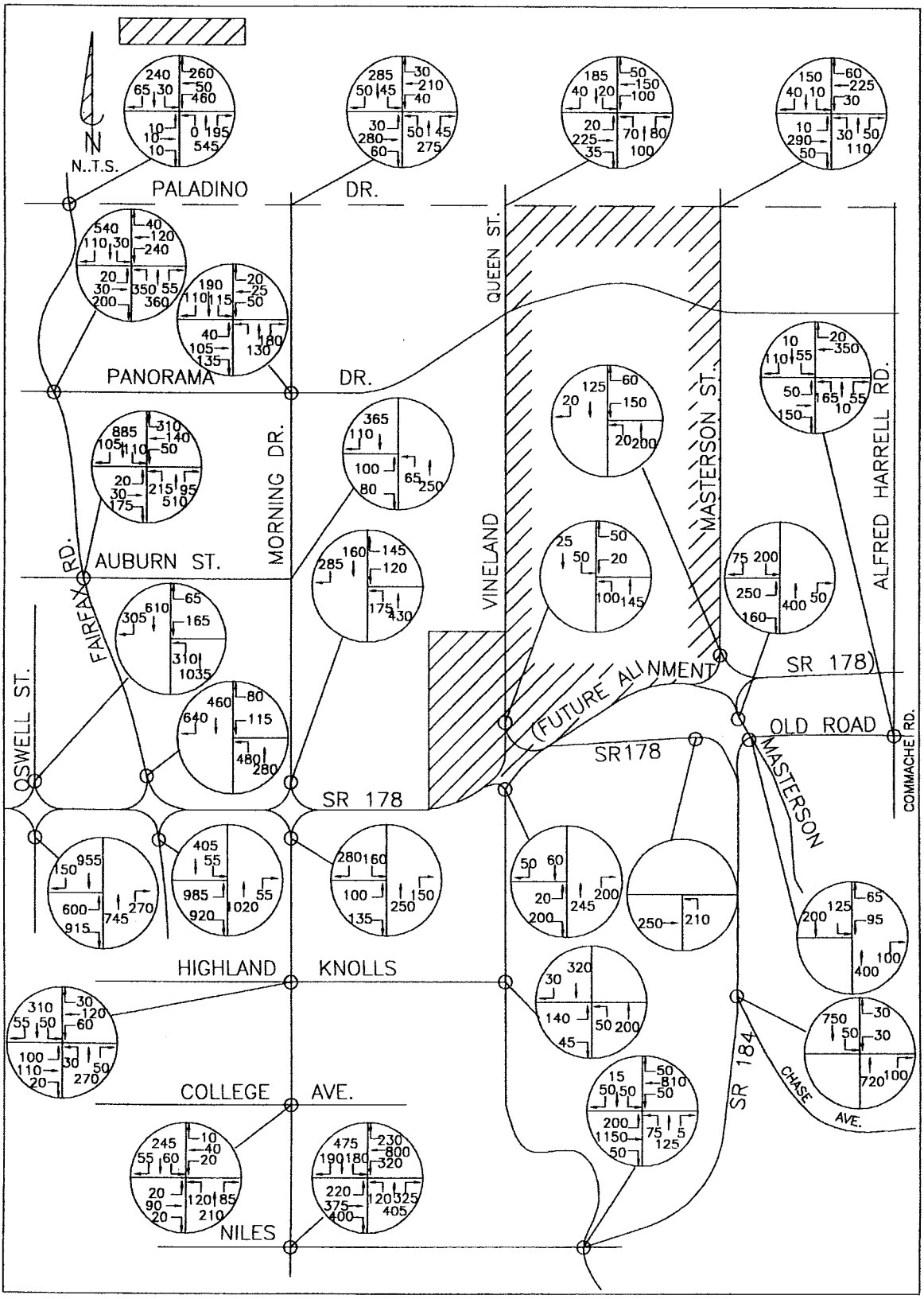

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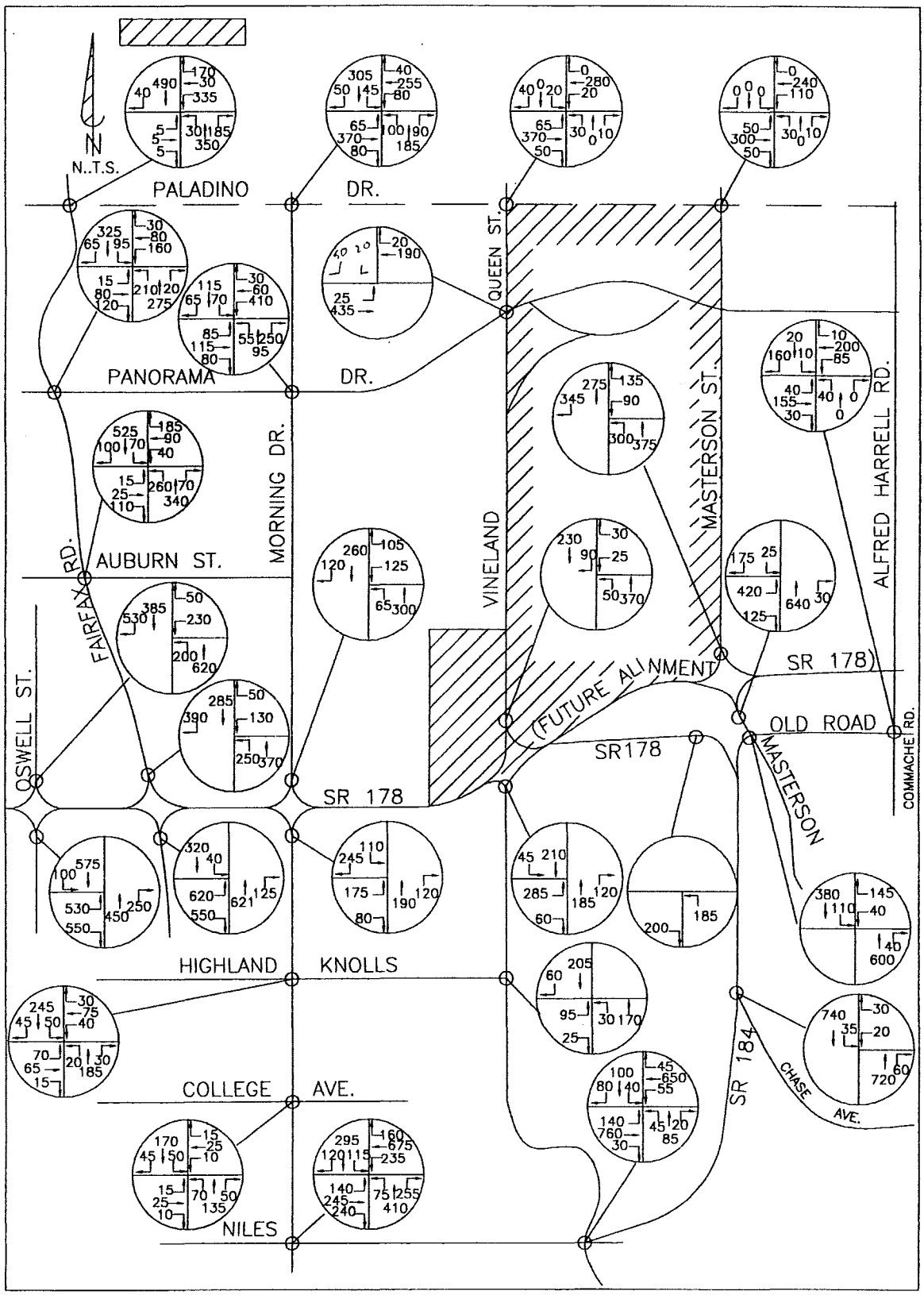

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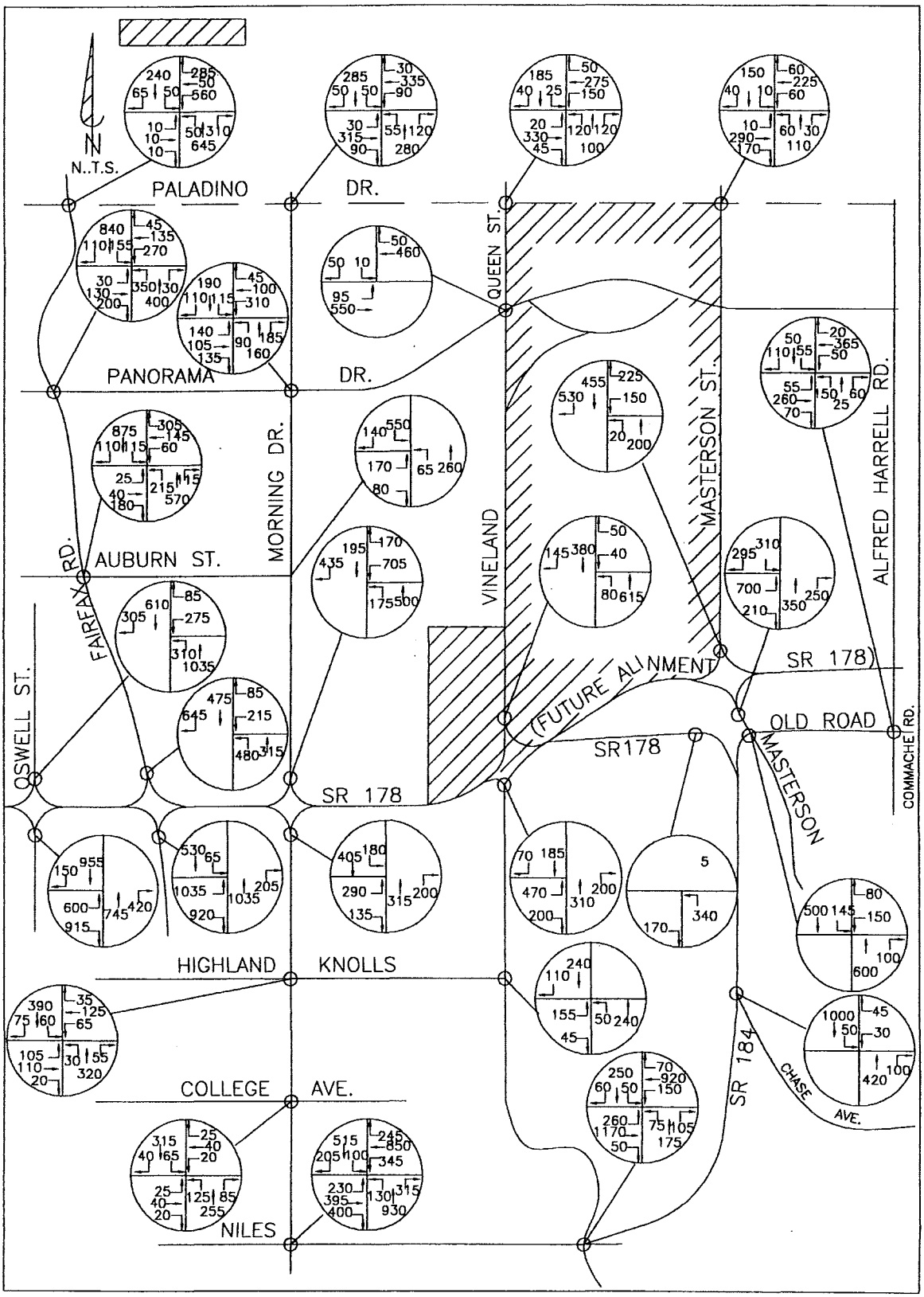

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EXIBIT 17

APPENDIX
EXHIBITS, TRAFFIC COUNTS, AND WORKSHEETS

This appendix to the Traffic Impact Study is located in Volume II of the Draft EIR. Volume II is available for review at the City of Bakersfield Planning Department, 1715 Chester Avenue, Bakersfield, California. This appendix includes exhibits illustrating peak hour traffic volumes by turning movement, traffic counts, and worksheets.

APPENDIX D

Environmental Noise Assessment

ENVIRONMENTAL NOISE ASSESSMENT

KERN CANYON RANCH G.P.A., Z.C. AND EIR
BAKERSFIELD, CALIFORNIA

PREPARED FOR

MOUNTAIN VIEW BRAVO, LLC
C/O PORTER-ROBERTSON
1200 21ST STREET
BAKERSFIELD, CALIFORNIA 93301

PREPARED BY

BROWN-BUNTIN ASSOCIATES, INC.
VISALIA, CALIFORNIA

FEBRUARY 2, 2000
(Revised April 25, 2000)

319 W. School Ave. • Visalia, CA 93291 • (559) 627-4923 • (559) 627-6284 Fax
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BBA
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1. INTRODUCTION

The project site is located in Section 17, north of Highway 178 and west of Masterson Street, in northeast Bakersfield. A general plan amendment and zone change are proposed to create residential and commercial land uses.

The purpose of this analysis is to quantify the noise impacts which may directly or indirectly result from the development and to identify mitigation measures which may be used to minimize noise impacts. The principal noise sources of concern are project-related traffic, and noise generated by Mesa Marin Raceway which potentially could impact noise-sensitive uses proposed by the project. It is intended that the findings and recommendations of this study be incorporated into the Draft Environmental Impact Report being prepared for the project.

Appendix A provides definitions of the acoustical terminology used in this report. Unless otherwise stated, all sound levels reported in this analysis are A-weighted sound pressure levels in decibels (dB). A-weighting de-emphasizes the very low and very high frequencies of sound in a manner similar to the human ear. Most community noise standards utilize A-weighted sound levels, as they correlate well with public reaction to noise.

2. THRESHOLDS OF SIGNIFICANCE

Appendix G (Environmental Checklist Form) of the CEQA Guidelines indicates that significant noise impacts occur when the project exposes people to noise levels in excess of standards established in local noise ordinances or general plan noise elements, or causes a substantial permanent or temporary increase in noise levels above levels existing without the project.

a. Noise Level Standards

The standards for noise levels that apply to this project are those within the Metropolitan Bakersfield 2010 General Plan.

For transportation-related noise (e.g. traffic), the General Plan sets a standard of 65 dB CNEL at the exterior of noise-sensitive uses. Noise-sensitive uses include residences, schools, hospitals and churches.

For noise sources not related to transportation (e.g. Mesa Marin Raceway), the hourly noise level performance standards shown in Table I are applicable.

TABLE I

HOURLY NOISE LEVEL PERFORMANCE STANDARDS
METROPOLITAN BAKERSFIELD 2010 GENERAL PLAN

	Maximum Acceptable Noise Level, dBA	
Min./Hr. (L_n)	**Day (7a-10p)**	**Night (10p-7a)**
30 (L_{50})	55	50
15 (L_{25})	60	55
5 ($L_{8.3}$)	65	60
1 ($L_{1.7}$)	70	65
0 (L_{max})	75	70

Note: L_n means the percentage of time the noise level is exceeded during an hour. L_{50} means the level exceeded 50% of the hour, L_{25} is the level exceeded 25% of the hour, etc.

Although the hourly noise level performance standards shown in Table I have five categories, the hourly L_{50} and L_{max} standards usually determine compliance. Therefore, those two categories will be used in this analysis.

b. Increases in Ambient Noise Levels

Transportation-related Noise

Table II is based on the standards and recommendations made by the Federal Interagency Committee on Noise (FICON) to provide guidance in the assessment of changes in ambient noise levels resulting from airport improvement projects. Table II generally applies to transportation noise that is usually expressed in terms of average noise exposure during a 24-hour period, such as the Day/Night Average Level (L_{dn}) or the Community Noise Equivalent Level (CNEL).

TABLE II SUBSTANTIAL INCREASES FOR TRANSPORTATION NOISE EXPOSURE	
Ambient Noise Level Without Project (L_{dn} or CNEL)	**Significant Impact Assumed to Occur if the Project Increases Ambient Noise Levels By:**
<60 dB	+5.0 dB or more
60-65 dB	+3.0 dB or more
>65 dB	+1.5 dB or more
Sources: FICON as applied by Brown-Buntin Associates, Inc.	

Non-transportation Noises

For non-transportation (stationary) noise sources, it is common to assume that a minimum 3 dB increase in noise levels represents the threshold for significant noise impacts. This is based on laboratory tests that indicate a 3 dB increase is the minimum change perceptible to most people.

3. SETTING

The project site currently is vacant. Surrounding property is used predominantly for agricultural purposes. Sources of noise in the project vicinity are traffic and the Mesa Marin Raceway located south of the site. Figure 1 shows the vicinity of the project.

a. Ambient Noise Level Measurements

Ambient noise level measurements were conducted within the site on October 19, 1999. The measurement sites are noted on Figure 1.

Noise monitoring equipment used for the study consisted of a Larson Davis Laboratories Model 820 integrating sound level meter equipped with a Bruel & Kjaer (B&K) Type 4176 ½" microphone. The instrumentation complies with applicable requirements of the American National Standards Institute (ANSI) for Type 1 (precision) sound level meters and was calibrated prior to use with a B&K Type 4230 acoustical calibrator to ensure the accuracy of the measurements.

Mesa Circulation

Project Vicinity

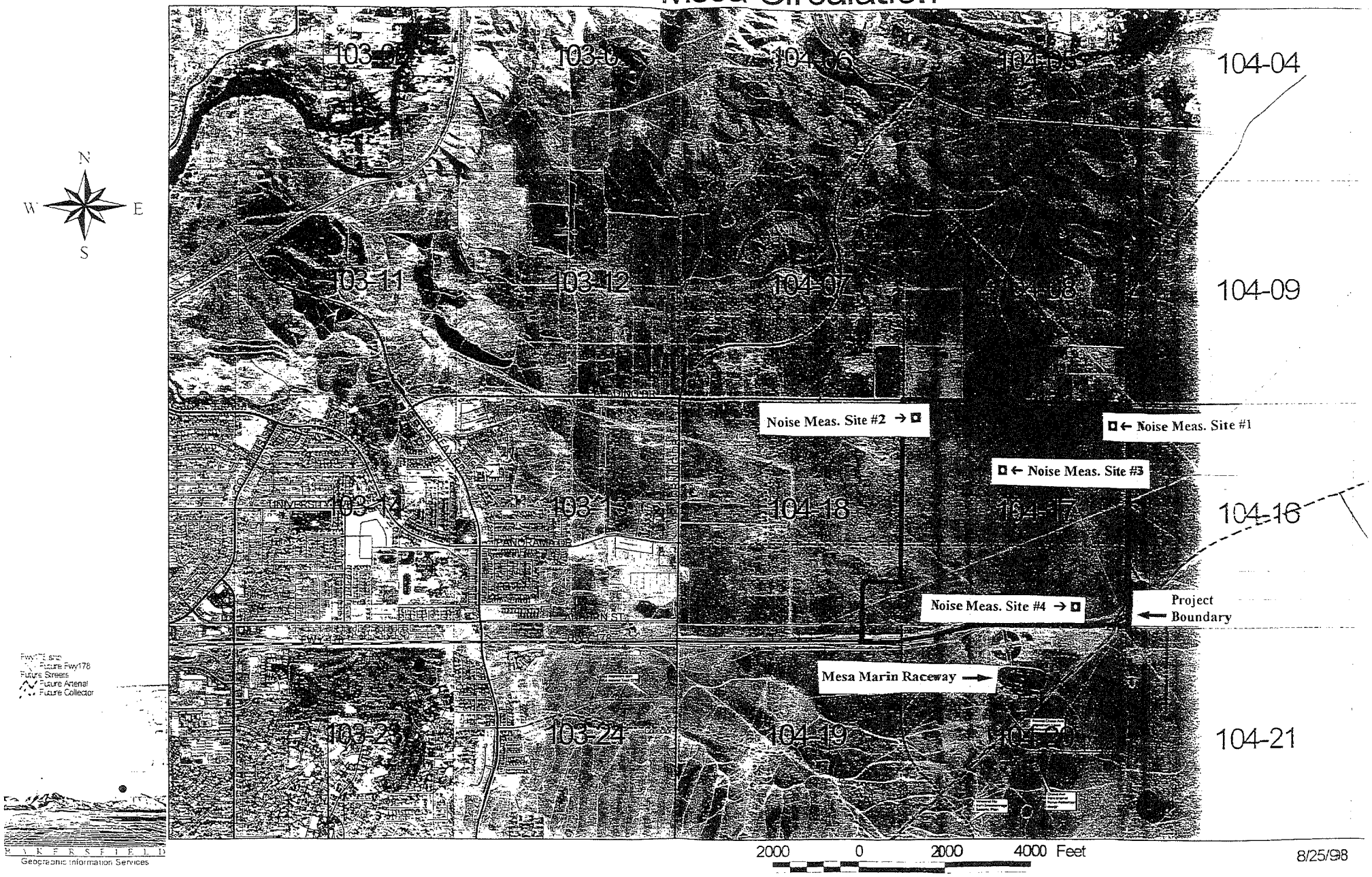

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Table III shows the results of the ambient noise levels measurements. At the three sites that are distant from Route 178 (Sites 1, 2 & 3), L_{50} noise levels ranged from approximately 32-34 dBA. Such levels are typical of undeveloped areas that are unaffected by significant noise sources, such as traffic.

TABLE III

AMBIENT NOISE LEVEL MEASUREMENTS
KERN CANYON RANCH G.P., Z.C. AND E.I.R.
OCTOBER 19, 1999

Site No.	Time	L_{50}	L_{max}	Comments
1	10:00-10:15 a.m.	32.0	58.5	Local traffic
2	10:20-10:35 a.m.	32.6	48.8	Local traffic, aircraft
3	10:40-10:55 a.m.	33.8	45.6	Distant traffic, birds
4	11:00-11:15 a.m.	60.2	70.1	Route 178 traffic

Source: Brown-Buntin Associates, Inc.

b. Existing Traffic Noise Levels

An analysis of existing traffic noise levels in the project vicinity was prepared using the FHWA Highway Traffic Noise Prediction Model[1] and traffic data obtained from the traffic engineering study prepared for the project[2]. Appendix B provides a summary of the traffic data used in the model to calculate traffic noise levels. Roadways having less than 5,000 ADT were not analyzed since traffic noise levels for these low-volume roadways are negligible. An adjustment to traffic noise levels was made for the existing block wall along Fairfax Road south of Route 178. No adjustment was made for the wood fences bordering Route 178 . The wood fences provide almost no noise reduction.

The FHWA Model is the analytical method currently favored by most state and local agencies, including Caltrans, for highway traffic noise predication. The Model is based upon reference energy emission levels for automobiles, medium trucks (2 axles) and heavy trucks (3 or more axles), with consideration given to vehicle volume, speed, roadway configuration, distance to the receiver, and the acoustical characteristics of the site. The FHWA Model was developed to predict hourly L_{eq} values for free-flowing traffic conditions, and is generally considered to be accurate within ± 1.5 dB. The Model assumes a clear view of traffic with no shielding at the receiver location. To predict CNEL values, it is necessary to determine the hourly distribution of traffic for a typical day and

adjust the traffic volume input data to yield an equivalent hourly traffic volume. The Calveno traffic noise emission curves were used as recommended by Caltrans to more accurately calculate noise levels generated by California traffic.

Table IV shows calculated CNEL values at assumed typical residential setbacks (125 feet for Route 178; 75 feet for other roadways) from major roadways near the project. Also shown in Table IV is the distance from roadway centers to the 60 dB CNEL contour. Note that existing traffic noise levels do not exceed the 65 dB CNEL compatibility standard, except along Fairfax Road from north of Route 178 to Auburn Street.

TABLE IV

EXISTING TRAFFIC NOISE LEVELS AT ASSUMED TYPICAL RESIDENTIAL SETBACK FROM ROADS

Roadway	CNEL, dB	Distance to 65 dB CNEL Contour, Feet
Panorama Drive		
Fairfax-Morning	62.2	49
Morning-Project Boundary	---	---
Proj. Boundary-Masterson	---	---
Auburn Street		
Fairfax-Morning	61.0	41
Route 178		
Oswell-Fairfax	56.0	31
Fairfax-Morning	61.0	68
Morning-Vineyard	60.9	66
Vineyard-Masterson	61.1	68
Masterson-Alfred Harrell	60.9	67
Fairfax Road		
S. of Route 178	61.8	46
Route 178-Auburn	66.8	99
Auburn-Panorama	65.2	78
Morning Drive		
Route 178-Panorama	56.9	22
Vineyard Road		
N. of Route 178	----	---
Route 184		
Niles-Route 178	58.9	30
Route 178 (Future Alignment)		
W. of Masterson	---	---
E. of Masterson	---	---

Source: Brown-Buntin Associates, Inc.

4. PROJECT IMPACTS AND MITIGATION MEASURES

a. Project-related Traffic Noise Impacts

Project-related traffic noise impacts were analyzed for year 2010 and 2020 conditions with and without the project, as shown in Tables V and VI. The methods used to calculate traffic noise exposure were the same as used for existing conditions. The traffic conditions used in the analysis are shown in Appendix B.

Table V (year 2010 conditions) shows that the project will not cause a significant traffic noise impact within the project or outside of the project. Significant noise impacts are caused by exceeding the 65 dB CNEL Noise Element standard, or by causing a substantial increase in noise levels (see Table II).

Table VI (year 2020 conditions) shows that the project will cause a significant traffic noise impact within the project along the future alignment of Route 178, Masterson Street and Paladino Drive. Outside the project site, a significant traffic noise impact will occur along Fairfax Road from Panorama to Paladino.

Mitigation

Traffic noise affecting the project site at build-out (year 2020) that will create significant noise impacts will occur along the future alignment of Route 178, Masterson Street and Paladino Drive. Noise from these roads can be mitigated by setting residential uses back from the roads by a distance equal to or greater than the 65 dB CNEL contour. For the future alignment of Route 178, the minimum setback distance would be 188 feet; for Masterson Street and Paladino Drive, the minimum setbacks would be 84 and 86 feet, respectively. Sound walls also could be used to mitigate traffic noise levels. The exact height and placement of soundwalls would depend on lot design and grading. Walls in the range of 6 to 10 feet probably would suffice for most situations. When lot design and grading are established, an acoustical consultant should establish necessary wall heights and locations.

Off-site traffic noise impacts will occur along Route 178, Morning Drive, Route 184 and Fairfax Road. Usually, there are no feasible means to mitigate off-site traffic noise. Substantial increases in off-site traffic noise are directly related to substantial increases in traffic volumes caused by development, and are therefore considered an unavoidable adverse significant impact.

TABLE V

PROJECT-RELATED TRAFFIC NOISE[1]
YEAR 2010

Roadway	CNEL, dB			
	2010 No Project	2010 w/Project	Change	Significant Impact?
Panorama Drive				
Fairfax-Morning	61.5	62.6	+1.1	No
Morning-Project Boundary	---	62.3	---	No
Proj. Boundary-Masterson[2]	---	---	---	---
Auburn Street				
Fairfax-Morning	60.0	60.7	+0.7	No
Route 178				
Oswell-Fairfax	66.9	68.1	+1.1	No
Fairfax-Morning	62.4	65.2	+0.9	No
Morning-Vineyard	62.3	64.2	+1.9	No
Vineyard-Masterson[2]	62.3	62.9	+0.6	No
Masterson-Alfred Harrell	62.5	63.1	+0.6	No
Fairfax Road				
S. of Route 178	62.9	63.6	+0.7	No
Route 178-Auburn	67.5	68.3	+0.8	No
Auburn-Panorama	65.7	66.2	+0.5	No
Morning Drive				
Route 178-Panorama	58.6	63.5	+4.9	No
Vineyard Road				
N. of Route 178[2]	---	63.4	---	No
Route 184				
Niles-Route 178	62.1	63.8	+1.7	No

[1]Calculated at assumed typical residential setback (125 feet from Route 178; 75 feet for other roadways).
[2] Streets within or adjacent to project.

Source: Brown-Buntin Associates, Inc.

TABLE VI

PROJECT-RELATED TRAFFIC NOISE[1]
YEAR 2020

Roadway	CNEL, dB 2020 No Project	2020 w/Project	Change	Significant Impact?
Panorama Drive				
Fairfax-Morning	61.5	62.8	+1.3	No
Morning-Project Boundary	---	64.9	---	No
Proj. Boundary-Masterson[2]	---	65.2	---	No
Auburn Street				
Fairfax-Morning	62.3	63.8	+1.5	No
Route 178				
Oswell-Fairfax	70.1	70.7	+0.6	No
Fairfax-Morning	68.7	69.6	+0.9	No
Morning-Vineyard	67.9	68.2	+0.3	No
Vineyard-Masterson[2]	59.2	60.9	+1.7	No
Masterson-Alfred Harrell	61.8	61.9	+0.1	No
Fairfax Road				
S. of Route 178	63.1	63.3	+0.2	No
Route 178-Auburn	67.1	67.5	+0.4	No
Auburn-Panorama	67.5	68.0	+0.5	No
Panorama-Paladino	65.9	67.5	+1.6	Yes
Morning Drive				
S. of Route 178	62.8	64.1	+1.3	No
Route 178-Panorama	63.6	64.8	+1.2	No
Vineyard Road				
S. of Route 178	63.3	64.4	+1.1	No
N. of Route 178[2]	---	63.0	---	No
Route 184				
Niles-Route 178	67.3	67.1	-0.2	No
Route 178 (Future Alignment)				
W. of Masterson[2]	69.4	67.7	-1.7	Yes
E. of Masterson	69.0	70.2	+1.2	No
Masterson Street				
N. of Route 178[2]	---	65.8	---	Yes
Paladino Drive				
Fairfax-Morning	64.2	65.9	+1.7	Yes
Morning-Project Boundary	63.3	65.9	+2.6	Yes
Project Boundary-Masterson[2]	63.1	65.9	+2.8	Yes
Masterson-Alfred Harrell	63.1	65.9	+2.8	Yes

[1]Calculated at assumed typical residential setback (125 feet from Route 178; 75 feet for other roadways).
[2] Streets within or adjacent to project.

Source: Brown-Buntin Associates, Inc.

b. Construction Noise Impacts

During the construction of the project, noise from construction activities would potentially impact noise-sensitive land uses in the immediate area. Activities involved in construction would generate noise levels at 50 feet as indicated by Table VII. Construction activities would be temporary in nature and would most likely occur only during the daytime hours. Construction noise impacts could result in annoyance or sleep disruption for nearby residents if nighttime operations were to occur or if equipment is not properly muffled or maintained. Since construction noise is temporary and will occur mostly during daytime hours, it is not considered significant. However, the hours of operation of noise-producing equipment should be restricted to 7:00 a.m. to 7:00 p.m, Monday through Friday, and 9:00 a.m. to 6:00 p.m. on Saturday and Sunday. Effective mufflers should be fitted to gas- and diesel-powered equipment.

TABLE VII

CONSTRUCTION EQUIPMENT NOISE

Type of Equipment	Maximum Level, dB (50 Ft.)
Scrapers	88
Bulldozers	87
Heavy Trucks	88
Backhoe	85
Pneumatic Tools	85

Source: Cunniff 1977

c. Mesa Marin Raceway Noise

As shown by Figure 1, Mesa Marin Raceway is located directly south of the project site. The center of the raceway oval is approximately 1200 feet from the southern boundary of the project site.

The raceway features NASCAR sanctioned stock car races. During the 1999 racing season, which extended from March through October, 26 evenings of racing were scheduled. Most of the events occurred on Saturdays, although a few were scheduled on Thursday, Friday or Sunday.

Noise levels due to qualifying and racing at Mesa Marin that are used in this report were obtain from the acoustical analysis prepared for the City of Bakersfield by Gordon Bricken and Associates, Consulting Acoustical and Energy Engineers[3]. The Bricken report is based on measured noise levels around Mesa Marin Raceway for one evening of racing (September 9, 1995). As the Bricken report states:

> "No single day survey can define the conditions that will exist at the raceway each time. It literally takes years to define the operations using measurements. One days' results are not likely to be another days' results. Thus, the idea of allowing short-term measurements of a race track to define impact areas is faulty. Using measurements alone will lead to different results depending on the day of the measurement. Therefore, the measurement results reported for September 9, 1995, are accurate only for that day. They must be used with care in making long-term land use decisions."

Although Bricken's study is based on only one evening of racing, it represents the most recent and most complete analysis of noise levels generated by Mesa Marin Raceway.

The noise levels measured on November 9, 1995 were used as a basis for plotting noise contours around the raceway that are presented in the Bricken report. The contours are based on the Late Model Stock Car race, which produced the highest noise levels. One of the most important factors that effects noise propagation, and therefore the extent of the noise contours, is wind speed and direction. According to National Weather Service records at Meadows Field, the wind direction is 250 degrees (west) to 350 degrees (north) 66% of the time in this area. The range of wind speeds 66% of the time is 4 to 9 knots. Additionally, 95% of all winds over 10 knots occur in the range of 270 degrees to 360 degrees. Although calm conditions and wind blowing from the south or southeast can occur, the prevailing wind direction is from the north and northwest.

Figure 2 shows L_{50} and L_{max} noise contours for 5 knot northwest winds superimposed on the project site. The noise contours are derived from Exhibit 4 and 3 of the Bricken report. The L_{50}-55 dBA

ZONE	SECTION 17	18	19	20	SUBTOTAL
R-1	476.0	24.0	—	—	500.0
R-3	44.8	12.5	7.3	0.9	65.5
C-2	87.8	3.5	1.6	4.0	96.9
FREEWAY	27.3	—	—	—	27.3
RAMP R/W	4.2	—	—	—	4.2
TOTAL	640.1	40.0	8.9	4.9	693.9

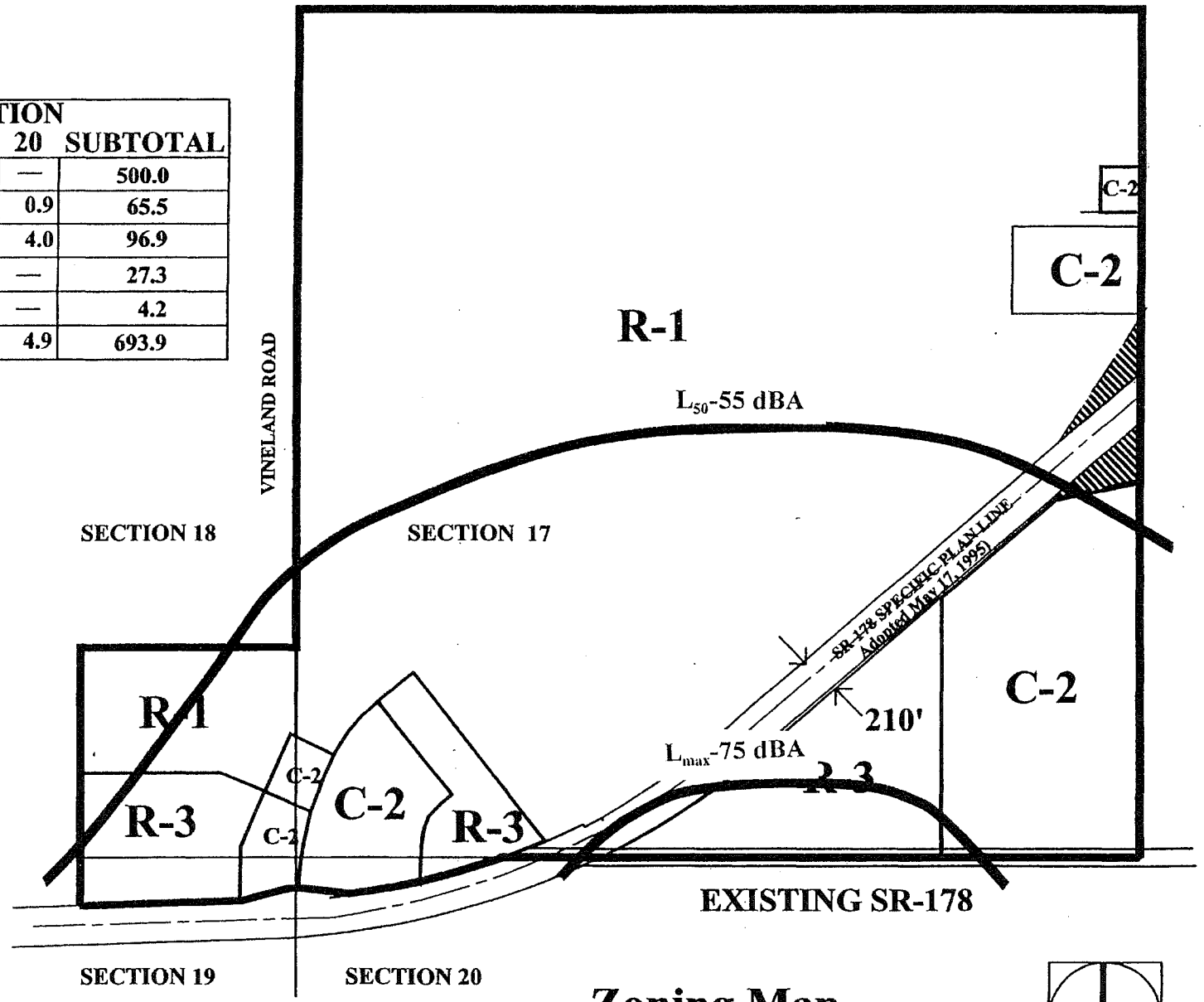

Figure 2
Mesa Marin Raceway Noise Contours
5 Knot Northwest Winds

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Zoning Map
Kern Canyon Ranch
Section 17
Mountain View Bravo. LLC

1-05-2000
Scale: 1"=1000'

NORTH

and L_{max}-75 dBA contours represent the limits of noise compatibility for racing that occurs in the daytime hours (7:00 a.m.-10:00 p.m.). The nighttime (10:00 p.m.-7:00 a.m.) noise standards are an L_{50} of 50 dBA and an L_{max} of 70 dBA. The L_{50}-50 dBA contour was not presented in the Bricken report.

Figure 3 shows the L_{50} -55 dBA and L_{max}-75 dBA contours for calm conditions. These are derived from Exhibit 7 of the Bricken report. The noise contours for calm conditions extend further north than noise contours representing wind from the northwest. Although noise contours representing the predominate northwest wind conditions usually will prevail, the more extensive contours representing calm conditions may sometimes occur.

The critical noise contour shown in Figures 2 and 3 is the L_{50}-55 dBA. Residential uses proposed within the L_{50}-55 dBA contour shown in Figures 2 and 3 would be incompatible with the City's noise standards, and therefore cause a significant noise impact.

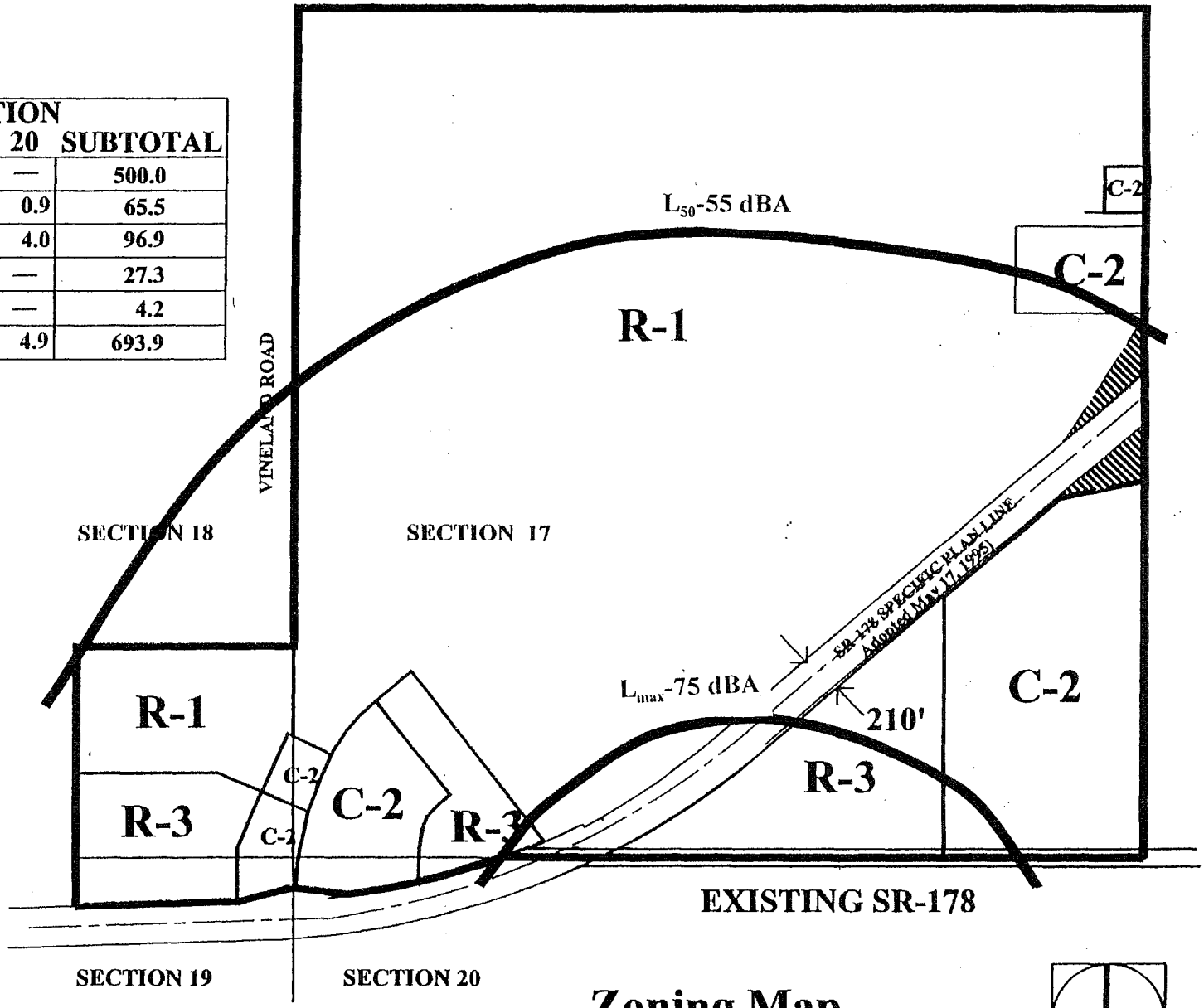
Mitigation

A Conditional Use Permit (C.U.P.) approved January 25, 1995 for the Mesa Marin Raceway indicates that noise from the raceway will be reduced to satisfy certain standards specified in the C.U.P. It is unknown if such noise reduction has taken place.

There are no mitigation measures that can be applied on the project site that will effectively reduce noise from the Mesa Marin Raceway to levels that satisfy the 2010 General Plan compatibility criteria. Sound walls could be constructed along the perimeter of the site, but, at best, they would reduce noise only at residences adjacent to the sound wall. Any effective mitigation measures would have to be applied at the raceway itself, such as berms or walls. Even if additional berms or walls were constructed at the raceway, it is not certain that they would substantially reduce noise impacts.

Raceway noise is therefore considered to be a significant unavoidable adverse impact.

ZONE	SECTION 17	18	19	20	SUBTOTAL
R-1	476.0	24.0	—	—	500.0
R-3	44.8	12.5	7.3	0.9	65.5
C-2	87.8	3.5	1.6	4.0	96.9
FREEWAY	27.3	—	—	—	27.3
RAMP R/W	4.2	—	—	—	4.2
TOTAL	640.1	40.0	8.9	4.9	693.9



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661 / 327-0362

Figure 3
Mesa Marin Raceway Noise Contours
Calm Winds

Zoning Map
Kern Canyon Ranch
Section 17
Mountain View Bravo. LLC

1-05-2000
Scale: 1"=1000'

NORTH

5. SOURCES CONSULTED

1. FHWA Highway Traffic Noise Prediction Model, FHWA-RD-108, U.S. Department of Transportation, Federal Highway Administration, December 1978.

2. Crenshaw Traffic Engineering, *Traffic Impact Study, Mixed Use Development, North of S.R. 178, West of Masterson Street, East of Vineland Road and South of Paladino, City of Bakersfield*, Revised, March 10, 2000.

3. Gordon Bricken and Associates, *Acoustical Analysis Mesa Marin Raceway, City of Bakersfield*, February 9, 1996.

APPENDIX A

ACOUSTICAL TERMINOLOGY

AMBIENT NOISE LEVEL: The composite of noise from all sources near and far. In this context, the ambient noise level constitutes the normal or existing level of environmental noise at a given location.

CNEL: Community Noise Equivalent Level. The average equivalent sound level during a 24-hour day, obtained after addition of approximately five decibels to sound levels in the evening from 7:00 p.m. to 10:00 p.m. and ten decibels to sound levels in the night before 7:00 a.m. and after 10:00 p.m.

DECIBEL, dB: A unit for describing the amplitude of sound, equal to 20 times the logarithm to the base 10 of the ratio of the pressure of the sound measured to the reference pressure, which is 20 micropascals (20 micronewtons per square meter).

DNL/L_{dn}: Day/Night Average Sound Level. The average equivalent sound level during a 24-hour day, obtained after addition of ten decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m.

L_{eq}: Equivalent Sound Level. The sound level containing the same total energy as a time varying signal over a given sample period. L_{eq} is typically computed over 1, 8 and 24-hour sample periods.

NOTE: The CNEL and DNL represent daily levels of noise exposure averaged on an annual basis, while L_{eq} represents the average noise exposure for a shorter time period, typically one hour.

L_{max}: The maximum noise level recorded during a noise event.

L_n: The sound level exceeded "n" percent of the time during a sample interval (L_{90}, L_{50}, L_{10}, etc.). L_{10} equals the level exceeded 10 percent of the time.

ACOUSTICAL TERMINOLOGY

NOISE EXPOSURE CONTOURS: Lines drawn about a noise source indicating constant levels of noise exposure. CNEL and DNL contours are frequently utilized to describe community exposure to noise.

NOISE LEVEL REDUCTION (NLR): The noise reduction between indoor and outdoor environments or between two rooms is the numerical difference, in decibels, of the average sound pressure levels in those areas or rooms. A measurement of "noise level reduction" combines the effect of the transmission loss performance of the structure plus the effect of acoustic absorption present in the receiving room.

SEL or SENEL: Sound Exposure Level or Single Event Noise Exposure Level. The level of noise accumulated during a single noise event, such as an aircraft overflight, with reference to a duration of one second. More specifically, it is the time-integrated A-weighted squared sound pressure for a stated time interval or event, based on a reference pressure of 20 micropascals and a reference duration of one second.

SOUND LEVEL: The sound pressure level in decibels as measured on a sound level meter using the A-weighting filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the response of the human ear and gives good correlation with subjective reactions to noise.

Append 1
FHWA-R 7-108 Highway Traffic Noise Prediction Model
Data Input Sheet
Brown-Buntin Associates, Inc. (BBA)

Project #: 99-052
Description: **Existing Conditions -- Kern Canyon Ranch**
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	*Roadway Name*	*Segment Description*	ADT	*Day*	*Eve %*	*Night %*	*% Med. Trucks*	*% Heavy Trucks*	*Speed*	*Distance*
1	Panorama Drive	Fairfax-Morning	5390	75	15	10	2	2	45	75
2	Panorama Drive	Morning-Project Boundary	–	–	–	–	–	–	–	–
3	Panorama Drive	Project Boundary-Masterson	–	–	–	–	–	–	–	–
4	Auburn Street	Fairfax-Morning	4120	75	15	10	2	2	45	75
5	Route 178	Oswell-Fairfax	2190	75	15	10	4.5	3.5	45	125
6	Route 178	Fairfax-Morning	6940	75	15	10	4.5	3.5	45	125
7	Route 178	Morning-Vineyard	6670	75	15	10	4.5	3.5	45	125
8	Route 178	Vineyard-Masterson	7010	75	15	10	4.5	3.5	45	125
9	Route 178	Masterson-Alfred Harrell	6780	75	15	10	4.5	3.5	45	125
10	Fairfax Road	S. of Rt. 178	15560	75	15	10	2	2	45	75
11	Fairfax Road	Rt 178-Auburn	15600	75	15	10	2	2	45	75
12	Fairfax Road	Auburn-Panorama	10900	75	15	10	2	2	45	75
13	Morning Drive	Rt 178-Panorama	1600	75	15	10	2	2	45	75
14	Vineyard Road	N. of Rt. 178	–	–	–	–	–	–	–	–
15	Route 184	Niles-Rt 178	2290	75	15	10	5	2	45	75

Appendix B-2
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet
Brown-Buntin Associates, Inc. (BBA)

Project #: 99-052
Description: **2010 No Project -- Kern Canyon Ranch**
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	*Roadway Name*	*Segment Description*	ADT	*Day*	*Eve %*	*Night %*	*% Med. Trucks*	*% Heavy Trucks*	*Speed*	*Distance*
1	Panorama Drive	Fairfax-Morning	4625	75	15	10	2	2	45	75
2	Panorama Drive	Morning-Project Boundary	–	–	–	–	–	–	–	–
3	Panorama Drive	Project Boundary-Masterson	–	–	–	–	–	–	–	–
4	Auburn Street	Fairfax-Morning	3225	75	15	10	2	2	45	75
5	Route 178	Oswell-Fairfax	27100	75	15	10	4.5	3.5	45	125
6	Route 178	Fairfax-Morning	9475	75	15	10	4.5	3.5	45	125
7	Route 178	Morning-Vineyard	9325	75	15	10	4.5	3.5	45	125
8	Route 178	Vineyard-Masterson	9325	75	15	10	4.5	3.5	45	125
9	Route 178	Masterson-Alfred Harrell	9800	75	15	10	4.5	3.5	45	125
10	Fairfax Road	S. of Rt. 178	20200	75	15	10	2	2	45	125
11	Fairfax Road	Rt 178-Auburn	18150	75	15	10	2	2	45	125
12	Fairfax Road	Auburn-Panorama	12125	75	15	10	2	2	45	125
13	Morning Drive	Rt 178-Panorama	2338	75	15	10	2	2	45	75
14	Vineyard Road	N. of Rt. 178	–	–	–	–	–	–	–	–
15	Route 184	Niles-Rt 178	4750	75	15	10	5	2	45	75

Appenc[illegible]-3
FHWA-[illegible]7-108 Highway Traffic Noise Prediction Model
Data Input Sheet
Brown-Buntin Associates, Inc. (BBA)

Project #: 99-052
Description: **2010 With Project -- Kern Canyon Ranch**
Ldn/CNEL: CNEL
Hard/Soft: Soft

Segment	*Roadway Name*	*Segment Description*	ADT	*Day %*	*Eve %*	*Night %*	*% Med. Trucks*	*% Heavy Trucks*	*Speed*	*Distance*
1	Panorama Drive	Fairfax-Morning	5875	75	15	10	2	2	45	75
2	Panorama Drive	Morning-Project Boundary	5575	75	15	10	2	2	45	75
3	Panorama Drive	Project Boundary-Masterson	–	–	–	–	–	–	–	–
4	Auburn Street	Fairfax-Morning	3825	75	15	10	2	2	45	75
5	Route 178	Oswell-Fairfax	35500	75	15	10	4.5	3.5	45	125
6	Route 178	Fairfax-Morning	18275	75	15	10	4.5	3.5	45	125
7	Route 178	Morning-Vineyard	14275	75	15	10	4.5	3.5	45	125
8	Route 178	Vineyard-Masterson	10625	75	15	10	4.5	3.5	45	125
9	Route 178	Masterson-Alfred Harrell	11250	75	15	10	4.5	3.5	45	125
10	Fairfax Road	S. of Rt. 178	23600	75	15	10	2	2	45	75
11	Fairfax Road	Rt 178-Auburn	22100	75	15	10	2	2	45	75
12	Fairfax Road	Auburn-Panorama	13475	75	15	10	2	2	45	75
13	Morning Drive	Rt 178-Panorama	7263	75	15	10	2	2	45	75
14	Vineyard Road	N. of Rt. 178	7200	75	15	10	2	2	45	75
15	Route 184	Niles-Rt 178	6970	75	15	10	5	2	45	75

Appendix B-4
FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Data Input Sheet
Brown-Buntin Associates, Inc. (BBA)

Project #: 99-052
Description: **2020 No Project Kern Canyon Ranch**
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	*Roadway Name*	*Segment Description*	ADT	*Day*	*Eve %*	*Night %*	*% Med. Trucks*	*% Heavy Trucks*	*Speed*	*Distance*
1	Panorama Drive	Fairfax-Morning	5300	75	15	10	2	2	45	75
2	Panorama Drive	Morning-Project Boundary	-	-	-	-	-	-	-	-
3	Panorama Drive	Project Boundary-Masterson	-	-	-	-	-	-	-	-
4	Auburn Street	Fairfax-Morning	5500	75	15	10	2	2	45	75
5	Route 178	Oswell-Fairfax	55800	75	15	10	4.5	3.5	45	125
6	Route 178	Fairfax-Morning	40700	75	15	10	4.5	3.5	45	125
7	Route 178	Morning-Vineyard	34100	75	15	10	4.5	3.5	45	125
8	Route 178	Vineyard-Masterson	4600	75	15	10	4.5	3.5	45	125
9	Route 178	Masterson-Alfred Harrell	8250	75	15	10	4.5	3.5	45	125
10	Fairfax Road	S. of Rt. 178	21000	75	15	10	2	2	45	75
11	Fairfax Road	Rt 178-Auburn	16850	75	15	10	2	2	45	75
12	Fairfax Road	Auburn-Panorama	18400	75	15	10	2	2	45	75
13	Fairfax Road	Panorama-Paladino	12750	75	15	10	2	2	45	75
14	Morning Drive	S. of Rt. 178	6150	75	15	10	2	2	45	75
15	Morning Drive	Rt 178-Panorama	7500	75	15	10	2	2	45	75
16	Vineyard Road	S. of Rt. 178	6900	75	15	10	2	2	45	75
17	Vineyard Road	N. of Rt. 178	-	-	-	-	-	-	-	-
18	Route 184	Niles-Rt 178	15500	75	15	10	5	2	45	75
19	Route 178(Fut. Align.)	W. of Masterson	22000	75	15	10	4.5	3.5	65	125
20	Route 178(Fut. Align.)	E. of Masterson	20000	75	15	10	4.5	3.5	65	125
21	Masterson Street	N. of Rt 178	-	-	-	-	-	-	-	-
22	Paladino Drive	Fairfax-Morning	8660	75	15	10	2	2	45	75
23	Paladino Drive	Morning-Project Boundary	6950	75	15	10	2	2	45	75
24	Paladino Drive	Project Boundary-Masterson	6600	75	15	10	2	2	45	75
25	Paladino Drive	Masterson-Alfred Harrell	6650	75	15	10	2	2	45	75

Appen[illegible]3-5
FHWA-[illegible]/7-108 Highway Traffic Noise Prediction Model
Data Input Sheet
Brown-Buntin Associates, Inc. (BBA)

Project #: 99-052
Description: **2020 With Project Kern Canyon Ranch**
Ldn/CNEL: Ldn
Hard/Soft: Soft

Segment	*Roadway Name*	*Segment Description*	ADT	*Day*	*Eve %*	*Night %*	*% Med. Trucks*	*% Heavy Trucks*	*Speed*	*Distance*
1	Panorama Drive	Fairfax-Morning	7200	75	15	10	2	2	45	75
2	Panorama Drive	Morning-Project Boundary	10000	75	15	10	2	2	45	75
3	Panorama Drive	Project Boundary-Masterson	10700	75	15	10	2	2	45	75
4	Auburn Street	Fairfax-Morning	7800	75	15	10	2	2	45	75
5	Route 178	Oswell-Fairfax	65100	75	15	10	4.5	3.5	45	125
6	Route 178	Fairfax-Morning	50000	75	15	10	4.5	3.5	45	125
7	Route 178	Morning-Vineyard	36000	75	15	10	4.5	3.5	45	125
8	Route 178	Vineyard-Masterson	6800	75	15	10	4.5	3.5	45	125
9	Route 178	Masterson-Alfred Harrell	8450	75	15	10	4.5	3.5	45	125
10	Fairfax Road	S. of Rt. 178	22250	75	15	10	2	2	45	75
11	Fairfax Road	Rt 178-Auburn	18500	75	15	10	2	2	45	75
12	Fairfax Road	Auburn-Panorama	20500	75	15	10	2	2	45	75
13	Fairfax Road	Panorama-Paladino	18150	75	15	10	2	2	45	75
14	Morning Drive	S. of Rt. 178	8308	75	15	10	2	2	45	75
15	Morning Drive	Rt 178-Panorama	9750	75	15	10	2	2	45	75
16	Vineyard Road	S. of Rt. 178	8950	75	15	10	2	2	45	75
17	Vineyard Road	N. of Rt. 178	6550	75	15	10	2	2	45	75
18	Route 184	Niles-Rt 178	15000	75	15	10	5	2	45	75
19	Route 178(Fut. Align.)	W. of Masterson	14600	75	15	10	4.5	3.5	65	125
20	Route 178(Fut. Align.)	E. of Masterson	26300	75	15	10	4.5	3.5	65	125
21	Masterson Street	N. of Rt 178	12300	75	15	10	2	2	45	75
22	Paladino Drive	Fairfax-Morning	12650	75	15	10	2	2	45	75
23	Paladino Drive	Morning-Project Boundary	12650	75	15	10	2	2	45	75
24	Paladino Drive	Project Boundary-Masterson	12650	75	15	10	2	2	45	75
25	Paladino Drive	Masterson-Alfred Harrell	12650	75	15	10	2	2	45	75

APPENDIX E

Preliminary Air Quality Evaluation

WZI INC.

AIR QUALITY IMPACT STUDY

KERN CANYON RANCH

February 2000

Prepared for:
Mountain View Bravo

Prepared by:
WZI Inc.
4700 Stockdale Highway, Suite 120
Bakersfield, California 93309

13680010.RPT.001

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Appendix I	URBEMIS 7G Emissions Modeling

I. INTRODUCTION

This assessment examines the potential impact on air quality resulting from the proposed land development project known as Kern Canyon Ranch, located in the northeastern part of City of Bakersfield (Exhibit 1). This document was prepared pursuant to the San Joaquin Valley Unified Air Pollution Control District's *Guide for Assessing and Mitigating Air Quality Impacts.*

This project requires an amendment to the Land Use Element and Circulation Element of the Metropolitan Bakersfield 2010 General Plan, and a zone change. The Bakersfield City Planning Department is Lead Agency under the California Environmental Quality Act for the preparation of an Environmental Impact Report for the project.

II. PROJECT DESCRIPTION

The Kern Canyon Ranch Project encompasses approximately 694 acres in Sections 17, 18, 19 and 20, Township 29 South, Range 29 East, MDBM. A majority of the project (92%) is located in Section 17. The project is located north of State Route 178, west of Masterson Street, and south of Paladino Drive. The proposed land use distribution for Kern Canyon Ranch is approximately 72% low density residential, 9% high density residential, 14% commercial and 5% freeway. The proposed zoning and General Plan land use designations are shown on Exhibits 2 and 3, respectively. This study assumes that the project will not reach complete build out until the year 2020.

This study is based on the following development scenario:

TABLE 1
Kern Canyon Ranch – Development Scenario

Land Use	Acres	Proposed Development
Low Density Residential	500	2750 Dwelling Units
High Density Residential	55.5	1300 Dwelling Units
General Commercial	96.9	1,048,706 sq ft gross leaseable floor area

III. ENVIRONMENTAL SETTING

The proposed project is located in the San Joaquin Valley Air Basin, within the City of Bakersfield, and within the jurisdiction of the San Joaquin Valley Unified Air Pollution Control District. The topography of the air basin includes foothills and mountain ranges to the east, west and south, and a relatively flat valley floor. The valley is characterized by long, hot, dry summers and short, foggy winters. The features of the valley produce climate episodes such as frequent temperature inversions. The topography of the project area is flat with an elevation of approximately 740 feet above mean sea level as shown on the U. S. Geological Survey topographical map, Oil Center, California, Quadrangle.

State and National Ambient Air Quality Standards

National Ambient Air Quality Standards (NAAQS) are assigned as the result of provisions of the Federal Clean Air Act. The NAAQS establish acceptable pollutant concentrations which may be equaled continuously or exceeded only once per year. California Ambient Air Quality Standards (NAAQS) are limits set by the California Air Resources Board (CARB) that cannot be equaled or exceeded. An air pollution control district must prepare an Air Quality Attainment Plan if the standards are not met. The California and National Ambient Air Quality Standards are shown in Table 2.

TABLE 2
State and Federal Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards[1]		National Standards[2]		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,4,6]	Method[7]
Ozone	1 hour	0.09 ppm (180 □g/m3)	Ultraviolet Photometry	0.12 ppm (235 □g/m3)	Same as Primary Std	Ethylene-Chemilumi-nescence
Carbon Monoxide	8 hour	9.0 ppm (10 mg/m3)	Non-Dispersive Infrared Spectroscopy (NDIR)	9 ppm (10 mg/m3)		Non-Dispersive Infrared Spectroscopy (NDIR)
	1 hour	20 ppm (23 mg/m3)		35 ppm (40 mg/m3)		
	Annual Average			0.053 ppm (100 □g/m3)		
Nitrogen Dioxide	1 hour	0.25 ppm (470 □g/m3)	Gas Phase Chemilumi nescence	80 □g/m3	Same as Primary Std	Gas Phase Chemilumi-nescence
	Annual Average			(0.03 ppm)		
	24 hour	0.04 ppm (105 □g/m3)		365 □g/m3 (0.14 ppm		
	3 hour				1300 □g/m3 (0.5 ppm)	
Sulfur Dioxide	1 hour	0.25 ppm (655 □g/m3)	Ultraviolet Fluorescence			Pararosaniline
Suspended Particulate Matter (PM_{10})	Annual Geometric Mean	30 □g/m3	Size Selective Inlet High Volume Sampler and Gravimetric Analysis			Inertial Separation and Gravimetric Analysis
	24 hour	50 □g/m3		150 □g/m3		
	Annual Arithmetic Mean			50 □g/m3	Same as Primary Std	
Sulfates	24 hour	25 □g/m3	Turbidimetric Barium Sulfate			
	30-day Average	1.5 □g/m3				
Lead	Calendar Quarter		Atomic Absorption	1.5 □g/m3	Same as Primary Std	Atomic Absorption
Hydrogen Sulfide)	1 hour	0.03 ppm (42 □g/m3)	Cadmium Hydr-oxide STRactan			
Vinyl Chloride (chlorothen)	24 hour	0.010 ppm (26 □g/m3)	Tedlar Bag Collection, Gas Chromatography			
Visibility Reducing Particles[8]	8 hour (10 am to 6 pm, PST)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 percent. Measurement in accordance with ARB Method V.				

The five directly emitted primary pollutants are carbon monoxide (CO), nitrogen oxides (NO_x), sulfur oxides (SO_x), reactive organic gases (ROG) and particulates (PM). Ozone (O_3) is considered a secondary pollutant because it forms from reactions involving NO_x and ROG. The following is a summary of the characteristics of the primary and secondary pollutants.

Ozone (O_3):

Ozone is a pungent, colorless toxic gas. Ozone makes up 90 percent of the group of pollutants known as photochemical oxidants. Ozone and other photochemical oxidants are products of atmospheric reaction of nitrogen oxides and reactive organic gases with ultraviolet light. High ozone levels can adversely affect plants, and in humans, can cause respiratory irritation.

Carbon Monoxide (CO):

Carbon monoxide is an odorless, colorless toxic gas produced by incomplete combustion of carbon-containing substances. Carbon monoxide interferes with the transfer of fresh oxygen from blood into body tissues.

Nitrogen Oxides (NO_x):

Nitrogen oxides are formed from nitrogen and oxygen at high combustion temperatures and further reacts to form other oxides of nitrogen such as nitrogen dioxide. Nitrogen dioxide reacts with ultraviolet light to initiate reactions producing photochemical smog, and it reacts in air to form nitrate particulates. Nitrogen dioxide significantly affects visibility.

Sulfur Oxides (SO_x):

Sulfur dioxide is a colorless, pungent gas primarily formed by combustion of sulfur-containing fossil fuels. High sulfur dioxide concentrations irritate the upper respiratory

tract, while low concentrations of sulfur dioxide injure lung tissues. Sulfur oxides can react to form sulfates which significantly reduce visibility.

Particulates (PM_{10}):

Dust, aerosols, soot, mists and fumes make up atmospheric particulates. Sources of particulates include industrial and agricultural operations, combustion and photochemical actions of pollutants in the atmosphere. Particulates substantially reduce visibility and adversely affect the respiratory tract. PM_{10} is made up of finely divided particulate matter less than 10 microns in diameter.

Reactive Organic Gases (ROG):

Organic compounds are made primarily of carbon and hydrogen. Motor vehicle emissions and evaporation of organic compounds produce hydrocarbon emissions. Hydrocarbon levels can affect plant growth. Many hydrocarbon species react in the atmosphere to form photochemical smog.

Air Quality: Basin-wide

The San Joaquin Valley Unified Air Pollution Control District has jurisdiction in eight counties located in the San Joaquin Valley, including the Bakersfield area. The San Joaquin Valley Air Basin has been designated as attainment for carbon monoxide and non-attainment for ozone and particulate matter (PM_{10}) by federal standards and California standards. The California Clean Air Act requires that all reasonable stationary and mobile source control measures be implemented in moderate non-attainment areas to help achieve a mandated, 5-percent per year reduction in ozone precursors, and to reduce population exposures. Table 3 contains ambient air quality classifications for the Bakersfield area.

TABLE 3
Ambient Air Quality Classifications
Project Area of the San Joaquin Valley

Pollutant	State	Federal
Carbon Monoxide	Attainment	Attainment
Ozone	Non-Attainment/Serious	Non-Attainment/Serious
Oxides of Nitrogen	Attainment	Attainment/unclassified
Sulfur Dioxide	Attainment	Attainment/non-attainment
Particulate	Non-Attainment	Non-Attainment/Serious

Air Monitoring Station

The closest air monitoring station to the project site is the Bakersfield station on Golden State Highway. The station monitors particulates, ozone, carbon monoxide, nitrogen oxide, sulfur oxide, total hydrocarbons, and methane.

Table 4 contains the maximum pollutant levels detected during 1997 and 1998 (the latest data available).

TABLE 4
Maximum Pollutant Levels
at the Bakersfield, Golden State Highway
Monitoring Station

Pollutant	Time Averaging	1998 Maximums	1997 Maximums	Standards	
				National	State
Ozone (O_3)	1 hour	0.132 ppm	0.117 ppm	0.12 ppm	0.09.ppm
Carbon Monoxide (CO)	8 hour	3.11 ppm	2.91 ppm	9 ppm	9 ppm
Nitrogen Dioxide (NO_2)	1 hr	0.097 ppm	0.076 ppm		0.25 ppm
	Annual	0.024 ppm	0.024 ppm	0.053 ppm	
Particulates (PM_{10})	24 hour		124 $\mu g/m^3$	150 $\mu g/m^3$	50 $\mu p/m^3$

IV. IMPACT OF THE PROPOSED PROJECT

A. Short-Term Emissions

Short-term impacts from the projects will primarily result in fugitive particulate matter emissions during construction. San Joaquin Valley Unified Air Pollution Control District (Air District) Regulation VIII specifies control measures for specified outdoor sources of fugitive particulate matter emissions. The Air District does not require a permit for these activities, but does impose measures to control fugitive dust, such as the application of water or a chemical dust suppressant. The rules contained in Regulation 8 are listed below:

- Rule 8010 - Fugitive dust administrative requirement for control of fine particulate matter.
- Rule 8020 - Fugitive dust requirements for control of fine particulate matter from construction, demolition, excavation and extraction activities.
- Rule 8070 - Fugitive dust requirements for control of fine particulate matter from vehicle and/or equipment parking, shipping, receiving, transfer, fueling and service areas one acre or larger.

In addition, the facility shall include the following as requirements of local zoning regulations.

- Water sprays or chemical suppressants must be used in all unpaved areas to control fugitive emissions.
- All access roads and parking areas must be covered with asphalt-concrete paving.

Compliance with Air District Regulation VIII and the local zoning code will reduce particulate emission impacts to levels that are considered "less than significant."

Construction will also result in exhaust emissions from diesel-powered heavy equipment. Exhaust emissions from construction include emissions associated with the transport of machinery and supplies to and from the site, emissions produced onsite as the equipment is used and emissions from trucks

transporting excavated materials from the site and fill soils to the site. Examples of these emissions include CO, ROG, NO_x, SO_x and PM_{10}.

B. Long-Term Emissions

Long-term emissions will be caused by mobile sources (vehicle emissions) and stationary source energy consumption (heating and cooling) emissions. The major long-term impact to air quality will be emissions caused by motor vehicles traveling to and from the area.

Mobile Source - Ozone Precursors

The Bakersfield area is a non-attainment area for federal air quality standards for ozone and particulates. Nitrogen oxides and reactive organic gases are regulated as ozone precursors. A precursor is defined by the San Joaquin Valley Unified Air Pollution Control District as "a directly emitted air contaminant that, when released into the atmosphere, forms or causes to be formed or contributes to the formation of a secondary air contaminant for which an ambient air quality standard has been adopted..."

The Air District regulates air quality in the Bakersfield area. The predicted emissions associated with vehicular traffic (mobile sources) are not subject to the Air District's permit requirements, however, the Air District is responsible for overseeing efforts to improve air quality within the San Joaquin Valley. The Air District has prepared an Air Quality Attainment Plan to bring the San Joaquin Valley into compliance with the California Ambient Air Quality Standard for ozone. The Air District reviews land use changes to evaluate the potential impact on air quality. The Air District has established a significance level for reactive organic gases and oxides of nitrogen of 10 tons per year each, but has not established levels of significance for other pollutants.

Vehicle emissions have been estimated for the year 2020 (expected completion date of this project) using the URBEMIS7G computer model from the California Air Resources Board. This model predicts carbon monoxide, total hydrocarbons, nitrogen oxide, sulfur oxide and particulate

matter emissions from motor vehicle traffic associated with new or modified land uses. Appendix I contains the URBEMIS7G modeling results.

The predicted annual tailpipe emissions (Table 5) for reactive organic gases and nitrogen oxides attributable to this project are considered significant, based on the Air District's levels of significance as summarized below:

TABLE 5
Project-Related Mobile Source Emissions – Ozone Precursors

Pollutant	Reactive Organic Gas (tons/year)	Nitrogen Oxides (tons/year)	Carbon Monoxide (tons/year)	PM10 (tons/year)
Residential – Low Density	19.59	46.07	177.14	23.37
Residential – High Density	6.07	12.13	46.64	6.15
Commercial	18.82	56.04	186.65	27.59
Total	44.48	114.24	410.43	57.11
Level of Significance	10	10	N/A	N/A

Mobile Source - Carbon Monoxide

Carbon monoxide emissions are a function of vehicle idling time and, thus, under normal meteorological conditions depend on traffic flow conditions. Carbon monoxide transport is extremely limited: it dispenses rapidly with distance from the source. Under certain extreme meteorological conditions, however, CO concentrations close to a congested roadway or intersection may reach unhealthful levels, affecting sensitive receptors (residents, school children, hospital patients, the elderly, etc.). Typically, high CO concentrations are associated with roadways or intersections operating at an unacceptable Level of Service (LOS). CO "Hot Spot" modeling is required if a traffic study reveals that the project will reduce the LOS on one or more streets to E or F; or, if the project will worsen an existing LOS F.

A traffic study was prepared by Crenshaw Traffic Engineering for the Kern Canyon Ranch project. The study indicates that the predicted LOS, after mitigation, does not warrant a CO Hot Spot analysis. The tables below present the predicted LOS (after mitigation):

TABLE 6
Predicted Traffic Impacts - Intersections

Intersections	LOS
Fairfax and SR 178	C
Morning Drive and SR 178	C
Comanche Drive and SR 178	B
Panorama Drive and Morning Drive	C
Panorama Drive and Fairfax Road	C
Morning Drive and Auburn Street	A
Western Street and Panorama Drive	A
Vineland Road and State Route 178	B

TABLE 7
Predicted Traffic Impacts – Street Segments

Street Segments	LOS EB	LOS WB
Morning Drive from Panorama Drive to SR 178	A	A
SR 178 from Fairfax Road to Morning Drive	A	B
SR 178 from Morning Drive to Vineland Road	B	B
SR 178 from Vineland Road to Masterson Street	A	A
SR 178 from Masterson Street to Comanche Drive	A	A
SR 178 from Comanche Drive to Alfred Harrell Hwy	A	A
Fairfax Road from Panorama Drive to Paladino Drive	A	A
Fairfax Road from Panorama Drive to SR 178	A	B
Vineland Road from project to SR 178	A	B
Panorama Drive from Morning Drive to Fairfax Road	A	A
Panorama Drive from Fairfax Road to westerly project boundary	A	A

EB Eastbound
WB Westbound

Area Source Emissions

Area source emissions result from fuel and personal product use. Electricity and natural gas are utilized by almost every commercial and residential development. The URBEMIS7G computer model predicted the following emissions from natural gas usage and landscape maintenance. The numbers shown below are from typical energy consumption and do not include fireplaces and consumer products such as hairspray.

TABLE 8
Area Source Emissions

Source	ROC Ton/year	NO_x Ton/year	CO Ton/year	PM10 Ton/year
Natural Gas	0.95	12.30	5.83	0.00
Landscaping	0.33	0.04	2.85	0.01
Total	1.28	12.34	8.68	0.01
Significance Level	10	10	N/A	N/A

Potential Effect on Sensitive Receptors

The air quality impact of this project is not likely to affect sensitive receptors. Sensitive receptors are areas where young children, chronically ill individuals, or other individuals more sensitive than the general population are located. Examples of sensitive receptors are schools, day care centers and hospitals.

The nearest receptor is Chavez School, which is located south of Highway 184, approximately ¼ mile from the project site.

Potential Impacts from Odors and Hazardous Air Pollutants

The project consists of a mixture of residential and commercial land uses. The generation of odors and hazardous air pollutants is generally associated with certain types of industrial and agricultural activities. Therefore, the project is not expected to result in the generation of odors or hazardous air pollutants.

V. CUMULATIVE IMPACTS

The Traffic Study considered the affects of the project with the cumulative impacts of growth in the area. The study analyzed the project's impacts with an annual growth factor of 3%.

VI. CONFORMITY WITH THE AIR QUALITY ATTAINMENT PLAN

The California Clean Air Act requires non-attainment districts with severe air quality problems to provide for a 5 percent reduction in non-attainment emissions per year. The San Joaquin Valley Unified Air Pollution Control District prepared an Air Quality Attainment Plan for the San Joaquin Valley Air Basin in compliance with the requirements of the Act. The plan requires best available retrofit technology on specific types of stationary sources to reduce emissions. The California Clean Air Act and the Air Quality Attainment Plan also identify transportation control measures as methods of reducing emissions from mobile sources. The California Clean Air Act defines transportation control measures as, "any strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling or traffic congestion for the purpose of reducing motor vehicle emissions." The Air Quality Attainment Plan for the San Joaquin Valley Air Basin identifies the provisions to accommodate the use of bicycles, public transportation and traffic flow improvements as transportation control measures.

The emissions of reactive organic gases and nitrogen oxides predicted by the model exceed the Air District's interim threshold levels. However, Golden Empire Transit (GET) provides public (bus) transportation in the Bakersfield metropolitan area. The project area is undeveloped, therefore, is not currently served by GET. However, GET does provide service to the general area. The project could easily be serviced by GET upon completion.

A "Traffic Impact Study" was prepared by Crenshaw Traffic Engineering to evaluate impacts on the surrounding local roadway system due to traffic generated by the proposed development. The Traffic Impact Study recommends mitigation measures, such as street improvements or traffic signals, for intersections and street segments which fall below an acceptable Level of Service due to the impact of future traffic. The study allocates a proportionate share of the mitigation measures to the project. The proposed mitigation measures are traffic flow improvements, which are recognized transportation control measures in compliance with the Air Quality Attainment Plan. The current and proposed circulation maps are shown in Exhibits 4 and 5, respectively.

The Air Quality Attainment Plan recognized growth of the population and economy within the air basin. The plan predicted the workforce in Kern County to increase 40 percent and housing to increase 30 percent from 1990 to 2000. This project can be viewed as growth that was anticipated by the plan.

VII. MITIGATION MEASURES

The proposed project will have air pollutant emissions associated with the construction and occupied use of the project sites. This section summarizes the measures that are required to mitigate the emissions associated with the construction and occupancy of the project.

A. Mitigation Measures for Construction Equipment Exhaust

The following mitigation measures should be utilized during the construction phase of the project to reduce construction exhaust emissions:

- Properly and routinely maintain all construction equipment, as recommended by manufacturer manuals, to control exhaust emissions.
- Shut down equipment when not in use for extended periods of time to reduce emissions associated with idling engines.
- Encourage ride sharing and use of transit transportation for construction employee commuting to the project sites.
- Use electric equipment for construction whenever possible in lieu of fossil fuel-fired equipment.

B. Mitigation Measures for Fugitive Dust Emissions

Construction of the project requires the implementation of control measures set forth under Regulation VIII, Fugitive PM_{10} Prohibitions of the San Joaquin Valley Unified Air Pollution Control District. The following mitigation measures, in addition to those required under Regulation VIII, can reduce fugitive dust emissions associated with these projects:

- Cover all access roads and parking areas with asphalt-concrete paving.
- Asphalt-concrete paving shall comply with San Joaquin Valley Unified Air Pollution Control District Rule 4641 and restrict the use of cutback, slow-cure and emulsified asphalt paving materials.

- Use water sprays or chemical suppressants on all unpaved areas to control fugitive emissions.
- Enclose, cover or water all stockpiled soils to reduce fugitive dust emissions.
- Cease grading activities during periods of high winds (greater than 20 mph over a one-hour period).
- Limit construction-related vehicle speeds to 15 mph on all unpaved areas at the constructions site.
- All haul trucks should be covered when transporting loads of soil.
- Wash off construction and haul trucks to minimize the removal of mud and dirt from the project sites.

C. Mitigation Measures for Energy Consumption Emissions

These projects will be required to comply with Title 24 of the California Code of Regulations regarding energy conservation standards. These requirements, along with the following mitigation measures, should be incorporated into the project design:

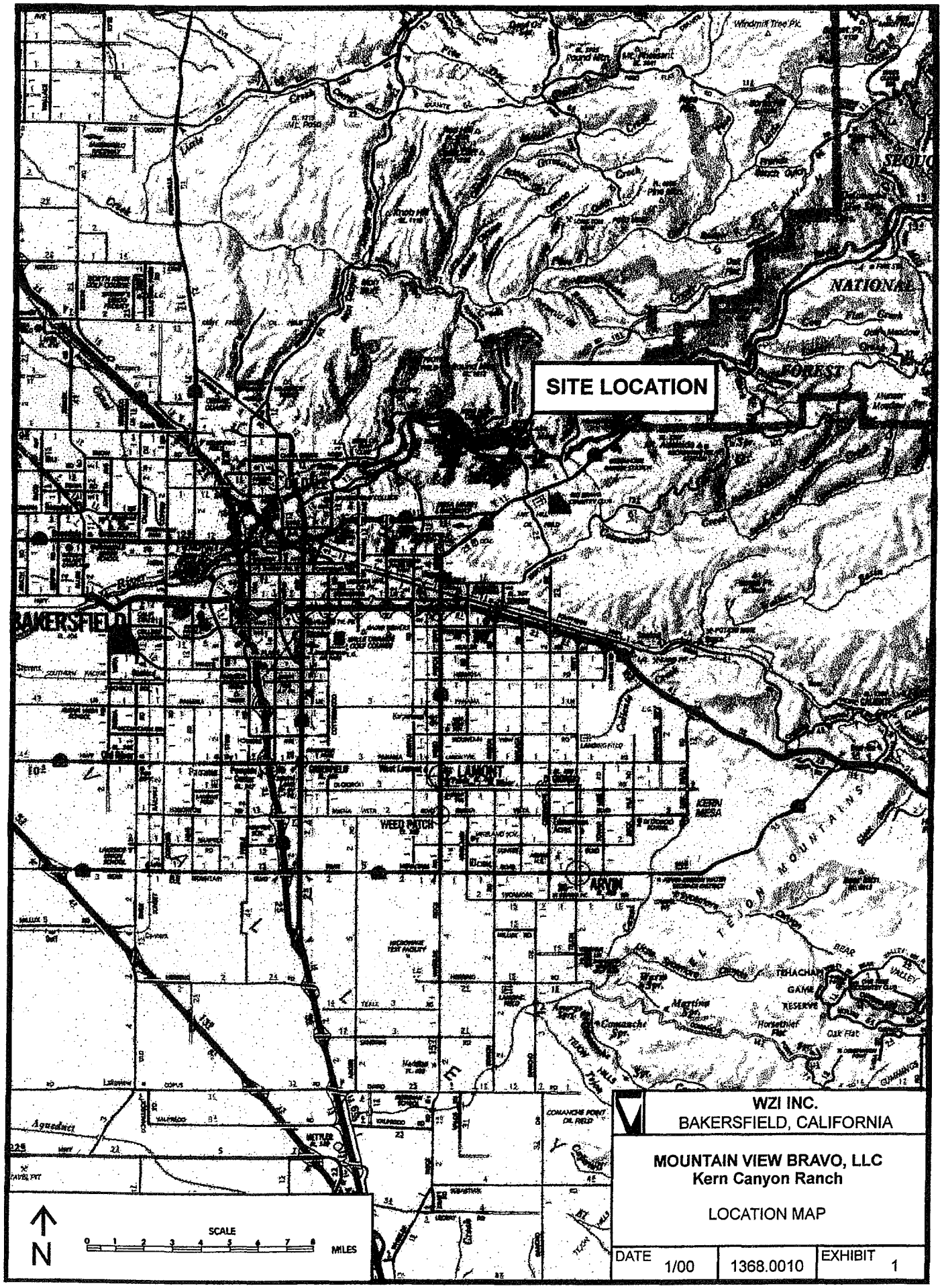
- Use low-NO_x emission water heaters.
- Provide shade trees to reduce building cooling requirements.
- Install energy-efficient and automated air conditioners.
- Exterior windows should all be double-paned glass.
- Energy-efficient (low-sodium) parking lights should be used.
- Use EPA-approved wood burning stoves, fireplace inserts or pellet stoves in lieu of conventional fireplaces.

D. Mitigation Measures for Mobile Source Emissions

Transportation control measures and design features can be incorporated into the project to reduce emissions from mobile sources. The below-listed control measure provides a strategy to reduce vehicle trips, vehicle use, vehicle miles traveled, vehicle idling and traffic congestion for the purpose of reducing motor vehicle emissions:

- Improve streets and traffic signals for intersections and street segments, which may impact the surrounding local roadway system due to traffic, generated by the proposed developments.

EXHIBITS



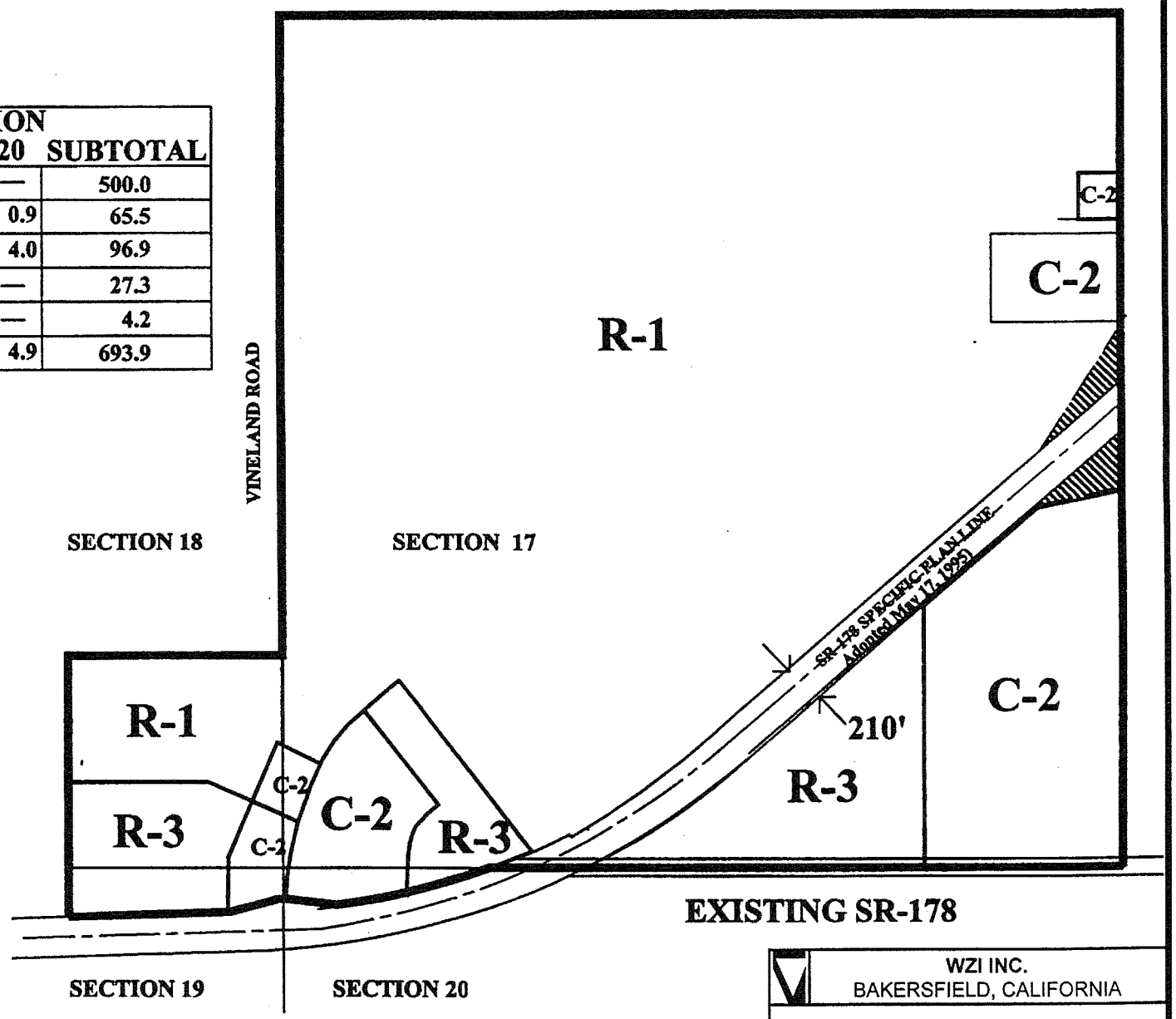
WZI INC.
BAKERSFIELD, CALIFORNIA

MOUNTAIN VIEW BRAVO, LLC
Kern Canyon Ranch

LOCATION MAP

DATE		EXHIBIT
1/00	1368.0010	1

ZONE	SECTION 17	18	19	20	SUBTOTAL
R-1	476.0	24.0	—	—	500.0
R-3	44.8	12.5	7.3	0.9	65.5
C-2	87.8	3.5	1.6	4.0	96.9
FREEWAY	27.3	—	—	—	27.3
RAMP R/W	4.2	—	—	—	4.2
TOTAL	640.1	40.0	8.9	4.9	693.9



Ref: Porter-Robertson

N

0 1000 2000

Approx. Scale In Feet

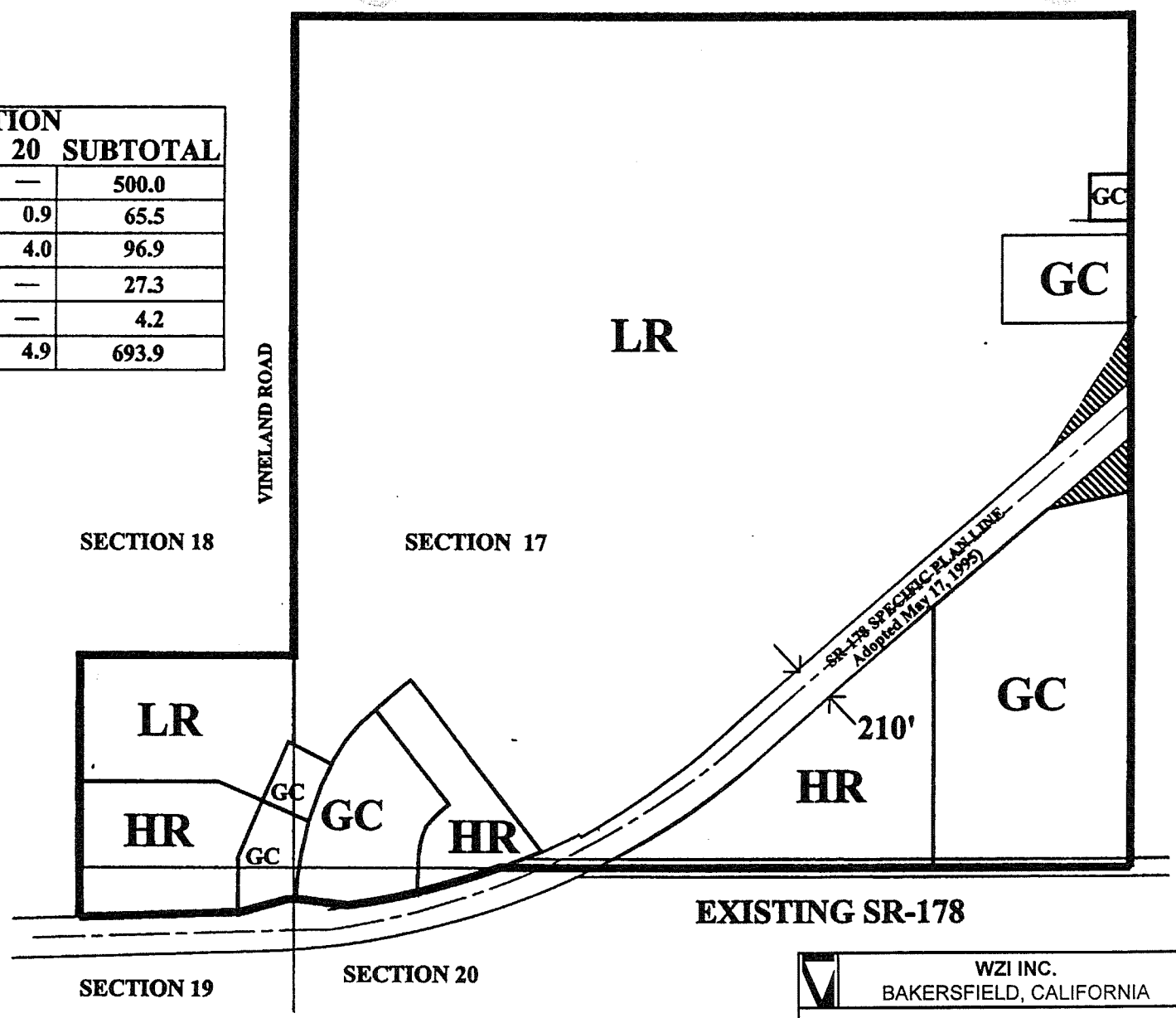
WZI INC.
BAKERSFIELD, CALIFORNIA

MOUNTAIN VIEW BRAVO, LLC
Kern Canyon Ranch

ZONING MAP

DATE	1/00	1368.0010	EXHIBIT	2

ZONE	SECTION 17	18	19	20	SUBTOTAL
LR	476.0	24.0	—	—	500.0
HR	44.8	12.5	7.3	0.9	65.5
GC	87.8	3.5	1.6	4.0	96.9
FREEWAY	27.3	—	—	—	27.3
RAMP R/W	4.2	—	—	—	4.2
TOTAL	640.1	40.0	8.9	4.9	693.9



Ref: Porter-Robertson

N

0 1000 2000

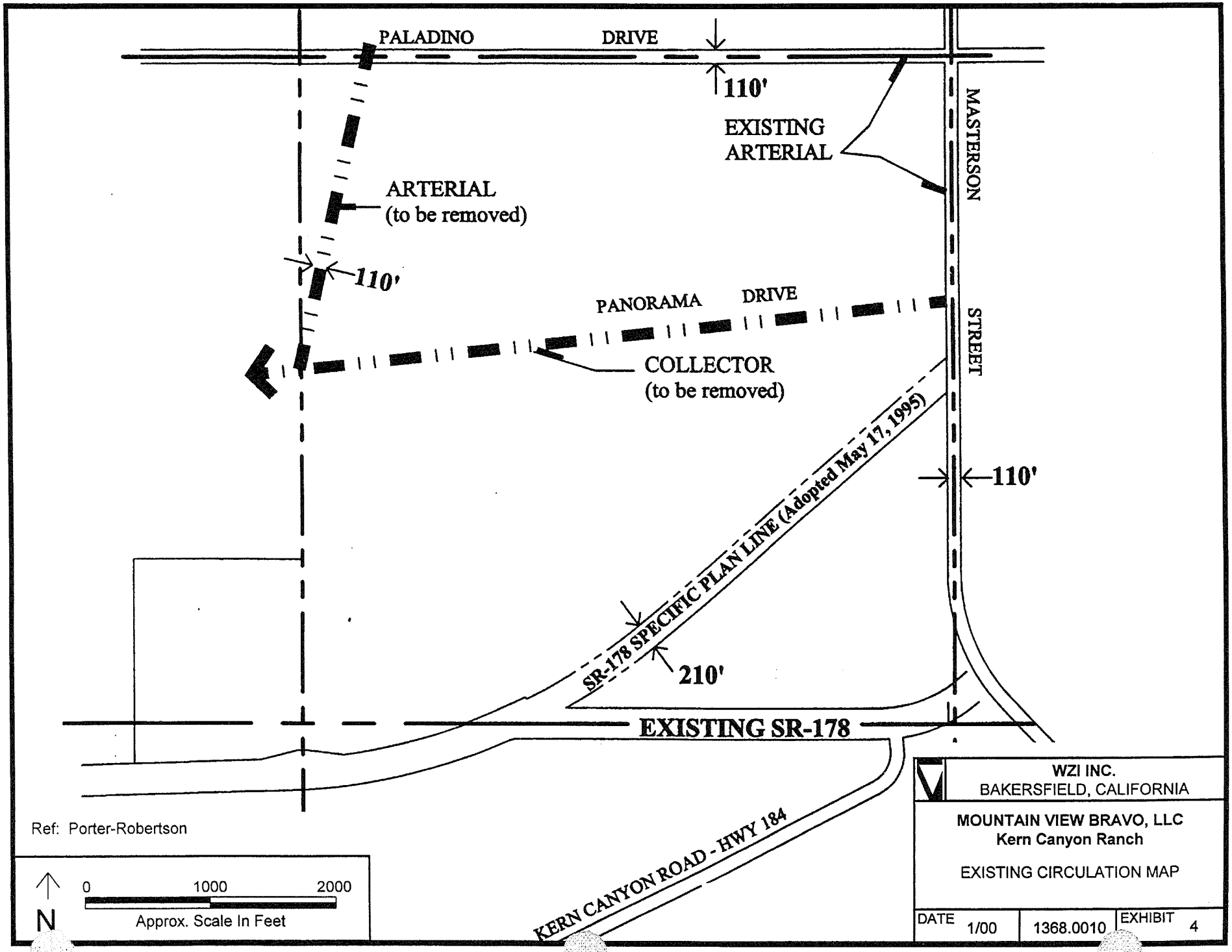
Approx. Scale In Feet

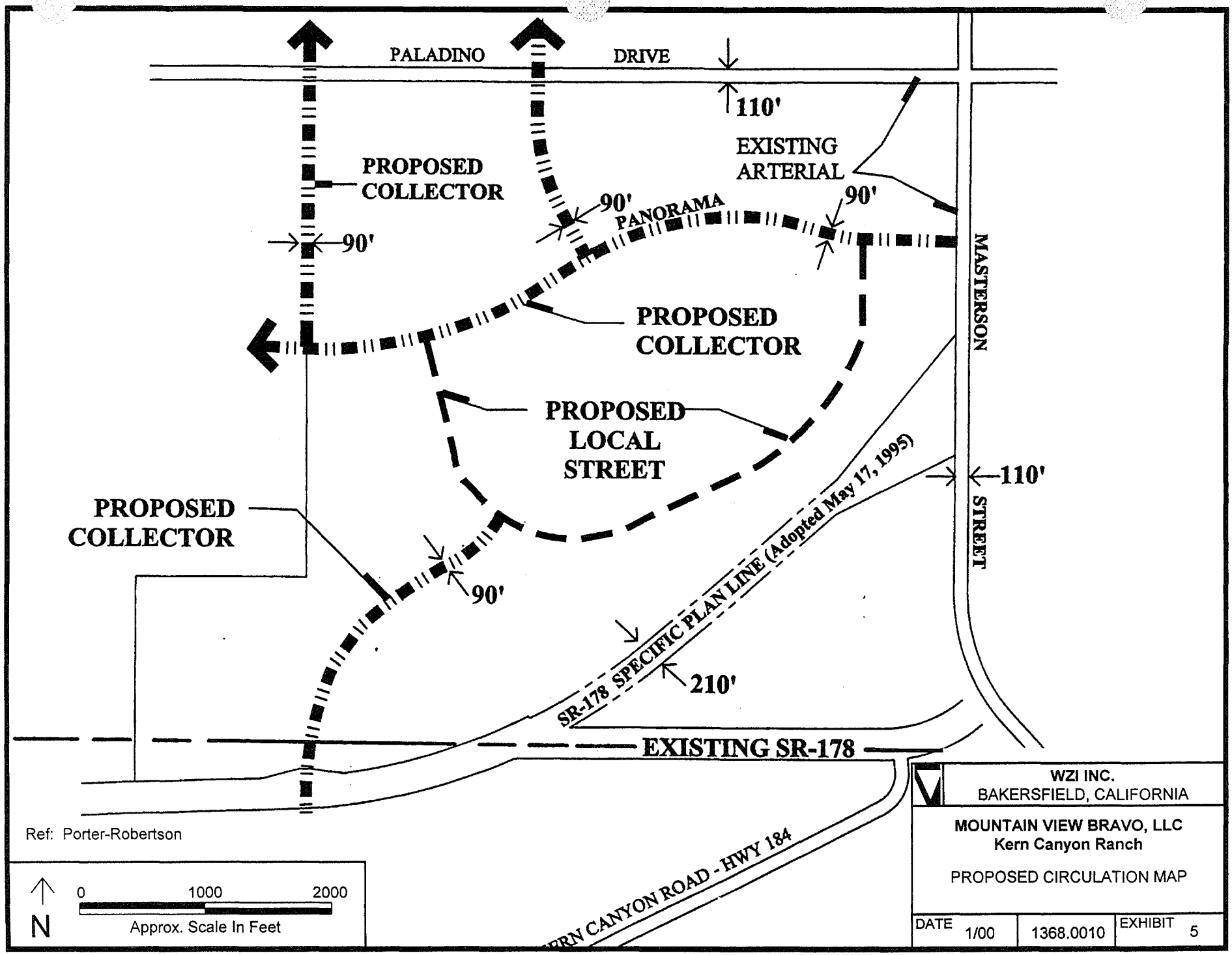
WZI INC.
BAKERSFIELD, CALIFORNIA

MOUNTAIN VIEW BRAVO, LLC
Kern Canyon Ranch

GENERAL PLAN
AMENDMENT MAP

DATE		EXHIBIT
1/00	1368.0010	3


PALADINO DRIVE
110'
EXISTING ARTERIAL
MASTERSON STREET
ARTERIAL (to be removed)
110'
PANORAMA DRIVE
COLLECTOR (to be removed)
110'
SR-178 SPECIFIC PLAN LINE (Adopted May 17, 1995)
210'
EXISTING SR-178
KERN CANYON ROAD - HWY 184
Ref: Porter-Robertson
N
0 1000 2000
Approx. Scale In Feet
WZI INC.
BAKERSFIELD, CALIFORNIA
MOUNTAIN VIEW BRAVO, LLC
Kern Canyon Ranch
EXISTING CIRCULATION MAP
DATE 1/00
1368.0010
EXHIBIT 4


PALADINO
DRIVE
110'
EXISTING
ARTERIAL
PROPOSED
COLLECTOR
90'
PANORAMA
90'
90'
MASTERSON
PROPOSED
COLLECTOR
PROPOSED
LOCAL
STREET
110'
STREET
PROPOSED
COLLECTOR
90'
SR-178 SPECIFIC PLAN LINE (Adopted May 17, 1995)
210'
EXISTING SR-178
Ref: Porter-Robertson
0
1000
2000
N
Approx. Scale In Feet
WZI INC.
BAKERSFIELD, CALIFORNIA
MOUNTAIN VIEW BRAVO, LLC
Kern Canyon Ranch
PROPOSED CIRCULATION MAP
DATE
1/00
1368.0010
EXHIBIT
5

APPENDIX I

APPENDIX I

EMISSIONS MODELING
Kern Canyon Ranch

URBEMIS is a computer model that is used as a planning tool to estimate emissions related to land development projects. The URBEMIS 7G version was developed under contract to the San Joaquin Valley Unified Air Pollution Control District and is available from the California Air Resources Board.

The project zoning designations and corresponding model inputs are as follows:

Zoning	URBEMIS 7G Land Use	URBEMIS 7G Size
R-1	Single Family Housing	2750 dwelling units
R-3	Condo/Townhouse General	1300 dwelling units
C-2	Regional Shopping Center	1048 x 1000 sq ft gross leasable floor area

The analysis used the model default trip generation rates for each land use which are slightly different from the trip generation rates used in the traffic study. Since the project is located within the city limits default trip distances were reduced to estimate intercity travel. The default summer and winter temperature values were also changed to reflect the Bakersfield area per URBIMIS 7G Guidelines. The attached modeling results indicate the predicted emissions and identify which default values have been changed.

URBEMIS 7G: Version 3.2

File Name: KCR.URB
Project Name: Kern Canyon Ranch
Project Location: San Joaquin Valley

DETAILED REPORT - Annual

AREA SOURCE EMISSION ESTIMATES

Source	ROG	NOx	CO	PM10
Natural Gas	1.17	15.31	6.47	0.03
Wood Stoves	0.00	0.00	0.00	0.00
Fireplaces	0.00	0.00	0.00	0.00
Landscaping	0.33	0.04	2.85	0.01
Consumer Prdcts	0.00			
TOTALS (tpy, unmitigated)	1.50	15.35	9.32	0.03

AREA SOURCE EMISSION ESTIMATES

Source	ROG	NOx	CO	PM10
Natural Gas	0.95	12.30	5.83	0.00
Wood Stoves	0.00	0.00	0.00	0.00
Fireplaces	0.00	0.00	0.00	0.00
Landscaping	0.33	0.04	2.85	0.01
Consumer Prdcts	0.00			
TOTALS (tpy, mitigated)	1.26	12.34	8.68	0.03

Area Source Mitigation Measures

Central Water Heater: Rsdntl Space Heat.
Percent Reduction(ROG 9% NOx 8% CO 4% PM10 8.5%)
Increase Insulation Beyond Title 24: Rsdntl Space Heat.
Percent Reduction(ROG 14% NOx 13% CO 7.4% PM10 13%)
Increase Insulation Beyond Title 24: Cmrcl Space Heat.
Percent Reduction(ROG 10% NOx 9% CO 7% PM10 9.5%)

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2020 Temperature (F): 90 Season: Annual

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	7.90 trips / dwelling unit	2750.00	21,725.00
Condo/townhouse genera	4.40 trips / dwelling unit	1300.00	5,720.00
Regnl shop. center > 5	31.70 trips / 1000 sq. ft.	1048.00	33,221.60

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00			100.00
Urban Buses	2.00			100.00
Motorcycles	3.00	100.00 % all fuels		

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	7.0	5.0	5.0	9.5	7.3	7.3
Rural Trip Length (miles)	16.8	7.1	7.9	14.7	6.6	6.6
Trip Speeds (mph)	35	35	35	35	35	35
% of Trips - Residential	32.9	18.0	49.1			
% of Trips - Commercial (by land use)						
Regnl shop. center > 570000 sf				2.0	1.0	97.0

UNMITIGATED EMISSIONS

	ROG	NOx	CO	PM10
Single family housing	20.53	48.90	188.19	24.81
Condo/townhouse general	6.32	12.87	49.55	6.53
Regnl shop. center > 57	20.49	61.48	204.75	30.27
TOTAL EMISSIONS (tons/year)	47.34	123.25	442.49	61.61

Includes correction for passby trips.
Includes a double counting reduction for internal trips.

MITIGATED EMISSIONS

	ROG	NOx	CO	PM10
Single family housing	19.59	46.07	177.14	23.37
Condo/townhouse general	6.07	12.13	46.64	6.15
Regnl shop. center > 57	18.82	56.04	186.65	27.59
TOTAL EMISSIONS (tons/year)	44.48	114.24	410.43	57.11

Includes correction for passby trips.
Includes a double counting reduction for internal trips.

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

2	Side Walks/Paths: Most Destinations Covered
1	Street Trees Provide Shade: Moderate Coverage
2	Pedestrian Circulation Access: Some Destinations
1	Visually Interesting Uses: Some Uses within Walking Distance
1	Street System Enhances Safety: Some Streets
2	Pedestrian Safety from Crime: High Degree of Safety
0	Visually Interesting Walking Routes: No Visual Interest

9.0 <- Pedestrian Environmental Credit
9.0 /19 = 0.47 <- Pedestrian Effectiveness Factor

Transit Service

20 Transit Service: 15-30 Minute Bus within 1/4 Mile

20.0 <- Transit Effectiveness
9.0 <- Pedestrian Factor
29.0 <-Total
29.0 /110 = 0.26 <-Transit Effectiveness Factor

Bicycle Environment

1	Interconnected Bikeways: Low Coverage
2	Bike Routes Provide Paved Shoulders: Some Routes
0.0	Safe Vehicle Speed Limits: No Routes Provided
0	Safe School Routes: No Schools
1	Uses w/in Cycling Distance: Some Uses
0	Bike Parking Ordinance: No Ordinance or Unenforceable

4.0 <- Bike Environmental Credit
4.0 /20 = 0.20 <- Bike Effectiveness Factor

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15	Credit for Existing or Planned Community Transit Service
6	Project Density Meets Transit Level of Service Requirements
0.5	Provide Street Lighting
0.5	Provide Route Signs and Displays
1	Provide Bus Turnouts
23	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
3	Mixed Use Project (Residential Oriented)
1	Provide Sidewalks and/or Pedestrian Paths
0.5	Provide Street Lighting
0.5	Provide Pedestrian Signalization and Signage
7	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2	Credit for Surrounding Pedestrian Environment
1	Provide Wide Sidewalks and Onsite Pedestrian Facilities
0.5	Provide Street Lighting
0.5	Project Provides Shade Trees to Shade Sidewalks
4	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7	Credit for Surrounding Bicycle Environment
7	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5	Credit for Surrounding Area Bike Environment
5	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
0	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
3	Some Frequently Needed Services Provided
3	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
0	<- Totals

Total Percentage Trip Reduction
with Environmental Factors and Mitigation Measures

Travel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.36	1.46	1.46
Transit	6.06	1.33	1.64
Bicycle	1.40	1.40	1.40
Totals	7.83	4.19	4.50
Travel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.21	1.89	1.89
Transit	6.06	0.12	6.06
Bicycle	1.00	1.00	1.00
Other	0.00	0.01	0.00
Totals	7.27	3.03	8.96

Changes Made to the Default Values

Area Source Related:
The default natural gas option switch has been changed
The default consumer products option switch has been changed

Operational/Vehicle Related:
The road dust option switch has been changed
The default winter temperature has been modified
The default summer temperature has been modified
The default urban trip lengths have been modified

APPENDIX F

Preliminary Archaeological Resource Evaluation

ARCHAEOLOGICAL INVESTIGATION

FOR

KERN CANYON RANCH

Oil Center, CA 7.5' USGS Topographic Quadrangle

Kern County, California

Key Words:
Surface survey
2 Marginal Sites, 8 isolates
Yokuts
664.4
Portions of Sec. 17-20, T29S.; R29E.

Prepared by:

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October 21, 1999

MANAGEMENT SUMMARY/ ABSTRACT

The following report documents the archaeological field survey for the proposed Kern Canyon Ranch, located in the eastern portion of the city of Bakersfield. Kern County, California. This project, encompassing 664.4 acres of land is being planned primarily for future residential development with a lesser amount of commercial development along Highway 178. This property. which is currently undeveloped, is located adjacent to, and north of State Highway 178.

The purpose of this investigation was threefold: 1. locate and evaluate any archaeological resources present within the study area, 2. assess their potential to yield significant cultural information, and 3. develop guidelines to reduce impacts to such remains. As a result of this investigation two prehistoric archaeological sites were found and recorded. In addition 8 of isolated cultural remains were found and recorded. Neither of the two sites or the eight isolated artifacts are considered significant cultural resources. Therefore, they require no further field work at this time.

There were no problems affecting the results of the survey with all portions of the study area examined. Overall, ground visibility varied from fair to good, enabling a fairly complete examination of the property. Based on this study, it is concluded that no significant cultural resources are known to be present. It is also unlikely that

significant remains will be unearthed during any development of the Kern Canyon Ranch property. Therefore, no additional field work is required at this time. As long as the recommendations suggested below are followed, it is recommended that archaeological clearance be granted to this development project.

UNDERTAKING

It has been argued that most areas have the potential to contain cultural resource materials. A records search from the Southern San Joaquin Information, first conducted in 1998 and recently updated (September 1999) reported that several previous archaeological surveys had been conducted in the general region. These earlier studies resulted in the identification of 10 archaeological sites and a number of isolated artifacts, though no remains are known to be on or immediately adjacent to the study area. As a result of the general proximity of known resources, it was recommended by the Southern San Joaquin Information Center that a cultural resources investigation be carried out prior to any development. Due to their recommendation and according to CEQA guidelines, a cultural resources investigation was performed.

The study area is located adjacent and north of Highway 178, between Highway 178 and Paladino Road, a paved road one mile to the north. It is bordered by Masterson

Road (paved) on the east and a dirt road along most of the western boundary. It is located north of the Mesa Marin race track. Prior impacts to the property include a north - south sewer line near the western boundary, a dirt road just north of the fence which separates Highway 178 from the property, a gas pipeline along the southern boundary, a dirt road that cuts diagonally from near the middle of the northern boundary to the southeast corner of the property and an east - west phone line that cuts diagonally across the section of land. The land also appears to have been partially graded, probably to control vegetation. There has been little development in the general area. To the south is Mesa Marin, a new residential tract to the east of the race way, and ranch homes along the north side of Paladino Road. Open lands extend to the east and west and the Kern Oil Field is located west to the in the adjoining section.

Specifically, Kern Canyon Ranch includes all of Section 17, the SW 1/4 of the SW 1/4 of Section 18, and small portions of the Ne 1/4 of the NE 1/4 of Section 19 and the NW 1/4 of the NW 1/4 of Section 20, Township 29S, Range 29E, as depicted on the Oil Center, 7.5' U.S.G.S. Topographic Quadrangle. The areas investigated by this study are identified in Appendix 3, Map 1.

The study area was examined and this report prepared by Robert A. Schiffman, consulting archaeologist, along with the assistance of Stephen B. Andrews. Brief

resumes are found in Appendix 1. The field work was completed in September and October, 1999.

NATURAL SETTING

The proposed residential development is located in the eastern portion of the city of Bakersfield. Although residential development has taken place to the north and southeast, and roads and a race track are located adjacent to the property, the study area remains undeveloped. The few impacts to the land are minimal. It also appears that the study area may have been graded at one time, possibly to control surface vegetation. The principal vegetation is a sparse to moderate grass cover, along with low brush. This is consistent with other undeveloped lands in the vicinity.

The elevation varies from 724' to 754' above sea level with the land sloping downhill from northeast to southwest. The southern portion of the parcel is more irregular, with gently rolling areas cut by marginal run off channels. The northern and eastern portions are flatter. The soil is a light brown, fine grained material, identified as a Plio-Pleistocene non-marine deposit on the Bakersfield Geologic Sheet. Scattered across the surface were small pebbles, an occasional hand sized cobble and a few larger rocks, mostly in the southwest and western portions of the property. Most were granitic in origin, though sedimentary and meta-sedimentary rocks were also

present. While small cobbles could have served various cultural uses, most of the rocks were of poor quality. Occasionally, a harder, rounder cobble was found and it is likely that appropriate stones were collected and used. This is verified by the recording of several hand tools. In addition, several small pebbles and hand sized cobbles of chalcedony were found that would have supplied a resource materials for chipped stone tool manufacture. Several pieces of this materials showed evidence of being altered (flaked) and flakes of this material were found on the property.

While marginal seasonal run off channels are present, there is no evidence that a usable or reliable source of fresh water existed on the property. The nearest sources of water would have been Cottonwood and the Kern River, several miles to the east or north. Neither were there any significant plant resources on or immediately adjacent to the property that would distinguish it from adjacent parcels. Ground visibility was good for most of the parcel.

CULTURAL SETTING

Prior to the field survey, a literature search was conducted at the Southern San Joaquin Valley Information Center. According to the archaeological record files, Eleven (11) prior field surveys have taken place within a one mile radius of section 17. As a result of prior investigations 6 archaeological sites and 3 isolated artifacts

were found and recorded, none within the study. The following is a brief statement on the nature and findings of these earlier studies. They are presented in chronological order.

The earliest study in the general area was a small parcel as part of a project for the Kern Bluff Co-generation Project, located ½ mile to the east in Section 16. This project is located with the Kern Oil Field. No archaeological sites were recorded by this survey of approximately 20 acres (Pruett 1988). The second study examined a linear corridor for the Mojave Pipeline which goes from California to Arizona. A small site in section 7, just under one mile distance, was recorded. A portion of this survey crossed the eastern portion and bordered west one half of the northern boundary of the present study area. No remains were found along this segment of the proposed corridor (McGuire 1990). A second study in 1990 examined alternative pipeline routes for the Mojave Pipeline project. This segment of the pipeline extending from the center of section 18 to the west southward and then turbned east in the northern portion of section 19 and extending along Highway 178 near the southern border of the current study area boundaries. This particular corridor identified 4 historical archaeological sites, associated with early production within the Kern Oil Field. These sites consisted of concrete footings and historic trash and debris and an irrigation ditch. None of these sites appear to be significant resources McGuire 1990).

The fourth study surveyed a for a proposed residential development to the east in section 16. No resources were found (Schiffman 1990). In 1992 a study was performed for the extension of Morning Drive in east Bakersfield. This study was located in a portion of section 7 to the northwest. No remains were reported (Par 1992). In 1993, a linear corridor was surveyed for a sewer line which crosses in two directions through section 20 and extending through section 16 before turning north. A portion of this project borders the southern and western sides of Section 17. An historic site, consisting of a concrete culvert built in 1929 across the extension of east Niles Street in section 20. No other resources were reported. This is not a significant resource (Valdez 1993).

The next study examined a 20 acre parcel for a proposed residential project in section 20. No cultural resources were found (Schiffman 1996). In 1998 a assessment of 8 acres for a proposed motor cross track took place. Located in the western side of section 20, no resources were found by this study (Pruett 1998). The second survey in 1998 examined a corridor for a proposed bike path route through a portion of section. In 1999, an alternate and parallel bike corridor was examined. No resources were found along either of these two proposed bike path routes (Pruett 1998, 1999). The last survey conducted in 1998 surveyed a large parcel in section 20 to the south for a proposed residential housing development. No archaeological remains were found (Schiffman 1998).

In addition to the sites reported above, one additional site and three isolated artifacts were found in section 21 to the south. All of these remains were prehistoric. The site is described as a small concentration of chipped stone remains including 9 flakes and one core. No buried deposited was present and the site is not a significant resource (McGuire 1990). The three isolated artifacts were also found in section 21. All were described as crypto-crystalline flakes and are not significant remains.

According to the information center, none of the above identified resources were significant and there are no known significant archaeological remains within or near the current study area. For more information regarding previous surveys, the reader should contact the Archaeological Information Center.

The aboriginal population who occupied the general region were the Yokuts (Latta 1977). The Yokuts lived in variable sized communities throughout the San Joaquin Valley and adjacent foothills. Their subsistence level was based on hunting and gathering, with small groups of people moving throughout their territorial range on a seasonal basis. Various plants were collected, animals trapped and hunted, and shellfish collected from the sloughs and marsh areas. Principal villages were generally in close proximity to reliable sources of fresh water. Day use areas, seasonal camps or hunting-kill sites could be found throughout their territory, as a result of various activities engaged in by this culture. Though not abundant, the

presence of a small amount of useful stone for hand tools and chipped stone artifacts allows for the possibility that these materials could have been gathered from the study area. Significant plant resources were not available. There are no known principal villages reported within or adjacent to the study area. It is likely that Native American peoples traversed the general region during a variety of hunting, foraging and other cultural activities, though it is unlikely that groups lived on the property.

RESEARCH DESIGN

The examination of previous surveys and sites found in the general region, along with personal experience, assisted with the development of a research design. The prehistoric archaeological sites and isolated artifacts recorded in the general region area are primarily associated chipped stone remains. These items are by-products of the manufacture of cutting and scraping tools. Historic remains commonly consist of discarded trash, concrete remains and what has ben described as an irrigation ditch. The density of known sites for the region appears to be low.

In regards to aboriginal sites, the lack of substantial natural resources has affected the possible diversity and extent of site remains. The probable subsistence-settlement pattern of aboriginal peoples in the area would likely have been restricted to day activities such as hunting and gathering forays that traversed the region. Short

term camping may also have taken place, but with the Kern River nearby to the north, individuals would likely have gone north for any length of habitation. Also, due to the absence of abundant and significant resources on and immediately adjacent to the study area, combined with the dry and exposed setting of the property, it is unlikely that any significant remains or sites were ever present within the study area boundaries. Any remains at all would likely have been used by very small groups, limiting the amount and diversity of any cultural materials. Overall, the nature and limitation of local resources and the environmental setting of the project area are not particularly conducive to extensive occupation or use.

Based on the above observations and opinions, it was hypothesized that any cultural resources present in the area would be limited to small lithic scatters and isolated artifacts. This is consistent with the prehistoric remains found in section 21 to the southeast. And, since the study area is not part of the Kern Oil Field, historic remains were not anticipated.

Evaluation for this hypothesis would examine the nature and limits of any cultural remains found. Sites supporting this premise would consist of small areas containing sparse lithic scatters and hand tools. Isolated artifacts would consist of waste or worked flakes, projectile points, associated with hunting activities and possibly ground stone tool remains.

One of the principal goals of cultural resource investigations is the determination of significance for any archaeological resources found within a study area. Therefore, in addition to the predictive hypothesis of the research design, the underlying objective of this study was to evaluate the significance of any archaeological sites or remains found. The criteria upon which the designation of "unique" or "significant" is made is based on Appendix K, of CEQA. This document indicates that the importance or "uniqueness" of an archaeological resources is based on whether that site:

1. is associated with a person or event recognized as significant in California or American history, or of recognized scientific importance in prehistory.
2. can provide information useful in answering scientifically consequential and reasonable research questions which are of demonstrable public interest.
3. Has a special or particular quality such as oldest, best example or largest of its type.
4. Is at least 100 years old and possesses substantial stratigraphic integrity.
5. Involves important research questions that can be answered only through archaeological methods.

If it is determined that an archaeological resource is unique, then efforts are required to protect and preserve that resource. If the remains or sites do not meet the criteria, that is, "non-unique archaeological resources" they require no further consideration.

FIELD METHODOLOGY

The on-site field survey was conducted by one person, who walked transects through the project areas. Transects were spaced approximately 50 meters apart, providing sufficient coverage of the study area and were walked in a north south direction. The exposed roadways were also examined. Particular attention was given to the marginal drainage areas and any place where exposed rock concentrations were observed. For most of the parcel, there were no problems affecting the results of the survey. Ground visibility varied from poor to good with most of the parcel affording good visibility.

When archaeological remains were found, the area around the discovery was thoroughly inspected for additional cultural remains and then recorded. It is believed that the strategy used to survey the small parcel was likely to identify any significant archaeological sites that might be present.

RESULTS OF FIELD INVESTIGATION

In September and October 1999, the archaeological survey of the study area was completed. As a result of this investigation two archaeological sites and 8 isolated artifacts were found. Besides the artifactual remains, also found were several naturally occurring small cobbles of chalcedony, chert, and a fine grained quartzite. All of these materials can be used in the production of chipped stone tools, such as scraping and cutting tools and projectile points. Most of the rocks of these materials were unaltered. The fact that remains were found in the area would indicate that local native American peoples were aware of them. However, the quality of some of the materials examined was of poor quality. The following is a brief description of these remains.

Site 1: This site consists of a marginal uni-face grinding hand tool (mano), also used as a hammer stone, a chalcedony core and two flakes. Spread over an area approximately 10 x 20 meters, this site did not appear to contain a buried cultural deposit. None of the flakes showed signs of retouch. This site does not constitute a significant archaeological resource.

Site 2: This site consists of a chalcedony core, marginal hammer stone and 4 flakes of chalcedony. This site occupies an area approximately 15 x 30 meters in size. The

core was small in size and none of the flakes showed signs of retouch. There was no evidence of a buried cultural deposit. This site is not considered a significant cultural resource.

In addition to the two marginal sites, a total of 8 isolated artifacts were found. Six were chipped stone flakes and two were small cores. Four of the flakes were a dull light brown chert and one was chalcedony and one was quartzite. Both cores were a. light colored chert. None of these items were formal tools or significant cultural resources. See the isolate artifact records for more information.

Upon completion of this investigation, a copy of this report will be sent to the Southern San Joaquin Valley Information Center.

DISCUSSION/ INTERPRETATION

The discovery of archaeological remains is not surprising, considering the size of the parcel and the proximity to known prehistoric remains nearby. The nature and marginal quality or character of the remains found is also not surprising, considering the distance from water, the exposed nature of the property and the lack of significant plant or other important resources. There is no special quality about the location of the parcel that would have attracted aboriginal peoples to do anymore

than traverse the property on-route to other locals. Hunting was possible as was the gathering of small nodules of crypto-crystalline materials. It is realistic to assume that each site was the result of a single, one time only activity, as the property had little to offer aboriginal peoples. While it is still possible that additional archaeological remains might be present, it is unlikely that are significant remains will be found within the study area boundary. It is also a possibility that grading that took place in the past may have disturbed or destroyed additional sites, though the potential for large or significant sites being present there is very minimal. This was anticipated by the research design and is consistent with the environmental setting.

MANAGEMENT CONSIDERATIONS

While an on-site field survey allows researchers to draw conclusions about site presence or absence, there is always the possibility that buried remains or isolated artifacts could be found during construction and earth disturbing activities. While there was no indication of buried remains, it is possible that natural erosional and/or depositional processes, along with grading, may have obscured other cultural remains that may be present. Another impact to archaeological remains are several recent fires on the property. The fires, along with fire control efforts may have damaged or destroyed cultural remains. Based on the field assessment the following recommendation may be considered.

1. Should archaeological remains be unearthed during any stage of development, work in the area of discovery be stopped until the finds can be evaluated, and if necessary, mitigated prior to the resumption of development.

REFERENCES

Archaeological Research Center, Bakersfield College

Latta, F.F.

1977 Handbook of the Yokuts Indians. Bear State Books, Santa Cruz, CA.

Southern San Joaquin Information Center, CSUB.

APPENDICES

Appendix 1: Qualifications of Personnel

Appendix 2: Records Search

Appendix 3: Project Location Map

Appendix 4: Archaeological Site and Isolate Artifact Records (Confidential).

Appendix 1:- Qualifications of Personnel

Principal Archaeologist:-

Robert A. Schiffman. B.A. 1969, CSU Northridge; M.A. 1971, UC Santa Barbara. Professor of Anthropology, Bakersfield College, 1972- present. Has 27 years field experience in Kern and Tulare Counties. Has written over 300 environmental reports and has several publications.

Assistant:-

Stephen B. Andrews. B.A. 1967, CSU Fresno; Teaching Credential, 1968, CSU Fresno. 1969- Present, Teacher. Graduate Work in Anthropology at CSU Bakersfield. Has 30 years field experience in California archaeology. Has written several articles and has a number of publications.

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

FRESNO
KERN
KINGS
MADERA
TULARE

Southern San Joaquin Valley
Information Center
California State University, Bakersfield
9001 Stockdale Highway
Bakersfield, California 93311-1099
805/664-2289 FAX 805/664-2415
Email: abaldwin@csubak.edu

To: Harold W. Robertson **(RS# 98-158)**
Porter – Robertson Engineering & Surveying, Inc.
1200 21st Street
Bakersfield. CA 93301

RE: Porter-Robertson Job # 97-970; Development north of Mesa Marin Raceway

County: Kern

Map(s): Oil Center and Rio Bravo Ranch 7.5's

The Archaeological Information Center is under contract to the State Office of Historic Preservation and is responsible for the local management of the California Historical Resources Inventories. The Center is funded by research fees and a grant from the State Office of Historic Preservation. The Information Center does not conduct fieldwork and is not affiliated with any archaeological consultants who conduct fieldwork. A referral list of individuals who meet the Secretary of the Interior's standards for their profession is available upon request.

CULTURAL RESOURCES RECORDS SEARCH

The following are the results of a search of the cultural resources files at the Southern San Joaquin Valley Archaeological Information Center. These files include known and recorded archaeological and historic sites, inventory and excavation reports filed with this office, and properties listed on the National Register of Historic Places (3/98), the California Historical Landmarks, the California inventory of Historic Resources, and the California Points of Historical Interest. The following summarizes the known historical resources information currently available for this subject property based in part on the sources outlined above.

PRIOR CULTURAL RESOURCE INVENTORIES OF THE SUBJECT PROPERTY AND THE SURROUNDING AREAS

According to the information in our files, there have been three linear surveys conducted along the boundaries and intersecting a portion of the project area.

1. KE-641) McGuire, Kelly-1990-Survey for the Mojave Pipeline Corridor in California and Arizona.
2. KE-642) McGuire, Kelly-1990-Mojave Pipeline Corridor: Mesa Marin Reroute
3. KE-1744) Valdez, S.-1993-Survey for Proposed NE Sewer Line, Bakersfield

PRIORITY

(RS# 98-158)

There have been seven surveys conducted within a mile radius of the project area.

KNOWN CULTURAL RESOURCES ON THE SUBJECT PROPERTY AND SURROUNDING AREAS

There are no recorded sites within the project area and it is not known if resources exist there. There are 10 recorded cultural resource sites within a mile radius.

There are no known cultural resources within the project area that are listed in the National Register of Historic Places, California Inventory of Historic Places, California Historic Resource Inventory or the California State Historic Landmarks.

RECOMMENDATIONS

Prior to any ground disturbance activities, we recommend that a qualified professional archaeologist conduct a field survey of the entire project area. Only general information is provided to developers, planners, and engineers. Site and survey locational information is confidential and available only to qualified professionals or the landowners of record. A current referral list of qualified professionals who meet the Secretary of the Interior Standards in their profession and conduct work in this area is enclosed.

If you have any questions or comments, please don't hesitate to contact me at (805) 664-2289.

By

Adele Baldwin
Assistant Coordinator

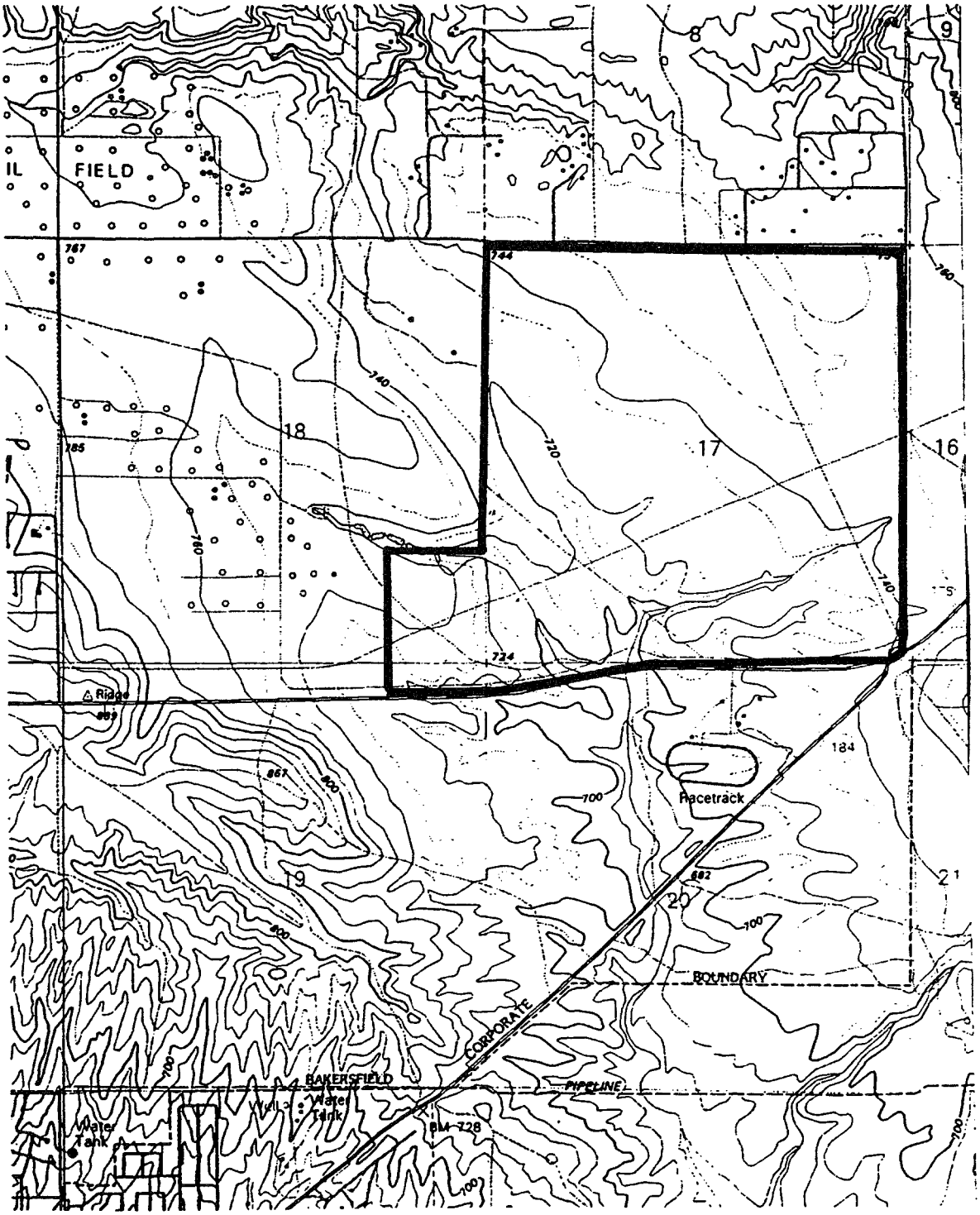
Date: May 29, 1998

Fee: $135.00/hr. (Priority)

PRIORITY

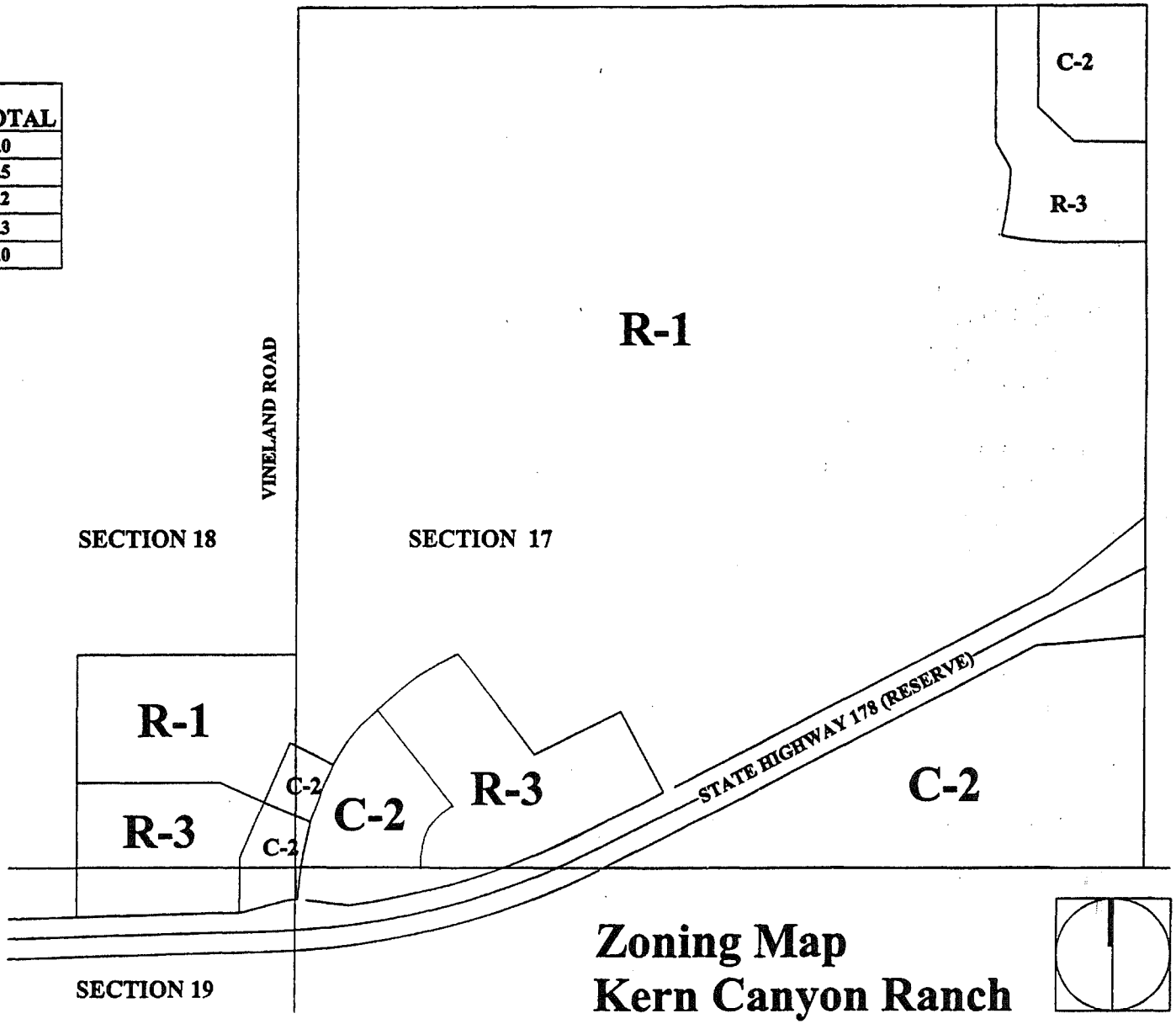
Invoice # 8035

PROJECT LOCATION MAP
Oil Center 7.5' U.S.G.S. Topographic Quadrangle



KERN CANYON RANCH

ZONE	SECTION 17	18	19	SUBTOTAL
R-1	481.0	24.0	—	505.0
R-3	44.0	13.2	7.3	64.5
C-2	87.8	2.8	1.6	92.2
FREEWAY	27.3	—	—	27.3
TOTAL	640.1	40.0	8.9	689.0



Zoning Map
Kern Canyon Ranch

Section 17

Mountain View Bravo. LLC

8-12-99

Scale: 1"=1000'

NORTH

APPENDIX G

Preliminary Hazardous Materials Evaluation

SOILS ENGINEERING, INC.

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

For

SE 1/4 of SE 1/4 Section 18, T29S, R29E
in
Bakersfield, California

Prepared For:

NASCA Inc.
11200 Lake Ming Avenue
Bakersfield, CA. 93306

File No. 98-8477

Prepared By:

Soils Engineering, Inc.
4700 District Blvd.
Bakersfield, CA. 93313

February, 1998

SOILS ENGINEERING, INC.

February 17, 1998

File No. 97-8477

Mr. John Cicerone
NASCA Valley Inc.
11200 Lake Ming Avenue
Bakersfield, CA. 93306

Subject: Phase 1 - Environmental Assessment
For SE 1/4 of SE 1/4 Sec. 18, T29S, R29E
Bakersfield, California
APN#387-030-15

Mr. Cicerone:

In accordance with your request and authorization, Soils Engineering, Inc. (SEI) has performed a Phase 1 - Environmental Site Assessment for the above described property in Bakersfield, California.

Our preliminary assessment indicates that there is a very low potential that the site has been contaminated by hazardous materials. The site has been vacant land since at least1937 and may have been used for grazing. No suspected hazardous materials were observed during our site visit. SEI recommends no further assessment of this site.

Within a one mile radius of the site no current activities were found which process, store or transport hazardous materials in sufficient quantity or in a mode which might have measurable effect on the environmental integrity of the subject site. No sites were found in our search of available or "reasonably ascertainable" State or Federal government records within the ASTM E-1527 search radius around the subject property for the databases shown on Table ES-1 and orphan summary, page ES5 (Appendix A). Oilfield activities on the neighboring property to the west (in northwest corner) does not appear to have effected the subject site.

A Phase I ESA comprises a number of individual elements whose basic nature and extent are determined in accordance with the standard of care applicable to Phase I ESAs. The standard of care is commonly defined as the care applied by the ordinary practitioner at the time and in the area where the ESA was performed. We believe that we have complied with the applicable standard of care and that we have complied as well with Phase I ESA practices and service scope elements recommended by the American Society for Testing and Materials (ASTM).

4700 DISTRICT BLVD. • BAKERSFIELD, CALIFORNIA 93313 • PHONE (805) 831-5100 • FAX: (805) 831-2111

The accompanying report is an instrument of service of ***Soils Engineering, Inc.*** The report summarizes our findings and relates our opinions with respect to the potential for hazardous materials to exist at the site at levels likely to warrant mitigation pursuant to current guidelines regulated by the California EPA and California Water Quality Control Board and defined in Titles 22 and 23 of CCR in the state of California. Note that our findings and opinions are based on information that we obtained on given dates, through records review, site review, and related activities. It is possible that other information exists or subsequently has become known, just as it is possible for conditions we observed to have changed after our observation. For these and associated reason, Soils Engineering, Inc. and many of its peers routinely advise clients for ESA services that it would be a mistake to place unmerited faith in findings and opinions conveyed via ESA reports. ***Soils Engineering, Inc.*** cannot under any circumstances warrant or guarantee that not finding indicators of hazardous materials means that hazardous materials do not exist on the site. Additional research, including invasive testing, can reduce the risks to you, but no techniques now commonly employed can eliminate these risks altogether. Soils Engineering, Inc. will be pleased to provide more information in this regard. Please call us for assistance (805) 831-5100.

Sincerely,
SOILS ENGINEERING, INC.

REGISTERED GEOLOGIST
ROBERT J. BECKER
No. 5076
REN 2/28/99
STATE OF CALIFORNIA

Robert J. Becker, R.G.
5076, Expires 2/28/99

REGISTERED PROFESSIONAL ENGINEER
LOUIS THOMAS BAYNE
No. 000125
Exp. 3/31/98
GEOTECHNICAL
STATE OF CALIFORNIA

L. Thomas Bayne, REA
05614, GE 00125

Distribution: Addressee (2)

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SOILS ENGINEERING, INC.

PHASE 1 - ENVIRONMENTAL SITE ASSESSMENT
For
NASCA Valley Inc.

Southeast 1/4 of Southeast 1/4 of Section 18, T29S, R29E
in
Bakersfield, California

February 17, 1998

1.0 *Executive Summary*

Soils Engineering, Inc. (SEI) has conducted a Phase 1 Environmental Site Assessment at a property located at the southeast 1/4 of the southeast 1/4 of Section 18, Township 29 South, Range 29 East in Bakersfield, California (see Assessor's Map, Appendix B and Location Map, Plate 1). The following is an Executive Summary of the investigation conducted between February 5, and February 17, 1998.

1.1 *Property Use* - The site is currently undeveloped and may have been used for livestock grazing. No permanent structures currently exist at the site. The available aerial photos (1937 to 1990, Appendix C) indicate vacant land was at the site until present time.

Building Permits were reviewed at the County Of Kern with the following permits listed for the site:

- None

1.2 *Purpose and Scope* - The purpose of the site assessment was to determine from visual observations, from surveys of historical literature, from interviews with persons having knowledge of the site and its use, whether any obvious hazardous substances exist or may have existed on the subject property.

4700 DISTRICT BLVD. • BAKERSFIELD, CALIFORNIA 93313 • PHONE (805) 831-5100 • FAX: (805) 831-2111

1.3 *Environmental Issues* - The results of our investigation indicate a low probability that the site has been contaminated by the use, storage, or transportation of hazardous materials from either on-site or off-site activities. The most salient environmental issues noted in our investigation are as follows:

- Oilfield activities have occurred on properties to the west which have included; drilling numerous oil wells, installing pipelines and storage tanks related to the production of oil from these wells. It appears that these activities have not impacted the subject site. These activities may have effected the property due west of the site, although no sign of contamination was observed.

- Mobil Oil Company previously owned this property, but no information was found indicating any oil related activities have occurred on the property.

- A subsurface fault has been mapped in the area of the southwest section of the property. A geologic investigation may be necessary to locate the exact position of this fault in relationship to any permanent structures that may be built on the property.

- No further environmental assessment of this site is recommended.

2.0 *Site Reconnaissance*

The site location is shown on Plate 1, Site Location Map.

2.1 *On-Site Properties* - A site reconnaissance was conducted on February 12, 1998 consisting of walking the property and taking photographs (see Plate 3 and photos).

The project site covers approximately 40 acres bounded by vacant land all around and dirt roads on the south and east sides.

The site consists of Parcel 15 of Book 387, page 3, APN# 387-030-15 owned by Arthur D. & Diane G. Guy since April 1, 1992 (see enclosed assessors map, Appendix B). The site is undeveloped except for a few dirt roads, a line of power poles and sewer line ditches along the property boundaries.

The majority of the site is rolling grasslands with patches of dirt and scattered rocks dissected by a few dirt roads and drainage ditches. A line of power poles trends northeasterly through the property beginning near the southwest corner of the property and continuing 300 to 400 feet south of the northeast corner. A few dead animal carcases were observed on the property indicating livestock grazing may have occurred on the property in the past. A few old tires were observed on the property along with traces of trash. While I was on the property a couple of motorcycle riders were observed driving through the mud and doing jumps. This kind of activity can attribute to small quantities of oil and gasoline spills, but none were observed on the property.

To the south of the site is a couple hundred feet of vacant land before Highway 178 is encountered. Directly west of the subject site, similar vacant land was observed with no environmental threats observed other than oilfield related activities on the neighboring property further to the west. A sewer line tench appears to outline the property boundary between these two properties. A sewer line trench also appeared to separate the subject site and the property to the north. The property to the north was similar to the subject site with rolling grassland dissected by a small stream bed. Some sheep were observed grazing on the property to the northeast. See Plate 2 for Plot Plan.

The site appears to be in good shape with no sumps, staining, underground storage tanks, oil well pumping equipment or other environmental concerns evident.

2.2 *Oil Wells and Water Wells* - No oil wells either active or abandoned were indicated on Map 439, prepared by the California Division of Oil and Gas. Within 1/4 mile

to the west there are a number of oil wells indicated which are part of the Kern Bluff Oil Field (see portion of Map 439 in Appendix A).

There was one (1)State or Federal water well within one-mile of the site indicated by GEOCHECK (Appendix A). Water contamination has been reported for the public water supply system information (EPA-FRDS) for the test well located over 2 miles west of the site. Note: PWS System is not always the same as the well location. "Geocheck Version 2.1 Summary" gives Federal and State water well information for wells within the target area.

2.3 *Gross Site Area* - The project site covers a gross area of approximately 40 acres.

2.4 *Adjacent Off-site Properties* - Adjacent properties are predominately vacant land used for grazing or lying idle. Highway 178 is just south of the site and Morning Drive is within ½ mile to the east.

2.5 *Off-site Properties Within a one mile Radius* - No sites within a one-mile radius were listed to have had releases of hazardous wastes or store hazardous materials. A review of files at the Kern County Environmental Health Services Department indicate that no off-site properties are an environmental threat to the subject site.

The sites listed within 1/8 of a mile mentioned include the following:

- None

2.6 *Previous Site Development* - A review of available aerial photos of the subject site indicates that the property may have been used for grazing livestock with no permanent structures present. See Appendix C for copies of aerial photo's.

1937 Aerial Photograph -Shows Vacant Land with a few dirt roads on the property.

1952 Aerial Photograph - Shows vacant land with drainage ditch on north side evident, oil field activities evident to the west of the property.

1957 Aerial Photograph - Shows vacant land. Two dirt roads trending northwesterly and power poles trending northeasterly.

1975 Aerial Photograph - Shows vacant land with dirt road and power poles traversing site.

1990 Aerial Photograph - Shows vacant land with dirt road trending northwesterly and power lines trending northeasterly. Mesa Marin Raceway present to the southeast. Possible oil field sump located on neighboring property to the west (northwest corner).

2.7 *Source of Potable Water* - Water service is supplied for domestic use by the East Niles Community Storage District.

2.8 *Sewage Disposal* - Sewage is handled by the City of Bakersfield.

3.0 *Property Use*

Available records kept by Kern County Environmental Health Services Department, and the Building Department, etc., indicate that the property has not been developed and has been used primarily for grazing animals or has been idle.

3.1 *Chronology of Former Property Use* - Site usage, as indicated on aerial photographs (Appendix C), City Directories and Building Permits have indicated that this land has been vacant. This use has included the following:

- Vacant land 1937 to 1990.

A list of aerial photographs is given on QA-QC Form C-3 (Appendix D).

3.2 *Rationale For Research Period* - The research period for records dates from 1930's to present, the earliest records retained in the archives of the County of Kern, and available databases.

3.3 *Sources* - A review was made of environmental records maintained by government agencies and private sources. The contents of that review are included in Appendix A. The list of Federal, State, and Local databases searched is summarized on Page ES1[1] and described on pages A10 to A26 of the EDR-Radius Map with GEOCHECK (Appendix A). In addition, the following total sources were researched:

Building Permits -County Of Kern building permits were reviewed from the mid 1950's to the present. The following permits on or near the subject property were listed.

- None

California Division of Oil and Gas Maps - Records were researched for the period circa 1940 to the present. No oil or gas wells are indicated on the subject property. Oil wells are indicated within 1/4 mile to the west of the property which is part of the Kern Bluff Oil Field..

Kern County Department of Environmental Health Services - Kern County Health records were reviewed. The following information was found on file for the sites close enough to be considered a possible threat to the subject

[1] Environmental Data Resources, Inc.(EDR); THE EDR-RADIUS MAP - WITH GEOCHECK; 02228311.1r, February10, 1998.

property:

- None Listed.

4.0 *Current Property Uses*

4.1 The site is not occupied and may have been used for grazing of stock animals. A few dirt roads provide access to the property. See Plate 2 for current site plan.

5.0 *Current and Historical Regulatory Review of the Subject Site*

5.1 *The subject site* did not appear on any of the data base searches conducted.

5.2 A summary of the list of government records searched is contained in Appendix A in the sections titled "REVIEW OF ENVIRONMENTAL RECORDS MAINTAINED BY GOVERNMENT AGENCIES AND PRIVATE SOURCES," Executive Summary 1 and "GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING," pages A10 through A26.

6.0 *Review of Title Documents*

6.1 *Other than Utility Easements*, no easements are shown that would indicate use of the property for process, storage, disposal or transportation of hazardous materials.

6.2 *Owners* -The current owners of the property are Arthur D. & Diane G. Guy since April 1, 1992 when they purchased the property from the Mobil Oil Company.

7.0 *Geology and Hydrology*

7.1 *The site* consists of gently sloping hills with various elevation changes matching the elevations of the majority of the surrounding land. General topographic slope is to the northeast (see Topographic Map, Plate 4).

7.1.1 ***Geologic Setting*** - The project site rests on Pliocene-Pleistocene non-marine sediments, identified as QP on geologic maps. Near surface soils within the zone of influence of future developments are estimated to consist of interbedded silty sand, sand, loose rocks, silt and clay layers overlying granitic Mesozoic bedrock. These sediments were derived in the Greenhorn Mountains to the east of the site. A subsurface fault has been mapped trending northwesterly from the southwest section of the site (Seismic Hazard Atlas, Oil Center Map). See Plate 8 for location of fault in reference to the property.

7.1.2 ***Surface Lithology*** - Earth materials expected in the region of the site consist of interbedded silty sand, sand, silts and clays, along with loose rocks. These soils are classified as SM, SP and SW, ML and CL, respectively, in the Unified Soils Classification System.

7.2 *Hydrology*

7.2.1 ***Unconfined Aquifer*** - The depth to the unconfined aquifer as shown on maps prepared by the Kern Water Agency, and dated February, 1996, is approximately 200 feet just to the south of the site (see Plate 5). The general groundwater gradient in the area of the site is to the southwest (Kern County Water Agency, Water Supply Report, January, 1998).

7.2.1.1 Perched Water, Ground Water or Seepage - No perched water levels beneath the site are shown on groundwater maps dated July 1995.

7.2.1.2 Groundwater Quality - Maps prepared by the Kern County Water Agency, dated July 1991 indicate total dissolved solids in the range of 500 ppm for the unconfined aquifer for specific well sites to the

north of the site.

7.2.2 ***PLATE 4 "TOPOGRAPHIC MAP,"*** depicts general site topography including elevation contour lines, closest water wells given on Federal and State databases, and closest public water wells.

7.2.3 *Water Wells* - Water wells within one mile of the property were researched. A list of the wells and the data bases searched are provided in the appendix in the section titled "GEOCHECK VERSION 2.1 ADDENDUM, FEDERAL DATABASE WELL INFORMATION," page A1 to A9. Depth to water in wells is provided on Plate 5 taken from Kern County Water Agency Report on Improvement District, No. 4, February, 1996.

7.2.4 *The California Regional Water Quality Control Board* - Leaking Underground Storage Tank (LUST) records were reviewed. A list of agencies with LUST information are given on page A13 to A23. As the regulatory agency for the California Regional Quality Water Control Board, the Kern County Environmental Health Services Division maintains a data base of underground storage tanks and leaking underground storage tanks in the Kern County area, including the subject site. Two independent data base searches were performed, one by Environmental Data Resources Inc.,[2] and one by the Kern County Environmental Health Services Division.

8.0 **"OIL AND GAS WELL LOCATION MAP 439,"** was reviewed. No active or abandoned oil or gas wells were indicated on the site. Oil wells were located within 1/4 mile to the west of the site as part of the Kern Bluff Oil Field.

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[2] Environmental Data Base Resources, Inc., THE EDR-RADIUS MAP WITH GEOCHECK - ™, Inquiry No.: 02228311.1r, February10, 1998.

9.0 ***Surrounding Properties*** - PLATE 6, "OVERVIEW MAP" shows the locations of sites which were listed on one of the DATABASES searched (See Section 5.2, "REVIEW OF ENVIRONMENTAL RECORDS MAINTAINED BY GOVERNMENT AGENCIES AND PRIVATE SOURCES").

9.1 *Data Base Search* - No sites were mapped within a one mile radius of the site (see Overview Map, Plate 6). For more detail on these sites see Plate 7, Detail Map.

9.2 *Orphan Summary List* - The data base search indicated a number of addresses were insufficient to plot on the site on the site overview map. A list of these sites is provided on "Orphan Summary Sheet," page 10 and ES3.

10.0 *Conclusions and Recommendations*

10.1 *Conclusions and Recommendations* - The results of our investigation indicate a low probability that the property has been contaminated by the use, storage, or transportation of hazardous materials from either on-site or off-site activities. The most salient environmental issues noted in our investigation are as follows:

- Oilfield activities have occurred on neighboring properties to the west which have included; drilling numerous oil wells, installing pipelines and storage tanks related to the production of oil from these wells. It appears that these activities have not impacted the subject site.

- Mobil Oil Company previously owned this property, but no information was found indicating any oil related activities have occurred on the property.

- A subsurface fault has been mapped in the area of the southwest section of the property. A geologic investigation may be necessary to locate the exact position of this fault in relationship to any permanent structures that may be built on the

property.

10.2 Recommendations

- No further environmental work is recommended.

11.0 *Attachments*

11.1 *Location Map*- Plate 1 , "Location Map" shows the location of the site with relationship to roads and land features.

11.2 *Plot Plan* - Plate 2 , "PLOT PLAN" shows the location and lot configuration of the property.

11.3 *Photo Vantage Plot* - Plate 3 , "PHOTO VANTAGE PLOT" shows the location and direction of photos taken at the site. See attached for pictures.

11.4 *Topographic Map* - Plate 4. The property location referenced to major city streets and State, Federal and public supply wells with topographic elevations is attached as the "TOPOGRAPHIC MAP," Plate 4.

11.5 *Depth To Water In Wells* - Plate 5, Presents the property location referenced to depth to water of the unconfined aquifer in the neighboring area as determined by the Kern County Water Agency.

11.6 *Overview Map* - Plate 6, The property location referenced to neighboring streets and potentially environmental sensitive sites up to 1 mile away is attached as the "OVERVIEW MAP," Plate 6.

11.7 *Detail Map* - Plate 7, The property location referenced to neighboring streets and potentially environmental sensitive sites within 1/2 mile is attached as the "DETAIL

MAP," Plate 7.

11.8 *Fault Map - Plate 8*, The property location referenced to faulting in the area.

11.9 Appendix A - *EDR Report* contains the Environmental Data Base Resources, Inc., THE EDR-RADIUS MAP WITH GEOCHECK - ™, Inquiry No.: 0228311.1r, February 10, 1998.

11.10 Appendix B - *Assessors Map* contains a copy of the assessors map for the property.

11.11 Appendix C - *Aerial Photo's* contains copies of available aerial photo's (1937 to 1990).

11.12 Appendix D - *Quality Assurance/Quality Control*

11.13.1 *A site inspection check list* has been completed as a part of the site reconnaissance survey and is attached on *QA/QC Form C-1.*

11.13.2 *Form QA/QC - C-2* provides a checklist of summary of historical research items included in the scope of the investigation.

11.13.3 *A list of aerial photographs* reviewed are given on *QA/QC Form C-3*

11.13.4 *Areas excluded from review* because of inaccessibility or for other causes, not included in the site reconnaissance are listed on *QA/QC - C-4.*

12.0 *Statement of Qualifications*

12.1 *This preliminary site assessment* was prepared by *Mr. Robert J. Becker*, a California Registered Geologist (RG-5076) and reviewed by *Mr. L. Thomas Bayne* a Registered California EPA Environmental Assessor (REA-05614). *Mr. Becker* has a Bachelor

of Science degree from Oregon State University with a major in geology. *Mr. Becker* is also registered in the States of Oregon (RG) and Nevada (Environmental Manager). *Mr. Bayne* has obtained a Master of Science in Civil Engineering from the University of California at Berkeley with emphasis in Geotechnical Engineering; a current professional license as a Civil Engineer issued by the states of California, Nevada and Arizona; a current professional license as a Geotechnical Engineer issued by the State of California; a current Engineering Contractors License (General Engineering A and Haz) issued by the State of California.

12.2 *Mr. Becker* and *Mr. Bayne* have performed numerous preliminary environmental assessments and site characterizations, and risk assessments for known contamination on raw land, on existing residential, commercial, and industrial properties for public and private sector clientele. *Mr. Beckers* experience includes; installation of monitoring wells, vapor extraction system installations and operation, bioremediation of contaminated soil, groundwater treatment system installations and operation, and risk assessments. *Mr. Baynes* experience includes supervising the planning and installation of monitoring wells, managing monitoring and testing operations for the construction of Type 2 hazardous waste disposal facilities and planning site grading for closure and post closure of Type 2 hazardous waste facilities including: MP Disposal on Round Mountain Road; Eastside Disposal Facility on Round Mountain Road; Petroleum Waste Disposal Facility Buttonwillow, California; Morton Recycling, Maricopa, California; Community Recycling, Lamont, California; Valley Waste Disposal, surface disposal ponds at Broadcreek #2, Fellows, California; and Taft Disposal Facility, Taft, California.

13.0 *References*

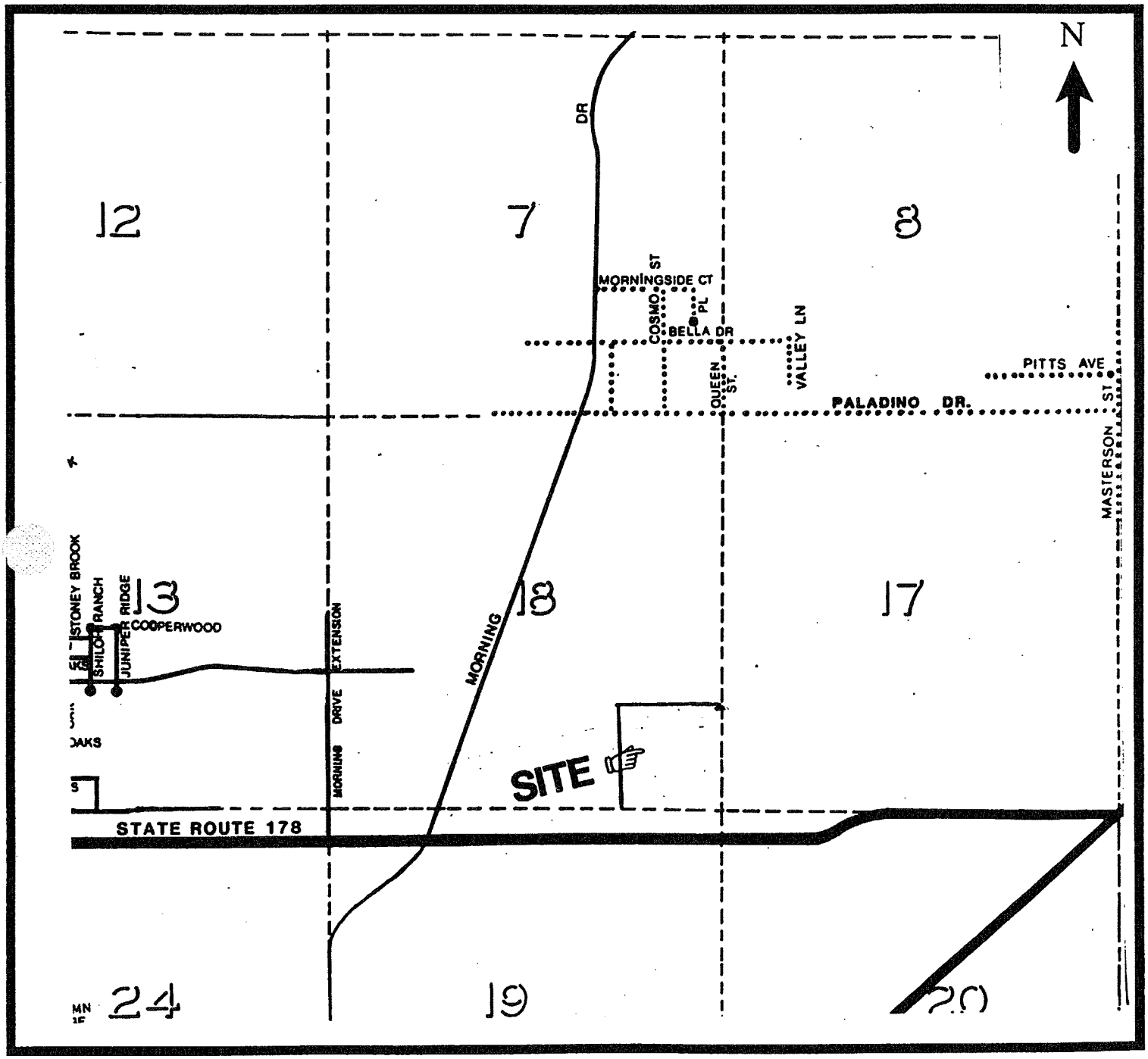
- Environmental Data Resources; The EDR-Radius Map with Geo-Check, 1998;

- California Division of Oil and Gas Maps (Portion of Map 439);

- Aerial Photographs - Kern County Map Room
- Kern County Water Agency Water Supply Report 1995, dated January, 1998.
- USGS Quadrangle Map & Seismic Hazard Atlas, Oil Center Quad.
- California Division of Mines and Geology - Geologic Map of California- Bakersfield Sheet.

ation Map
1/4 of SE 1/4 of Sec 18, T29S, 29E
Bakersfield, California

File No. 98-8477
February,1998

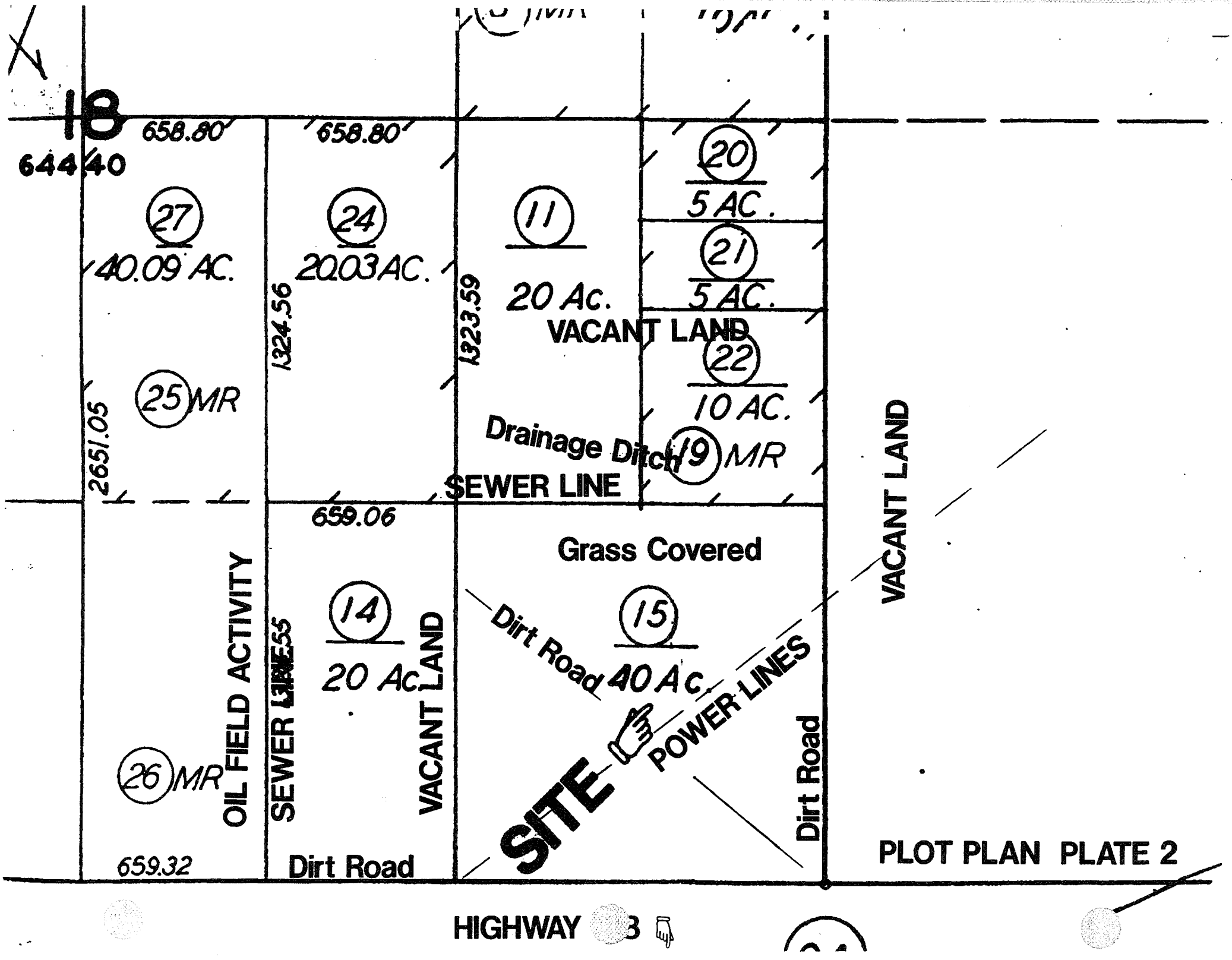


Location Map

SE 1/4 of SE 1/4, Sec 18, T29S, R29E

Bakersfield, California

PLATE 1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22
10 AC.
19 MR
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25 MR
2651.05
Drainage Ditch
SEWER LINE
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Grass Covered
14
20 Ac
15
40 Ac.
Dirt Road
POWER LINES
SITE
VACANT LAND
OIL FIELD ACTIVITY
SEWER LINES
VACANT LAND
26 MR
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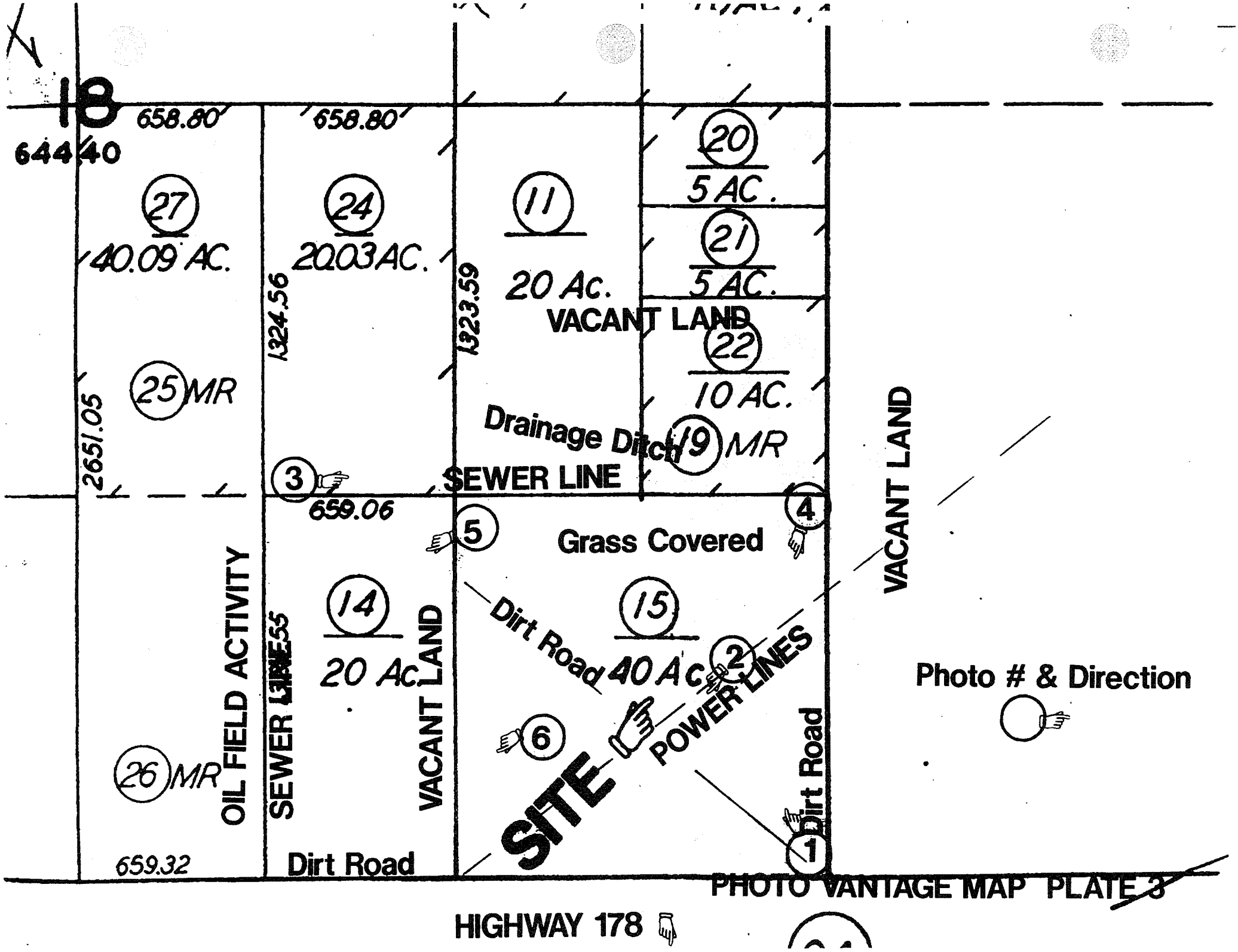
Dirt Road
Dirt Road
PLOT PLAN PLATE 2
HIGHWAY 3


18
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658.80
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24
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11
20 Ac.
VACANT LAND
20
5 AC.
21
5 AC.
22
10 AC.
19 MR
25 MR
26 MR
1324.56
1323.59
2651.05
659.32
659.06
3
SEWER LINE
Drainage Ditch
4
5
Grass Covered
14
20 Ac.
15
40 Ac.
2
6
1
OIL FIELD ACTIVITY
SEWER LINE
VACANT LAND
Dirt Road
SITE
POWER LINES
Dirt Road
Dirt Road
VACANT LAND
Photo # & Direction
PHOTO VANTAGE MAP PLATE 3
HIGHWAY 178

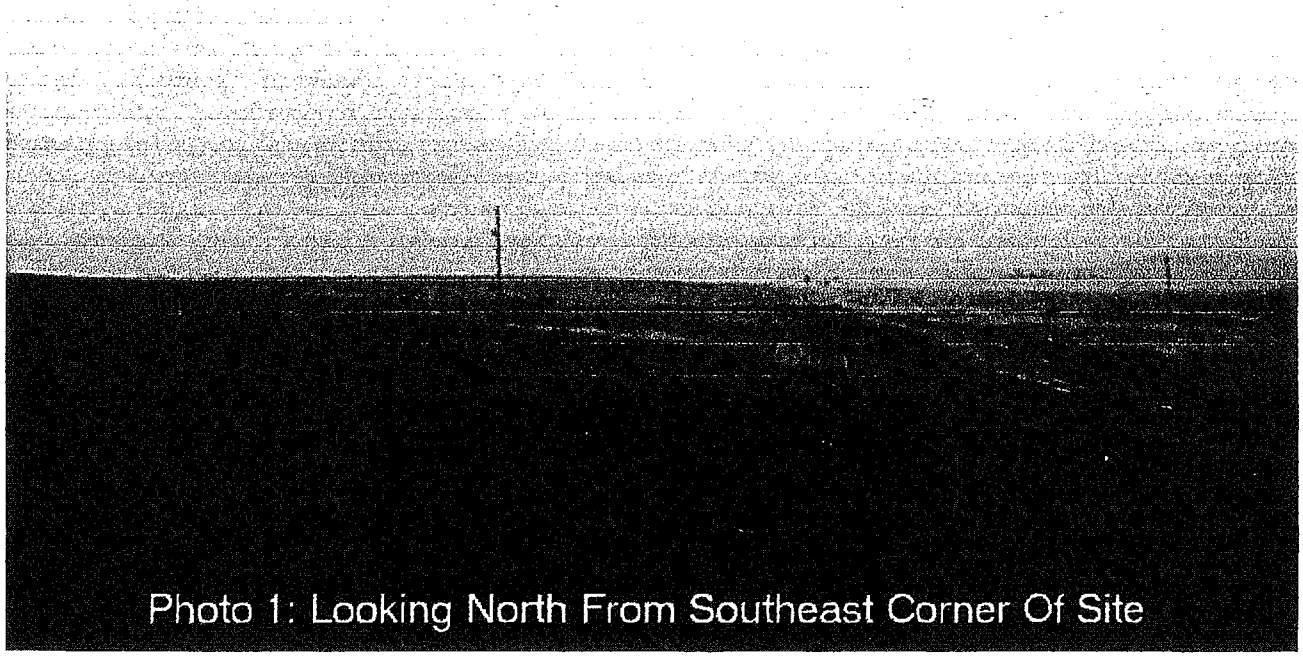


Photo 1: Looking North From Southeast Corner Of Site

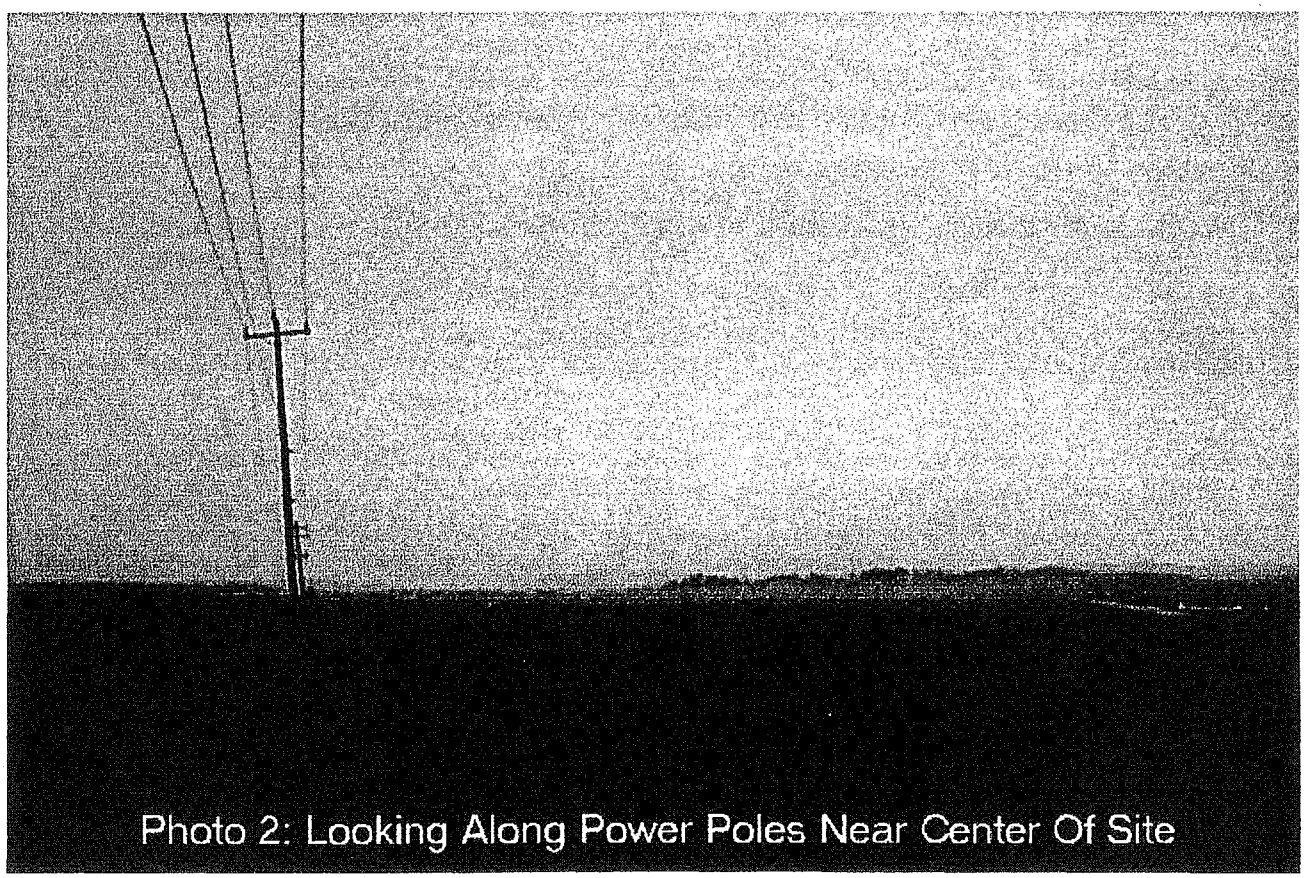


Photo 2: Looking Along Power Poles Near Center Of Site

Photo 3: Looking Along Sewer Line Trench

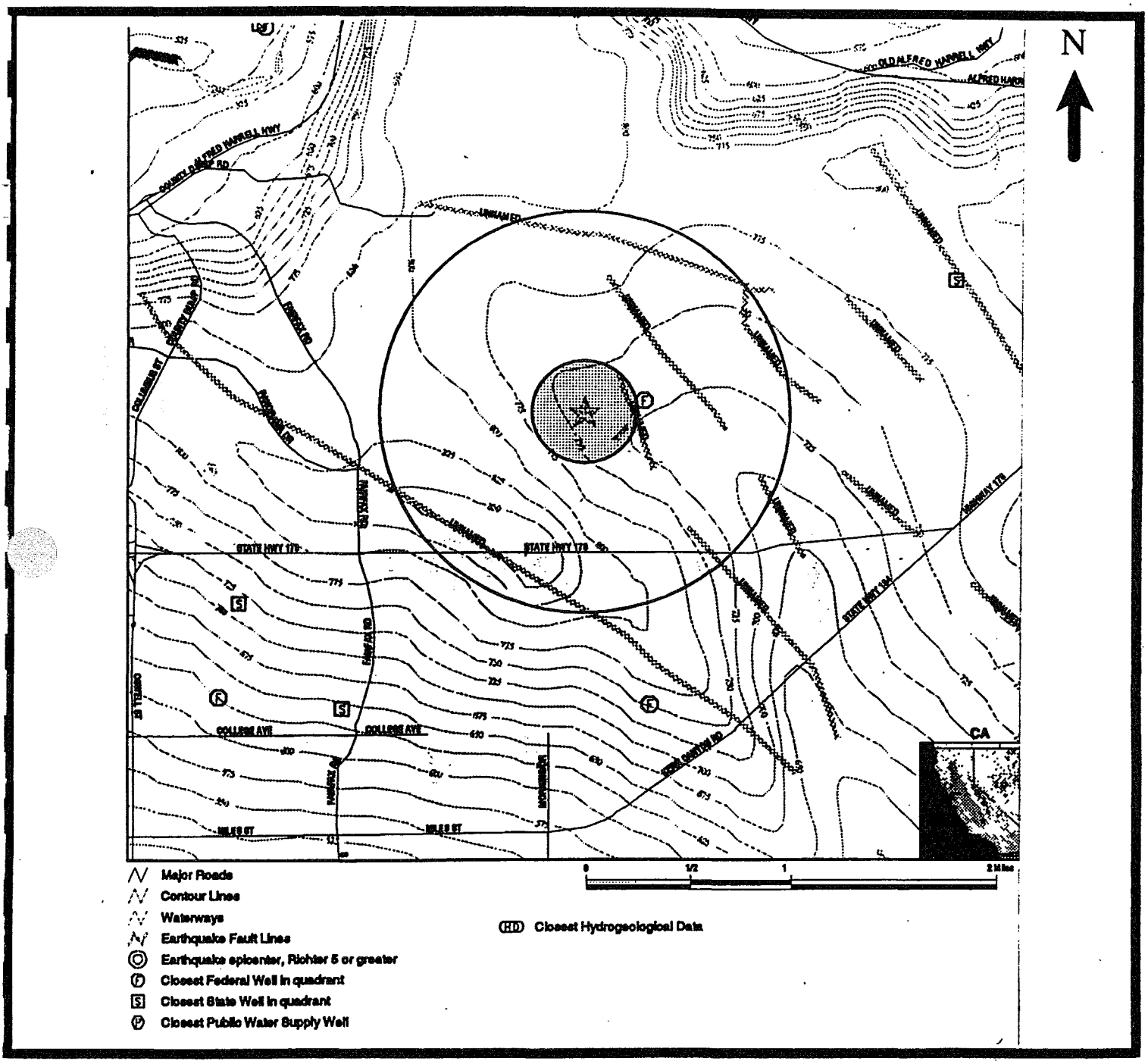
Photo 4: Looking West Near Sewer Line

Photo 5: Looking West At Oil Field West Of Site

Photo 6: Looking At Typical Grassland Area on Site

ographic Map
1/4 of SE 1/4 of Sec 18, T29S, 29E
Bakersfield, California

File No. 98-8477
February,1998



Topographic Map

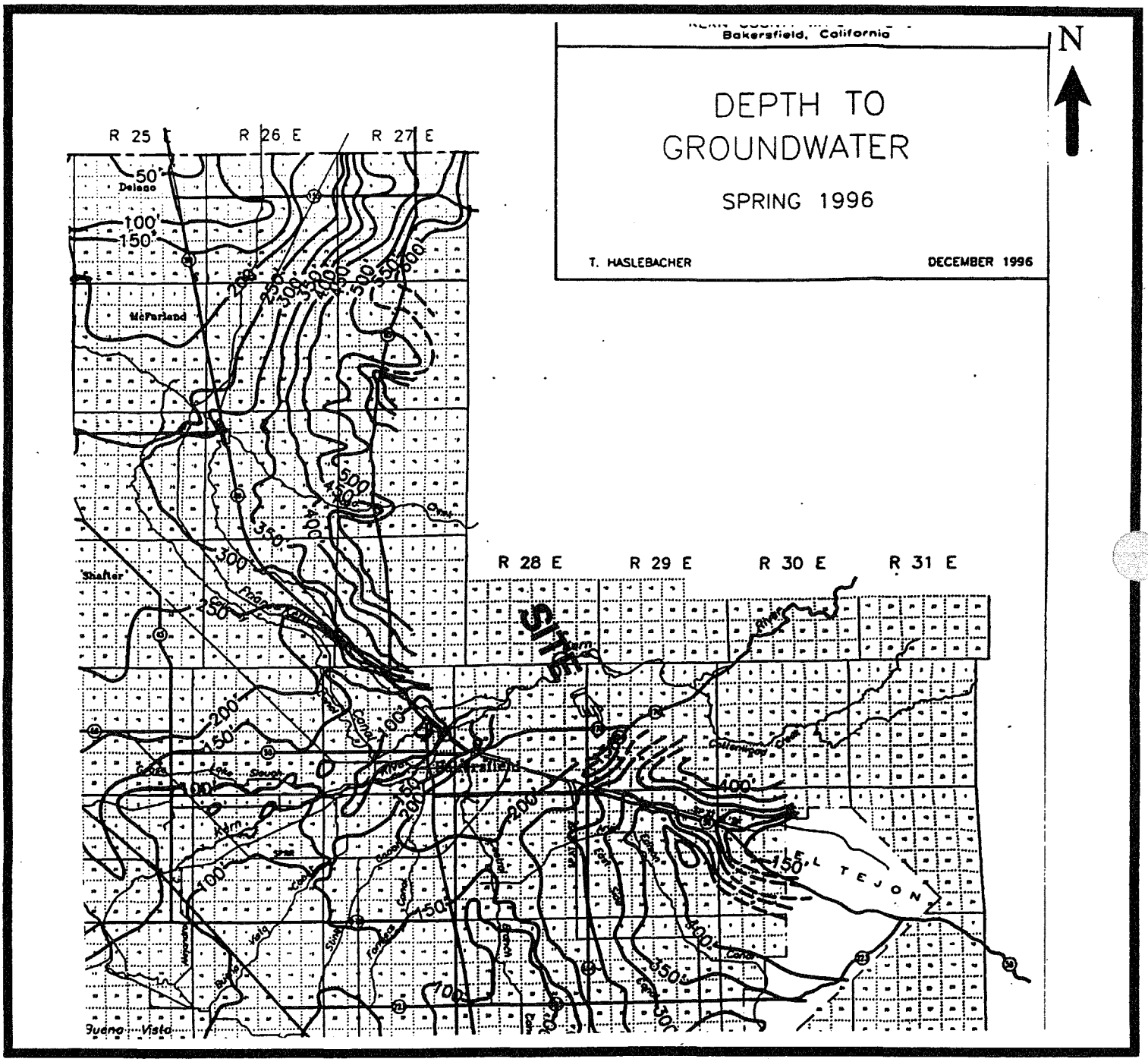
SE 1/4 of SE 1/4, Sec 18, T29S, R29E

Bakersfield, California

PLATE 4

Depth To Water Map
SE 1/4 of SE 1/4 of Sec 18, T29S, 29E
Bakersfield, California

File No. 98-8477
February,199



Depth To Water Map

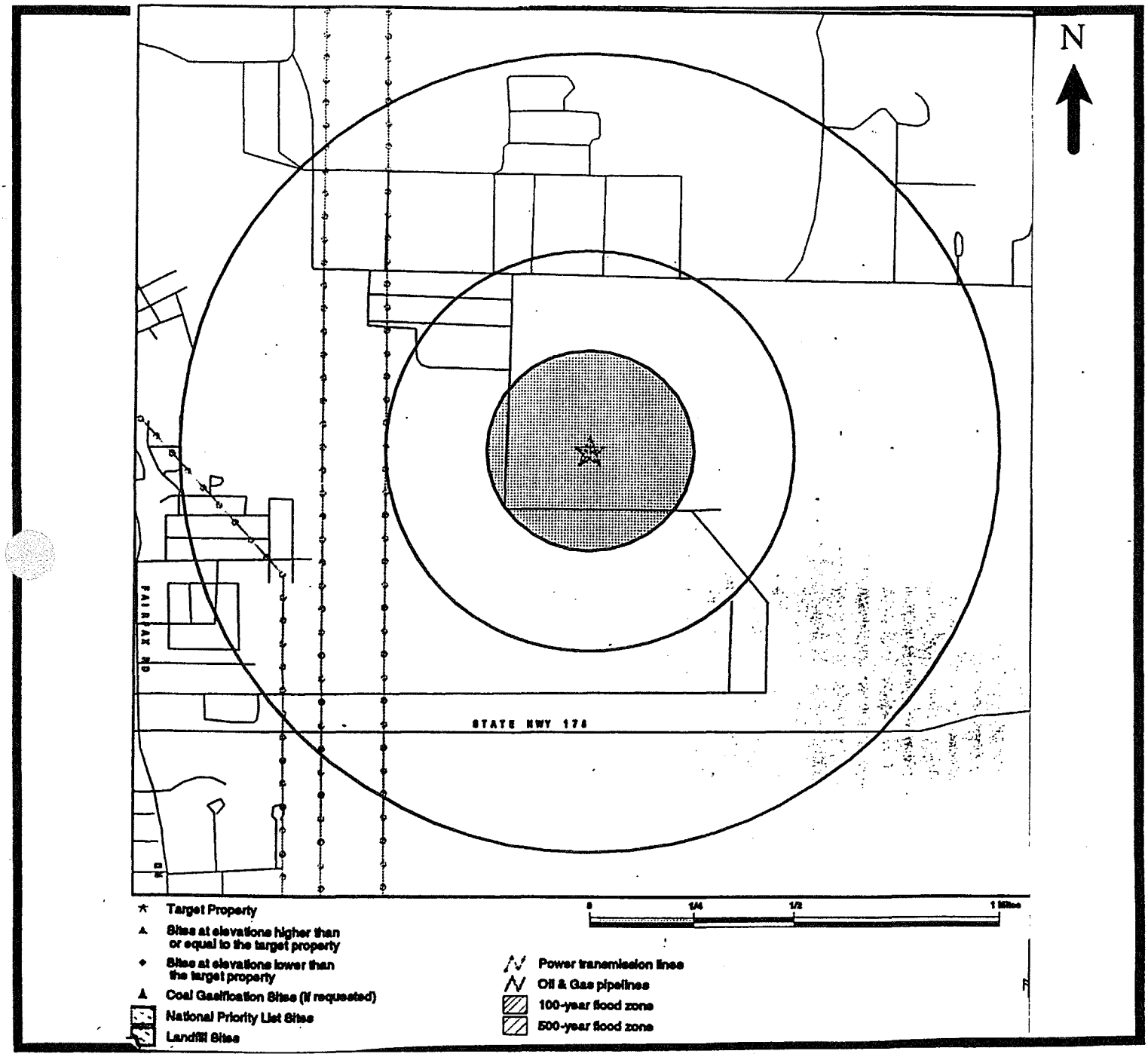
SE 1/4 of SE 1/4, Sec 18, T29S, R29E

Bakersfield, California

PLATE 5

Overview Map
1/4 of SE 1/4 of Sec 18, T29S, 29E
Bakersfield, California

File No. 98-8477
February,1998



Overview Map

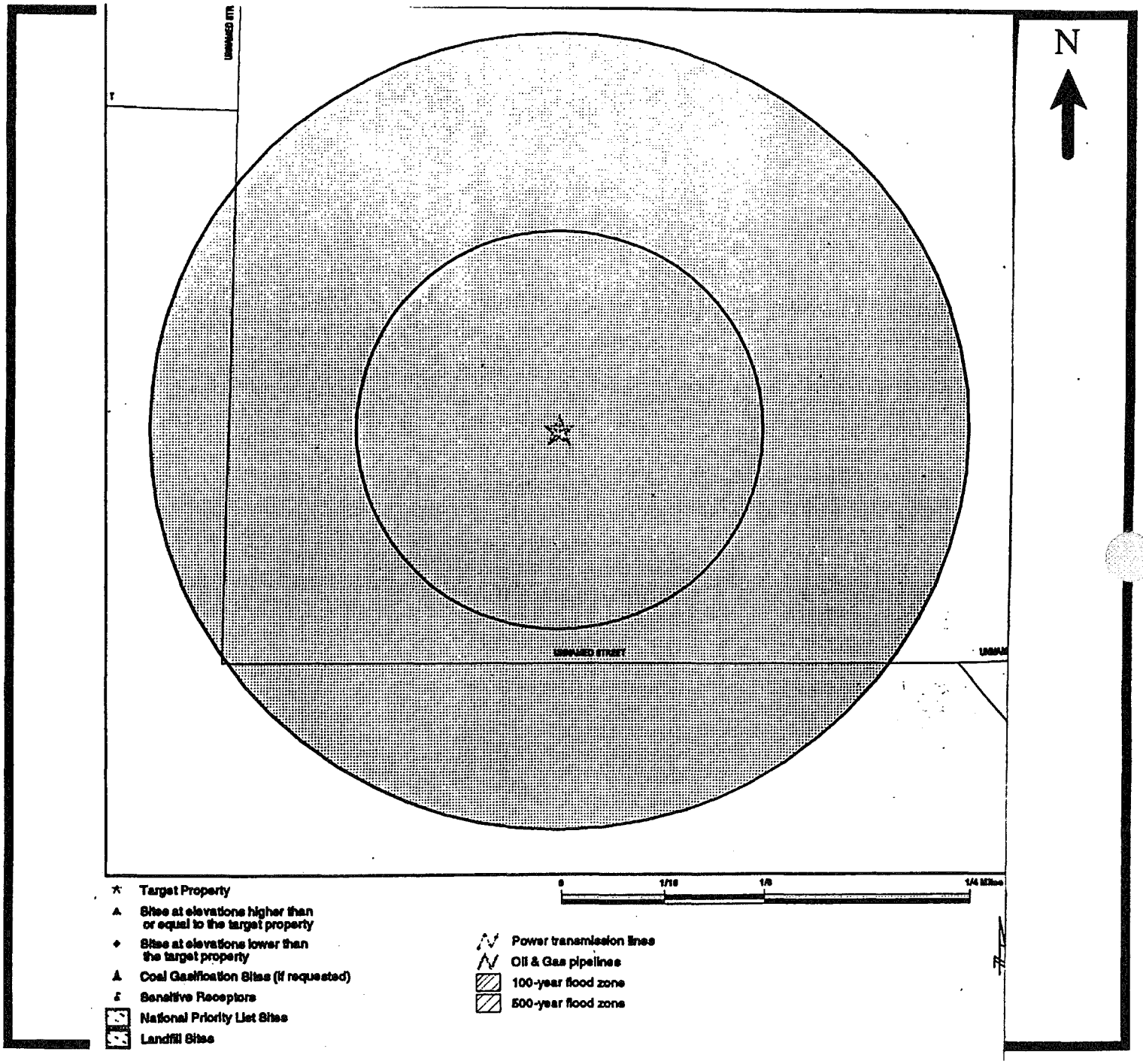
SE 1/4 of SE 1/4, Sec 18, T29S, R29E

Bakersfield, California

PLATE 6

Detail Map
SE 1/4 of SE 1/4 of Sec 18, T29S, 29E
Bakersfield, California

File No. 98-8477
February,199



Detail Map

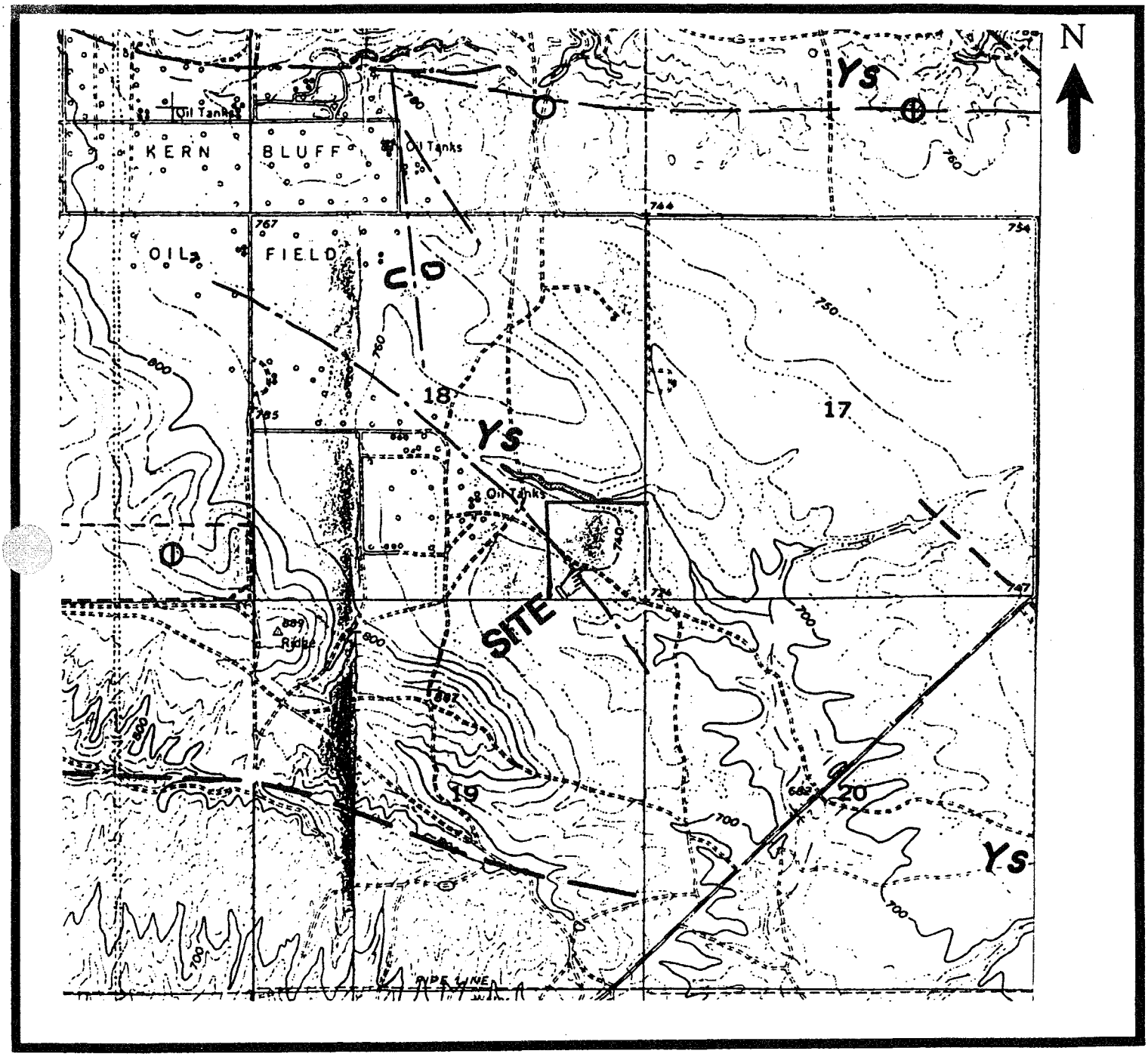
SE 1/4 of SE 1/4, Sec 18, T29S, R29E

Bakersfield, California

PLATE 7

Fault Location Map
1/4 of SE 1/4 of Sec 18, T29S, 29E
Bakersfield, California

File No. 98-8477
February,1998



Fault Location Map

SE 1/4 of SE 1/4, Sec 18, T29S, R29E

Bakersfield, California

PLATE 8

Appendix A

EDR-Radius Map
with
GeoCheck

The EDR-Radius Map
with GeoCheck™

Nasca Valley
Morning Dr
Bakersfield, CA 93306

Inquiry Number: 0228311.1r

February 10, 1998

Environmental Data Resources, Inc.
an edr company

The Source For Environmental Risk Management Data

3530 Post Road
Southport, Connecticut 06490

Nationwide Customer Service

Telephone: 1-800-352-0050
Fax: 1-800-231-6802
Internet: www.edrnet.com

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Detail Map	6
Map Summary - All Sites	7
Map Summary - Sites with higher or the same elevation as the Target Property	8
Map Findings	9
Orphan Summary	10

APPENDICES

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Government Records Searched / Data Currency Tracking Addendum	A10

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

Disclaimer

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc. (EDR). The report meets the government records search requirements of ASTM Standard Practice for Environmental Site Assessments, E 1527-97. Search distances are per ASTM standard or custom distances requested by the user.

The address of the subject property for which the search was intended is:

MORNING DR
BAKERSFIELD, CA 93306

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the subject property or within the ASTM E 1527-97 search radius around the subject property for the following Databases:

NPL:	National Priority List
Delisted NPL:	NPL Deletions
RCRIS-TSD:	Resource Conservation and Recovery Information System
AWP:	AWP
Cal-Sites:	Cal-Sites
Notify 65:	Notify 65
CHMIRS:	California Hazardous Material Incident Report System
Cortese:	Cortese
Toxic Pits:	Toxic Pits
CERCLIS:	Comprehensive Environmental Response, Compensation, and Liability Information System
CERC-NFRAP:	Comprehensive Environmental Response, Compensation, and Liability Information System
CORRACTS:	Corrective Action Report
SWF/LF:	State Landfill
LUST:	Leaking Underground Storage Tank Information System
UST:	Hazardous Substance Storage Container Database
Ca. FID:	CA FID
AST:	Aboveground Petroleum Storage Tank Facilities
RAATS:	RCRA Administrative Action Tracking System
WMUDS:	WMUDS/SWAT
HAZNET:	HAZNET
RCRIS-SQG:	Resource Conservation and Recovery Information System
RCRIS-LQG:	Resource Conservation and Recovery Information System
HMIRS:	Hazardous Materials Information Reporting System
PADS:	PCB Activity Database System
ERNS:	Emergency Response Notification System
FINDS:	Facility Index System
TRIS:	Toxic Chemical Release Inventory System
TSCA:	Toxic Substances Control Act
MLTS:	Material Licensing Tracking System
NPL Lien:	NPL Liens
CA SLIC:	CA SLIC regions.
Ca. BEP:	CA Bond Exp. Plan
ROD:	ROD
CONSENT:	Superfund (CERCLA) Consent Decrees
Ca. WDS:	CA WDS
S Bay Reg. 2:	South Bay Region 2
Coal Gas:	Former Manufactured gas (Coal Gas) Sites.

Unmapped (orphan) sites are not considered in the foregoing analysis.

EXECUTIVE SUMMARY

Search Results:

Search results for the subject property and the search radius, are listed below:

Subject Property:

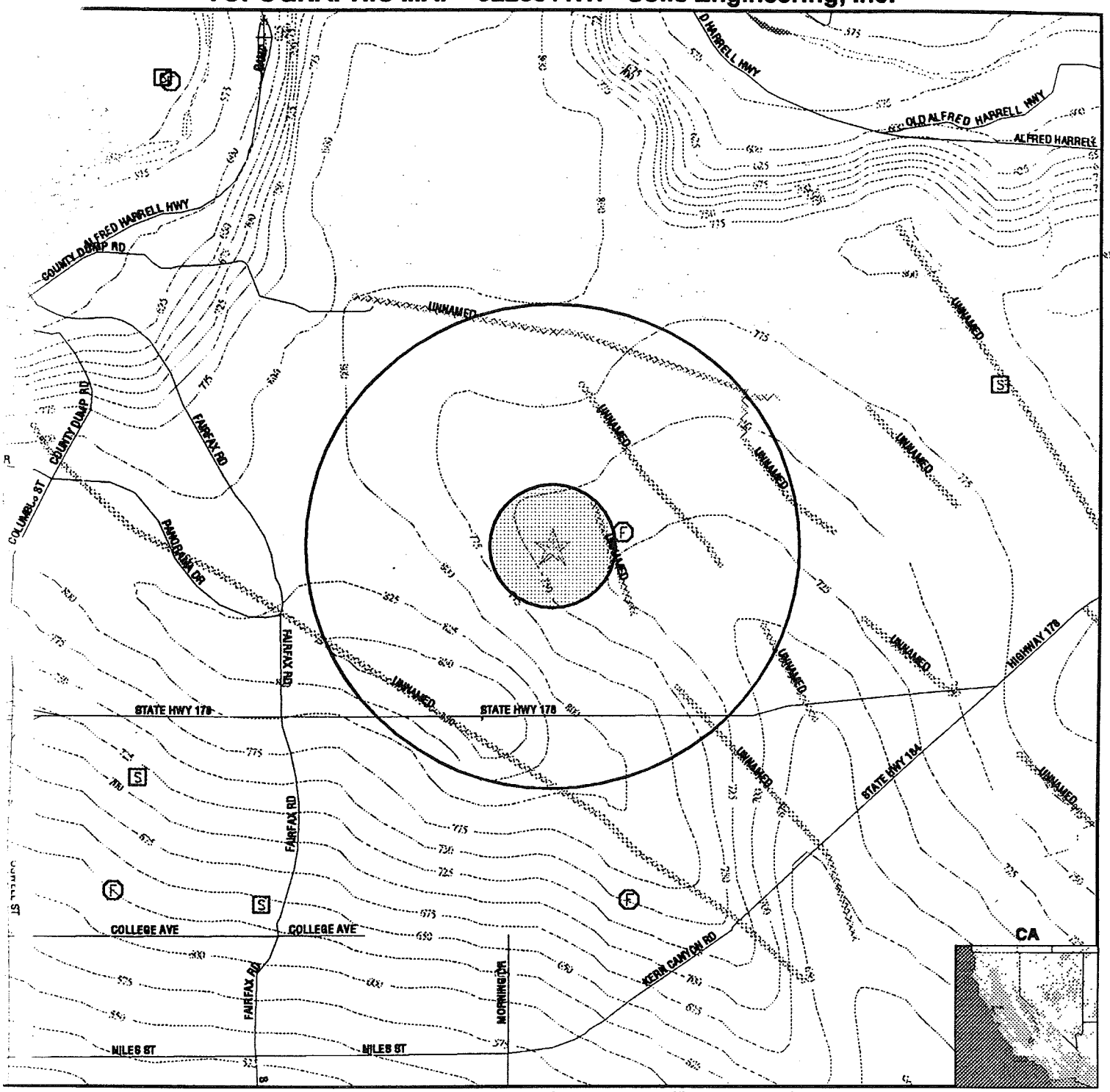
The subject property was not listed in any of the databases searched by EDR.

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped:

Site Name	Database(s)
KERN COUNTY LANDFILL	Cal-Sites
PANORAMA BURN DUMP SITE	Cal-Sites
UNION OIL STATION	Cortese, LUST
MOBIL, WOODY PRODUCTION FAC.	Toxic Pits
BEAR MOUNTAIN LIMITED SUPPLIMENTAL	SWF/LF
METROPOLITAN RECYCLING COMPLEX	SWF/LF
NEG DEC LOKERN FARMS COMPOSTING FA	SWF/LF
HONDO CHEMICAL,INC	SWF/LF
CHINA GRADE SANITARY LANDFILL	SWF/LF
BAKERSFIELD SANITARY LANDFILL	SWF/LF
BAKERSFIELD S.L.F. (BENA)	SWF/LF
WILLIAMS STREET WASTE TIRE PILE	SWF/LF
E. PLANTZ WASTE TIRE PILE	SWF/LF
KERN FRONT DISPOSAL SITE	SWF/LF
CAL WESTERN FUELS PROCESSING	SWF/LF
ARCO CLASS II SURFACE IMPOUN & LAN	SWF/LF
EAPW 5-97 PRICE ENVIRONMENTAL SERV	SWF/LF
WEST OILDALE BURN DUMP	SWF/LF
DOWNS AVENUE DUMP	SWF/LF
KISSACK SEPTIC DISPOSAL SITE	SWF/LF, Ca. WDS
GOLER ROAD ILLEGAL DUMP	SWF/LF
WELDON #1 BD	SWF/LF
TEXACO-KERN RIVER SLF	SWF/LF
SVESTCO INC SEPTAGE SITE	SWF/LF
GREENHORN BD	SWF/LF
CYRUS CANYON DS	SWF/LF
WILLIAM BROS/ELK HILLS NORTH	SWF/LF
WILLIAM BROS/ELK HILLS SOUTH	SWF/LF
DELANO BD	SWF/LF
DEBORD SEPTIC DISPOSAL	SWF/LF
GARONE SEPTAGE DISPOSAL SITE	SWF/LF
FNF DISPOSAL AREA	SWF/LF
HONDO RECLAMATION PLAN	SWF/LF
SCOFIELD ROAD BURN DUMP	SWF/LF
SOUTHERN PACIFIC-EDISON	LUST
VALLEY TREE & CONSTRUCTION	WMUDS
KARR & SONS RANCH	WMUDS
1X JAMISON HILL CO	HAZNET
SANTA FE ENERGY CO/EAST KERN	HAZNET
HALLIBURTON SERVICES	HAZNET
OTT,JIM & SON TRUCKING	RCRIS-SQG, FINDS

TOPOGRAPHIC MAP - 0228311.1r - Soils Engineering, Inc.



0 1/2 1 2 Miles

- Major Roads
- Contour Lines
- Waterways
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Closest Federal Well in quadrant
- Closest State Well in quadrant
- Closest Public Water Supply Well

(HD) Closest Hydrogeological Data

TARGET PROPERTY:	Nasca Valley	CUSTOMER:	Soils Engineering, Inc.
ADDRESS:	Morning Dr	CONTACT:	Bob Becker
ITY/STATE/ZIP:	Bakersfield CA 93306	INQUIRY #:	0228311.1r
AT/LONG:	35.4064 / 118.9103	DATE:	February 10, 1998 5:33 pm

GEOCHECK VERSION 2.1
SUMMARY

TARGET PROPERTY COORDINATES

Latitude (North):	35.406380 - 35 24' 23.0"
Longitude (West):	118.910332 - 118 54' 37.2"
Universal Transverse Mercator:	Zone 11
UTM X (Meters):	326530.8
UTM Y (Meters):	3919587.8

GEOLOGIC AGE IDENTIFICATION†

Geologic Code:	Tm
Era:	Cenozoic
System:	Tertiary
Series:	Miocene

ROCK STRATIGRAPHIC UNIT†

Category:	Stratified Sequence

GROUNDWATER FLOW INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, including well data collected on nearby properties, regional groundwater flow information (from deep aquifers), or surface topography.‡

General Topographic Gradient:	General East
General Hydrogeologic Gradient:	No hydrogeologic data available.
Site-Specific Hydrogeological Data*:	
Search Radius:	2.0 miles
Status:	Not found

USGS TOPOGRAPHIC MAP ASSOCIATED WITH THIS SITE

Target Property:	2435118-D8 OIL CENTER, CA

FEDERAL DATABASE WELL INFORMATION

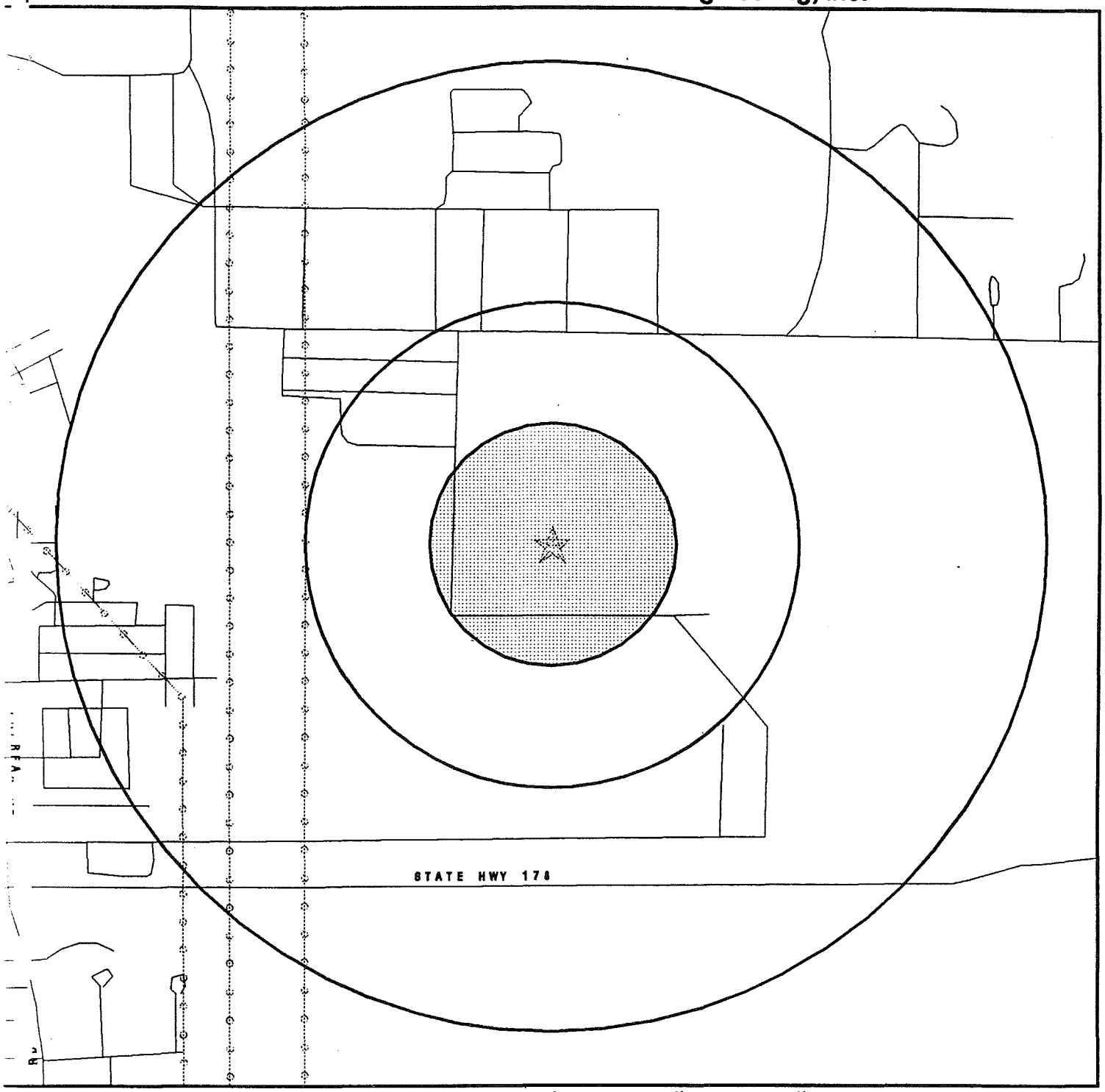
WELL QUADRANT	DISTANCE FROM TP	LITHOLOGY	DEPTH TO WATER TABLE
Northern	>2 Miles	Not Reported	Not Reported
Eastern	1/4 - 1/2 Mile	Not Reported	Not Reported
Southern	1 - 2 Miles	Not Reported	393 ft.
Western	>2 Miles	Not Reported	Not Reported

STATE DATABASE WELL INFORMATION

WELL QUADRANT	DISTANCE FROM TP
Northern	>2 Miles
Eastern	1 - 2 Miles
Southern	1 - 2 Miles
Western	1 - 2 Miles

† Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).
‡ U.S. EPA Ground Water Handbook, Vol I: Ground Water and Contamination, Office of Research and development EPA/625/6-90/016a,Chapter 4, page 78, September 1990.

OVERVIEW MAP - 0228311.1r - Soils Engineering, Inc.

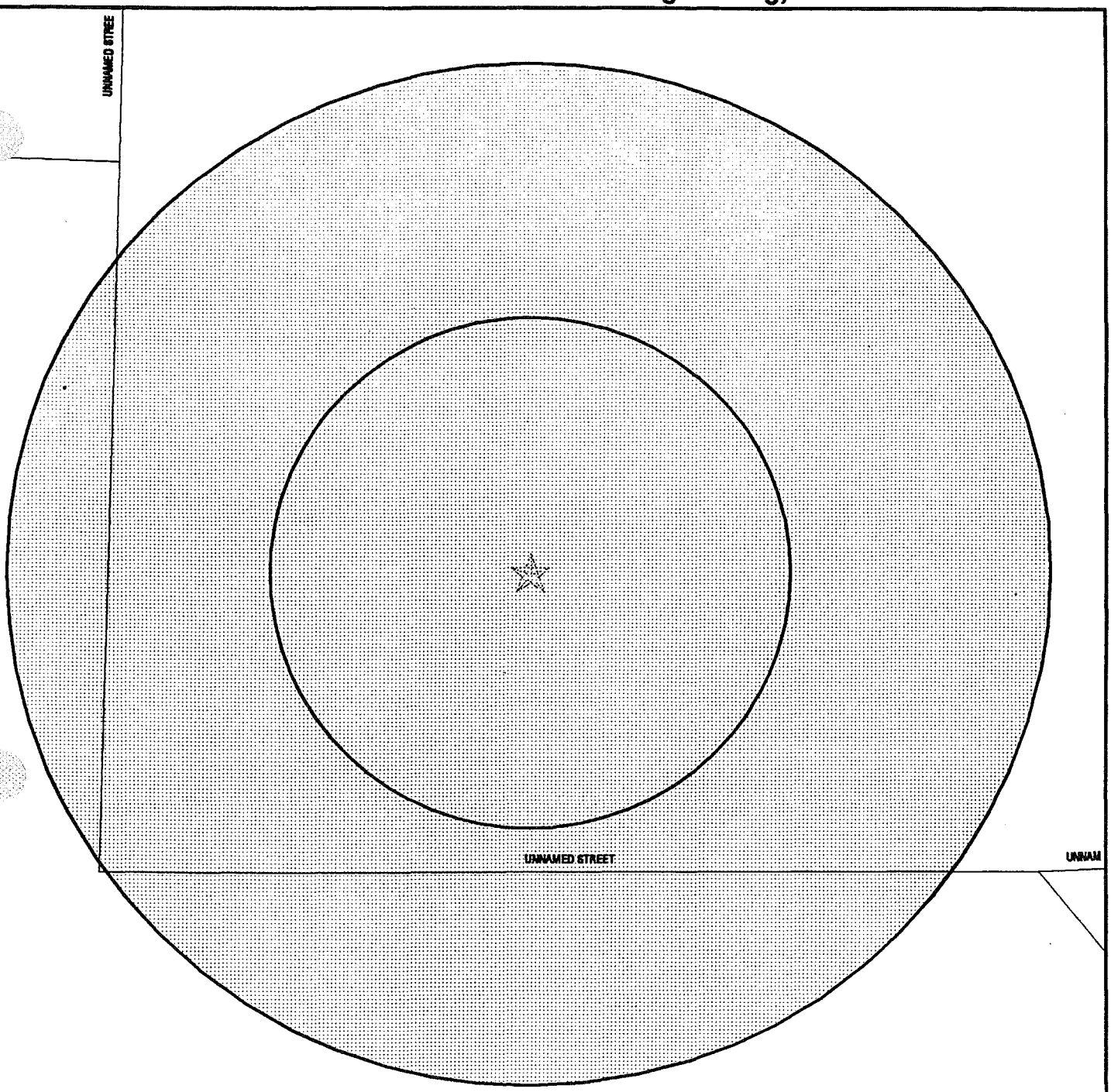


- Target Property
- Sites at elevations higher than or equal to the target property
- Sites at elevations lower than the target property
- Coal Gasification Sites (if requested)
- National Priority List Sites
- Landfill Sites
- Power transmission lines
- Oil & Gas pipelines
- 100-year flood zone
- 500-year flood zone

0 1/4 1/2 1 Miles

TARGET PROPERTY:	Nasca Valley	CUSTOMER:	Soils Engineering, Inc.
ADDRESS:	Morning Dr	CONTACT:	Bob Becker
ITY/STATE/ZIP:	Bakersfield CA 93306	INQUIRY #:	0228311.1r
AT/LONG:	35.4064 / 118.9103	DATE:	February 10, 1998 5:29 pm

DETAIL MAP - 0228311.1r - Soils Engineering, Inc.



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Coal Gasification Sites (if requested)

Sensitive Receptors

National Priority List Sites

Landfill Sites

0 1/16 1/8 1/4 Miles

Power transmission lines

Oil & Gas pipelines

100-year flood zone

500-year flood zone

TARGET PROPERTY:	Nasca Valley	CUSTOMER:	Soils Engineering, Inc.
ADDRESS:	Morning Dr	CONTACT:	Bob Becker
ITY/STATE/ZIP:	Bakersfield CA 93306	INQUIRY #:	0228311.1r
AT/LONG:	35.4064 / 118.9103	DATE:	February 10, 1998 5:31 pm

MAP FINDINGS SUMMARY SHOWING ALL SITES

Database	Target Property	Search Distance (Miles)	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
NPL		1.000	0	0	0	0	NR	0
Delisted NPL		TP	NR	NR	NR	NR	NR	0
RCRIS-TSD		0.500	0	0	0	NR	NR	0
AWP		1.000	0	0	0	0	NR	0
Cal-Sites		1.000	0	0	0	0	NR	0
Notify 65		1.000	0	0	0	0	NR	0
CHMIRS		1.000	0	0	0	0	NR	0
Cortese		1.000	0	0	0	0	NR	0
Toxic Pits		1.000	0	0	0	0	NR	0
CERCLIS		0.500	0	0	0	NR	NR	0
CERC-NFRAP		TP	NR	NR	NR	NR	NR	0
CORRACTS		1.000	0	0	0	0	NR	0
State Landfill		0.500	0	0	0	NR	NR	0
LUST		0.500	0	0	0	NR	NR	0
UST		0.250	0	0	NR	NR	NR	0
CA FID		0.250	0	0	NR	NR	NR	0
AST		TP	NR	NR	NR	NR	NR	0
RAATS		TP	NR	NR	NR	NR	NR	0
WMUDS/SWAT		0.500	0	0	0	NR	NR	0
HAZNET		0.250	0	0	NR	NR	NR	0
RCRIS Sm. Quan. Gen.		0.250	0	0	NR	NR	NR	0
RCRIS Lg. Quan. Gen.		0.250	0	0	NR	NR	NR	0
HMIRS		TP	NR	NR	NR	NR	NR	0
PADS		TP	NR	NR	NR	NR	NR	0
ERNS		TP	NR	NR	NR	NR	NR	0
FINDS		TP	NR	NR	NR	NR	NR	0
TRIS		TP	NR	NR	NR	NR	NR	0
TSCA		TP	NR	NR	NR	NR	NR	0
MLTS		TP	NR	NR	NR	NR	NR	0
NPL Liens		TP	NR	NR	NR	NR	NR	0
CA SLIC		0.500	0	0	0	NR	NR	0
CA Bond Exp. Plan		1.000	0	0	0	0	NR	0
ROD		1.000	0	0	0	0	NR	0
CONSENT		1.000	0	0	0	0	NR	0
CA WDS		TP	NR	NR	NR	NR	NR	0
South Bay Region 2		TP	NR	NR	NR	NR	NR	0
Coal Gas		1.000	0	0	0	0	NR	0

TP = Target Property

NR = Not Requested at this Search Distance

* Sites may be listed in more than one database

MAP FINDINGS

Map ID Direction Distance Elevation	Site	Database(s)	EDR ID Number EPA ID Number

Coal Gas Site Search: No site was found in a search of Real Property Scan's ENVIROHAZ database.

NO SITES FOUND

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)	Facility ID
BAKERSFIELD	1000138262	OTT,JIM & SON TRUCKING	ROUTE 5 BOX 208	93306	RCRIS-SQG, FINDS	
BAKERSFIELD	S101480470	KERN COUNTY LANDFILL	ALFRED HARELL HIGHWAY, MCMINNI	93306	Cal-Sites	15490013
BAKERSFIELD	S102360398	BEAR MOUNTAIN LIMITED SUPPLIMENTAL	APN 436-060-11 SEC 12, T29S, R		SWF/LF	15-AA-0321
BAKERSFIELD	S101613629	VALLEY TREE & CONSTRUCTION	PO BOX 6275	93306	WMUDS	
BAKERSFIELD	S101310701	KARR & SONS RANCH	CORCORAN ROAD N/O HWY 46		WMUDS	
BAKERSFIELD	S100926937	1X JAMISON HILL CO	SO EAST CORNER STATE HWY 58		HAZNET	
BAKERSFIELD	S102360402	METROPOLITAN RECYCLING COMPLEX	SO END MT VERNON DR, ST RT 58		SWF/LF	15-AA-0326
BAKERSFIELD	S100944401	SANTA FE ENERGY CO/EAST KERN	GLENVILLE WOODY HWY		HAZNET	
BAKERSFIELD	S101307239	UNION OIL STATION	LERDO HWY (NO STREET NBR)		Cortese, LUST	15-000072
BAKERSFIELD	S102509346	NEG DEC LOKERN FARMS COMPOSTING FA	LOKERN RD. SOUTH 1/2 OF T29S R		SWF/LF	15-AA-0340
BAKERSFIELD	S102360384	HONDO CHEMICAL,INC	3.5 MILES N. OF HWY 46 OFF COR		SWF/LF	15-AA-0301
BAKERSFIELD	S102360330	CHINA GRADE SANITARY LANDFILL	3 MI NE BAKERSFIELD		SWF/LF	15-AA-0048
BAKERSFIELD	S102360327	BAKERSFIELD SANITARY LANDFILL	1 MI NE MT VERNON / PANORAMA		SWF/LF	15-AA-0044
BAKERSFIELD	S102360376	BAKERSFIELD S.L.F. (BENA)	NO OF SO. PACIFIC / SANTA FE		SWF/LF	15-AA-0273
BAKERSFIELD	S102360496	WILLIAMS.STREET WASTE TIRE PILE	NORTH OF 705 WILLIAMS ST		SWF/LF	15-TI-0121
BAKERSFIELD	S102360513	E. PLANTZ WASTE TIRE PILE	1903 E. PLANTZ		SWF/LF	15-TI-0501
BAKERSFIELD	S102360489	KERN FRONT DISPOSAL SITE	T28S, R27E, SECTION 27		SWF/LF	15-CR-0086
BAKERSFIELD	S102360380	CAL WESTERN FUELS PROCESSING	1 MI S / 1/3 MI E/O HWYS 184		SWF/LF	15-AA-0296
BAKERSFIELD	S100925109	MOBIL, WOODY PRODUCTION FAC.	SECTION 22, T29S, R21E MDB / M		Toxic Pits	
BAKERSFIELD	S102360363	ARCO CLASS II SURFACE IMPOUN & LAN	28 MI SW BAKERSFIELD		SWF/LF	15-AA-0251
BAKERSFIELD	S100936577	HALLIBURTON SERVICES	TANDARD RD N HWY 99 / 7		HAZNET	
BAKERSFIELD	S102564439	PANORAMA BURN DUMP SITE	3500 THRU 3908 PANORAMA DRIVE	93306	Cal-Sites	15880001
BAKERSFIELD	S102685979	EAPW 5-97 PRICE ENVIRONMENTAL SERV	SOUTH UNION AVENUE		SWF/LF	15-AA-0343
EDISON	S102437880	SOUTHERN PACIFIC-EDISON	? EDISON HWY	93306	LUST	5T15000144
KERN COUNTY	S102360471	WEST OILDALE BURN DUMP	BETW HWY 99 / ROBERTS LN		SWF/LF	15-CR-0066
KERN COUNTY	S102360470	DOWNS AVENUE DUMP	DOWNS AVE X RIDGECREST BLVD		SWF/LF	15-CR-0065
KERN COUNTY	S102003527	KISSACK SEPTIC DISPOSAL SITE	HANNING FLAT		SWF/LF, Ca. WDS	15-CR-0048
KERN COUNTY	S102360456	GOLER ROAD ILLEGAL DUMP	1 MI N OF GOLER RD X RANDSBURG		SWF/LF	15-CR-0050
KERN COUNTY	S102360443	WELDON #1 BD	SW/4 NE/4 NE/4 S24 T27S R35E		SWF/LF	15-CR-0036
KERN COUNTY	S102360326	TEXACO-KERN RIVER SLF	1 MI NE/O GETTY OIL OFC-CHINA		SWF/LF	15-AA-0005
KERN COUNTY	S102360455	SVESTCO INC SEPTAGE SITE	NW/4,NE/4,NW/4 SEC34,T 9N,R19N		SWF/LF	15-CR-0049
KERN COUNTY	S102360418	GREENHORN BD	NW/4,SE/4 SEC 20, T25S, R32E		SWF/LF	15-CR-0011
KERN COUNTY	S102360474	CYRUS CANYON DS	S OF KERN VALLEY SLF IN CYRUS		SWF/LF	15-CR-0069
KERN COUNTY	S102360458	WILLIAM BROS/ELK HILLS NORTH	T30S R24E SEC27		SWF/LF	15-CR-0052
KERN COUNTY	S102360459	WILLIAM BROS/ELK HILLS SOUTH	T31S R24E SEC10		SWF/LF	15-CR-0053
KERN COUNTY	S102360464	DELANO BD	T25S, R25E, SECTION 23		SWF/LF	15-CR-0058
KERN COUNTY	S102360453	DEBORD SEPTIC DISPOSAL	T11N, R27W, SECTION 20		SWF/LF	15-CR-0046
KERN COUNTY	S102360454	GARONE SEPTAGE DISPOSAL SITE	T31S, R28E, SECTION 27		SWF/LF	15-CR-0047
KERN COUNTY	S102360488	FNF DISPOSAL AREA	T30S R31E, SECTION 35		SWF/LF	15-CR-0085
KERN COUNTY	S102360403	HONDO RECLAMATION PLAN	1/4 MI S OF JAMES RD., N OF OI		SWF/LF	15-AA-0327
KERN COUNTY	S102360486	SCOFIELD ROAD BURN DUMP	SCOFIELD RD		SWF/LF	15-CR-0083

GEOCHECK VERSION 2.1 ADDENDUM
FEDERAL DATABASE WELL INFORMATION

Well Closest to Target Property (Northern Quadrant)

BASIC WELL DATA

Site ID:	352603118561601	Distance from TP:	>2 Miles
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1978	County:	Kern
Altitude:	490.00 ft.	State:	California
Well Depth:	200.00 ft.	Topographic Setting:	Valley flat
Depth to Water Table:	Not Reported	Prim. Use of Site:	Withdrawal of water
Date Measured:	Not Reported	Prim. Use of Water:	Domestic

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Not Reported

GEOCHECK VERSION 2.1
FEDERAL DATABASE WELL INFORMATION

Well Closest to Target Property (Eastern Quadrant)

BASIC WELL DATA

Site ID:	352426118541901	Distance from TP:	1/4 - 1/2 Mile
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1948	County:	Kern
Altitude:	748.00 ft.	State:	California
Well Depth:	1171.00 ft.	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Withdrawal of water
Date Measured:	Not Reported	Prim. Use of Water:	Industrial

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Not Reported

GEOCHECK VERSION 2.1
FEDERAL DATABASE WELL INFORMATION

Well Closest to Target Property (Southern Quadrant)

BASIC WELL DATA

Site ID:	352307118541701	Distance from TP:	1 - 2 Miles
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	1958	County:	Kern
Altitude:	695.00 ft.	State:	California
Well Depth:	1023.00 ft.	Topographic Setting:	Not Reported
Depth to Water Table:	392.80 ft.	Prim. Use of Site:	Withdrawal of water
Date Measured:	12061958	Prim. Use of Water:	Domestic

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Not Reported

GEOCHECK VERSION 2.1
FEDERAL DATABASE WELL INFORMATION

Well Closest to Target Property (Western Quadrant)

BASIC WELL DATA

Site ID:	352309118563001	Distance from TP:	>2 Miles
Site Type:	Single well, other than collector or Ranney type		
Year Constructed:	Not Reported	County:	Kern
Altitude:	625.00 ft.	State:	California
Well Depth:	840.00 ft.	Topographic Setting:	Not Reported
Depth to Water Table:	Not Reported	Prim. Use of Site:	Withdrawal of water
Date Measured:	Not Reported	Prim. Use of Water:	Public supply

LITHOLOGIC DATA

Not Reported

WATER LEVEL VARIABILITY

Not Reported

GEOCHECK VERSION 2.1
STATE DATABASE WELL INFORMATION

Water Wells:

Well Within >2 Miles of Target Property (Northern Quadrant)

Water System Information:

Prime Station Code:	29S/28E-02G01 M	User ID:	CYA
FRDS Number Number:	1500561001	County:	Kern
District Number:	12	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	352604.0 1185618.0	Precision:	0.5 Mile (30 Seconds)
Source Name:	WELL 01		
System Number:	1500561		
System Name:	ROUND MOUNTAIN MUTUAL WATER		
Owner Type:	Not Reported		
Organization That Operates System:	Not Reported		
Pop Served:	56	Connections:	Not Reported
Area Served:	Not Reported		

Sample Information: * Only Findings Above Detection Level Are Listed

Sample Collected:	03/14/1993	Findings:	7.000 PC/L
Chemical:	GROSS ALPHA		
Sample Collected:	03/14/1993	Findings:	2.000 PC/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	03/14/1993	Findings:	13.500 PIC/L
Chemical:	URANIUM		

Well Within 1 - 2 Miles of Target Property (Eastern Quadrant)

Water System Information:

Prime Station Code:	29S/29E-08R01 M	User ID:	CYA
FRDS Number Number:	1502210001	County:	Kern
District Number:	12	Station Type:	WELL/AMBNT/MUN/INTAKE
Water Type:	Well/Groundwater	Well Status:	Active Untreated
Source Lat/Long:	352458.0 1185242.0	Precision:	0.5 Mile (30 Seconds)
Source Name:	WELL 01		
System Number:	1502210		
System Name:	PANORAMA WELL ASSOCIATION		
Owner Type:	Not Reported		
Organization That Operates System:	P.O. BOX 3159 BAKERSFIELD, CA 93385		
Pop Served:	37	Connections:	Not Reported
Area Served:	Not Reported		

Well Within 1 - 2 Miles of Target Property (Southern Quadrant)

Water System Information:

Prime Station Code:	L15/006-015FLIN	User ID:	CYA
FRDS Number Number:	1510006015	County:	Kern
District Number:	12	Station Type:	STREAM/AMBNT
Water Type:	Surface Water	Well Status:	Distribution System Sample Point Treated
Source Lat/Long:	352306.0 1185552.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	THM SAMP SITE-3209 FLINTRIDGE (E4)-KCWAS		

GEOCHECK VERSION 2.1
STATE DATABASE WELL INFORMATION

System Number: 1510006
System Name: EAST NILES CSD
Owner Type: Not Reported
Organization That Operates System:
P O BOX 6038
BAKERSFIELD, CA 93306
Pop Served: 21500 Connections: BAKERSFIE
Area Served: LD-VIC

Sample Information: * Only Findings Above Detection Level Are Listed

Sample Collected:	06/16/1993	Findings:	2.500 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	06/16/1993	Findings:	73.000 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	06/16/1993	Findings:	75.500 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	09/30/1993	Findings:	2.900 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	09/30/1993	Findings:	28.500 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	09/30/1993	Findings:	31.400 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	12/15/1993	Findings:	28.000 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	12/15/1993	Findings:	6.300 UG/L
Chemical:	BROMOFORM (THM)		
Sample Collected:	12/15/1993	Findings:	32.000 UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	12/15/1993	Findings:	15.600 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	12/15/1993	Findings:	81.900 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	01/06/1994	Findings:	16.500 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	01/06/1994	Findings:	3.300 UG/L
Chemical:	BROMOFORM (THM)		
Sample Collected:	01/06/1994	Findings:	6.700 UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	01/06/1994	Findings:	25.500 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	01/06/1994	Findings:	52.000 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	04/30/1994	Findings:	9.400 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	04/30/1994	Findings:	1.300 UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	04/30/1994	Findings:	53.200 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	04/30/1994	Findings:	64.000 UG/L
Chemical:	TOTAL TRIHALOMETHANES		

Sample Collected:	06/09/1995	Findings:	5.100 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	06/09/1995	Findings:	70.000 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	06/09/1995	Findings:	75.100 UG/L
Chemical:	TOTAL TRIHALOMETHANES		

Well Within 1 - 2 Miles of Target Property (Western Quadrant)

Water System Information:

Prime Station Code:	L15/006-017WING	User ID:	CYA
FRDS Number Number:	1510006017	County:	Kern
District Number:	12	Station Type:	STREAM/AMBNT
Water Type:	Surface Water	Well Status:	Distribution System Sample Point Treated
Source Lat/Long:	352333.0 1185624.0	Precision:	1,000 Feet (10 Seconds)
Source Name:	THM SAMP SITE - 5310 WINGFOOT (E6)-KCWAS		
System Number:	1510006		
System Name:	EAST NILES CSD		
Owner Type:	Not Reported		
Organization That Operates System:			
	P O BOX 6038		
	BAKERSFIELD, CA 93306		
Pop Served:	21500	Connections:	BAKERSFIE
Area Served:	LD-VIC		

Sample Information: * Only Findings Above Detection Level Are Listed

Sample Collected:	06/16/1993	Findings:	2.400 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	06/16/1993	Findings:	1.800 UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	06/16/1993	Findings:	73.400 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	06/16/1993	Findings:	77.600 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	09/30/1993	Findings:	4.200 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	09/30/1993	Findings:	40.200 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	09/30/1993	Findings:	44.400 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	12/15/1993	Findings:	22.900 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	12/15/1993	Findings:	5.100 UG/L
Chemical:	BROMOFORM (THM)		
Sample Collected:	12/15/1993	Findings:	27.900 UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	12/15/1993	Findings:	11.000 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	12/15/1993	Findings:	66.900 UG/L
Chemical:	TOTAL TRIHALOMETHANES		

GEOCHECK VERSION 2.1
STATE DATABASE WELL INFORMATION

Sample Collected:	01/06/1994	Findings:	9.000 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	01/06/1994	Findings:	3.100 UG/L
Chemical:	BROMOFORM (THM)		
Sample Collected:	01/06/1994	Findings:	1.900 UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	01/06/1994	Findings:	24.700 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	01/06/1994	Findings:	38.700 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	04/30/1994	Findings:	9.300 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	04/30/1994	Findings:	1.200 UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	04/30/1994	Findings:	50.500 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	04/30/1994	Findings:	61.100 UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	06/09/1995	Findings:	5.400 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	06/09/1995	Findings:	88.800 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	06/09/1995	Findings:	94.200 UG/L
Chemical:	TOTAL TRIHALOMETHANES		

GEOCHECK VERSION 2.1
PUBLIC WATER SUPPLY SYSTEM INFORMATION

Searched by Nearest PWS.

PWS SUMMARY:

PWS ID:	CA1000003	PWS Status:	Active	Distance from TP:	>2 Miles
Date Initiated:	June / 1977	Date Deactivated:	Not Reported	Dir relative to TP:	West
PWS Name:	BEARCREEK WATER IMPROVEMENT GENE OLDERSHAW BEAR CREEK HUNTINGTON LAKE, CA 93629				
Addressee / Facility:	System Owner/Responsible Party GENE OLDERSHAW 1116 S RADCLIFF AVENUE BAKERSFIELD, CA 93305				
Facility Latitude:	35 23 36		Facility Longitude:	118 59 12	
City Served:	Not Reported				
Treatment Class:	Untreated		Population Served:	Under 101 Persons	

PWS currently has or has had major violation(s): Yes

Violations information not reported.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Elapsed ASTM days: Provides confirmation that this EDR report meets or exceeds the 90-day updating requirement of the ASTM standard.

FEDERAL ASTM RECORDS:

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA/NTIS
Telephone: 703-413-0223
CERCLIS: CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 08/01/97
Date Made Active at EDR: 11/28/97
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 10/01/97
Elapsed ASTM days: 58
Date of Last EDR Contact: 01/05/98

ERNS: Emergency Response Notification System
Source: EPA/NTIS
Telephone: 202-260-2342
ERNS: Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 06/01/97
Date Made Active at EDR: 10/09/97
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 08/29/97
Elapsed ASTM days: 41
Date of Last EDR Contact: 12/01/97

NPL: National Priority List
Source: EPA
Telephone: 703-603-8852
NPL: National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC).

Date of Government Version: 09/25/97
Date Made Active at EDR: 11/28/97
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 09/26/97
Elapsed ASTM days: 63
Date of Last EDR Contact: 01/02/98

RCRIS: Resource Conservation and Recovery Information System
Source: EPA/NTIS
Telephone: 800-424-9346
RCRIS: Resource Conservation and Recovery Information System. RCRIS includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA).

Date of Government Version: 07/01/97
Date Made Active at EDR: 11/28/97
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 09/13/97
Elapsed ASTM days: 76
Date of Last EDR Contact: 11/03/97

CORRACTS: Corrective Action Report
Source: EPA
Telephone: 800-424-9346
CORRACTS: CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 10/01/97
Date Made Active at EDR: 12/05/97
Database Release Frequency: Semi-Annually
Date of Data Arrival at EDR: 11/06/97
Elapsed ASTM days: 29
Date of Last EDR Contact: 01/05/98

FEDERAL NON-ASTM RECORDS:

BRS: Biennial Reporting System
Source: EPA/NTIS
Telephone: 800-424-9346
BRS: The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/95
Database Release Frequency: Biennially
Date of Last EDR Contact: 12/22/97
Date of Next Scheduled EDR Contact: 03/23/98

CONSENT: Superfund (CERCLA) Consent Decrees
Source: EPA Regional Offices
Telephone: Varies
Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: Varies
Database Release Frequency: Varies
Date of Last EDR Contact: Varies
Date of Next Scheduled EDR Contact: N/A

FINDS: Facility Index System
Source: EPA/NTIS
Telephone: 703-908-2493
FINDS: Facility Index System. FINDS contains both facility information and "pointers" to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 04/01/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/23/98
Date of Next Scheduled EDR Contact: 04/06/98

HMIRS: Hazardous Materials Information Reporting System
Source: U.S. Department of Transportation
Telephone: 202-366-4526
HMIRS: Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/96
Database Release Frequency: Annually
Date of Last EDR Contact: 01/27/98
Date of Next Scheduled EDR Contact: 04/27/98

MLTS: Material Licensing Tracking System
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 07/28/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/12/98
Date of Next Scheduled EDR Contact: 04/13/98

NPL LIENS: Federal Superfund Liens
Source: EPA
Telephone: 205-564-4267
NPL LIENS: Federal Superfund Liens. Under the authority granted the USEPA by the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner receives notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/91
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 11/24/97
Date of Next Scheduled EDR Contact: 02/23/98

PADS: PCB Activity Database System
Source: EPA
Telephone: 202-260-3936
PADS: PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 03/27/97
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 11/17/97
Date of Next Scheduled EDR Contact: 02/16/98

RAATS: RCRA Administrative Action Tracking System
Source: EPA
Telephone: 202-564-4104
RAATS: RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/95
Database Release Frequency: No Update Planned
Date of Last EDR Contact: 12/15/97
Date of Next Scheduled EDR Contact: 03/16/98

ROD: Records Of Decision
Source: NTIS
Telephone: 703-416-0223
Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 03/31/95
Database Release Frequency: Annually
Date of Last EDR Contact: 12/12/97
Date of Next Scheduled EDR Contact: 03/02/98

TRIS: Toxic Chemical Release Inventory System
Source: EPA/NTIS
Telephone: 202-260-1531
TRIS: Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/95
Database Release Frequency: Annually
Date of Last EDR Contact: 12/23/97
Date of Next Scheduled EDR Contact: 03/30/98

TSCA: Toxic Substances Control Act
Source: EPA/NTIS
Telephone: 202-260-1444
TSCA: Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site. USEPA has no current plan to update and/or re-issue this database.

Date of Government Version: 01/31/95
Database Release Frequency: Annually
Date of Last EDR Contact: 12/15/97
Date of Next Scheduled EDR Contact: 03/16/98

STATE OF CALIFORNIA ASTM RECORDS:

BEP: Bond Expenditure Plan
Source: Department of Health Services
Telephone: 916-255-2118
BEP: Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/89
Date Made Active at EDR: 08/02/94
Database Release Frequency: No Update Planned
Date of Data Arrival at EDR: 07/27/94
Elapsed ASTM days: 6
Date of Last EDR Contact: 05/31/94

CAL-SITES (AWP): Annual Workplan
Source: California Environmental Protection Agency
Telephone: 916-323-3400
CAL-SITES (AWP): Known Hazardous Waste Sites. California DTSC's Annual Workplan (AWP), formerly BEP, identifies known hazardous substance sites targeted for cleanup.

Date of Government Version: 11/04/97
Date Made Active at EDR: 12/20/97
Database Release Frequency: Annually
Date of Data Arrival at EDR: 11/21/97
Elapsed ASTM days: 29
Date of Last EDR Contact: 11/05/97

CAL-SITES (ASPIS): Calsites
Source: Department of Toxic Substance Control
Telephone: 916-323-3400
CAL-SITES (ASPIS): The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database.

Date of Government Version: 10/03/97
Date Made Active at EDR: 12/05/97
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 11/07/97
Elapsed ASTM days: 28
Date of Last EDR Contact: 12/16/97

CHMIRS: California Hazardous Material Incident Report System
Source: Office of Emergency Services
Telephone: 916-464-3277
CHMIRS: California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 12/31/94
Date Made Active at EDR: 04/24/95
Database Release Frequency: Annually
Date of Data Arrival at EDR: 03/13/95
Elapsed ASTM days: 42
Date of Last EDR Contact: 12/01/97

CORTESE: Cortese
Source: CAL EPA/Office of Emergency Information
Telephone: 916-327-1848
CORTESE: Identified Hazardous Waste and Substance Sites. The database identifies public drinking water wells with detectable levels of contamination, hazardous substance sites selected for remedial action, sites with known toxic material identified through the abandoned site assessment program, sites with USTs having a reportable release and all solid waste disposal facilities from which there is known migration.

Date of Government Version: 12/31/94
Date Made Active at EDR: 04/04/95
Database Release Frequency: Annually
Date of Data Arrival at EDR: 01/23/95
Elapsed ASTM days: 71
Date of Last EDR Contact: 01/29/98

LUST: Leaking Underground Storage Tank Information System
Source: State Water Resources Control Board
Telephone: 916-445-6532
LUST: Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state.

Date of Government Version: 10/01/97
Date Made Active at EDR: 12/23/97
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 11/25/97
Elapsed ASTM days: 28
Date of Last EDR Contact: 11/13/97

NOTIFY 65: Proposition 65
Source: State Water Resources Control Board
Telephone: 916-657-0696
NOTIFY 65: Proposition 65 Notification Records. NOTIFY 65 contains facility notifications about any release which could impact drinking water and thereby expose the public to a potential health risk.

Date of Government Version: 10/21/93
Date Made Active at EDR: 11/19/93
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 11/01/93
Elapsed ASTM days: 18
Date of Last EDR Contact: 10/29/97

SWF/LF (SWIS): Solid Waste Information System
Source: Integrated Waste Management Board
Telephone: 916-255-4035
SWF/LF (SWIS): Active, Closed and Inactive Landfills. SWF/LF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 2004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 09/01/97
Date Made Active at EDR: 10/31/97
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 10/01/97
Elapsed ASTM days: 30
Date of Last EDR Contact: 12/01/97

TOXIC PITS: Toxic Pits
Source: State Water Resources Control Board
Telephone: 916-227-4364
TOXIC PITS: Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/95
Date Made Active at EDR: 09/26/95
Database Release Frequency: No Update Planned
Date of Data Arrival at EDR: 08/30/95
Elapsed ASTM days: 27
Date of Last EDR Contact: 11/12/97

CA UST:

UST: Hazardous Substance Storage Container Database
Source: State Water Resources Control Board
Telephone: 916-227-4408
UST: The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/90
Date Made Active at EDR: 02/12/91
Database Release Frequency: No Update Planned
Date of Data Arrival at EDR: 01/25/91
Elapsed ASTM days: 18
Date of Last EDR Contact: 01/20/98

FID: Facility Inventory Database
Source: California Environmental Protection Agency
Telephone: 916-445-6532
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/94
Date Made Active at EDR: 09/29/95
Database Release Frequency: No Update Planned
Date of Data Arrival at EDR: 09/05/95
Elapsed ASTM days: 24
Date of Last EDR Contact: 12/23/97

WMUDS/SWAT: Waste Management Unit Database
Source: State Water Resources Control Board
Telephone: 916-227-4448
WMUDS/SWAT: Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 09/20/97
Date Made Active at EDR: 11/18/97
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 10/20/97
Elapsed ASTM days: 29
Date of Last EDR Contact: 12/08/97

STATE OF CALIFORNIA NON-ASTM RECORDS:

AST: Aboveground Petroleum Storage Tank Facilities
Source: State Water Resources Control Board
Telephone: 916-227-4382
AST: Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 11/10/97
Date of Next Scheduled EDR Contact: 02/09/98

HAZMAT: Hazmat Facilities
Source: City of San Jose Fire Department
Telephone: 408-277-4659

Date of Government Version: 02/11/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 11/24/97
Date of Next Scheduled EDR Contact: 02/23/98

HAZNET: Hazardous Waste Information System
Source: California Environmental Protection Agency
Telephone: 916-324-1781
HAZNET: Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data from non-California manifests and continuation sheets are not included at the present time. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/95
Database Release Frequency: Annually
Date of Last EDR Contact: 12/11/97
Date of Next Scheduled EDR Contact: 04/20/98

SOUTH BAY: South Bay Site Management System
Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
SOUTH BAY: Groundwater pollution cases in the Santa Clara Valley where the regulatory lead is the San Francisco Bay Regional Water Quality Control Board.

Date of Government Version: 09/01/96
Database Release Frequency: Annually
Date of Last EDR Contact: 12/18/97
Date of Next Scheduled EDR Contact: 03/16/98

WDS: Waste Discharge System
Source: State Water Resources Control Board
Telephone: 916-657-1571
WDS: Sites which have been issued waste discharge requirements.

Date of Government Version: 09/01/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 11/24/97
Date of Next Scheduled EDR Contact: 02/23/98

CALIFORNIA COUNTY RECORDS

ALAMEDA COUNTY:

Underground Tanks
Source: Alameda County Environmental Health Services
Telephone: 510-567-6700

Date of Government Version: 10/01/97
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 09/15/97
Date of Next Scheduled EDR Contact: 02/02/98

Local Oversight Program Listing of UGT Cleanup Sites
Source: Alameda County Environmental Health Services
Telephone: 510-567-6700

Date of Government Version: 10/01/97
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 09/15/97
Date of Next Scheduled EDR Contact: 02/02/98

CONTRA COSTA COUNTY:

SL: Site List
Source: Contra Costa Health Services Department
Telephone: 510-646-2286
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 05/02/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 11/10/97
Date of Next Scheduled EDR Contact: 02/09/98

KERN COUNTY:

UST: Sites & Tanks Listing
Source: Kern County Environment Health Services Department
Telephone: 805-862-8700
Kern County Sites & Tanks Listing.

Date of Government Version: 06/10/94
Database Release Frequency: No Update Planned

Date of Last EDR Contact: 01/13/98
Date of Next Scheduled EDR Contact: 04/13/98

LOS ANGELES COUNTY:

HMS: Street Number List
Source: Department of Public Works
Telephone: 818-458-3517
HMS: Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 09/30/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 01/12/98
Date of Next Scheduled EDR Contact: 04/13/98

SWF/LF: List of Solid Waste Facilities
Source: La County Department of Public Works
Telephone: 818-458-5185

Date of Government Version: 01/31/96
Database Release Frequency: Annually

Date of Last EDR Contact: 11/24/97
Date of Next Scheduled EDR Contact: 02/23/98

SITE MITI: Site Mitigation Complaint Control Log
Source: Community Health Services
Telephone: 213-890-7806
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 08/21/96
Database Release Frequency: Quarterly

Date of Last EDR Contact: 11/24/97
Date of Next Scheduled EDR Contact: 02/23/98

MARIN COUNTY:

UST - Currently Permitted
Source: Public Works Department Waste Management
Telephone: 415-499-6647
Currently permitted USTs in Marin County.

Date of Government Version: 05/12/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 11/10/97
Date of Next Scheduled EDR Contact: 02/09/98

NAPA COUNTY:

LUST: Sites With Reported Contamination
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269

Date of Government Version: 10/27/97
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 12/22/97
Date of Next Scheduled EDR Contact: 03/23/98

UST: Closed and Operating Underground Storage Tank Sites
Source: Napa County Department of Environmental Management
Telephone: 707-253-4269

Date of Government Version: 10/09/96
Database Release Frequency: Annually

Date of Last EDR Contact: 12/08/97
Date of Next Scheduled EDR Contact: 03/23/98

ORANGE COUNTY:

List of Industrial Site Cleanups
Source: Health Care Agency
Telephone: 714-834-3446
Petroleum and non-petroleum spills.

Date of Government Version: 07/17/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 12/15/97
Date of Next Scheduled EDR Contact: 03/16/98

LUST: List of Underground Storage Tank Cleanups
Source: Health Care Agency
Telephone: 714-834-3446
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 09/02/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 12/15/97
Date of Next Scheduled EDR Contact: 03/16/98

UST: List of Underground Storage Tank Facilities
Source: Health Care Agency
Telephone: 714-834-3446
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 08/29/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 12/15/97
Date of Next Scheduled EDR Contact: 03/16/98

PLACER COUNTY:

MS: Master List of Facilities
Source: Placer County Health & Human Services
Telephone: 916-889-7335
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 01/14/97
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 01/02/98
Date of Next Scheduled EDR Contact: 03/30/98

RIVERSIDE COUNTY:

LUST: Listing of Underground Tank Cleanup Sites
Source: Department of Public Health
Telephone: 909-358-5055
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/06/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/26/98
Date of Next Scheduled EDR Contact: 04/27/98

UST: Tank List
Source: Health Services Agency
Telephone: 909-358-5055

Date of Government Version: 10/06/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/26/98
Date of Next Scheduled EDR Contact: 04/27/98

SACRAMENTO COUNTY:

LUST: Toxisite Cleanup Program - Site Specific Report
Source: Sacramento County Environmental Management
Telephone: 916-386-6706

Date of Government Version: 09/17/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/06/98
Date of Next Scheduled EDR Contact: 03/23/98

ML: Regulatory Compliance Master List
Source: Sacramento County Environmental Management
Telephone: 916-386-6706
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 09/12/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 12/15/97
Date of Next Scheduled EDR Contact: 03/16/98

SAN BERNARDINO COUNTY:

DEHS Permit System Print-Out By Location
Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 10/01/97
Database Release Frequency: Monthly
Date of Last EDR Contact: 12/15/97
Date of Next Scheduled EDR Contact: 03/16/98

SAN DIEGO COUNTY:

SWF/LF: Solid Waste Facilities
Source: Department of Health Services
Telephone: 619-338-2209
San Diego County Solid Waste Facilities.

Date of Government Version: 11/08/95
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 12/01/98
Date of Next Scheduled EDR Contact: 03/02/98

HMMD: Hazardous Materials Management Division Database
Source: Hazardous Materials Management Division
Telephone: 619-338-2268
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment "H" permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 11/15/96
Database Release Frequency: Quarterly

Date of Last EDR Contact: 01/14/98
Date of Next Scheduled EDR Contact: 04/13/98

SAN FRANCISCO COUNTY:

LUST: Local Oversite Facilities
Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920

Date of Government Version: 09/01/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 11/17/97
Date of Next Scheduled EDR Contact: 02/16/98

UST: Active Underground Report City and County of San Francisco
Source: Department of Public Health
Telephone: 415-252-3920

Date of Government Version: 09/01/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 11/17/97
Date of Next Scheduled EDR Contact: 02/16/98

SAN MATEO COUNTY:

Business Inventory
Source: San Mateo County Environmental Health Services Division
Telephone: 415-363-1921
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 01/01/97
Database Release Frequency: Annually

Date of Last EDR Contact: 11/17/97
Date of Next Scheduled EDR Contact: 02/16/98

LUST: Fuel Leak List
Source: San Mateo County Environmental Health Services Division
Telephone: 415-363-1921

Date of Government Version: 10/20/97
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 11/17/97
Date of Next Scheduled EDR Contact: 02/16/98

SANTA CLARA COUNTY:

LUST: Fuel Leak Site Activity Report
Source: Santa Clara Valley Water District
Telephone: 408-927-0710

Date of Government Version: 10/01/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 01/05/98
Date of Next Scheduled EDR Contact: 04/06/98

SOLANO COUNTY:

LUST: Leaking Undergroung Storage Tanks
Source: Solano County Department of Environmental Management
Telephone: 707-421-6770

Date of Government Version: 05/20/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 12/15/97
Date of Next Scheduled EDR Contact: 03/16/98

UST: Underground Storage Tanks
Source: Solano County Department of Environmental Management
Telephone: 707-421-6770

Date of Government Version: 03/13/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 12/15/97
Date of Next Scheduled EDR Contact: 03/16/98

SONOMA COUNTY:

LUST Sites
Source: Department of Health Services
Telephone: 707-525-6565

Date of Government Version: 09/22/97
Database Release Frequency: Monthly

Date of Last EDR Contact: 01/02/98
Date of Next Scheduled EDR Contact: 03/23/98

SUTTER COUNTY:

UST: Underground Storage Tanks
Source: Sutter County Department of Agriculture
Telephone: 916-741-7504

Date of Government Version: 09/18/97
Database Release Frequency: Semi-Annually

Date of Last EDR Contact: 01/12/98
Date of Next Scheduled EDR Contact: 04/13/98

VENTURA COUNTY:

BWT: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
BWT: The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/25/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 01/02/98
Date of Next Scheduled EDR Contact: 03/23/98

LUST: Listing of Underground Tank Cleanup Sites
Source: Environmental Health Division
Telephone: 805-654-2813
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 08/28/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 01/02/98
Date of Next Scheduled EDR Contact: 03/23/98

UST: Underground Tank Closed Sites List
Source: Environmental Health Division
Telephone: 805-654-2813
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 09/26/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 01/02/98
Date of Next Scheduled EDR Contact: 03/23/98

SWF/LF: Inventory of Illegal Abandoned and Inactive Sites
Source: Environmental Health Division
Telephone: 805-654-2813
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 06/01/97
Database Release Frequency: Annually

Date of Last EDR Contact: 12/01/97
Date of Next Scheduled EDR Contact: 03/02/98

California Regional Water Quality Control Board (RWQCB) LUST Records

LUST REG 1: Active Toxic Site Investigation
Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-576-2220

Date of Government Version: 03/18/97
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 12/01/97
Date of Next Scheduled EDR Contact: 03/02/98

LUST REG 2: Fuel Leak List
Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457

Date of Government Version: 07/31/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/05/98
Date of Next Scheduled EDR Contact: 04/20/98

LUST REG 3: LUSTIS Database
Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147

Date of Government Version: 08/20/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 11/25/97
Date of Next Scheduled EDR Contact: 02/23/98

LUST REG 4: Underground Storage Tank Leak List
Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-266-7544

Date of Government Version: 10/15/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/05/98
Date of Next Scheduled EDR Contact: 04/06/98

LUST REG 5: Leaking Underground Storage Tank Database
Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-255-3125

Date of Government Version: 10/01/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/12/98
Date of Next Scheduled EDR Contact: 04/13/98

LUST REG 6L: Leaking Underground Storage Tank Case Listing
Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 916-542-5424

Date of Government Version: 06/27/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/14/98
Date of Next Scheduled EDR Contact: 04/13/98

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-346-7491

Date of Government Version: 09/08/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 11/03/97
Date of Next Scheduled EDR Contact: 02/02/98

LUST REG 7: Leaking Underground Storage Tank Case Listing
Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-346-7491

Date of Government Version: 04/03/97
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 12/01/97
Date of Next Scheduled EDR Contact: 03/02/98

LUST REG 8: (LUSTIS) Leaking Underground Storage Tanks
Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4498

Date of Government Version: 09/30/97
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 01/12/98
Date of Next Scheduled EDR Contact: 04/13/98

LUST REG 9: Leaking Underground Storage Tank Report
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 619-467-2952

Date of Government Version: 01/08/97
Database Release Frequency: Quarterly

Date of Last EDR Contact: 12/12/97
Date of Next Scheduled EDR Contact: 03/09/98

California Regional Water Quality Control Board (RWQCB) SLIC Records

SLIC REG 1: Active Toxic Site Investigations
Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220

Date of Government Version: 03/18/97
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 12/01/97
Date of Next Scheduled EDR Contact: 03/02/98

SLIC REG 2: North and South Bay Slic Report
Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Any contaminated site that impacts groundwater or has the potential to impact groundwater.

Date of Government Version: 07/31/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/05/98
Date of Next Scheduled EDR Contact: 04/20/98

SLIC REG 3: Active Slic Cases
Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Any contaminated site that impacts groundwater or has the potential to impact groundwater.

Date of Government Version: 08/20/97
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 11/24/97
Date of Next Scheduled EDR Contact: 02/23/98

SLIC REG 4: SLIC Sites
Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-266-7544
Any contaminated site that impacts groundwater or has the potential to impact groundwater.

Date of Government Version: 10/01/97
Database Release Frequency: Quarterly
Date of Last EDR Contact: 01/09/98
Date of Next Scheduled EDR Contact: 03/02/98

SLIC REG 5: SLIC List
Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-855-3075
Unregulated sites that impact groundwater or have the potential to impact groundwater.

Date of Government Version: 10/01/97
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 11/03/98
Date of Next Scheduled EDR Contact: 02/23/98

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583

Date of Government Version: 09/23/97
Database Release Frequency: N/A
Date of Last EDR Contact: 01/13/98
Date of Next Scheduled EDR Contact: 04/13/98

SLIC REG 8: SLIC List
Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-3298

Date of Government Version: 12/20/96
Database Release Frequency: Semi-Annually
Date of Last EDR Contact: 01/13/98
Date of Next Scheduled EDR Contact: 04/13/98

SLIC REG 9: Nurds/Nugtank
Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 619-467-2980

Date of Government Version: 11/21/96
Database Release Frequency: Annually
Date of Last EDR Contact: 12/10/97
Date of Next Scheduled EDR Contact: 03/09/98

Historical and Other Database(s)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

Former Manufactured Gas (Coal Gas) Sites: The existence and location of Coal Gas sites is provided exclusively to EDR by Real Property Scan, Inc. ©Copyright 1993 Real Property Scan, Inc. For a technical description of the types of hazards which may be found at such sites, contact your EDR customer service representative.

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The information contained in this report has predominantly been obtained from publicly available sources produced by entities other than Real Property Scan. While reasonable steps have been taken to insure the accuracy of this report, Real Property Scan does not guarantee the accuracy of this report. Any liability on the part of Real Property Scan is strictly limited to a refund of the amount paid. No claim is made for the actual existence of toxins at any site. This report does not constitute a legal opinion.

DELISTED NPL: Delisted NPL Sites
Source: EPA
Telephone: 703-603-8769
DELISTED NPL: The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

NFRAP: Comprehensive Environmental Response, Compensation, and Liability Information System
Source: EPA/NTIS
Telephone: 703-413-0223
NFRAP: As of February 1995, CERCLIS sites designated "No Further Remedial Action Planned" (NFRAP) have been removed from CERCLIS. NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly without the need for the site to be placed on the NPL, or the contamination was not serious enough to require Federal Superfund action or NPL consideration. EPA has removed approximately 25,000 NFRAP sites to lift the unintended barriers to the redevelopment of these properties and has archived them as historical records so EPA does not needlessly repeat the investigations in the future. This policy change is part of the EPA's Brownfields Redevelopment Program to help cities, states, private investors and affected citizens to promote economic redevelopment of unproductive urban sites.

Date of Government Version: 06/01/97
Date Made Active at EDR: 08/09/97
Database Release Frequency: Quarterly
Date of Data Arrival at EDR: 07/14/97
Elapsed ASTM days: 26
Date of Last EDR Contact: 01/05/98

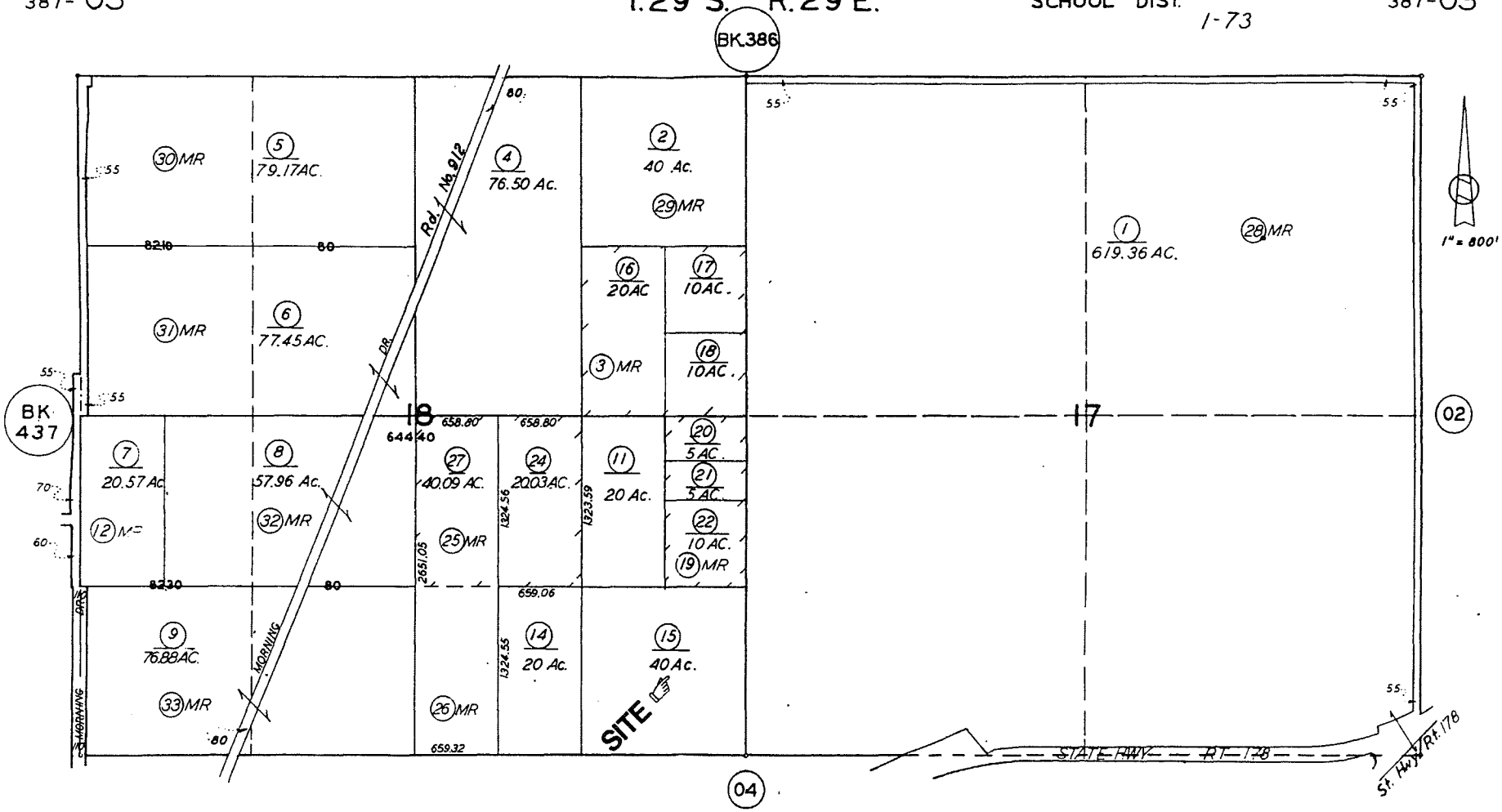
PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-260-2805
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SWDIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

Appendix B

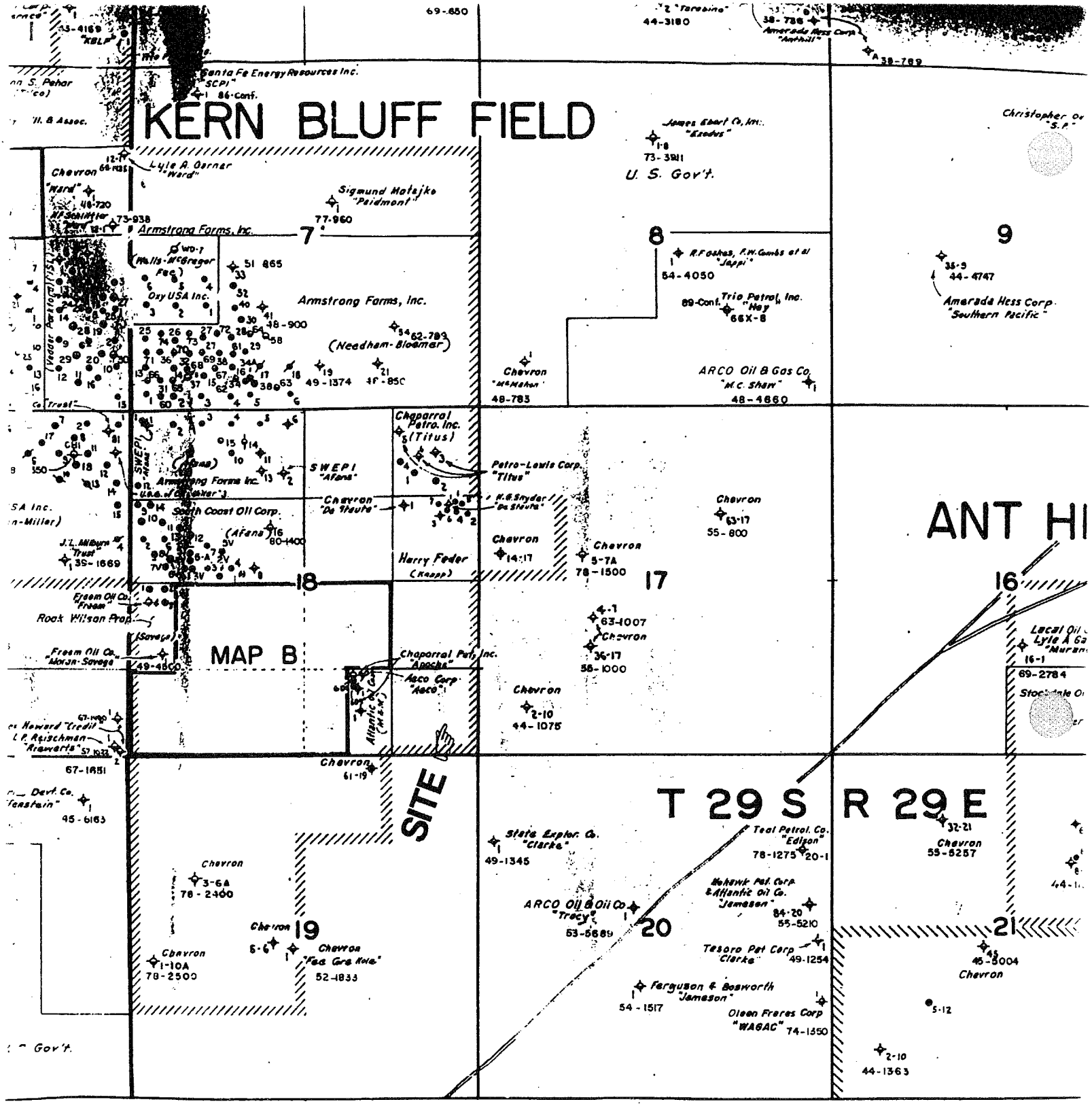
Assessor's Map

387-03 T.29 S. R.29 E. SCHOOL DIST. 1-71 1-73 387-03



Note: This map is for assessment purposes only. It is not to be construed as portraying legal ownership or divisions of land for purposes of zoning or subdivision law.

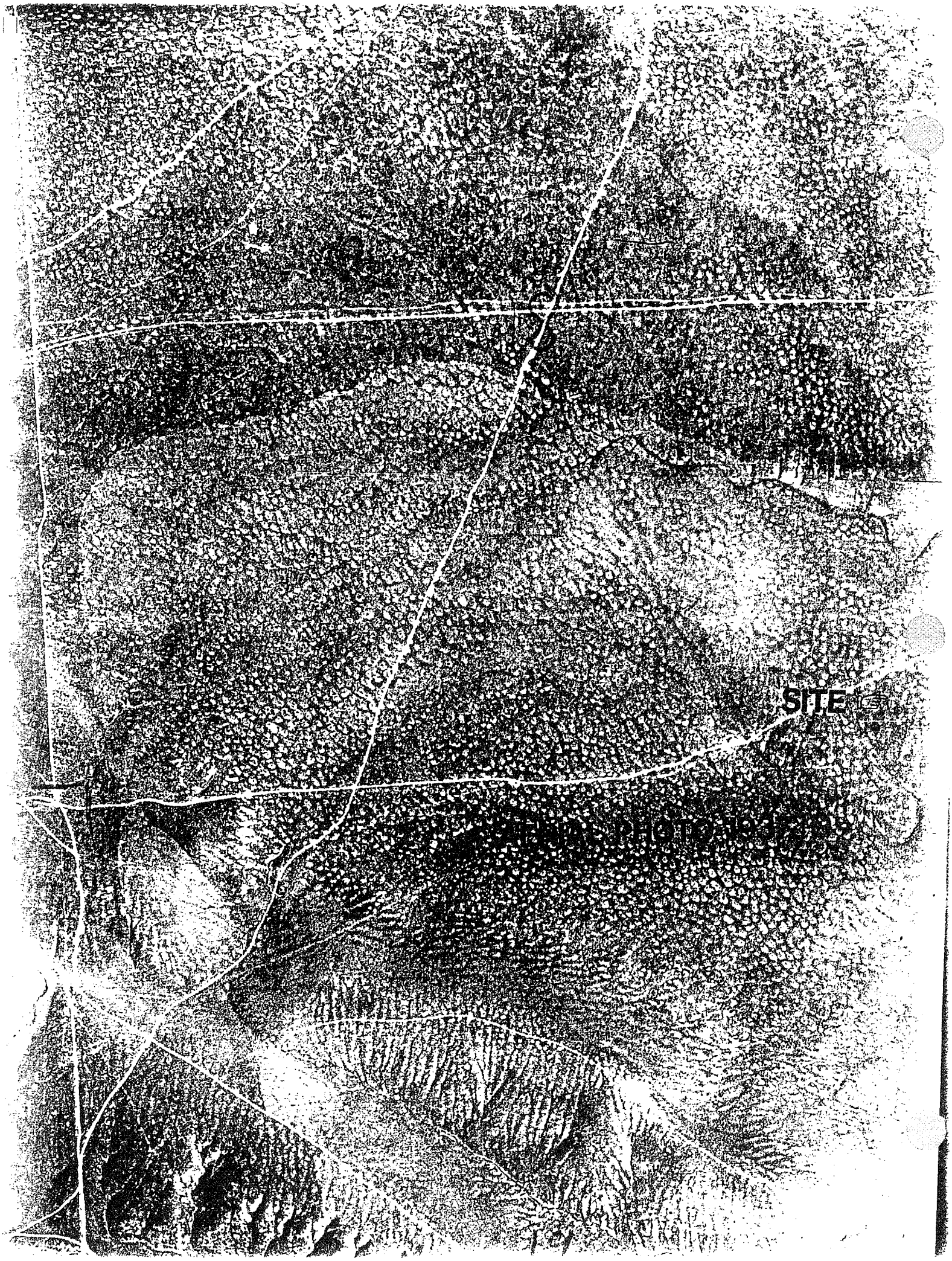
ASSESSORS MAP NO. 387-03
COUNTY OF KERN



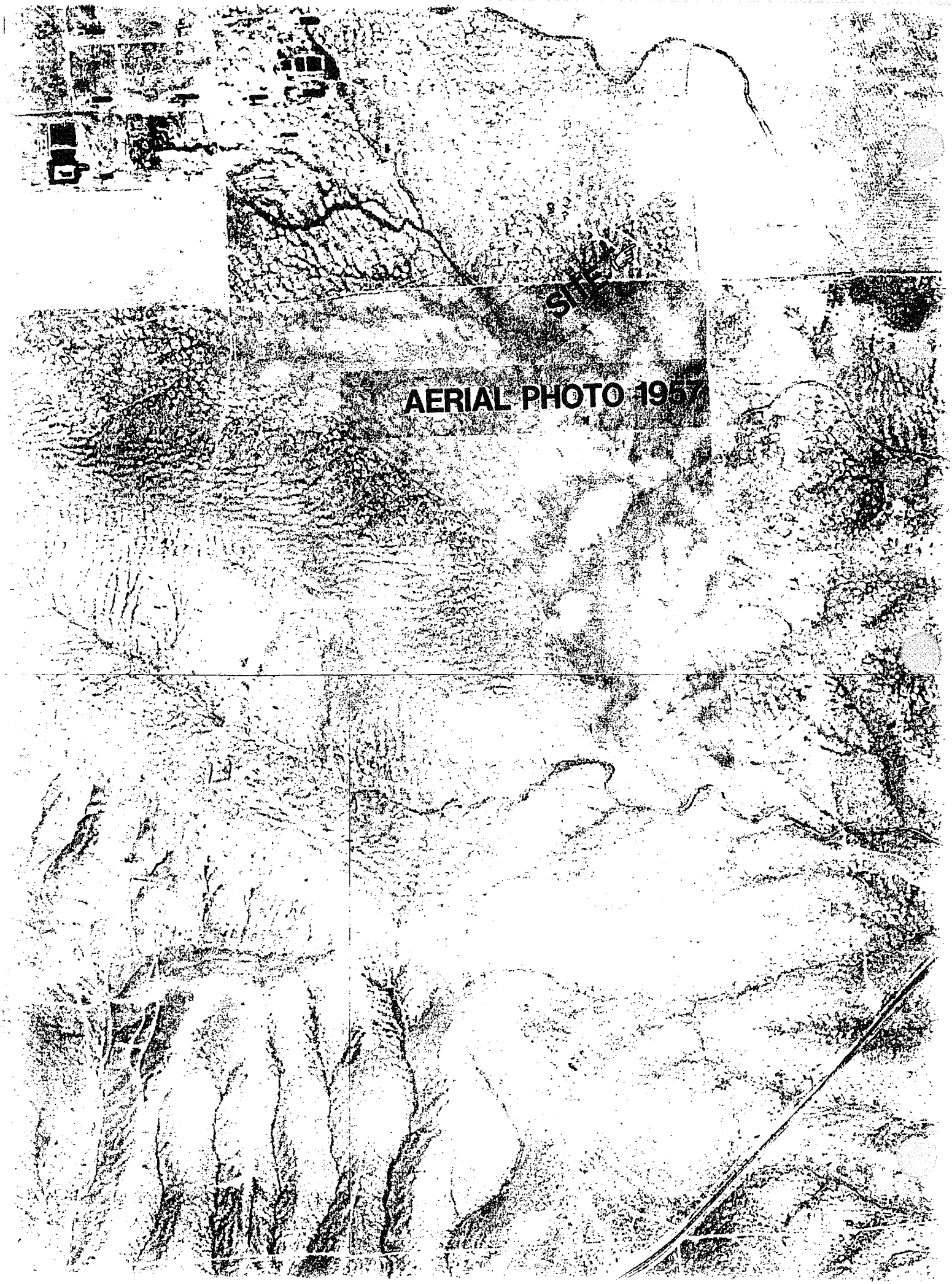
For Adjoining Oilfields see Map No. 434, Mountain View, Edison

Appendix C

Aerial Photo's


SITE

SITE
AERIAL PHOTO 1952
C
A


SITE
AERIAL PHOTO 1957

AERIAL PHOTO 1975

Appendix D

QA/QC Sheets

SE 1/4 of SE 1/4 of Sec. 18, T29S, R29E
Bakersfield, California

File No. 98-8477
February, 1998

QA/QC - FORM C-1
Specific Issues

Y/N	Issue	Y/N	Issue
N	Above Ground Storage Tank(s)	N	Underground Storage Tank(s)
N	Clarifiers	Y	Fill (Earth Berms)
N	Vent Pipes (irrigation lines)	N	Fuel Islands
N	Drums	N	Other Containers (Oil Tanks, Gas Scrubbers, Fertilizer Dispensers)
N	Surface Staining	N	Solid Waste Disposal
N	Sump	N	Pits
N	Ponds	N	Lagoons
N	Stockpiled Soils	N	Distressed Vegetation
N	Oil or Gas Wells	N	Monitoring Wells
N	Domestic Water Well	N	Dry Wells
N	Possible Underground irrigation lines	N	Chemical Process
N	Waste Treatment	N	Hazardous Waste Discharge
N	Septic Systems	N	Waste Water Discharge
N	Dry Cleaners	N	Repair or Servicing Facilities
N	Photo Processing	N	Manufacturing
N	Distribution Warehouse	N	Asbestos Containing Materials
N	High Radon Levels (See Geocheck Verson 2.1	N	Suspect Lead Containing Paint
N	Lead in Water	N	Others (Stand-pipe) See Footnote
N	Is/was heating fuel provided by on-site storage fuel oil?		
N	On-site use, disposal, treatment, storage, or emission, of significant quantities of hazardous materials or wastes.		
N	Evidence of any on-site release of hazardous materials which could impact the subject site?		
N	Evidence of any off-site release of hazardous materials which could impact the subject site?		

SE 1/4 of SE 1/4 of Sec. 18, T29S, R29E
Bakersfield, California

File No. 98-8477
February, 1998

QA/QC - FORM C-2
Historical Research

Source/Year	1997	1990	1985	1981	1975	1957	1952	1937	1920	1912	1905	1890	MORE
Title Search	X												
Aerial Photos		X			X	X	X	X					
Building Department Permits	X	X	X	X	X	X	X						
Building Department Plans													
Planning Department Records													
Fire Insurance Maps	N												
Oil and Gas Maps	X	X	X										
Fire Department Records	X	X	X										
UST Permits and Registrations	X	X	X	X									
Street Directories													
Observation (1998)	X												
Personal knowledge (1998)	X												
Others: Building Department Soil Test Records	X												
Personnel Interviews	X												

SE 1/4 of SE 1/4 of Sec. 18, T29S, R29E
Bakersfield, California

File No. 98-8477
February, 1998

QA/QC FORM C-3
AERIAL PHOTOGRAPH REVIEW

Concern	On-Site	Off-Site
Improvements	Vacant Land	Vacant Land, Oil Field Activities, Sumps
USE - Note evidence of:		
Above Ground Storage Tanks	N	Y
Fuel Islands	N	N
Drums	N	N
Other Containers	N	N
Surface Staining	N	N
Solid Waste Disposal/Land Fill	N	N
Pits, Ponds, Lagoons	N	Y
Stockpiled Soils	N	N
Distressed Vegetation	N	N
Wells	N	Y
Repair or Servicing Facilities	N	N
Industrial/Manufacturing	N	N
Warehouse	N	N
Gas Station	N	N
Others: Agricultural	Pos	Pos

Note: Not found where left blank

SE 1/4 of SE 1/4 of Sec. 18, T29S, R29E
Bakersfield, California

File No. 98-8477
February, 1998

QA/QC - FORM C-4
Exception Items

Areas Not Accessibility to	Available and Environmental. Data	Status of Documents and Agency Reviews	
Areas	**Restrictions**	**List of Documents Requested**	**Status of Availability**
Single Family Residence	Occupied	None	
Sewage Disposal Systems	In-Use Not available for Testing		

No Restrictions

RADIAN
CORPORATION

BAK NE 3

16845 Von Karman Ave.
Suite 100
Irvine, CA 92714
(714)261-8611

290-034-17-06
8 November 1993

Mr. Dan Kauffman
Chevron Real Estate Management Company
225 Bush Street
San Francisco, California 94104

Subject: Section 17 and Section 20 Closure Letter Report

Dear Dan:

This closure letter report documents the reabandonment activities and the excavation of hydrocarbon stained soils and a white chalky substance on Section 17, Township 29 South (T29S), Range 29 East (R29E) in Bakersfield, California completed by Chevron U.S.A. Inc. (Chevron) from 15 August to 15 September 1993. The well abandonment and excavation activities were completed by Chevron and subcontractors to Chevron. No remediation activities were required on the portion of Section 20 because the Phase I Environmental Site Assessment indicated no environmental concerns (oil wells, sumps, tank settings, etc.) on this section of property.

Well Reabandonment

Based on the review of California Division of Oil and Gas (CDOG) records and the Radian Corporation draft Phase IIA Sampling Investigation Report (September 1993), Chevron determined former oil wells 2-10, 4-7, and 14-17 on Section 17 would require reabandonment.

Well 2-10 was originally drilled to a total depth of 1,075 feet below ground surface (BGS) in 1944. The well was determined to be a dry hole and plugged with mud from its total depth to five feet BGS and capped with a cement plug. Reabandonment of well 2-10 began on 16 August 1993 and was completed on 3 September 1993. Muds were encountered from the top of casing to 493 feet BGS. Fill was encountered from 493 to 1,078 feet BGS. The wells was cleaned out, filled with cement, and the casing was cut off five feet BGS. Well 2-10 received CDOG approval on 15 September 1993.

Wells 4-7 and 14-17 were abandoned and received prior CDOG approval; however, casing stubs for these wells were not at least five foot BGS. A total of five feet of casing was cut off of well 4-7 and capped with cement and an identification plate. A total of two feet of casing was cut off of well 14-17 and capped with cement and an identification plate. Wells 4-7 and 14-17 received CDOG approval on 15 September 1993.

Chevron correspondence and documentation is provided in Attachment A and photographs of the well abandonment activities are provided in Attachment B. CDOG

approval forms are not available at this time and will be sent to your office as an addendum to this report when they become available. Chevron indicated that the forms would be available by December 1993.

Soil and White Chalky Substance Excavation

Hydrocarbon stained soil was observed adjacent to well 2-10 during prior excavation activities to locate the well casing. A white chalky substance and minor hydrocarbon stained soil was observed adjacent to well 14-17 during the Phase IIA Sampling Investigation.

On 1 and 2 September 1993, Chevron excavated and transported an estimated 120 cubic yards of hydrocarbon stained soil to Chevron's Road Mix Facility located on Section 15, T28S, R27E in Bakersfield, California. The hydrocarbon stained soil was recycled into road mix for use on Chevron roads.

On 2 through 9 September 1993, Chevron excavated and transported an estimated 160 cubic yards of the white chalky substance, cement, hydrocarbon stained soil, and pipe off site. The hydrocarbon stained soil and white chalky substance was transported to the Road Mix Facility and the cement and pipe was transported to Chevron's MCI junk pile located on Section 5, T29S, R28E in Bakersfield, California.

Chevron correspondence and documentation is provided in Attachment A and photographs of the excavation activities are provided in Attachment B.

If you have any questions, please don't hesitate to call.

Sincerely,

Jeffrey Hensel
Project Director

JH:pr

cc: Cathy Copeland (Chevron-Bakersfield)
Eric Solum (Chevron-Bakersfield)
Steven Merritt (Chevron-Bakersfield)
Eva A. Hett-Zachariou (Radian-Irvine)
File

RADIAN
CORPORATION

ATTACHMENT A

CHEVRON CORRESPONDENCE AND DOCUMENTATION

Chevron

Chevron U.S.A. Inc.
3300 Monte Cristo Road, Bakersfield, CA 93308

October 4, 1993

SEC. 17, T29S/R29E
NON HAZARDOUS WASTE REMOVAL

Jeffrey Hensel
Radian Corporation
16845 Von Karman Ave, Suite 100
Irvine, Ca 92714

Dear Jeff:

Section 17, well #2-10: From 9/1/93 through 9/2/93, an estimated 120 cu yards of oily soil was hauled off to the Chevron's Road Mix Facility located in Bakersfield at Section 15, T28S/R27E. The material will be recycled into road mix for use on Chevron roads.

Section 17, well #14-17: From 9/2/93 through 9/9/93, and estimated 160 cu yards of cement, oily soil, drilling mud and junk pipe was hauled off. The oily soil and drilling mud was taken to Chevron's Road Mix Facility. The cement and junk pipe was taken to Chevron's MC I junk pile located at Section 5, T29S/R28E. The cut off 2' of casing pipe was hauled to junk pile. The well was replated and identified. The D.O.G. approved on 9/15/93.

Section 17, well #4-7: Five feet of casing was cut off, capped with cement, casing plated and identified. The D.O.G. approved on 9/15/93.

If you need more information, feel free to call me at (805) 392-3364.

Sincerely,

CD Copeland
C.D. COPELAND

Chevron

Chevron U.S.A. Inc.
3300 Monte Cristo Road, Bakersfield, CA 93308

Bakersfield, California
September 2, 1993

Division of Oil and Gas
Mr. Dave Clark
4800 Stockdale Hwy, Suite 417
Bakersfield, CA 93309

Removal of Casing Stubs: Sec. 17, T29S/R29E and Sec. 19, T27S/R29E

Per our conversation of August 31, 1993, we intend to remove casing stubs as required to facilitate surface restoration on the following wells:

#14-17	Section 17
#4-7	Section 17
#61-19	Section 19
#3-6A	Section 19
#1-10A	Section 19
#5-6	Section 19

All wells were abandoned and received D.O.G. approval, however they do not meet our needs for having the stub 5' below ground level. With our needs met, they will still meet current D.O.G. abandonment requirements.

Each stub will be capped listing Chevron as the operator and the well number, in accordance with your requirements.

Michael Mollere

M. C. Mollere
Field Support Superintendent
Kern River Profit Center
392-3027

MCM/ksr

ZALCO LABORATORIES, INC.
Analytical & Consulting Services

Chevron U.S.A., Inc.
Kern River Production Department
3300 Monte Cristo Road
Bakersfield, CA 93308

Laboratory No: 37297
Date Received: 9-20-93
Date Reported: 9-24-93
P O #: M6 8029 WKOU
Ven #: 000253383-001

Attention: Cathy Copeland

Sample: Solid

Sample Description: Section 17, Well #14-17
Sampled by Cathy Copeland on 9-17-93

Constituents	mg/kg	MRL	Method
Petroleum Hydrocarbons	< 50	50	Sonicator/418.1

Qualitative Analysis of White Portion:

Sulfide Spot Test	Negative
Carbonate Spot Test	Positive
Sulfate Spot Test	Negative

Note: The white portion of the sample appears to be Calcium Carbonate, $CaCO_3$ solids. The pH of the solids when mixed with DI water is 7.0.

MRL = Minimum Reporting Level

Jim Etherton
Lab Operations Manager

JE/ccw

4309 Armour Avenue Bakersfield, California 93308
(805) 395-0539 FAX (805) 395-3069

ZALCO LABORATORIES, INC.

4309 Armour Avenue • Bakersfield, CA 93308
(805) 395-0539 Office

WORK ORDER

Zalco Lab # 024290 - 37297
P.O. # MG-8029-WKOU
Page 1 of 1 WS
Invoice # Doc # CHU

Company Chevron
Address 3300 Monte Cristo Rd
City Bkfld
State CA Zip 93308
Attention: Cathy Copeland
CC:

Bill To:

Telephone: 393-3364
FAX:
Collector's Name Dane
Date Collected 9-17-93
Time Collected

SPECIAL INSTRUCTIONS
Results by 9-24-93

Sample Description	Analysis Requested	Container * Size	Container * Type	Sample ** Type
Section 17, Well #14-17	Determine what white portion is:	Box		Solid
	-scale			
	-cement			
	-gypsum			
	TPH (on total)			

SAMPLES RECEIVED AT ZALCO:
Relinquished by: Cathy Copeland Received by: Debbie Title: Sp
Receipt Condition: OK Date: 9-20-93 Time: 0910 C.O.C.: Yes
AWR: NO Date: Terms: OA T&M: NO Quote:
Storage: Method of Disposal: Date: Initials:

CONTAINER KEY: * G - Glass P - Plastic M - Metal V - VOA O - Other SAMPLE KEY: ** W - Water S - Soil G - Gas P - Petroleum O - Other

OFFICE - White LAB - Canary STORAGE - Blue CUSTOMER - Goldenrod WIP FILE - Pink

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL AND GAS

History of Oil or Gas Well

Operator Chevron USA, Inc. Field _____ County Kern

Well 2-10 Sec. 17 T 29S R 29E MD B & M

A.P.I. No. 04-029-32109 Name G. Matiuk Title Buisness Unit Manager

Date September 9, 1993

Signature Michael Mollere for G. Matiuk

3300 Monte Cristo Road, Bakersfield, CA 93308 (805) 392-3027

History must be complete in all detail. Use this form to report all operations during drilling and testing of well or during redrilling or altering the casing, plugging or abandonment with the dates thereof. Include such items as hole size, formation test details, amounts of cement used, top and bottom of plugs, perforation details, sidetracked junk, bailing tests and initial production date.

Date	
08/16/93	MIRU KPS #16. N/U BOPE. DRILL OUT F/SURFACE TO 4'. LOST RETURNS FIRST 3'.
08/17/93	CIRC MUD IN HOLE. HAD CMT & COARSE FIBER RETURN. DRILL OUT F/5'-300'. CIRC DOWN TO 430', LOST RETURNS. MIXED 7.5#/BBL LCM PILL W/ SAWDUST. RIH TO 430' & CIRC 60 BBL LCM IN HOLE BEFORE GETTING RETURNS. CIRC DOWN TO 493'. CIRC HOLE W/COMPLETE RETURNS.
08/18/93	RIH W/TBG, TAGGED FILL @ 493'. CLEAN OUT FILL TO ~~580'~~ 1078' WITH FULL RETURNS.
08/19/93	RIH W/TBG TO 1078'. JOE PERRICK WITH D.O.G. WITNESSED CLEAN-OUT DEPTH + WAIVED WITNESSING OF PLUGS. RIH W/O.E. TBG TO 1077', PUMPED 143 CF CLASS 'G' CMT, 8% GEL @ 13.5 PPG. DISPLACED CMT W/3 BBL WATER. TAG CMT @ 713'. RIH W/O.E. TBG TO 712', PUMPED 143 CF CLASS 'G' CMT + 8% GEL. DISPLACED WITH 1 BBL WATER. COMPLETE RETURNS THROUGHOUT JOB.
08/20/93	RIH W/O.E. TBG TO CMT @ 305'. CIRC HOLE CLEAN. LOST CIRC. STARTED GETTING RETURNS @ SURFACE 5' FROM WELL. PUMPED 143 CF CLASS 'G' CMT + 8% GEL, 1% CACL2 @ 13.5 PPG. DISPLACED WITH 1 BBL WATER. HAD RETURNS. RIH W/ TBG TO CMT @ 75', PUMPED 63 CF CLASS 'G' NEAT CMT @ 15.8 PPG. PUMP 25 CF CLASS 'G' NEAT CMT. DISPLACED WITH 1/2 BBL WATER. HAD FULL RETURNS TO SURFACE. N/D BOPE. RDMO.
09/03/93	CUT OFF CASING 5' BELOW G.L.

For additional information, contact M. C. Mollere @ 392-3027

OG-103

Chevron

Chevron U.S.A. Inc.

Proposal for Well Operations PRO-316

Information Release: ☑ Routine ☐ Confidential ☐ Classified	API No. 04-029-32109		AFE NO. WKA3X508
Well Number 2-10	Property SECTION 17		Budget Category: ABANDONMENT
Field KERN BLUFF AREA	Strat. Area A. H. VANCE		Well Classification ABANDONMENT
Division WPC	County KERN	State CA	Operator CUSA / ORG Code
Est. Orig. Days 5	Est. Comel. Rig Days	Total Days 5	Prod. Unique PWKRVR / J.V.? ☐ Yes ☑ No
Type of Approvals Required: ☑ Area ☐ Div. ☑ DOG ☐ COGS ☐ MMS ☐ BLM ☐ State Lands ☐ Other		Est. Depth 0	USA Code LV2 LV3 LV4 LV5 LV6 PWKRR0100 / J.V. Code / CR Comp. ☐ Dev ☑ Expr
Title Clearance			Ref. No.

Proposal/Justification REABANDON WELL #2-10 ON SECTION 17

ACCOUNTING NOTE: THERE IS NO FIELD/LEASE CODE FOR THIS PROPERTY. PLEASE CLOSE TO PWKRVR (KERN RIVER AREA GENERAL). THIS PROPERTY IS NON-PRODUCING (SINCE 1940?) AND IS IN THE PROCESS OF BEING SOLD. THE WORK BEING PREFORMED IS REQUIRED TO PREPARE PROPERTY FOR SALE. ANY QUESTIONS SHOULD BE DIRECTED TO: KAREN HALLMARK CTN 392-3046

Orsted in budget 5/5/93

C-946-2 LINE

Contract Drilling (Day Rate)	1	$ 5000		5000
Contract Drilling (Footage Rate)	2	$		
Supervision	4	$ 2500		2500
Company Drilling Equipment Use	5	$		
Fuel and Utilities	6	$		
Rigging Up and Down	8	$		
Drilling Fluids	9	$		
Well Supplies	10	$		
Transportation	11	$ 2500		2500
Directional Tools, Surveys and Services	12	$		
Drill String, Rentals and Bits	13	$ 1000		1000
Rentals and Services (STIM, CP INSPECTIONS, CATERING, ETC.)	14	$ 2000		2000
Other Subsurface Costs (PERF, SLICKLINE, POLLUTION CNTRL, ETC.)	15	$		
Coring	20	$		
Testing	21	$		
Logging—Wire Line	22	$		
Logging—Mud	23	$		
Casing, Tubing and Rods	30	$		
Subsurface Producing Equipment	31	$		
Cementing and Cement	32	$ 2000		2000
Fishing	40	$		
Drill Site Cost—Land	51	$ 6000		6000
Drill Site Cost—Water	52	$		
Surface Artificial Lift Equipment	53	$		
Surface Producing Costs (Tanks, trees and lines)	54	$		
Total Field Estimate (Gross $)	56	$ 21,000		21,000
G&A (____ % X $ ____)	62	$		
Total Estimated Cost of Project (line 56 + 62)	64	$		
Other Participants' Share (Line 56 x Participants' Working Int)		$		
Chevron Authorized Amount (Line 64 Less Other Participants' Share)		$ 21,000		21,000

MEMO: Total Tangible (Lines 30, 31, 53 & 54)	GROSS $	$		
Total Intangible (Line 64 Less Tangible)	GROSS $	$ 21,000		21,000

AFE SUMMARY	Total (GROSS $)	Partner's ____ % Share	Chevron's 100 % Share	Budget Code	Capital Budget Amt. (NET $)
Original Authorization	$	$	$		
Previous Supplements	$	$	$		
This Supplement—No.:	$	$	$		
Totals	$ 21,000	$	$ 21,000	3XXDA	

Economic Data	Pl.	Production Data		Partner's Approval
First Yr. Oil Price $ ____ / Bbl.		Initial	B.O or MCF/D Req'd for	By:
First Yr. Gas Price $ ____ / MCF		BOPD	___ Yr. P.O.	
P.O. ____ Yrs. R.O.R. ____ %		MCF/D	___ R.O.R.	
O.P.I. @ ___ % ____ Life ____ Yrs.		°API	___ O.P.I. @ ___ %	Title
Net Disc'd Profit $ ____		Decline Rates		Company
Reserves (Bbl. or MCF) ____				Date

Prepared by:	Date	DPC Endorsement	Date	DPC Endorsement	Date	Approved
CL MORRISON		[signature]	7/22/93			[signature]
Monitored by: MCM	7/29/93					Date

Printed in U.S.A. PRO-316-1

RESOURCES AGENCY OF CALIFORNIA
DEPARTMENT OF CONSERVATION
DIVISION OF OIL, GAS &
GEOTHERMAL RESOURCES

No. P493-2999

PERMIT TO CONDUCT WELL OPERATIONS

00
FIELD CODE
00
AREA CODE
--
NEW POOL
--
OLD POOL

Bakersfield, California
August 9, 1993

Gregory Matluk
CHEVRON U.S.A. INC.
P. O. Box 1392
Bakersfield, CA 93302

Your proposal to re-abandon well 2-10, A.P.I. No. 029-32109, Section 17, T. 29S, R. 29E, MD B. & M., field, — area, — pool, Kern County, dated 8/2/93, received 8/2/93 has been examined in conjunction with records filed in this office.

DECISION: THE PROPOSAL IS APPROVED PROVIDED THAT:

1. Hole fluid of a quality and in sufficient quantity to control all subsurface conditions in order to prevent blowouts shall be used.

2. The well shall be equipped with a minimum 6" diverter system on the 13 3/8" casing.

3. All required downhole plugs shall have a minimum compressive strength of 1000 psi and a maximum liquid permeability of 0.1 md as outlined in the Supervisor's Notice to Operators dated January 8, 1990.

4. THIS DIVISION SHALL BE NOTIFIED:
a. TO WITNESS the clean-out depth at 1075'.
b. TO WITNESS the placing of the cement plug from 1075' to sfc.
c. TO INSPECT the completed surface plug, including all annular spaces.

5. No change in the proposed program shall be made without prior approval of this Division.

NOTES:
1. All casings must be removed from at least 5 feet below ground level.
2. THIS DIVISION SHALL BE NOTIFIED TO INSPECT the cleaned up well site before final approval of abandonment will be issued.

Blanket Bond

William F. Guerard, Jr.
Acting State Oil & Gas Supervisor

Engineer Dave Clark
Phone (805) 322-4031

Hal Bopp, Deputy Supervisor

DC/rf

A copy of this permit and the proposal must be posted at the well site prior to commencing operations.
Records for work done under this permit are due within 60 days after the work has been completed or the operations have been suspended.

cc:
OG111

DEPARTMENT OF CONSERVATION

DIVISION OF OIL AND GAS

Notice of Intention to Abandon Well

FOR DIVISION USE ONLY			
CARDS	BOND	FORMS	
		OGD114	OGD121

ISION OF OIL AND GAS

compliance with Section 3229, Division 3, Public Resources Code, notice is hereby given that it is our intention
bandon well #2-10, SECTION 17, API No. 04-029-32109,
17, T. 29S, R. 28E, M.D. B.&M., KERN BLUFF AREA Field, KERN County.
mencing work on the 3RD quarter, 1993.

resent condition of the well is: ABANDONED

tal Depth 1075'. TVD/MD; ED: 0'

Complete casing record, including plugs and perforations
ent Hole)

See attached program.

roduced ABANDONED IN 4/44
(Date) (Oil,B/D) (Gas, Mcf/D) (Water,B/D)

Or

st injected _____
(Date) (Oil,B/D) (Gas, Mcf/D) (Surface pressure)

Additional data for dry hole (Show depths):

5. Oil or gas shows

6. Stratigraphic markers:

7. Formation and age at total depth.

8. Base of fresh water sands _____

==========

this a critical well according to the definition set forth. [ ] Yes [ ] No.

e proposed work is as follows:

Please see attached well program.

*It is understood that if changes in in this plan become necessary, we are to notify you immediately.

ddress 3300 Monte Cristo
(Street)
akersfield Calif. 93308
(City) (State) (Zip)
elephone Number (805) 392-3027
(Area Code) (Number)

Chevron U.S.A.
(Name of Operator)
By G. MATIUK
(Print Name)
FOR G. MATIUK
(Signature) (Date)

MAILED TO D.O.G.
JUN 3 0 1993

PLEASE CONTACT CHERYL MORRISON @ 392-3007
ADDITIONAL INFORMATION IS REQUIRED.

REABANDONMENT PROGRAM

KERN RIVER PROFIT CENTER
FIELD SUPPORT GROUP

WELL NAME:	SECTION 17 #2-10
LOCATION:	S17 - T29S - R29E
API NO:	04-029-32109
CHARGE CODE:	~~TO BE ASSIGNED~~ PWKRKR
ELEVATION:	706' GL; 712' DF
BOPE:	CLASS II RR
TOTAL DEPTH:	1075' TVD/MD
PBTD:	NA
CASING:	13 3/8" @ 26'
PERFS/SLOTS:	NA
BASE OF FRESH WATER:	NA
TUBULARS:	NA
CASING CONDITION:	GOOD
WELL STATUS:	ABANDONED APRIL 20, 1944
LOGS:	IES 4/20/44
ESTIMATED COST:	$20,000

JUSTIFICATION

THE SUBJECT WELL WAS ORIGINALLY DRILLED TO A TD OF 1075' IN 1944. AFTER EXTENSIVE CORING AND LOGGING THE WELL WAS DETERMINED TO BE A DRY HOLE. CONSEQUENTLY IT WAS PLUGGED AND ABANDONED WITH 9.8#/G MUD FROM TD TO 5' WITH A CEMENT PLUG SET AT SURFACE. BECAUSE OF THE PROCEDURE USED TO P&A THIS WELL, IT IS PROPOSED THAT WE REENTER THIS WELL AND CLEAN OUT TO TD OR AS DEEP AS POSSIBLE (MINIMUM OF 350'). THEN, WE CAN P&A THE WELL PROPERLY BY SETTING CEMENT PLUGS TO SURFACE AND WELDING A 1/2" STEEL PLATE 5' BELOW GROUND LEVEL.

PROGRAM

1. CHECK CALIFORNIA D.O.G. PERMIT TO CONDUCT WELL OPERATIONS (OG 111). NOTE CONDITIONS SET FORTH AND DISCUSS ANY DISCREPANCIES BETWEEN PROGRAM AND APPROVAL NOTICE WITH OFFICE PRIOR TO BEGINNING OPERATIONS.

2. MIRU RIG. NU BOPS AND TEST PER CUSA SPECS. MI MP LINED BIN. HAVE 10 ~~X~~ SX OF BENTONITE ON LOCATION TO USE TO CLEAN THE HOLE WHILE DRILLING IF NECESSARY.

3. PU 4 3/4" BIT, 4-3 1/8" DCS AND 2 7/8" WORKSTRING AND DRILL OUT THE CEMENT PLUG. CLEAN OUT THE WELL TO 1075' (MINIMUM OF 350'). IF UNABLE TO REACH PBTD, ADVISE THE D.O.G. OF CURRENT CONDITIONS AND

REQUEST APPROVAL TO ABANDON THE WELL FROM THE DEEPEST PRACTICAL DEPTH. DOCUMENT D.O.G. AMENDMENTS TO WELL PROGRAM ON REPORT.

4. EQUALIZE A CEMENT PLUG OF CL G + 8% GEL IN STAGES FROM CLEANOUT DEPTH TO A MINIMUM OF 100' (FINAL TOC). EQUALIZE A CEMENT PLUG OF CL G NEAT FROM 100' TO 5' BELOW SURFACE.

5. RDMO. ISSUE PRO 639 (ATTENTION FACILITIES REPRESENTATIVE) TO CUT OFF CASING STRINGS 5' BELOW GROUND LEVEL FOR D.O.G. TO INSPECT. FACILITIES WILL HANDLE SURFACE ABANDONMENT.

C.L. MORRISON

MCM
7/28/93

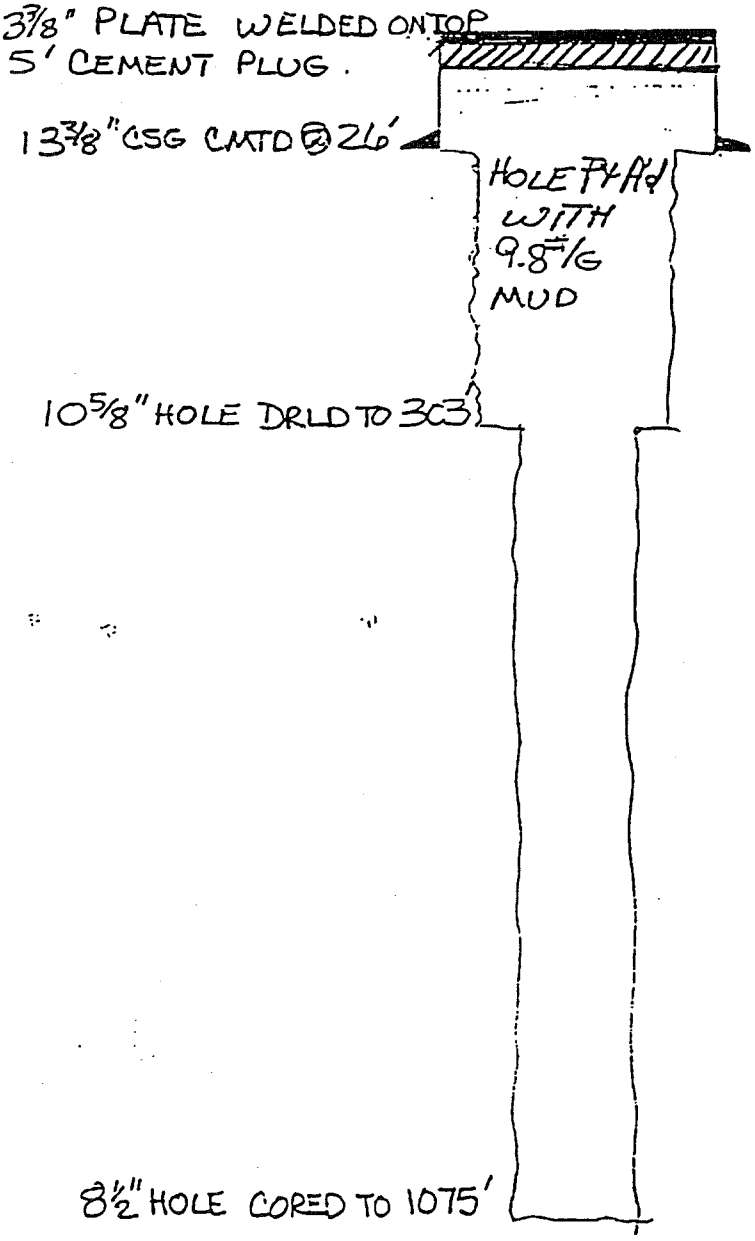
KERN BLUFF AREA

SECTION 17 #2-10

S17-T29S-R29E

GL ELEV: 705.76'

DF ELEV: 711.76'



SPUD 4/12/44

P&A'd 4/20/44

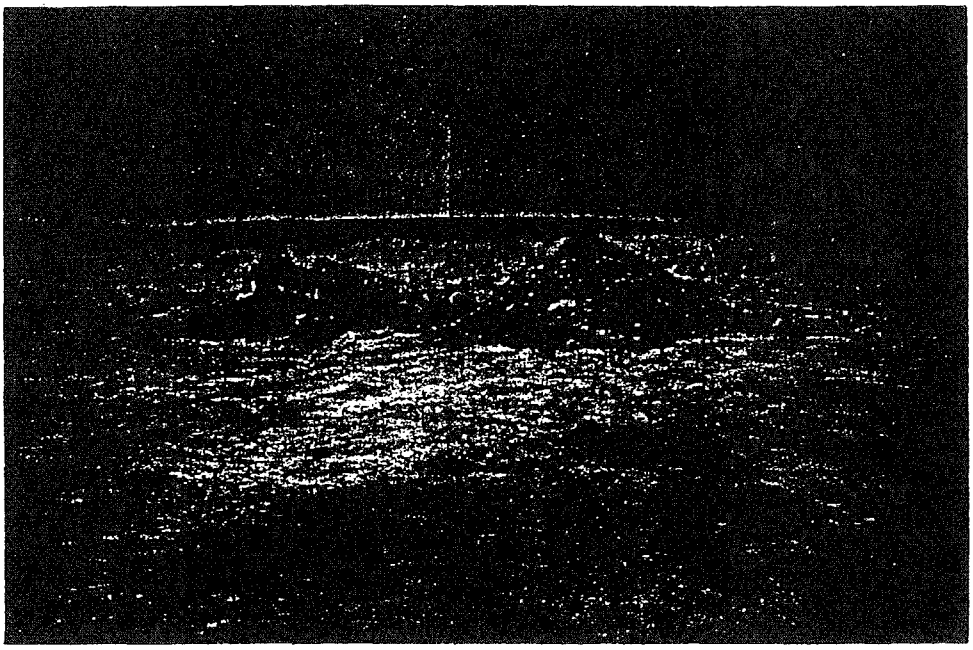
CLM 7/27/93

RADIAN
CORPORATION

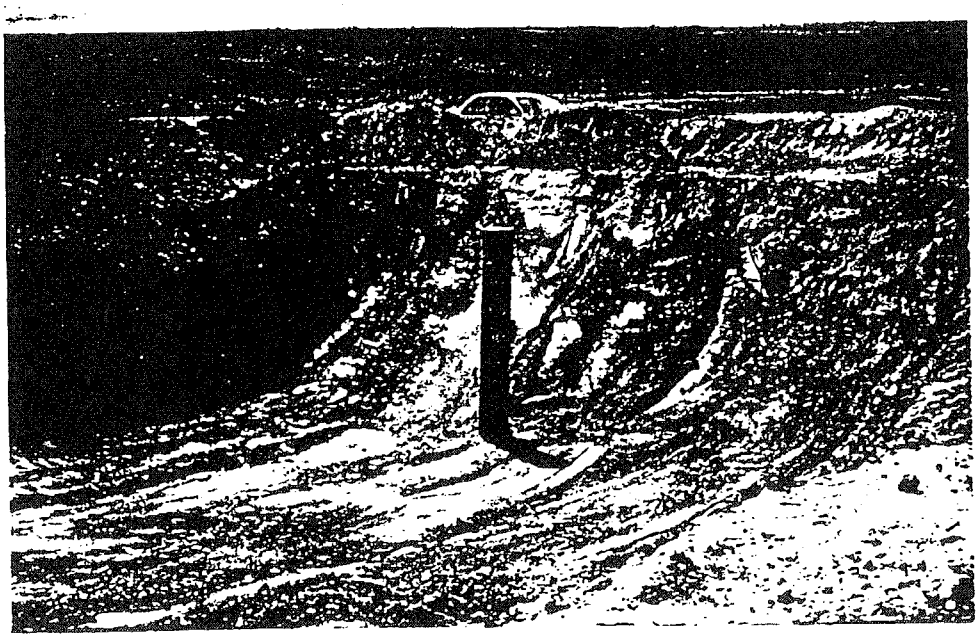
ATTACHMENT B

PHOTOGRAPHS

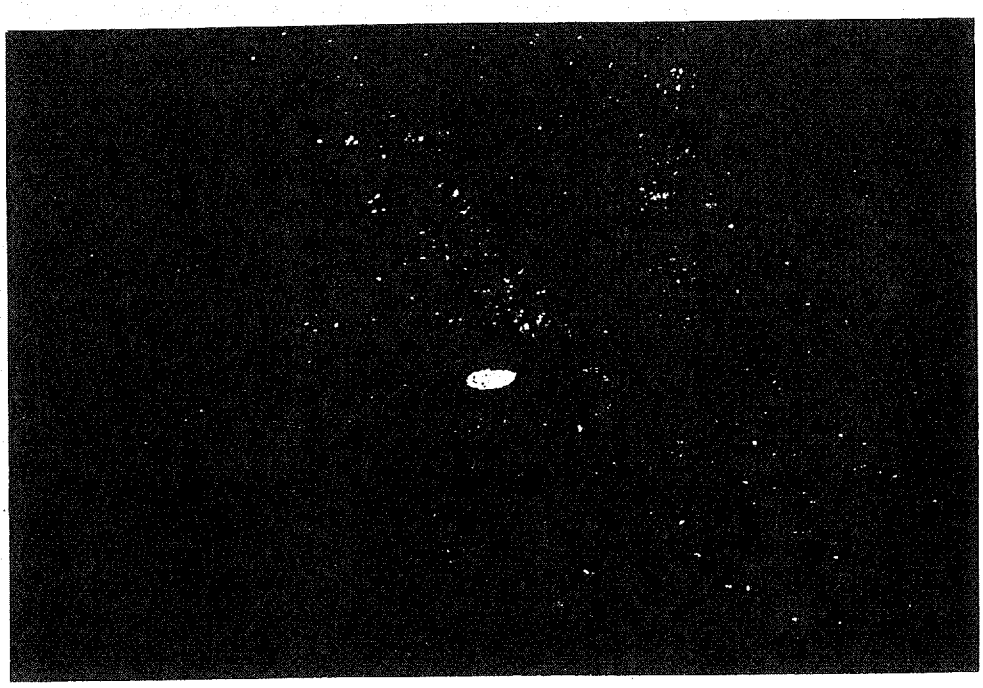
RADIAN
CORPORATION



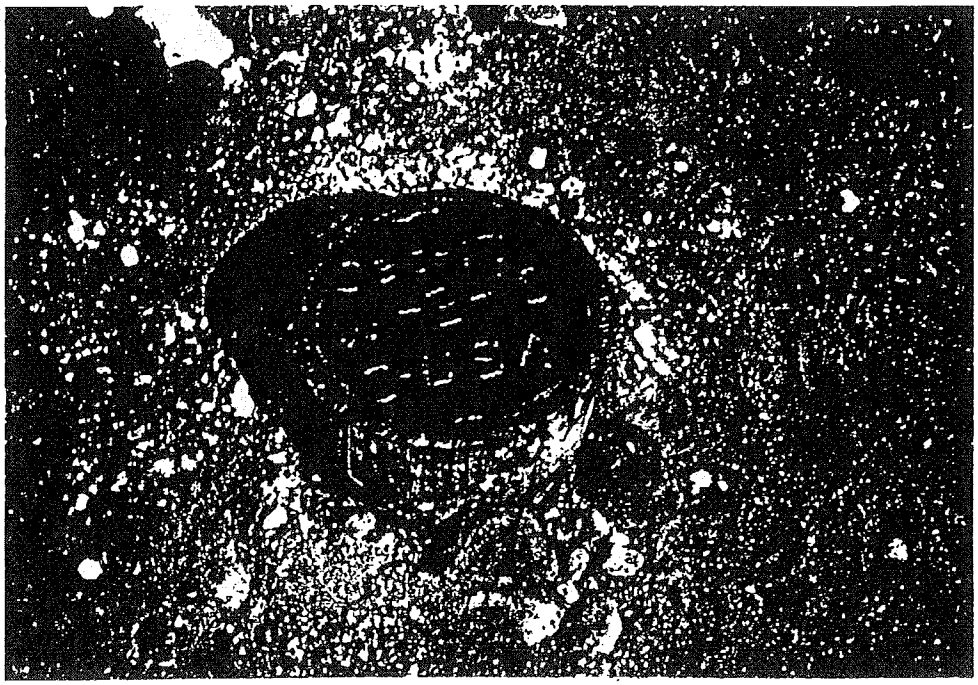
Casing and cement from abandonment activities at Well #2-10 location.



Well #2-10 after reabandonment.

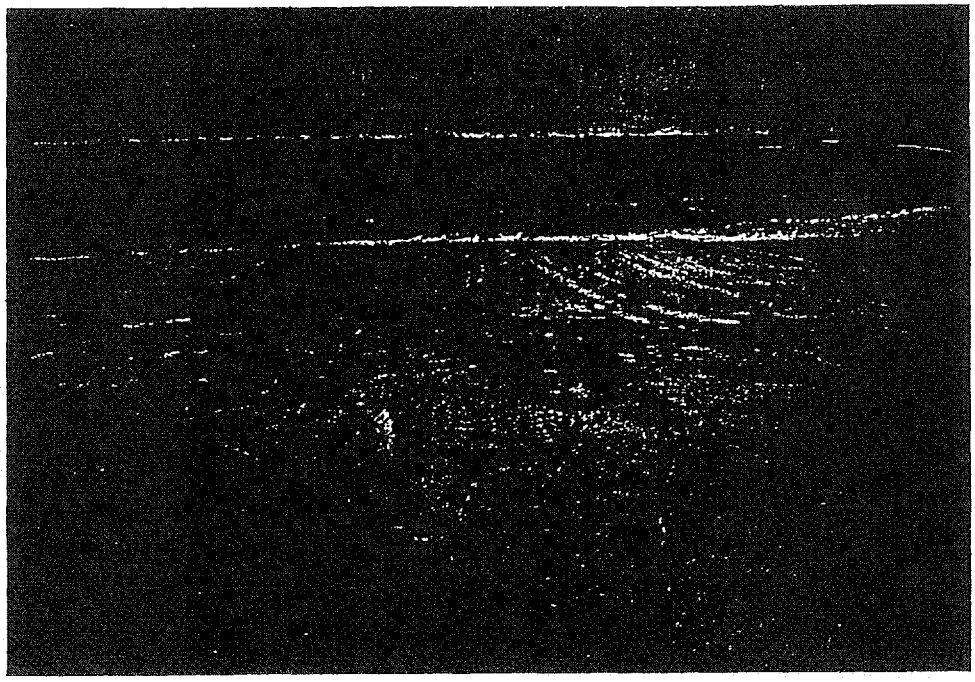


Well #2-10 casing cut approximately six feet BGS.

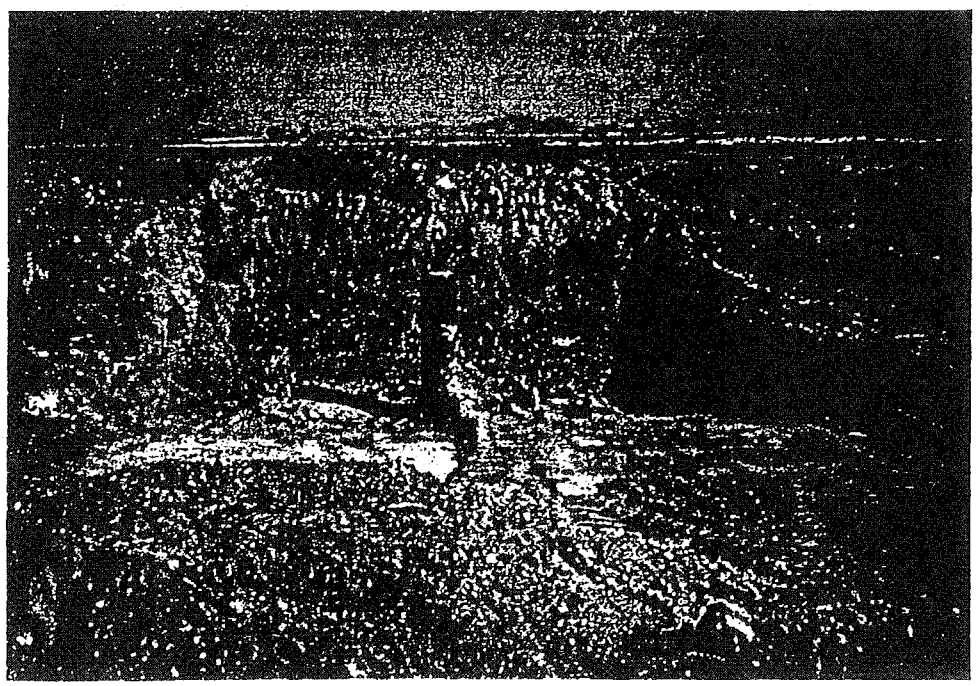


New identification plate for Well #2-10.

RADIAN CORPORATION

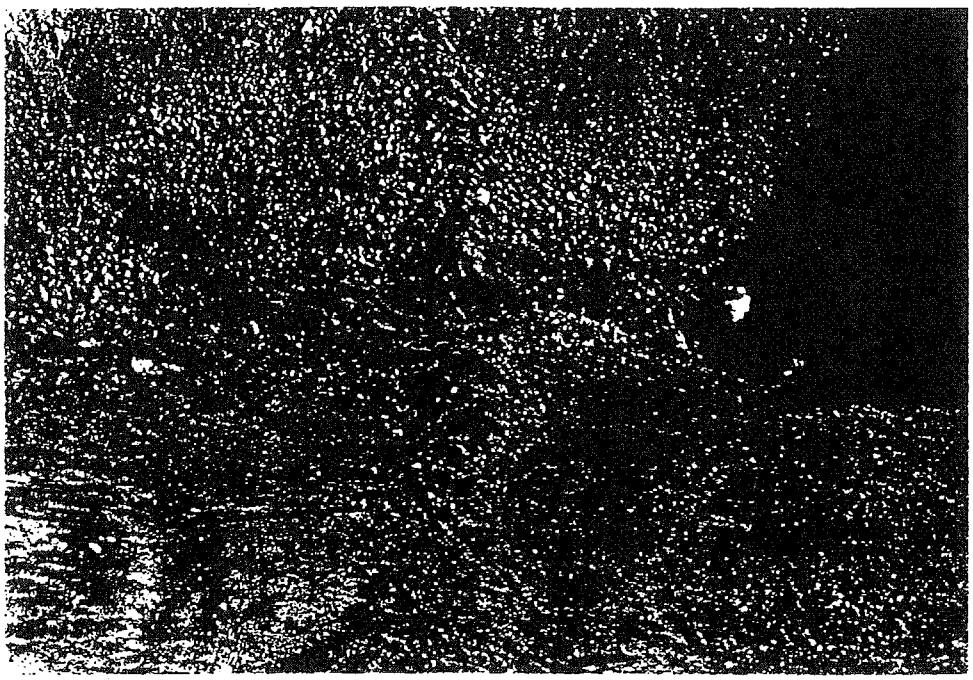


Final surface conditions at Well #2-10 location. Clean backfill was obtained from Chevron's Section 15 borrow pit.

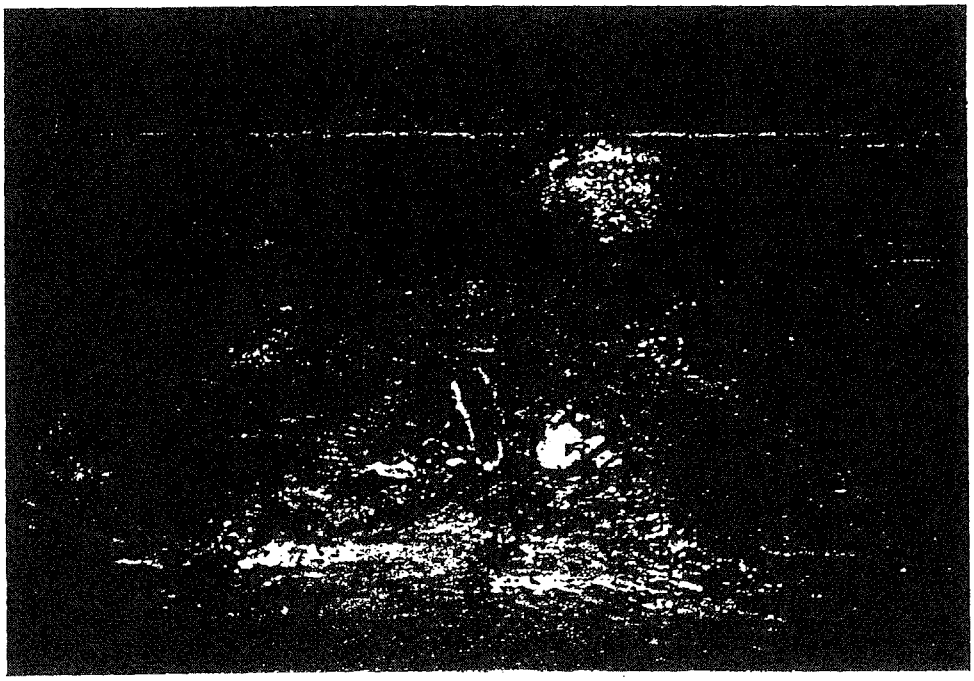


Well #4-7 casing prior to cutting of casing.

RADIAN CORPORATION

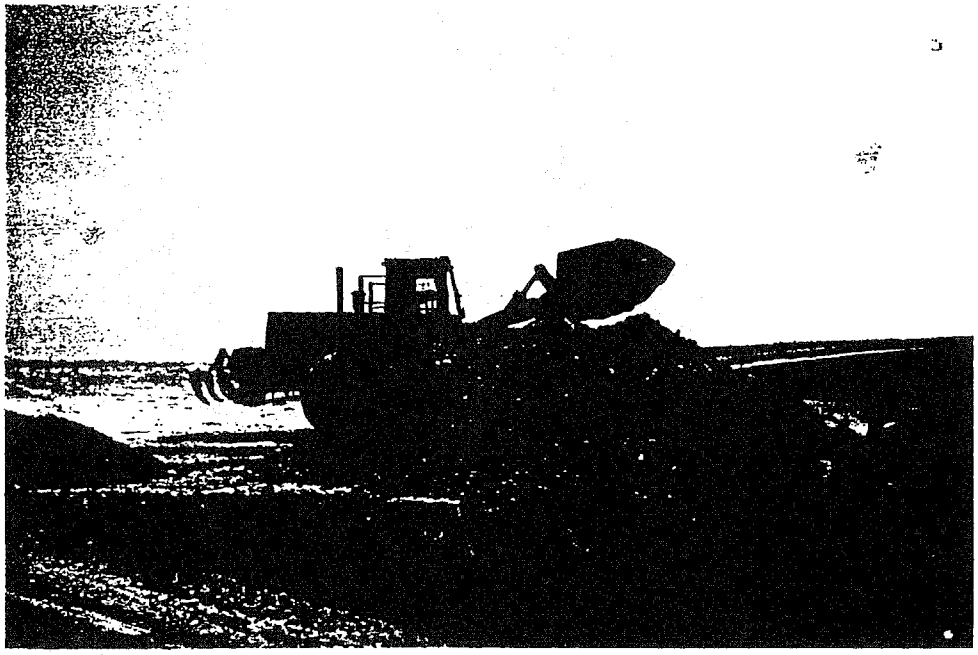


Well #4-7 casing cut approximately five feet BGS.

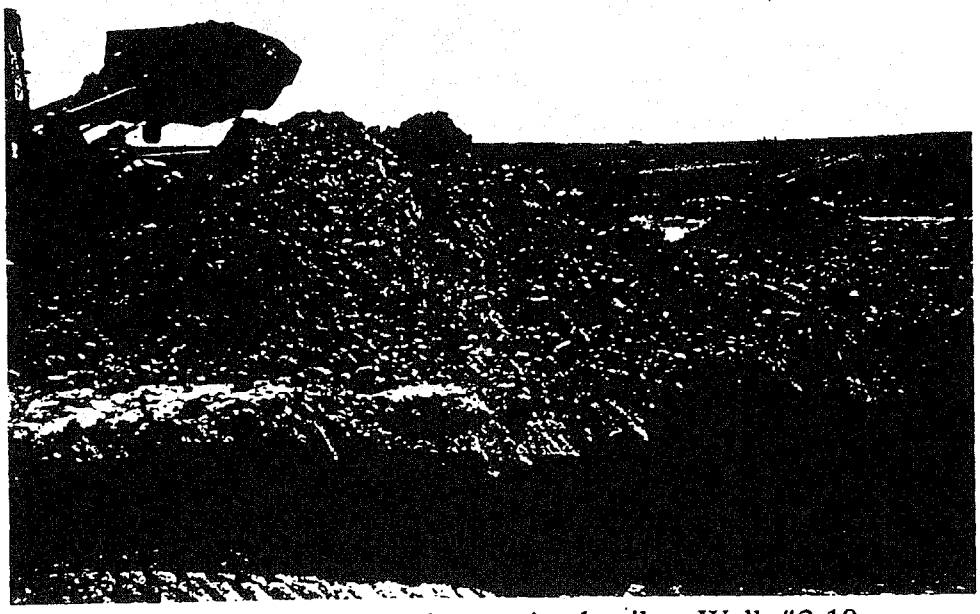


Well #14-17 casing prior to cutting of casing.

RADIAN
CORPORATION

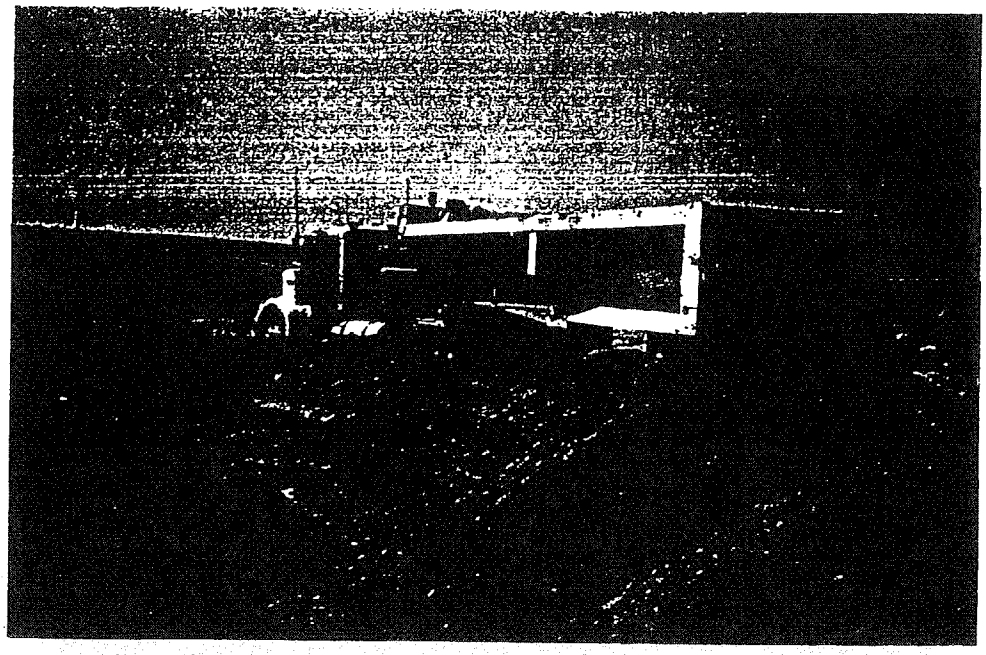


Excavation of hydrocarbon stained soil at Well #2-10.

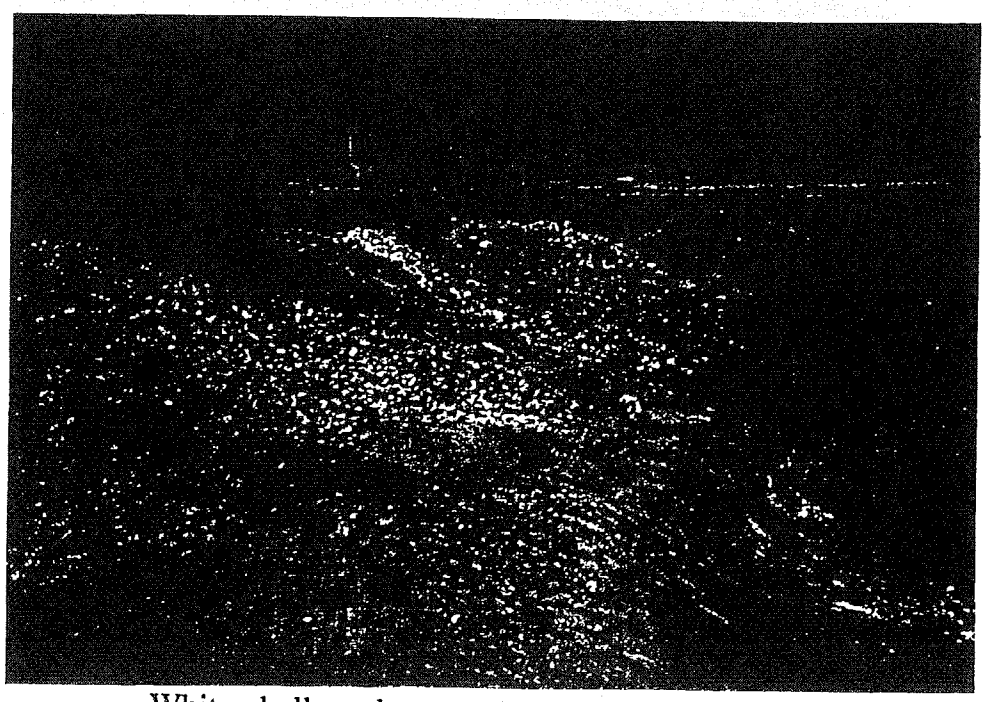


Excavation of hydrocarbon stained soil at Well #2-10.

RADIAN
CORPORATION



Loading of hydrocarbon stained soil at Well #2-10.



White chalky substance (arrows) at Well #14-17

RADIAN
CORPORATION

Excavation of hydrocarbon stained soil at Well #14-17.

SITE ASSESSMENT REPORT
CUSTOM

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: Not Provided N/A BAKERSFIELD WATER SERVICE AREA SEE MAP BAKERSFIELD, CA 93306 Latitude/Longitude: (35.420283, 118.906161)	JASON BRANDMAN MICHAEL BRANDMAN ASSOC-TUSTI 15901 REDHILL AVENUE TUSTIN, CA 92780

Site Distribution Summary

Agency / Database - Type of Records			within 2 miles
A) Databases searched to 2 miles:			
US EPA	NPL	National Priority List	0
US EPA	CORRACTS	RCRA Corrective Actions	0
US EPA	RCRA-TSD	RCRA permitted treatment, storage, disposal facilities	0
STATE	SPL	State equivalent priority list	0
STATE	SCL	State equivalent CERCLIS list	1
US EPA	CERCLIS/ NFRAP	Sites under review by US EPA	0
STATE/ REG/CO	LUST	Leaking Underground Storage Tanks	2
STATE/ REG/CO	SWLF	Solid waste landfills, incinerators, or transfer stations	0
STATE	NON ASTM	Additional federal, state and regional lists	3
US EPA	TRIS	Toxic Release Inventory database	0
STATE/ CO	UST	Registered underground storage tanks	1
STATE	AST	Registered aboveground storage tanks	0
US EPA	GNRTR	RCRA registered small or large generators of hazardous waste	0
US EPA	RCRA Viol	RCRA violations/enforcement actions	0
US EPA/ STATE	SPILLS	ERNS and state spills lists	0

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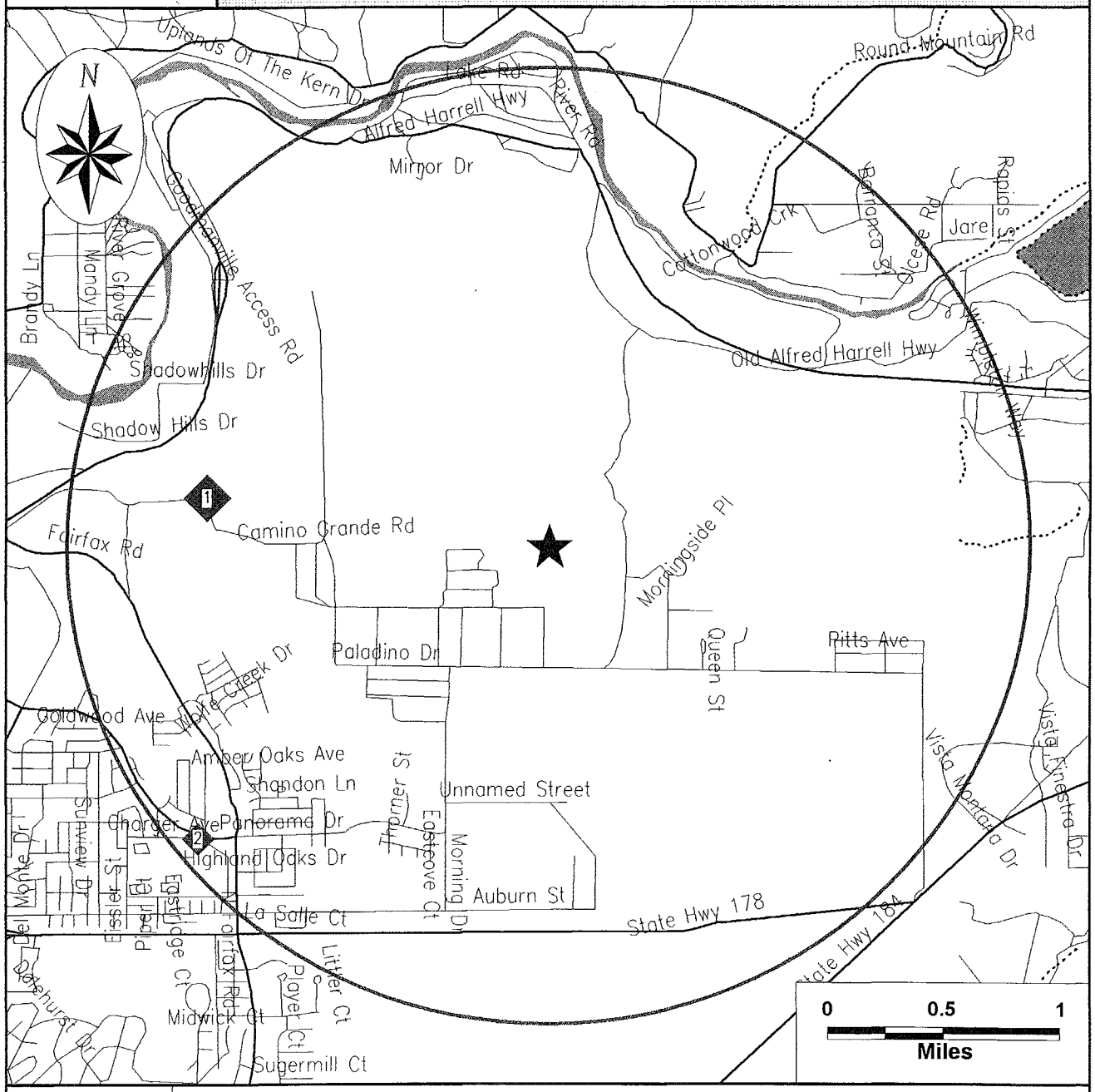
SITE ASSESSMENT REPORT
CUSTOM

Map of Sites within 2 miles



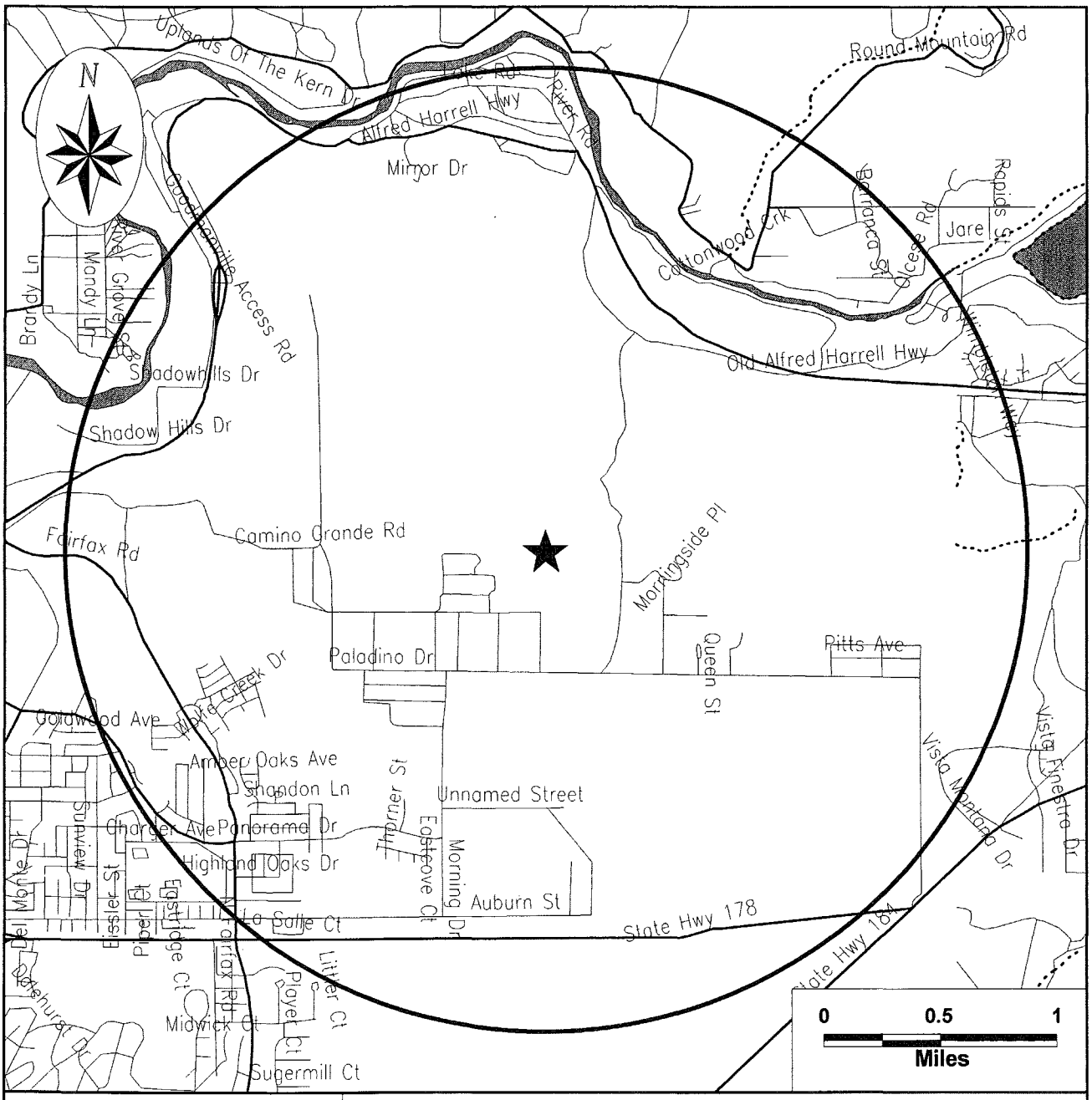
Subject Site ★	Category:	A
	Single Sites	◆
	Multiple Sites	◆

Highways and Major Roads
Roads
Railroads
Rivers or Water Bodies
Utilities

Categories correspond to database searches described in the Site Distribution Summary, beginning on Page #1.

SITE ASSESSMENT REPORT
CUSTOM

Street Map



Subject Site

Highways and Major Roads
Roads
Railroads
Rivers or Water Bodies
Utilities

SITE ASSESSMENT REPORT
CUSTOM

SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 2 miles)	VISTA ID DISTANCE DIRECTION	A														
			NPL	CORRACTS	TSD	SPL	SCL	CERCLIS/NFRAP	LUST	SWLF	NON ASTM	TRIS	UST	AST	GNRTR	VIOL	SPILLS
1	OILDALE READY MIX ROCK PLT ALFRED HARRELL HWY BAKERSFIELD, CA 93308	3775416 1.42 MI W									X						
1	KERN CO LDFL ALFRED HARRELL HWY MCMINNIS EX BAKERSFIELD, CA 93308	3775415 1.42 MI W									X						
1	KERN COUNTY LANDFILL ALFRED HARELL HIGHWAY, MCMINNIS EXIT BAKERSFIELD, CA 93306	1158188 1.42 MI W					X										
1	WEBSTER SAND INC ALFRED HARRELL CHINA GRADE BAKERSFIELD, CA 93308	462860 1.42 MI W									X						
1	HART PARK ALFRED HARRELL BAKERSFIELD, CA 93301	3191729 1.42 MI W											X				
1	LAKE MING MARINA ? ALFRED HARRELL BAKERSFIELD, CA 93306	931113 1.42 MI W							X								
2	HIGHLAND HIGH SCHOOL 2900 ROYAL SCOTS WAY BAKERSFIELD, CA 93306	1222405 1.90 MI SW							X								

UNMAPPED SITES	VISTA ID	A														
		NPL	CORRACTS	TSD	SPL	SCL	CERCLIS/NFRAP	LUST	SWLF	NON ASTM	TRIS	UST	AST	GNRTR	VIOL	SPILLS
KERN FRONT SEC 35 PARTNERS KERN FRONT FIELD BAKERSFIELD, CA 93308	5713461									X						
KERN FRONT PRODUCTION FACILITY OILFIELDS BAKERSFIELD, CA 93308	3200392											X				
MIDWAY COGENERATION/ARCO S27 T31S R22E BAKERSFIELD, CA 93308	2242327									X						
VALLEY TREE AND CONSTRUCTION 7TH STANDARD AND QUINN RDS BAKERSFIELD, CA 93308	450626								X	X						
SAMMONS TRUCK STOP 7TH STANDARD RED HWY BAKERSFIELD, CA 93308	1254510											X				
WAIT STATION ? NORRIS RD EXT BAKERSFIELD, CA 93308	2746311							X								
TEXACO KERN FRONT SERVICE YARD 5605 CHESTER EXIT N BAKERSFIELD, CA 93308	2746333							X								
KCSO SHERIFF'S FACILITY ? INDUSTR. FARM LERDO HWY BAKERSFIELD, CA 93308	2746361							X								
JAMES ROAD PLT JAMES RD OILFIELD RD BAKERSFIELD, CA 93308	214724									X						
PACIFIC BELL SEC. 9 MC KITTRICK BAKERSFIELD, CA 93308	315594									X				X		
KERN RIVER LEASE WOODY/GLENVILLE BAKERSFIELD, CA 93308	1228989											X				
S S PUMP TOOL END OF EAGLE LN BAKERSFIELD, CA 93308	395599									X				X		
UNOCAL SVC STA #7225 7900 WEEDPATCH HWY RT 5 BAKERSFIELD, CA 93306	440629									X						
PUREGRO CO UNIT 147 9355 COPUS RD I 5 BAKERSFIELD, CA 93308	342394									X				X		
CHEVRON MOTOR TRANSPORT ? BAKERSFIELD TERMINAL BAKERSFIELD, CA 93308	1604407							X								

An 'X' meets search criteria; a dot exceeds search criteria.

UNMAPPED SITES	VISTA ID	A														
		NPL	CORRACTS	TSD	SPL	SCL	CERCLIS/NFRAP	LUST	SWLF	NON ASTM	TRIS	UST	AST	GNRTR	VIOL	SPILLS
ARCO OIL OJAI PLT 18 SEC12 T4N R22W BAKERSFIELD, CA 93302	1600538									X				X		
W.B. CAMP SON - RANCH 12 HIGHWAY 99 BAKERSFIELD, CA 93308	1254338											X				
OPERATIONS MAINTENANCE CONTR COR OF MERCED AVE BAKERSFIELD, CA 93308	1225160											X				
KERN COUNTY AGRICULTURAL COMMISSIONER MINTER FIELD WAREHOUSE BAKERSFIELD, CA 93308	227220									X				X		
KERN FRONT OIL FIELD E OF HWY 65 N OF BAKERSFIELD BAKERSFIELD, CA 93308	227243					X				X						
RANCH 43, DR. R. BUTLER LERDO HWYU BAKERSFIELD, CA 93308	1254334											X				
STAR ROBINSON LEASE T28S, R27ESEC 22 BAKERSFIELD, CA 93308	931186							X								
TEXACO KERN FRONT SERVICE YARD T28S, R27ESEC 25 BAKERSFIELD, CA 93308	931187							X								
KERN RIVER GARAGE YARD T29S, R28ESEC 5 BAKERSFIELD, CA 93308	931188							X								
SHAFTER AIRPORT WATERPLANT ON F BAKERSFIELD, CA 93308	1233127											X				
RANCH 45 W.C. NOVEL LERDO BAKERSFIELD, CA 93308	1254333											X				
GRANITE CONSTRUCTION HWY 166 BAKERSFIELD, CA 93308	177959									X						
JUNIPER PETROLEUM CO JASMIN OI 20 MI N OF BAKERSFIELD, CA 93308	222897									X						
STEELE PETROLEUM MT POSO FLD SEC29 T26S R28E 12 MI NE OF BAKERSFIELD, CA 93308	398846									X						
GFS CO. SHOP MERCED BAKERSFIELD, CA 93308	1254336											X				

UNMAPPED SITES	VISTA ID	A														
		NPL	CORRACTS	TSD	SPL	SCL	CERCLIS/NFRAP	LUST	SWLF	NON ASTM	TRIS	UST	AST	GNRTR	VIOL	SPILLS
PACIFIC BELL 3 MI E/O OILDALE-GLENVILLE HW BAKERSFIELD, CA 93308	315718									X				X		
ROSEDALE RANCH 007TH STANDARD BAKERSFIELD, CA 93308	1218456											X				
GETTY OIL CO KERN RIVER FIELD T28S R28E T29S R28E N OF BAKERSFIELD, CA 93308	170540									X						
GETTY OIL CO KERN FRONT FIELD T28S R27E NW OF BAKERSFIELD, CA 93308	170539									X						
K C AIRPORTS DEPT 1401 SKYWAY DR 200 BAKERSFIELD, CA 93308	1295165											X				
ROBERT P. METTLER FARM TOWERLINE RD MULLE BAKERSFIELD, CA 93306	1222435											X				
GENERATEOR REHAB SITE 7TH STD RD AT SR 99 BAKERSFIELD, CA 93308	167730									X				X		
SUN EXPLORATION AND PRODUCTION KERN RIVER UNIT KERN COUNTY BAKERSFIELD, CA 93308	405353									X				X		
OILDALE READY MIX BATCH PLT GORDONS FERRY LOOP RD BAKERSFIELD, CA 93308	307538									X						
EDISON FIELD HADDAD #1 PANAMA LANE EDISON RD BAKERSFIELD, CA 93306	134884									X						
BFL-ATZT BAKERSFIELD AIRPORT BAKERSFIELD, CA 93308	1251631											X				
BALD MOUNTAIN RMLR BALD MOUNTAIN BAKERSFIELD, CA 93308	1251636											X				
SAN EMIDO NOSE OIL FLD SEC 8 T11N R21W SBBM BAKERSFIELD, CA 93300	367273						X			X						
7 ELEVEN STORE #26819 3124 N CHESTER AVE BAKERSFIELD, CA 93308	1262236											X				
OTT,JIM SON TRUCKING ROUTE 5 BOX 208 BAKERSFIELD, CA 93306	313100									X						

UNMAPPED SITES	VISTA ID	A														
		NPL	CORRACTS	TSD	SPL	SCL	CERCLIS/NFRAP	LUST	SWLF	NON ASTM	TRIS	UST	AST	GNRTR	VIOL	SPILLS
COMMUNITY NATIONAL BANK 1400 AIRPORT DR BAKERSFIELD, CA 93306	89367									X						
ALMOND HULLER 1-3/4 MI NO OF FAMOS BAKERSFIELD, CA 93308	4026926											X				
TENNECO A TANK FARM T295,R27E SEC 29 BAKERSFIELD, CA 93308	4044180											X				
MECCA TANK ? CHINA GRADE MANOR BAKERSFIELD, CA 93308	6603671							X								
BAKER TANKS T 27S R 21E SEC 4 BAKERSFIELD, CA 93308	4044182											X				
BIDART BROTHERS FEED LOT HWY 99 METTLER BAKERSFIELD, CA 93381	5715206									X						
JACO OIL CO. 3101 STATE BAKERSFIELD, CA 93308	3203448											X				
RUSSELL RANCH RUSSELL RANCH LEASE BAKERSFIELD, CA 93308	5717101									X						
PRIDE PETROLEUM SERVICE INC 18850 ORANGEBELT HWY BAKERSFIELD, CA 93308	3200546									X			X	X		
ARTHUR MCADAMS 24001 ROUND MOUNTAIN RD BAKERSFIELD, CA 93308	5714833									X						
UNION CEMETERY ASSOCIATION KING POTOMAC STS BAKERSFIELD, CA 93385	4038954											X				
UNOCAL SEC 14 T32S R23E BAKERSFIELD, CA 93308	5717431									X						
MT ADELAIDE T29S, R30ESEC 3 BAKERSFIELD, CA 93306	6605392							X								
TEXACO KERN FRONT SERVICE YARD 5605 CHESTER EXIT N. BAKERSFIELD, CA 93308	5352971									X						
ANCORA VERDE CORP FRUITVALE MT VIEW OILFIELDS BAKERSFIELD, CA 93308	5715169									X						

UNMAPPED SITES	VISTA ID	A														
		NPL	CORRACTS	TSD	SPL	SCL	CERCLIS/NFRAP	LUST	SWLF	NON ASTM	TRIS	UST	AST	GNRTR	VIOL	SPILLS
GRANITE CONST HWY 23 3 MI E OF ARVIN BAKERSFIELD, CA 93308	5708184									X						
LOST HILLS AIRPORT 1-2 MI N HO HWY 46 E BAKERSFIELD, CA 93308	4028839											X				
M.H. WHITTIER - HEAVY OIL WESTERN S15 T31S R22E BAKERSFIELD, CA 93302	5718491									X						
PALOMA FARMS-SUBLEASED EMPIRE 1-2 MI E OF HL RD ON BAKERSFIELD, CA 93308	4029104											X				
CHALK CLIFF LTD S31 T32S R24E BAKERSFIELD, CA 93308	5718493									X						
UNION CARBIDE CHEMICALS PLASTICS 1431 UNION AVE BAKERSFIELD, CA 93302	5719121									X						
KC SHERRIFS LERDO FACILITY INDUSTRIAL FARM BAKERSFIELD, CA 93308	4030387											X				
TEXACO T29S, R28ESEC 4 BAKERSFIELD, CA 93308	6352739							X								
JOHN F. ETCHEVERRY RR 11 BOX BAKERSFIELD, CA 93308	4021157											X				
ELGIN AKINS RR 1 BOX BAKERSFIELD, CA 93308	4021153											X				
CALCRETE CO 4701 WIBBLE RD BAKERSFIELD, CA 93302	65831									X						
BEAR MOUNTAIN LIMITED SUPPLIMENTAL APN 436-060-11 SEC 12, T29S, R28E MD BAKERSFIELD, CA	6830906								X							
DOUBLE 'C' LTD 10245 OILFIELD RD S11 T28S R27E BAKERSFIELD, CA 93308	5715628									X						
KERN RIVER REFUSE DISPOSAL SIT 1 ML. N/E OF CHINA GRADE LOOP BAKERSFIELD, CA 93308	4825270								X							
KCSO SHERIFF'S FACILITY INDUSTR. FARM LERDO HWY BAKERSFIELD, CA 93308	5355657									X						

UNMAPPED SITES	VISTA ID	A														
		NPL	CORRACTS	TSD	SPL	SCL	CERCLIS/NFRAP	LUST	SWLF	NON ASTM	TRIS	UST	AST	GNRTR	VIOL	SPILLS
ADMINISTRATION BUILDING P O BOX BAKERSFIELD, CA 93302	4037453											X				
ARCO AM/PM MINI MART 33500 7TH STANDARD RD BAKERSFIELD, CA 93308	4017478											X				
JOHNNY QUIK MARKET 6445 7TH STANDARD BAKERSFIELD, CA 93308	4017477											X				
LOST HILLS FLYING SERVICE LOST HILLS AIRPORT BAKERSFIELD, CA 93308	4032465											X				
SOUND MOUNTAIN DISPOSAL ROUND MOUNTAIN RD NEAR CY BAKERSFIELD, CA 93308	3767584									X						
AL'S MINI MART 465 011TH BAKERSFIELD, CA 93308	4015632											X				
KERN FRONT DISPOSAL SITE T28S, R27E, SECTION 27 BAKERSFIELD, CA	6832435								X							
TEXACO REFINING AND MARKETING S27 T29S R27E BAKERSFIELD, CA 93302	3768572									X						
DEXZEL INC 400 S HOPE BAKERSFIELD, CA 93308	5712742									X						
UNOCAL S18 T30S R22E MCKITTRICK PUMP STATION BAKERSFIELD, CA 93308	5714349									X						
UNOCCUPIED BLDG 1300 AIRPORT DR BAKERSFIELD, CA 93308	5351547									X						
AM PM MINI MART #5657 35300 7TH STANDARD RD BAKERSFIELD, CA 93308	6960088											X				
K C AIR 1550 SKYLINE BAKERSFIELD, CA 93308	4041684											X				
TEXACO T29S, R28ESEC 4 BAKERSFIELD, CA 93308	3983151							X								
BAKERSFIELD ENERGY RESOURCES LIGHT OIL WESTERN STA.SOURCE BAKERSFIELD, CA 93308	6921692									X						

An 'X' meets search criteria; a dot exceeds search criteria.

UNMAPPED SITES	VISTA ID	A														
		NPL	CORRACTS	TSD	SPL	SCL	CERCLIS/NFRAP	LUST	SWLF	NON ASTM	TRIS	UST	AST	GNRTR	VIOL	SPILLS
WILD WEST ENERGY ROUND MOUNTAIN OILFIELD BAKERSFIELD, CA 93308	6921694									X						
MT ADELAIDE T29S, R30ESEC 3 BAKERSFIELD, CA 93306	3983099							X								
JOHNNY QUICK #145 35301 7TH STANDARD RD BAKERSFIELD, CA 93308	7250148											X				
LERDO QUALITY RANCH #4 ? LERDO HWY S QUANTITY RD BAKERSFIELD, CA 93308	3982453							X								
CHEVRON USA GAS PLNT MT VIEW BAKERSFIELD, CA 93308	6922500									X						
TEXACO T292 R283 SEC 4 BAKERSFIELD, CA 93308	5359192									X						
CCM TRK SERVICE INC 18803 ORANGE BELT HWY BAKERSFIELD, CA 93308	6922533									X						
HAPPY GAS TAFT HIGHWAY WIBLE BAKERSFIELD, CA 93308	3204667											X				
EMJAYCO CENTRAL OILFIELDS BAKERSFIELD, CA 93306	5710080									X						
STA. 188-01 BETWEEN KREBS RD M BAKERSFIELD, CA 93308	3199462											X				
GARY DRILLING MCKITTRICK FIELD S18 T30S R22E BAKERSFIELD, CA 93308	5714350									X						
AGRI FORMULATIONS CORP 7TH STANDARD RD HWY 99 BAKERSFIELD, CA 93308	8258									X				X		
CHEVRON USA INC KERN STA PEGASUS RD BAKERSFIELD, CA 93308	82062									X				X		
TRI-COUNTY SERVICES 2525 MONTE CRISTO BAKERSFIELD, CA 93308	6961129											X				
TEXACO E AND P INC KERN FRONT N CHESTER EXT 6605 BAKERSFIELD, CA 93308	4061570									X				X		

UNMAPPED SITES	VISTA ID	A														
		NPL	CORRACTS	TSD	SPL	SCL	CERCLIS/NFRAP	LUST	SWLF	NON ASTM	TRIS	UST	AST	GNRTR	VIOL	SPILLS
CITY OF BAKERSFIELD MATERIALS PROCES 2700 S. MT. VERNON AVENUE BAKERSFIELD, CA 93306	7240580								X							
EXXON CO USA EDISON FIELD RT 5 TEJON HWY AND HERMOSA RD E OF BAKER BAKERSFIELD, CA 93308	3197115									X						
BAKERSFIELD DISTRICT PRODUCTIO CHINA GRADE LOOP BAKERSFIELD, CA 93388	3193364											X				
UNION OIL STATION LERDO HWY BAKERSFIELD, CA	5355656									X						
MCFARLAND-DELANO TRANSFER STATION 11249 STADLEY AVE. BAKERSFIELD, CA	7240758								X							
SHAFTER - H2O BOOSTER PUMP 5810 EARHART BAKERSFIELD, CA	7250630											X				
TEXACO KERN FRONT SERVICE YARD 5605 CHESTER EXIT N BAKERSFIELD, CA 93308	4050981							X								
LAKEVIEW SUBSTATION CORPUS RD. VAL PRADO RD. BAKERSFIELD, CA	3996882												X			
CHEVRON USA INC KERN RIVER OIL FIELD RTE 1 KERN RIVER OIL FLD BAKERSFIELD, CA 93308	82061									X				X		
P G E ROSEDALE HWY COFFEE RD BAKERSFIELD, CA 93308	5709360									X						
MALIBU VINYARD IMPERIAL SACO RD BAKERSFIELD, CA 93308	5357563									X						
BURREL BAKERSFIELD, CA 93306	7004737								X							
SAMMONS TRUCK STOP HWY 99 7TH STANDARD BAKERSFIELD, CA	6960085											X				
PIUTE FIRE STATION 16001 WALKER BASIN BAKERSFIELD, CA 93308	4046705											X				
ARCO OIL TIMBER CANYON COMPRESSOR PLT SEC 14 T4N R23E BAKERSFIELD, CA 93302	3978902									X				X		

An 'X' meets search criteria; a dot exceeds search criteria.

UNMAPPED SITES	VISTA ID	A														
		NPL	CORRACTS	TSD	SPL	SCL	CERCLIS/NFRAP	LUST	SWLF	NON ASTM	TRIS	UST	AST	GNRTR	VIOL	SPILLS
CHAPARAL OIL CO 1021 CHESTER BAKERSFIELD, CA 93302	77338									X						
SEPTAGE II-2 SWDS WEEDPATCH AREA BAKERSFIELD, CA	4826809								X							
ARCO OIL CLA WATER INJECTION PLT #2 SEC 34 T30S R25E BAKERSFIELD, CA 93302	3978893									X				X	X	
GRANITE CONSTRUCTION CO. YARD ? JAMES RD BAKERSFIELD, CA 93308	1585650							X								
BAKERSFIELD VORTEC EHF ? MINTER FIELD BAKERSFIELD, CA 93308	1606854							X								
UNION OIL STATION ? LERDO HWY BAKERSFIELD, CA 93308	931149							X								

SITE ASSESSMENT REPORT
CUSTOM

DETAILS

PROPERTY AND THE ADJACENT AREA (within 2 miles)

VISTA Address*:	OILDALE READY MIX ROCK PLT ALFRED HARRELL HWY BAKERSFIELD, CA 93308	VISTA ID#:	3775416	Map ID
		Distance/Direction:	1.42 MI / W	1
		Plotted as:	Point	
FINDS - Facility Index System / SRC# 4168		EPA ID:	CAD980357016	

Agency Address:	*OILDALE READY MIX ROCK PLT ALFRED HARRELL HWY BAKERSFIELD, CA 93307*
Indian Land: *UNKNOWN*	**Federal Facility:** *UNKNOWN*
Duns #:	*604149161*
SIC Code:	*NOT REPORTED NOT REPORTED*
Program Name:	*FACILITY ACTIVE INDEX RECORD*
Program Name:	*FACILITY SUBSYSTEM/AEROMETRIC INFO. (AIRS)*
Agency ID:	*0602900512*
Program Name:	*FACILITY ACTIVE DB RECORD*
Agency ID:	*604149161*

VISTA Address*:	KERN CO LDFL ALFRED HARRELL HWY MCMINNIS EX BAKERSFIELD, CA 93308	VISTA ID#:	3775415	Map ID
		Distance/Direction:	1.42 MI / W	1
		Plotted as:	Point	
FINDS - Facility Index System / SRC# 4168		EPA ID:	CAD980636849	

Agency Address:	*KERN CO LDFL ALFRED HARRELL HWY MCMINNIS EX BAKERSFIELD, CA 93306*
Indian Land: *UNKNOWN*	**Federal Facility:** *UNKNOWN*
Duns #:	*NOT REPORTED*
SIC Code:	*NOT REPORTED NOT REPORTED*
Program Name:	*FACILTIY INACTIVE INDEX RECORD*

VISTA Address*:	KERN COUNTY LANDFILL ALFRED HARELL HIGHWAY, MCMINNIS EXIT BAKERSFIELD, CA 93306	VISTA ID#:	1158188	Map ID
		Distance/Direction:	1.42 MI / W	1
		Plotted as:	Point	
SCL - State Equivalent CERCLIS List / SRC# 4543		Agency ID:	15490013	

Agency Address:	*SAME AS ABOVE*
Status:	*UNKNOWN*
Facility Type:	*NOT AVAILABLE*
Lead Agency:	*UNKNOWN*
State Status:	*REFERRED TO ANOTHER AGENCY*
Pollutant 1:	*UNKNOWN*
Pollutant 2:	*UNKNOWN*
Pollutant 3:	*UNKNOWN*

*** VISTA address includes enhanced city and ZIP.**

VISTA Address*:	WEBSTER SAND INC ALFRED HARRELL CHINA GRADE BAKERSFIELD, CA 93308	VISTA ID#:	462860	Map ID
		Distance/Direction:	1.42 MI / W	1
		Plotted as:	Point	
FINDS - Facility Index System / SRC# 4168		EPA ID:	CAD982037608	

Agency Address:	SAME AS ABOVE		
Indian Land:	UNKNOWN	Federal Facility:	NO
Duns #:	002772416		
SIC Code:	1442 MINE-CONSTRUCTION SAND GRAVEL		
Program Name:	FACILITY ACTIVE INDEX RECORD		
Program Name:	HAZARDOUS WASTE (RCRIS)		
Agency ID:	CAD982037608_		
Program Name:	FACILITY ACTIVE DB RECORD		
Agency ID:	002772416		

VISTA Address*:	HART PARK ALFRED HARRELL BAKERSFIELD, CA 93301	VISTA ID#:	3191729	Map ID
		Distance/Direction:	1.42 MI / W	1
		Plotted as:	Point	
STATE UST - State Underground Storage Tank / SRC# 1612		EPA/Agency ID:	N/A	

Agency Address:	HART PARK ALFRED HARRELL BAKERSFIELD, CA 93308		
Underground Tanks:	2		
Aboveground Tanks:	NOT REPORTED		
Tanks Removed:	NOT REPORTED		
Tank ID:	1U	Tank Status:	CLOSED REMOVED
Tank Contents:	UNLEADED GAS	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	BARE STEEL
Tank Size (Units):	1000 (GALLONS)	Tank Material:	BARE STEEL
Tank ID:	2U	Tank Status:	CLOSED
Tank Contents:	DIESEL	Leak Monitoring:	UNKNOWN
Tank Age:	NOT REPORTED	Tank Piping:	UNKNOWN
Tank Size (Units):	750 (GALLONS)	Tank Material:	BARE STEEL

VISTA Address*:	LAKE MING MARINA ? ALFRED HARRELL BAKERSFIELD, CA 93306	VISTA ID#:	931113	Map ID
		Distance/Direction:	1.42 MI / W	1
		Plotted as:	Point	
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A	

Agency Address:	SAME AS ABOVE
Leak ID#:	5T15000005
Leak Report Date:	19870819
Substance:	GASOLINE
Remediation Status:	CASE CLOSED
Media Affected:	SOIL ONLY

STATE LUST - State Leaking Underground Storage Tank / SRC# 4704	EPA/Agency ID:	N/A

Agency Address:	SAME AS ABOVE
Facility ID:	5T15000005
Substance:	GASOLINE
Remediation Status:	CASE CLOSED BY COUNTY/LIA OR LOP.
Media Affected:	SOIL CONTAMINATION.

PROPERTY AND THE ADJACENT AREA (within 2 miles) CONT.

Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*K.C. PARKS*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

VISTA Address*:	HIGHLAND HIGH SCHOOL 2900 ROYAL SCOTS WAY BAKERSFIELD, CA 93306	VISTA ID#:	1222405	Map ID
		Distance/Direction:	1.90 MI / SW	2
		Plotted as:	Point	

STATE LUST - State Leaking Underground Storage Tank / SRC# 4548	EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000315*
Leak Report Date:	*19900517.*
Substance:	*GASOLINE*
Remediation Event:	*OT*
Remediation Status:	*CASE CLOSED*
Media Affected:	*SOIL ONLY*

STATE LUST - State Leaking Underground Storage Tank / SRC# 4704	EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000315*
Substance:	*GASOLINE*
Remediation Status:	*CASE CLOSED BY COUNTY/LIA OR LOP.*
Media Affected:	*SOIL CONTAMINATION.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*KERN HIGH*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

UNMAPPED SITES

VISTA Address*:	VALLEY TREE AND CONSTRUCTION 7TH STANDARD AND QUINN RDS BAKERSFIELD, CA 93308	VISTA ID#:	450626
STATE SWLF - Solid Waste Landfill / SRC# 4705		Agency ID:	15-AA-0153

Agency Address:	*VALLEY TREE CONSTRUCTION DISPOSL S 4233 QUIN ROAD BAKERSFIELD, CA*
Facility Type:	*TRANSFER STATION*
Facility Status:	*ACTIVE*
Permit Status:	*PERMITTED/LICENSED*

VISTA Address*:	WAIT STATION ? NORRIS RD EXT BAKERSFIELD, CA 93308	VISTA ID#:	2746311
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000412*
Leak Report Date:	*19910319*
Substance:	*WASTE OIL*
Remediation Status:	*CASE CLOSED*
Media Affected:	*SOIL ONLY*

STATE LUST - State Leaking Underground Storage Tank / SRC# 4704		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000412*
Substance:	*WASTE OIL*
Remediation Status:	*CASE CLOSED BY COUNTY/LIA OR LOP.*
Media Affected:	*SOIL CONTAMINATION.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*CHEVRON PI*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

VISTA Address*:	TEXACO KERN FRONT SERVICE YARD 5605 CHESTER EXIT N BAKERSFIELD, CA 93308	VISTA ID#:	2746333
STATE LUST - State Leaking Underground Storage Tank / SRC# 4704		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000443*
Substance:	*GASOLINE*
Remediation Status:	*NO ACTION TAKEN.*
Media Affected:	*UNDEFINED.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*TEXACO*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

VISTA Address*:	KCSO SHERIFF'S FACILITY ? INDUSTR. FARM LERDO HWY BAKERSFIELD, CA 93308	VISTA ID#:	2746361
STATE LUST - State Leaking Underground Storage Tank / SRC# 4704		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000310*
Substance:	*GASOLINE*
Remediation Status:	*SITE ASSESSMENT UNDERWAY.*
Media Affected:	*UNDEFINED.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*COUNTY OF*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

VISTA Address*:	CHEVRON MOTOR TRANSPORT ? BAKERSFIELD TERMINAL BAKERSFIELD, CA 93308	VISTA ID#:	1604407
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000364*
Leak Report Date:	*19851109*
Substance:	*GASOLINE*
Remediation Status:	*CASE CLOSED*
Media Affected:	*SOIL ONLY*

STATE LUST - State Leaking Underground Storage Tank / SRC# 4704		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000364*
Substance:	*GASOLINE*
Remediation Status:	*CASE CLOSED BY COUNTY/LIA OR LOP.*
Media Affected:	*SOIL CONTAMINATION.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*CHEVRON US*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

UNMAPPED SITES CONT.

VISTA Address*:	KERN FRONT OIL FIELD E OF HWY 65 N OF BAKERSFIELD BAKERSFIELD, CA 93308	VISTA ID#:	227243
SCL - State Equivalent CERCLIS List / SRC# 4543		Agency ID:	15130015

Agency Address:	*KERN FRONT OILFIELD E OF HIGHWAY 65 N OF BAKERSFIELD OILDALE, CA 93308*
Status:	*UNKNOWN*
Facility Type:	*NOT AVAILABLE*
Lead Agency:	*UNKNOWN*
State Status:	*FORMER ANNUAL WORKPLAN SITE, REFERRED TO RWQCB*
Pollutant 1:	*UNKNOWN*
Pollutant 2:	*UNKNOWN*
Pollutant 3:	*UNKNOWN*

VISTA Address*:	STAR ROBINSON LEASE T28S, R27ESEC 22 BAKERSFIELD, CA 93308	VISTA ID#:	931186
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000171*
Leak Report Date:	*19860819*
Substance:	*GASOLINE*
Remediation Status:	*CASE CLOSED*
Media Affected:	*SOIL ONLY*

STATE LUST - State Leaking Underground Storage Tank / SRC# 4704		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000171*
Substance:	*GASOLINE*
Remediation Status:	*CASE CLOSED BY COUNTY/LIA OR LOP.*
Media Affected:	*SOIL CONTAMINATION.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*TEXACO PRO*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

VISTA Address*:	TEXACO KERN FRONT SERVICE YARD T28S, R27ESEC 25 BAKERSFIELD, CA 93308	VISTA ID#:	931187
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000177*
Leak Report Date:	*19870819*
Substance:	*NAPTHA DISTILLATE*
Remediation Event:	*ED*
Remediation Status:	*CASE CLOSED*
Media Affected:	*SOIL ONLY*

STATE LUST - State Leaking Underground Storage Tank / SRC# 4704	EPA/Agency ID:	N/A
Agency Address:	*SAME AS ABOVE*	
Facility ID:	*5T15000177*	
Substance:	*NAPTHA DISTILTE*	
Remediation Status:	*CASE CLOSED BY COUNTY/LIA OR LOP.*	
Media Affected:	*SOIL CONTAMINATION.*	
Lead Agency Contact:	*YP*	
Agency Contact:	*YP*	
Responsible Party:	*TEXACO PRO*	
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*	

VISTA Address*:	**KERN RIVER GARAGE YARD T29S, R28ESEC 5 BAKERSFIELD, CA 93308**	VISTA ID#:	931188
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A
Agency Address:	*SAME AS ABOVE*		
Leak ID#:	*5T15000158*		
Leak Report Date:	*19860510*		
Substance:	*WASTE OIL*		
Remediation Status:	*CASE CLOSED*		
Media Affected:	*SOIL ONLY*		
STATE LUST - State Leaking Underground Storage Tank / SRC# 4704		EPA/Agency ID:	N/A
Agency Address:	*SAME AS ABOVE*		
Facility ID:	*5T15000158*		
Substance:	*WASTE OIL*		
Remediation Status:	*CASE CLOSED BY COUNTY/LIA OR LOP.*		
Media Affected:	*SOIL CONTAMINATION.*		
Lead Agency Contact:	*YP*		
Agency Contact:	*YP*		
Responsible Party:	*TEXACO PRO*		
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*		

VISTA Address*:	**SAN EMIDO NOSE OIL FLD SEC 8 T11N R21W SBBM BAKERSFIELD, CA 93300**	VISTA ID#:	367273
Regional CERCLIS / SRC# 2462		EPA ID:	CAD980735963
Agency Address:	*SAME AS ABOVE*		
Regional Utility Description:			
ACIDS			
Regional CERCLIS / SRC# 2462		EPA ID:	CAD980735963
Agency Address:	*SAME AS ABOVE*		
Regional Utility Description:			
OILY WASTES			
Regional CERCLIS / SRC# 2462		EPA ID:	CAD980735963
Agency Address:	*SAME AS ABOVE*		
Regional Utility Description:			
SOLVENTS			

UNMAPPED SITES CONT.

Regional CERCLIS / SRC# 2462		EPA ID:	CAD980735963
Agency Address:	*SAME AS ABOVE*		
Regional Utility Description:			
OTHER:PHENOLS			

Regional CERCLIS / SRC# 2462		EPA ID:	CAD980735963
Agency Address:	*SAME AS ABOVE*		
Regional Utility Description:			
IMPOUNDMENT			

Regional CERCLIS / SRC# 2462		EPA ID:	CAD980735963
Agency Address:	*SAME AS ABOVE*		
Regional Utility Description:			
HAZARD UNCERTAIN			

Regional CERCLIS / SRC# 2462		EPA ID:	CAD980735963
Agency Address:	*SAME AS ABOVE*		
Regional Utility Description:			
PRE 9/82 PA			

NFRAP / SRC# 4466		EPA ID:	CAD980735963
Agency Address:	*SAME AS ABOVE*		
EPA Region:	*9*		
Congressional District:	*18*		
Federal Facility:	*NOT A FEDERAL FACILITY*		
Facility Ownership:	*UNKNOWN*		
Site Incident Category:	*unknown*		
Federal Facility Docket:	*SITE IS NOT INCLUDED ON THE DOCKET*		
NPL Status:	*NOT ON NPL*		
Incident Type:	*Unknown*		
Proposed NPL Update #:	*0*		
Final NPL Update #:	*0*		
Financial Management System ID:	*09*		
Latitude:	*3503040*		
Longitude:	*11915030*		
Lat/Long Source:	*RESEARCHED BY THE REGION AND MANUALLY ENTERED*		
Lat/Long Accuracy:	*Unknown*		
Dioxin Tier:	*Unknown*		
USGS Hydro Unit:	*0*		
RCRA Indicator:	*Unknown*		
Unit Id:	*0*		
Unit Name:	*ENTIRE SITE*		
Type:	*DISCOVERY*	**Lead Agency:**	*EPA FUND-FINANCED*
Qualifier:	*UNKNOWN*	**Category:**	*Unknown*
Name:	*DISCOVERY*	**Actual Start Date:**	*NOT REPORTED*
Plan Status:	*Unknown*	**Actual Completion Date:**	*UNKNOWN*
Type:	*PRELIMINARY ASSESSMENT*	**Lead Agency:**	*EPA FUND-FINANCED*
Qualifier:	*LOWER PRIORITY*	**Category:**	*Unknown*
Name:	*PRELIMINARY ASSESSMENT*	**Actual Start Date:**	*NOT REPORTED*
Plan Status:	*Unknown*	**Actual Completion Date:**	*UNKNOWN*

UNMAPPED SITES CONT.

Type:	*PRELIMINARY ASSESSMENT*	**Lead Agency:**	*EPA FUND-FINANCED*
Qualifier:	*NO FURTHER REMEDIAL ACTION PLANNED*	**Category:**	*Unknown*
Name:	*PRELIMINARY ASSESSMENT*	**Actual Start Date:**	*NOT REPORTED*
Plan Status:	*Unknown*	**Actual Completion Date:**	*UNKNOWN*

VISTA Address*:	**MECCA TANK ? CHINA GRADE MANOR BAKERSFIELD, CA 93308**	VISTA ID#:	6603671
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000385*
Leak Report Date:	*19900827*
Substance:	*GASOLINE*
Remediation Status:	*CASE CLOSED*
Media Affected:	*SOIL ONLY*

VISTA Address*:	**MT ADELAIDE T29S, R30ESEC 3 BAKERSFIELD, CA 93306**	VISTA ID#:	6605392
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000146*
Leak Report Date:	*19881025*
Substance:	*DIESEL*
Remediation Status:	*CASE CLOSED*
Media Affected:	*SOIL ONLY*

VISTA Address*:	**TEXACO T29S, R28ESEC 4 BAKERSFIELD, CA 93308**	VISTA ID#:	6352739
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000196*
Leak Report Date:	*19881212*
Remediation Status:	*FURTHER SITE ASSESSMENT UNDERWAY*
Media Affected:	*UNDEFINED*

VISTA Address*:	**BEAR MOUNTAIN LIMITED SUPPLIMENTAL APN 436-060-11 SEC 12, T29S, R28E MD BAKERSFIELD, CA**	VISTA ID#:	6830906
STATE SWLF - Solid Waste Landfill / SRC# 4705		Agency ID:	15-AA-0321

Agency Address:	*SAME AS ABOVE*
Facility Type:	*OTHER*
Facility Status:	*PROPOSED*
Permit Status:	*PROPOSED/PLANNED*

VISTA Address*:	KERN RIVER REFUSE DISPOSAL SIT 1 ML. N/E OF CHINA GRADE LOOP BAKERSFIELD, CA 93308	VISTA ID#:	4825270
WMUDS / SRC# 3938		Agency ID:	5 150034NUR

Agency Address:	*KERN RIVER REFUSE DISPOSAL SIT 1 ML. N/E OF CHINA GRADE LOOP OILDAIL, CA 93308*
Solid Waste Inventory System ID:	*15-AA-0005*
Facility Type:	*Not reported*
Facility In State Board Waste Discharger System:	*NO*
Chapter 15 Facility:	*NO*
Solid Waste Assessment Test Facility:	*YES*
Toxic Pits Cleanup Act Facility:	*NO*
RCRA Facility:	*NO*
Department of Defense Facility:	*NO*
Open To Public:	*NO*
Number Of Waste Management Units:	*1*
Rank:	*7*
Enforcements At Facility:	*NO*
Violations At Facility:	*NO*

VISTA Address*:	KERN FRONT DISPOSAL SITE T28S, R27E, SECTION 27 BAKERSFIELD, CA	VISTA ID#:	6832435
STATE SWLF - Solid Waste Landfill / SRC# 4705		Agency ID:	15-CR-0086

Agency Address:	*SAME AS ABOVE*
Facility Type:	*SOLID WASTE DISPOSAL FACILITY*
Facility Status:	*CLOSED*
Permit Status:	*UNPERMITTED/UNLICENSED*

VISTA Address*:	TEXACO T29S, R28ESEC 4 BAKERSFIELD, CA 93308	VISTA ID#:	3983151
STATE LUST - State Leaking Underground Storage Tank / SRC# 4704		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000196*
Substance:	*UNKNOWN*
Remediation Status:	*PROBLEM ASSESSMENT REPORT (PAR) COMPLETE*
Media Affected:	*UNDEFINED.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*TEXACO*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

VISTA Address*:	MT ADELAIDE T29S, R30ESEC 3 BAKERSFIELD, CA 93306	VISTA ID#:	3983099
STATE LUST - State Leaking Underground Storage Tank / SRC# 4704		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000146*
Substance:	*DIESEL*
Remediation Status:	*CASE CLOSED BY COUNTY/LIA OR LOP.*
Media Affected:	*SOIL CONTAMINATION.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP_*
Responsible Party:	*ATT*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

VISTA Address*:	LERDO QUALITY RANCH #4 ? LERDO HWY S QUANTITY RD BAKERSFIELD, CA 93308	VISTA ID#:	3982453
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000266*
Leak Report Date:	*19900119*
Substance:	*DIESEL*
Remediation Event:	*UK*
Remediation Status:	*CASE CLOSED*
Media Affected:	*SOIL ONLY*

STATE LUST - State Leaking Underground Storage Tank / SRC# 4704	EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000266*
Substance:	*DIESEL*
Remediation Status:	*CASE CLOSED BY COUNTY/LIA OR LOP.*
Media Affected:	*SOIL CONTAMINATION.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*GRAFIN VON*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

VISTA Address*:	CITY OF BAKERSFIELD MATERIALS PROCES 2700 S. MT. VERNON AVENUE BAKERSFIELD, CA 93306	VISTA ID#:	7240580
STATE SWLF - Solid Waste Landfill / SRC# 4705		Agency ID:	15-AA-0311

Agency Address:	*CITY OF BAKERSFIELD MATERIALS PROCES* *2700 S. MT. VERNON AVENUE* *BAKERSFIELD, CA*
Facility Type:	*COMPOSTING FACILITY*
Facility Status:	*ACTIVE*
Permit Status:	*PERMITTED/LICENSED*

UNMAPPED SITES CONT.

VISTA Address*:	MCFARLAND-DELANO TRANSFER STATION 11249 STADLEY AVE. BAKERSFIELD, CA	VISTA ID#:	7240758
STATE SWLF - Solid Waste Landfill / SRC# 4705		Agency ID:	15-AA-0305

Agency Address:	*SAME AS ABOVE*
Facility Type:	*TRANSFER STATION*
Facility Status:	*ACTIVE*
Permit Status:	*PERMITTED/LICENSED*

VISTA Address*:	TEXACO KERN FRONT SERVICE YARD 5605 CHESTER EXIT N BAKERSFIELD, CA 93308	VISTA ID#:	4050981
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000443*
Leak Report Date:	*19910807*
Substance:	*GASOLINE*
Remediation Status:	*NO ACTION*
Media Affected:	*UNDEFINED*

VISTA Address*:	BURREL BAKERSFIELD, CA 93306	VISTA ID#:	7004737
WMUDS / SRC# 3938		Agency ID:	5D102085001

Agency Address:	*SAME AS ABOVE*
Solid Waste Inventory System ID:	*NOT REPORTED*
Facility Type:	*INDUSTRIAL - Facilities that treat and/or dispose of liquid or semisolid wastes from any servicing, producing, manufacturing or processing operation of whatevernature, including mining, gravel washing, geothermal operations, air conditioning, ship building and repairing, oil production, storage and disposal operations, waterwell pumping.*
Facility In State Board Waste Discharger System:	*YES*
Chapter 15 Facility:	*YES*
Solid Waste Assessment Test Facility:	*NO*
Toxic Pits Cleanup Act Facility:	*NO*
RCRA Facility:	*NO*
Department of Defense Facility:	*NO*
Open To Public:	*NO*
Number Of Waste Management Units:	*1*
Rank:	*NOT REPORTED*
Enforcements At Facility:	*NO*
Violations At Facility:	*NO*

VISTA Address*:	SEPTAGE II-2 SWDS WEEDPATCH AREA BAKERSFIELD, CA	VISTA ID#:	4826809
WMUDS / SRC# 3938		Agency ID:	5D150319001

Agency Address:	*SAME AS ABOVE*
Solid Waste Inventory System ID:	*NOT REPORTED*
Facility Type:	*SOLID WASTE SITES-CLASS III - Landfills for nonhazardous solid wastes.*
Facility In State Board Waste Discharger System:	*YES*
Chapter 15 Facility:	*YES*
Solid Waste Assessment Test Facility:	*NO*
Toxic Pits Cleanup Act Facility:	*NO*
RCRA Facility:	*NO*
Department of Defense Facility:	*NO*
Open To Public:	*NO*
Number Of Waste Management Units:	*1*
Rank:	*NOT REPORTED*
Enforcements At Facility:	*NO*
Violations At Facility:	*NO*

VISTA Address*:	GRANITE CONSTRUCTION CO. YARD ? JAMES RD BAKERSFIELD, CA 93308	VISTA ID#:	1585650
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000184*
Leak Report Date:	*19890217*
Substance:	*GASOLINE*
Remediation Status:	*CASE CLOSED*
Media Affected:	*SOIL ONLY*

STATE LUST - State Leaking Underground Storage Tank / SRC# 4704	EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000184*
Substance:	*GASOLINE*
Remediation Status:	*CASE CLOSED BY COUNTY/LIA OR LOP.*
Media Affected:	*SOIL CONTAMINATION.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*GRANITE CO*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

VISTA Address*:	BAKERSFIELD VORTEC EHF ? MINTER FIELD BAKERSFIELD, CA 93308	VISTA ID#:	1606854
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000362*

UNMAPPED SITES CONT.

Leak Report Date:	*19880429*
Substance:	*UNLEADED GASOLINE*
Remediation Status:	*CASE CLOSED*
Media Affected:	*SOIL ONLY*

STATE LUST - State Leaking Underground Storage Tank / SRC# 4704	EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000362*
Substance:	*UNLEAD GASOLINE*
Remediation Status:	*CASE CLOSED BY COUNTY/LIA OR LOP.*
Media Affected:	*SOIL CONTAMINATION.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*FEDERAL AV*
Description / Comment:	*YES, THERE IS A LOCAL OVERSIGHT PILOT PROGRAM.*

VISTA Address*:	**UNION OIL STATION ? LERDO HWY BAKERSFIELD, CA 93308**	VISTA ID#:	931149
STATE LUST - State Leaking Underground Storage Tank / SRC# 4548		EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Leak ID#:	*5T15000008*
Leak Report Date:	*19850830*
Substance:	*GASOLINE*
Remediation Status:	*FURTHER SITE ASSESSMENT UNDERWAY*
Media Affected:	*UNDEFINED*

STATE LUST - State Leaking Underground Storage Tank / SRC# 4704	EPA/Agency ID:	N/A

Agency Address:	*SAME AS ABOVE*
Facility ID:	*5T15000008*
Substance:	*GASOLINE*
Remediation Status:	*PROBLEM ASSESSMENT REPORT (PAR) COMPLETE*
Media Affected:	*UNDEFINED.*
Lead Agency Contact:	*YP*
Agency Contact:	*YP*
Responsible Party:	*UNION OIL*
Description / Comment:	*NO, THERE IS NOT A LOCAL OVERSIGHT PILOT PROGRAM.*

SITE ASSESSMENT REPORT
CUSTOM

DESCRIPTION OF DATABASES SEARCHED

A) DATABASES SEARCHED TO 2 MILES

NPL
SRC#: 4584

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for NPL was April, 1998.

The National Priorities List (NPL) is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund program. A site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specific criteria set jointly by the US Dept of Health and Human Services and the US EPA in order to become an NPL site.

SPL
SRC#: 4544

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Calsites Database: Annual Workplan Sites was January, 1998.

This database is provided by the Cal. Environmental Protection Agency, Dept. of Toxic Substances Control. The agency may be contacted at: 916-323-3400.

CERCLIS
SRC#: 4465

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for CERCLIS was February, 1998.

The CERCLIS List contains sites which are either proposed to or on the National Priorities List(NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL. The information on each site includes a history of all pre-remedial, remedial, removal and community relations activiies or events at the site, financial funding information for the events, and unrestricted enforcement activities.

Cal Cerclis
SRC#: 2462

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Ca Cerclis w/Regional Utility Description was June, 1995.

This database is provided by the U.S. Environmental Protection Agency, Region 9. The agency may be contacted at: . These are regional utility descriptions for California CERCLIS sites.

NFRAP
SRC#: 4466

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for CERCLIS-NFRAP was February, 1998.

NFRAP sites may be sites where, following an initial investigation, no contamination was found, contamination was removed quickly, or the contamination was not serious enough to require Federal Superfund action or NPL consideration.

SCL
SRC#: 4543

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Calsites Database: All Sites except Annual Workplan Sites (incl. ASPIS) was January, 1998.

This database is provided by the Department of Toxic Substances Control. The agency may be contacted at: .

The CalSites database includes both known and potential sites. Two- thirds of these sites have been classified, based on available information, as needing "No Further Action" (NFA) by the Department of Toxic Substances Control. The remaining sites are in various stages of review and remediation to determine if a problem exists at the site. Several hundred sites have been remediated and are considered certified. Some of these sites may be in long term operation and maintenance.

CORRACTS
SRC#: 4467

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for HWDMS/RCRIS was February, 1998.

The EPA maintains this database of RCRA facilities which are undergoing "corrective action". A "corrective action order" is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may be required beyond the facility's boundary and can be required regardless of when the release occurred, even if it predates RCRA.

ERNS
SRC#: 4583

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for was January, 1998.

The Emergency Response Notification System (ERNS) is a national database used to collect information on reported releases of oil and hazardous substances. The database contains information from spill reports made to federal authorities including the EPA, the US Coast Guard, the National Response Center and the Department of transportation. A search of the database records for the period October 1986 through January 1998 revealed information regarding reported spills of oil or hazardous substances in the stated area.

RCRA-TSD
SRC#: 4467

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for HWDMS/RCRIS was February, 1998.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

RCRA-LgGen
SRC#: 4467

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for HWDMS/RCRIS was February, 1998.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Large Generators are facilities which generate at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

RCRA-SmGen
SRC#: 4467

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for HWDMS/RCRIS was February, 1998.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Small and Very Small generators are facilities which generate less than 1000 kg./month of non-acutely hazardous waste.

RCRA-Viols/Enf VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for HWDMS/RCRIS was February, 1998.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Violators are facilities which have been cited for RCRA Violations at least once since 1980. RCRA Enforcements are enforcement actions taken against RCRA violators.

SWLF
SRC#: 4705

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Ca Solid Waste Information System (SWIS) was April, 1998.

This database is provided by the Integrated Waste Management Board. The agency may be contacted at: 916-255-4021.

The California Solid Waste Information System (SWIS) database consists of both open as well as closed and inactive solid waste disposal facilities and transfer stations pursuant to the Solid Waste Management and Resource Recovery Act of 1972, Government Code Section 2.66790(b). Generally, the California Integrated Waste Management Board learns of locations of disposal facilities through permit applications and from local enforcement agencies.

WMUDS
SRC#: 3938

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Waste Management Unit Database System (WMUDS) was May, 1997.

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-892-0323. This is used for program tracking and inventory of waste management units. This system contains information from the following eight main databases: Facility, Waste Management Unit, SWAT Program Information, SWAT Report Summary Information, Chapter 15 (formerly Subchapter 15), TPCA Program Information, RCRA Program Information, Closure Information; also some information from the WDS (Waste Discharge System). This database con

The WMUDS system also accesses information from the following databases from the Waste Discharger System (WDS): Inspections, Violations, and Enforcements. The sites contained in these databases are subject to the California Code of Regulations - Title 23. Waters.

SPILL
SRC#: 161

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for California Hazardous Materials Incident Report was December, 1990.

This database is provided by the Office of Emergency Services. The agency may be contacted at: .

SPILL
SRC#: 4642

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Region #1-Active Toxic Site Investigations-Spills was March, 1998.

This database is provided by the Regional Water Quality Control Board, Region #1 (North Coast Region). The agency may be contacted at: 707-576-2220.

LUST
SRC#: 4428

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Region #5-Central Valley SLIC\DOD\DOE List was January, 1998.

This database is provided by the Regional Water Quality Control Board, Region #5. The agency may be contacted at: 916-255-3075.

LUST
SRC#: 4548

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Lust Information System (LUSTIS) was February, 1998.

This database is provided by the California Environmental Protection Agency. The agency may be contacted at: 916-445-6532.

LUST RG6
SRC#: 4577

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Region #6-Leaking Underground Storage Tank Listing was February, 1998.

This database is provided by the Regional Water Quality Control Board, Region #6. The agency may be contacted at: 760-241-7365.

LUST RG5
SRC#: 4704

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Region #5-Central Valley Undergound Tank Tracking System was April, 1998.

This database is provided by the Regional Water Quality Control Board, Region #5. The agency may be contacted at: 916-255-3000.

UST's
SRC#: 1612

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Underground Storage Tank Registrations Database was January, 1994.

This database is provided by the State Water Resources Control Board, Office of Underground Storage Tanks. The agency may be contacted at: 916-227-4337; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST's
SRC#: 4706

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Kern County Sites and Tanks Listing was April, 1998.

This database is provided by the Kern County Environmental Health Department. The agency may be contacted at: 805-862-8700; Caution-Many states do not require registration of heating oil tanks, especially those used for residential purposes.

AST's
SRC#: 4320

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Aboveground Storage Tank Database was December, 1997.

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-227-4364.

TRIS
SRC#: 3716

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for TRIS was December, 1996.

Section 313 of the Emergency Planning and Community Right-to-Know Act (also known as SARA Title III) of 1986 requires the EPA to establish an inventory of Toxic Chemicals emissions from certain facilities(Toxic Release Inventory System). Facilities subject to this reporting are required to complete a Toxic Chemical Release Form(Form R) for specified chemicals.

CORTESE
SRC#: 2298

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Cortese List-Hazardous Waste Substance Site List was February, 1995.

This database is provided by the Office of Environmental Protection, Office of Hazardous Materials. The agency may be contacted at: 916-445-6532.

The California Governor's Office of Planning and Research annually publishes a listing of potential and confirmed hazardous waste sites throughout the State of California under Government Code Section 65962.5. This database (CORTESE) is based on input from the following: (1)CALSITES-Department of Toxic Substances Control, Abandoned Sites Program Information Systems; (2)SARA Title III Section III Toxic Chemicals Release Inventory for 1987, 1988, 1989, and 1990; (3)FINDS; (4)HWIS-Department of Toxic Substances Control, Hazardous Waste Information System. Vista has not included one time generator facilities from Cortese in our database.; (5)SWRCB-State Water Resources Control Board; (6)SWIS-Integrated Waste Management Control Board (solid waste facilities); (7)AGT25-Air Resources Board, dischargers of greater than 25 tons of criteria pollutants to the air; (8)A1025-Air Resources Board, dischargers of greater than 10 and less than 25 tons of criteria pollutants to the air; (9)LTANK-SWRCB Leaking Underground Storage Tanks; (10)UTANK-SWRCB Underground tanks reported to the SWEEPS systems; (11)IUR-Inventory Update Rule (Chemical Manufacturers); (12)WB-LF- Waste Board - Leaking Facility, site has known migration; (13)WDSE-Waste Discharge System - Enforcement Action; (14)DTSCD-Department of Toxic Substance Control Docket.

Deed Restrictions
SRC#: 1703

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Deed Restriction Properties Report was April, 1994.

This database is provided by the Department of Health Services-Land Use and Air Assessment. The agency may be contacted at: 916-323-3376. These are voluntary deed restriction agreements with owners of property who propose building residences, schools, hospitals, or day care centers on property that is "on or within 2,000 feet of a significant disposal of hazardous waste".

California has a statutory and administrative procedure under which the California Department of Health Services (DHS) may designate real property as either a "Hazardous Waste Property" or a "Border Zone Property" pursuant to California Health Safety Code Sections 25220-25241. Hazardous Waste Property is land at which hazardous waste has been deposited, creating a significant existing or potential hazard to public health and safety. A Border Zone Property is one within 2,000 feet of a hazardous waste deposit. Property within either category is restricted in use, unless a written variance is obtained from DHS. A Hazardous Waste Property designation results in a prohibition of new uses, other than a modification or expansion of an industrial or manufacturing facility on land previously owned by the facility prior to January 1, 1981. A Border Zone Property designation results in prohibition of a variety of uses involving human habitation, hospitals, schools and day care center.

Toxic Pits
SRC#: 2229

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for Summary of Toxic Pits Cleanup Facilities was February, 1995.

This database is provided by the Water Quality Control Board, Division of Loans Grants. The agency may be contacted at: 916-227-4396.

Finds
SRC#: 4168

VISTA conducts a database search to identify all sites within 2. mile of your property.
The agency release date for FINDS was September, 1997.

The Facility Index System (FINDS) is a compilation of any property or site which the EPA has investigated, reviewed or been made aware of in connection with its various regulatory programs. Each record indicates the EPA Program Office that may have files on the site or facility.

End of Report

AI

Draft
Environmental Impact Report

State Clearinghouse Number 2000011101

for

City in the Hills

Volume II

Michael Brandman Associates

July 25, 2000

02160011

DRAFT
ENVIRONMENTAL IMPACT REPORT
CITY IN THE HILLS
State Clearinghouse No. 2000011101

VOLUME II

Prepared for:

City of Bakersfield
Planning Department
1715 Chester Avenue
Bakersfield, CA 93301

Contact: Marc Gauthier
Principal Planner

Prepared by:

Michael Brandman Associates
17310 Red Hill Avenue, Suite 250
Irvine, CA 92614

Contact: Michael E. Houlihan, AICP
Manager of Environmental Services

July 25, 2000

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Appendix

A. Traffic Impact Study Appendix (includes exhibits illustrating peak hour traffic volumes by turning movement, traffic counts, and worksheets).

APPENDIX A

Traffic Impact Study Appendix

(includes exhibits illustrating peak hour traffic volumes by turning movement, traffic counts, and worksheets).

TURN MOVEMENT COUNTS

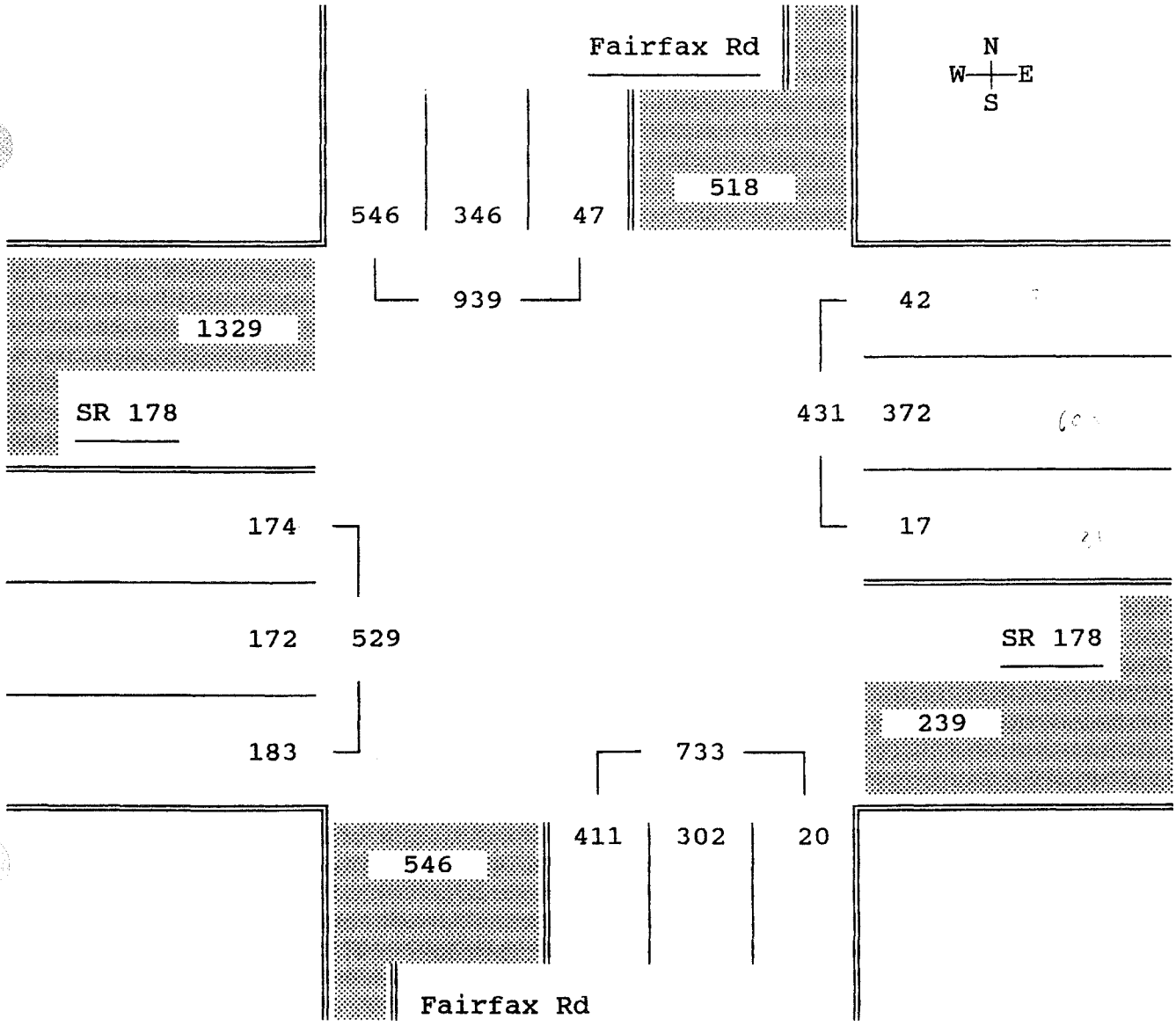
Site Code : 09137008
N / S : Fairfax Rd
E / W : SR 178
OPERATOR : DB

Movements by: Primary

PAGE: 1
FILE: temp2
DATE: 0/02/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.65	546	346	47	939	58	37	5
East	7:00 AM	0.71	42	372	17	431	10	86	4
South	7:00 AM	0.61	20	302	411	733	3	41	56
West	7:00 AM	0.84	183	172	174	529	35	33	33
Entire Intersection									
North	7:00 AM	0.65	546	346	47	939	58	37	5
East		0.71	42	372	17	431	10	86	4
South		0.61	20	302	411	733	3	41	56
West		0.84	183	172	174	529	35	33	33



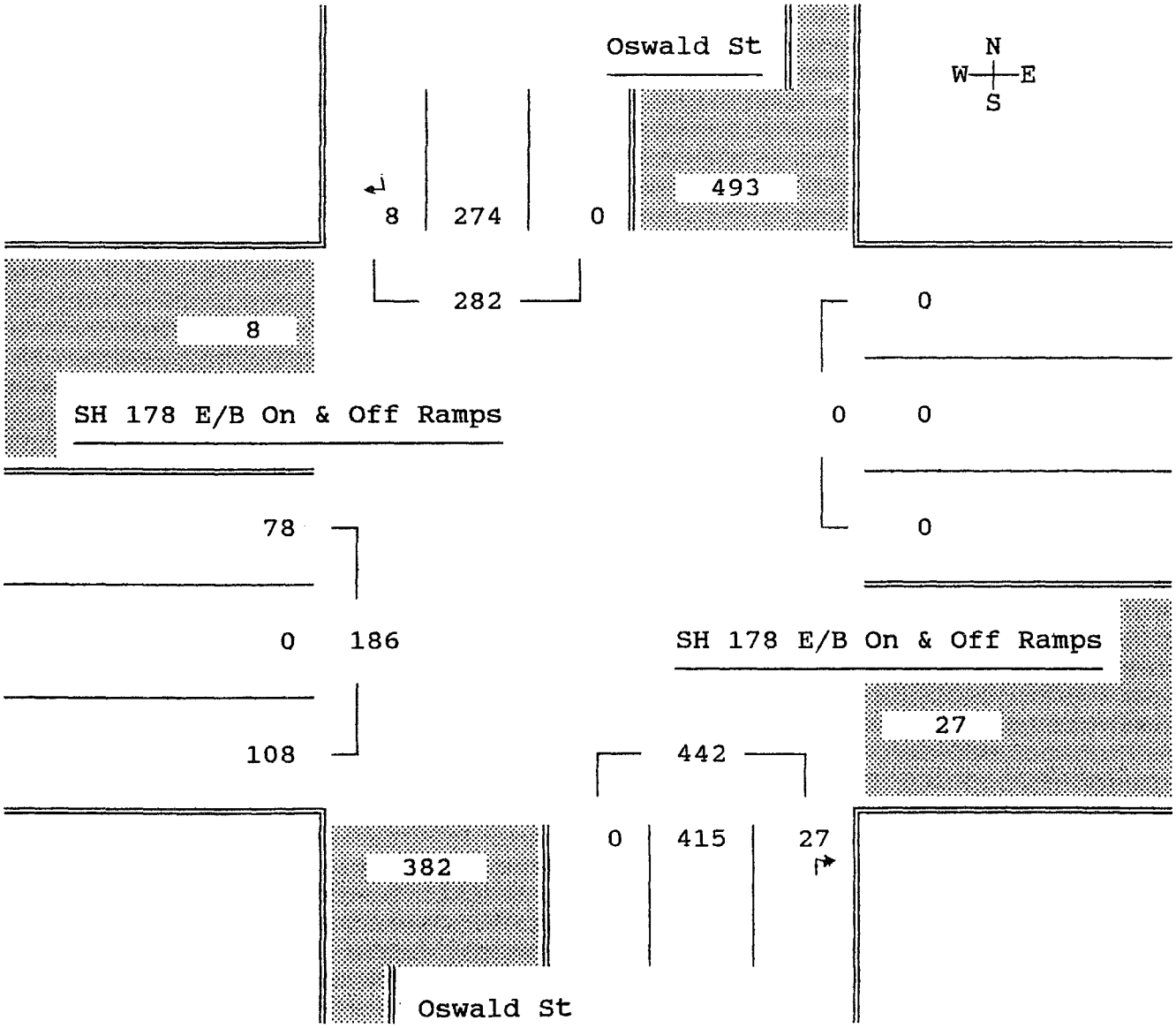
Site Code : 09999992
N-S Street: Oswald St
E-W Street: SH 178 E/B On & Off Ramps
Weather : Tue JC

Movements by: Primary

PAGE: 1
FILE: 99999992
9-137
DATE: 12/21/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.85	8	274	0	282	3	97	0
East	7:00 AM	0.00	0	0	0	0	0	0	0
South	7:00 AM	0.84	27	415	0	442	6	94	0
West	7:00 AM	0.80	108	0	78	186	58	0	42
Entire Intersection									
North	7:00 AM	0.85	8	274	0	282	3	97	0
East		0.00	0	0	0	0	0	0	0
South		0.84	27	415	0	442	6	94	0
West		0.80	108	0	78	186	58	0	42



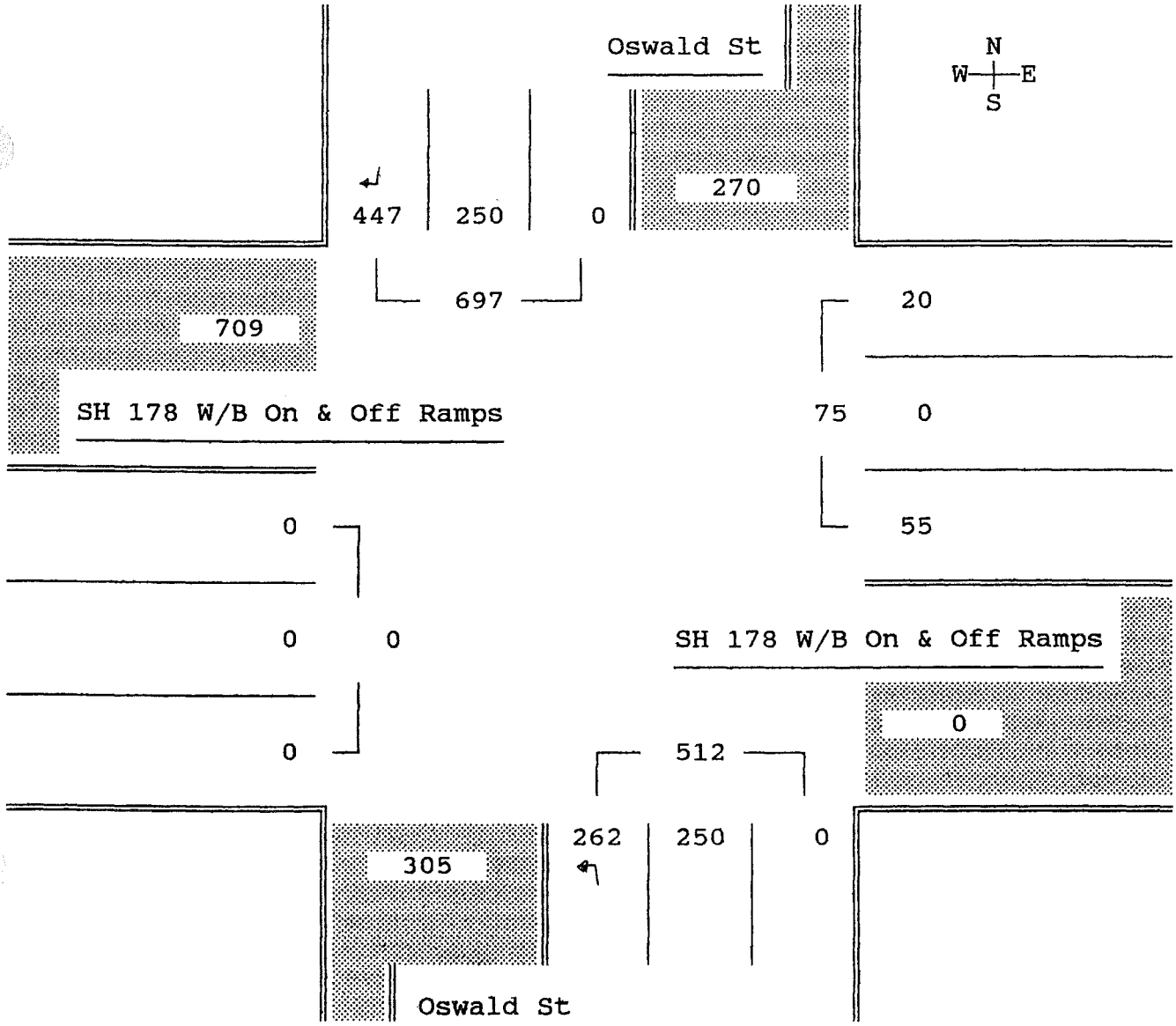
Site Code : 09999991
N-S Street: Oswald St
E-W Street: SH 178 W/B On & Off Ramps
Weather : Tue DB

Movements by: Primary

PAGE: 1
FILE: 99999991
7-131
DATE: 12/21/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.68	447	250	0	697	64	36	0
East	7:00 AM	0.75	20	0	55	75	27	0	73
South	7:00 AM	0.86	0	250	262	512	0	49	51
West	7:00 AM	0.00	0	0	0	0	0	0	0
Entire Intersection									
North	7:00 AM	0.68	447	250	0	697	64	36	0
East		0.75	20	0	55	75	27	0	73
South		0.86	0	250	262	512	0	49	51
West		0.00	0	0	0	0	0	0	0



TURN MOVEMENT COUNTS

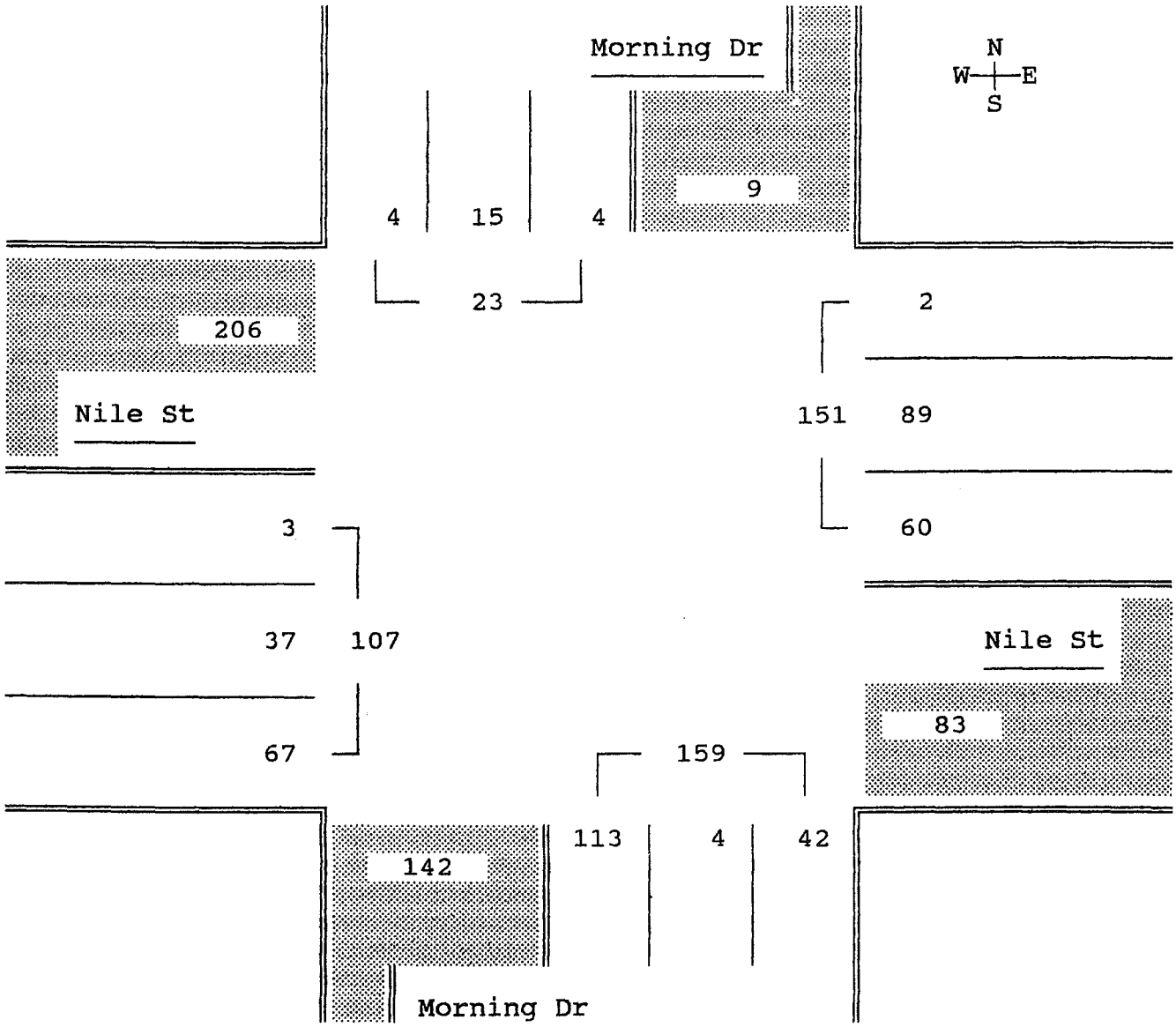
Site Code : 09137014
N-S STREET: Morning Dr
E-W STREET: Nile St
DAY : Wed

Movements by: Primary

PAGE: 1
FILE: temp-3
DATE: 12/29/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.72	4	15	4	23	17	65	17
East	7:00 AM	0.86	2	89	60	151	1	59	40
South	7:00 AM	0.78	42	4	113	159	26	3	71
West	6:45 AM	0.87	68	37	3	108	63	34	3
Entire Intersection									
North	7:00 AM	0.72	4	15	4	23	17	65	17
East		0.86	2	89	60	151	1	59	40
South		0.78	42	4	113	159	26	3	71
West		0.86	67	37	3	107	63	35	3



TURN MOVEMENT COUNTS

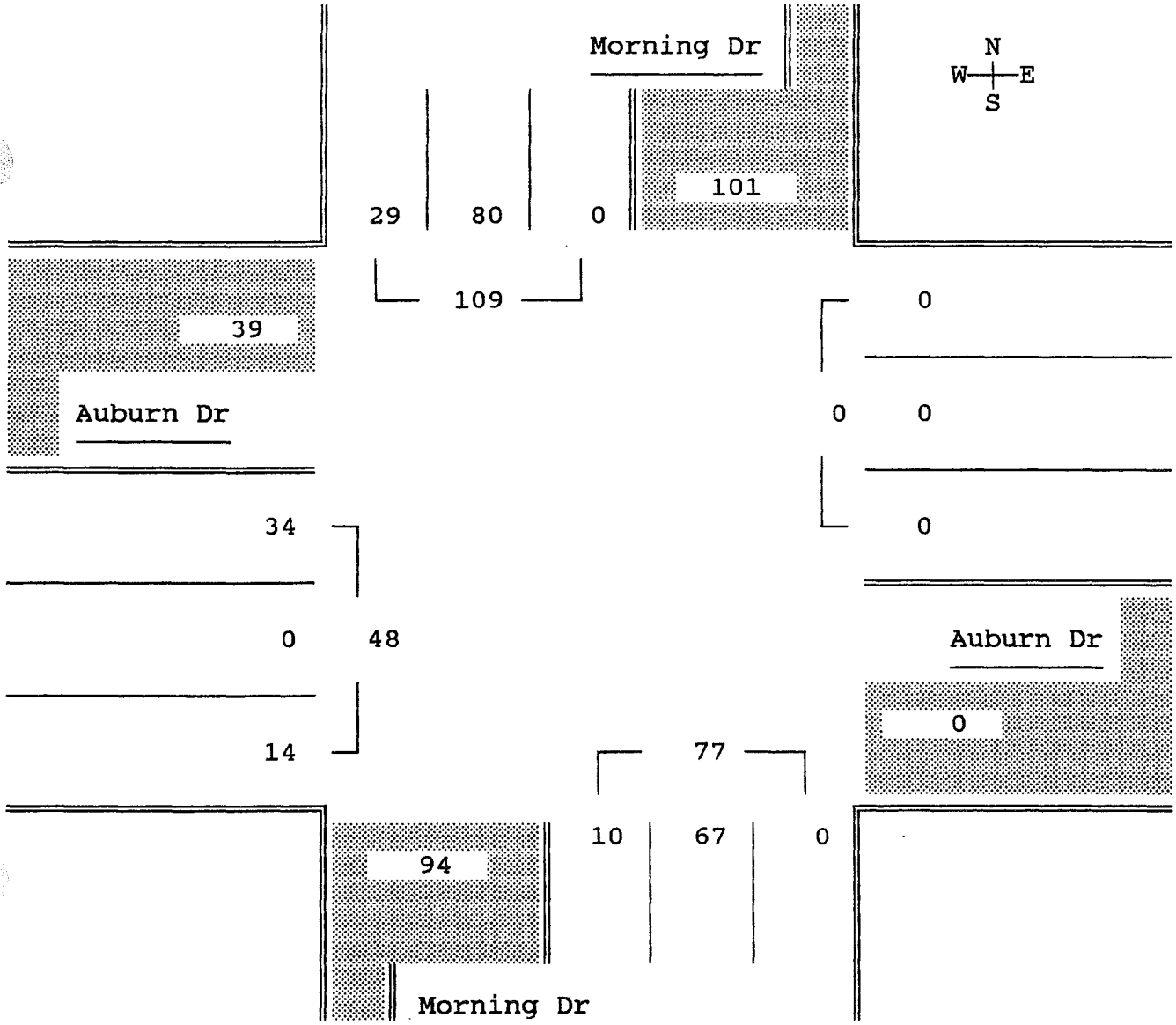
Site Code : 09137013
N-S STREET: Morning Dr
E-W STREET: Auburn Dr
DAY : Tue JC

Movements by: Primary

PAGE: 1
FILE: temp-1
DATE: 11/02/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.50	29	80	0	109	27	73	0
East	7:00 AM	0.00	0	0	0	0	0	0	0
South	7:00 AM	0.60	0	67	10	77	0	87	13
West	7:00 AM	0.46	14	0	34	48	29	0	71
Entire Intersection									
North	7:00 AM	0.50	29	80	0	109	27	73	0
East		0.00	0	0	0	0	0	0	0
South		0.60	0	67	10	77	0	87	13
West		0.46	14	0	34	48	29	0	71



TURN MOVEMENT COUNTS

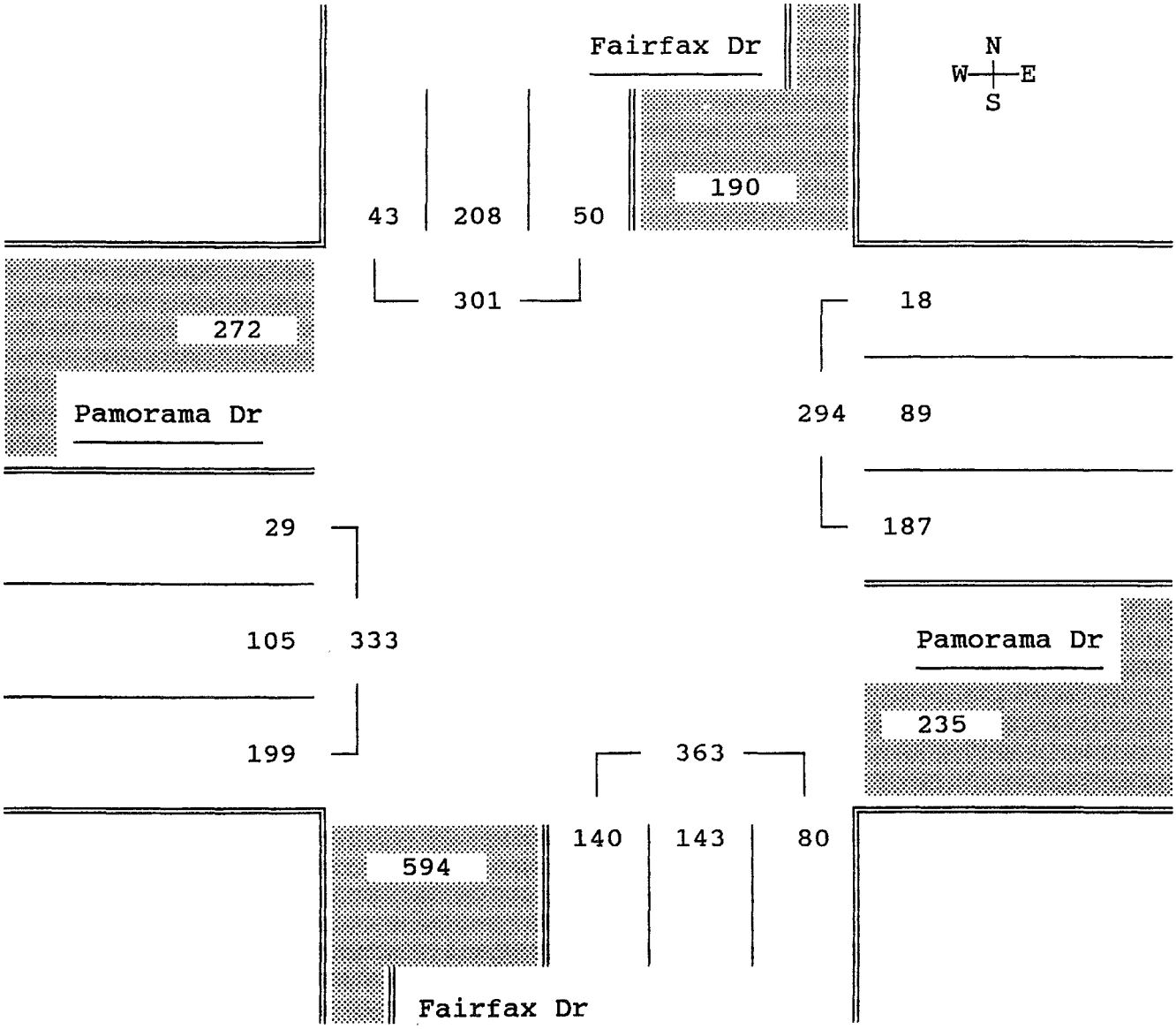
Site Code : 09137009
N-S STREET: Fairfax Dr
E-W STREET: Pamorama Dr
DAY : Tue DB

Movements by: Primary

PAGE: 1
FILE: temp-1
DATE: 11/02/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	VOLUMES Thru	VOLUMES Left	VOLUMES Total	PERCENTS Right	PERCENTS Thru	PERCENTS Left
North	7:00 AM	0.79	43	208	50	301	14	69	17
East	7:00 AM	0.62	18	89	187	294	6	30	64
South	7:00 AM	0.65	80	143	140	363	22	39	39
West	7:00 AM	0.73	199	105	29	333	60	32	9
Entire Intersection									
North	7:00 AM	0.79	43	208	50	301	14	69	17
East		0.62	18	89	187	294	6	30	64
South		0.65	80	143	140	363	22	39	39
West		0.73	199	105	29	333	60	32	9



TURN MOVEMENT COUNTS

Site Code : 00913011
N-S STREET: Fairfax Dr
E-W STREET: Auburn Dr
DAY : wed DB

Movements by: Primary

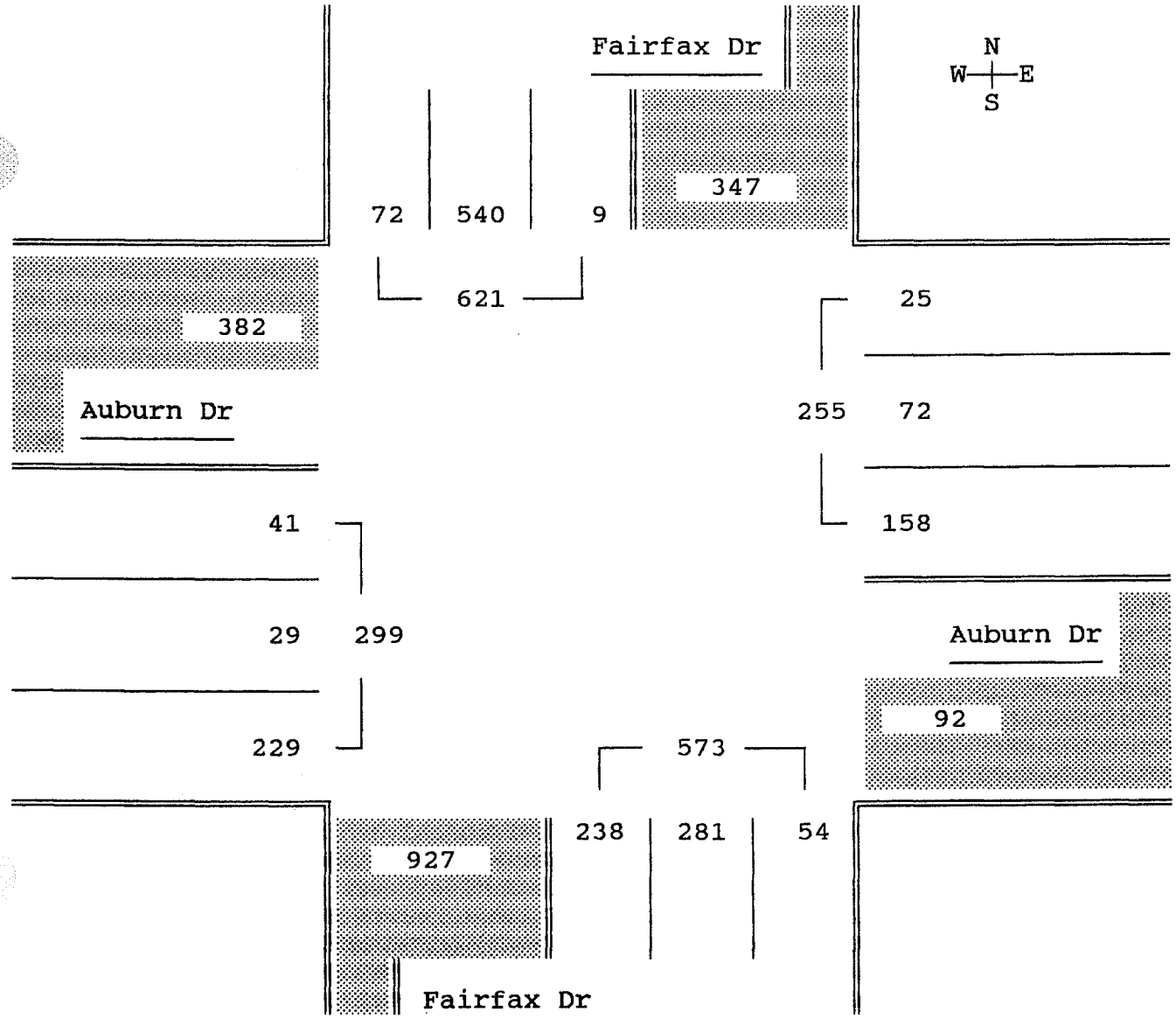
PAGE: 1
FILE: TEMP-2
DATE: 11/03/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.81	72	540	9	621	12	87	1
East	7:00 AM	0.81	25	72	158	255	10	28	62
South	7:00 AM	0.72	54	281	238	573	9	49	42
West	7:00 AM	0.62	229	29	41	299	77	10	14

Entire Intersection

North	7:00 AM	0.81	72	540	9	621	12	87	1
East		0.81	25	72	158	255	10	28	62
South		0.72	54	281	238	573	9	49	42
West		0.62	229	29	41	299	77	10	14



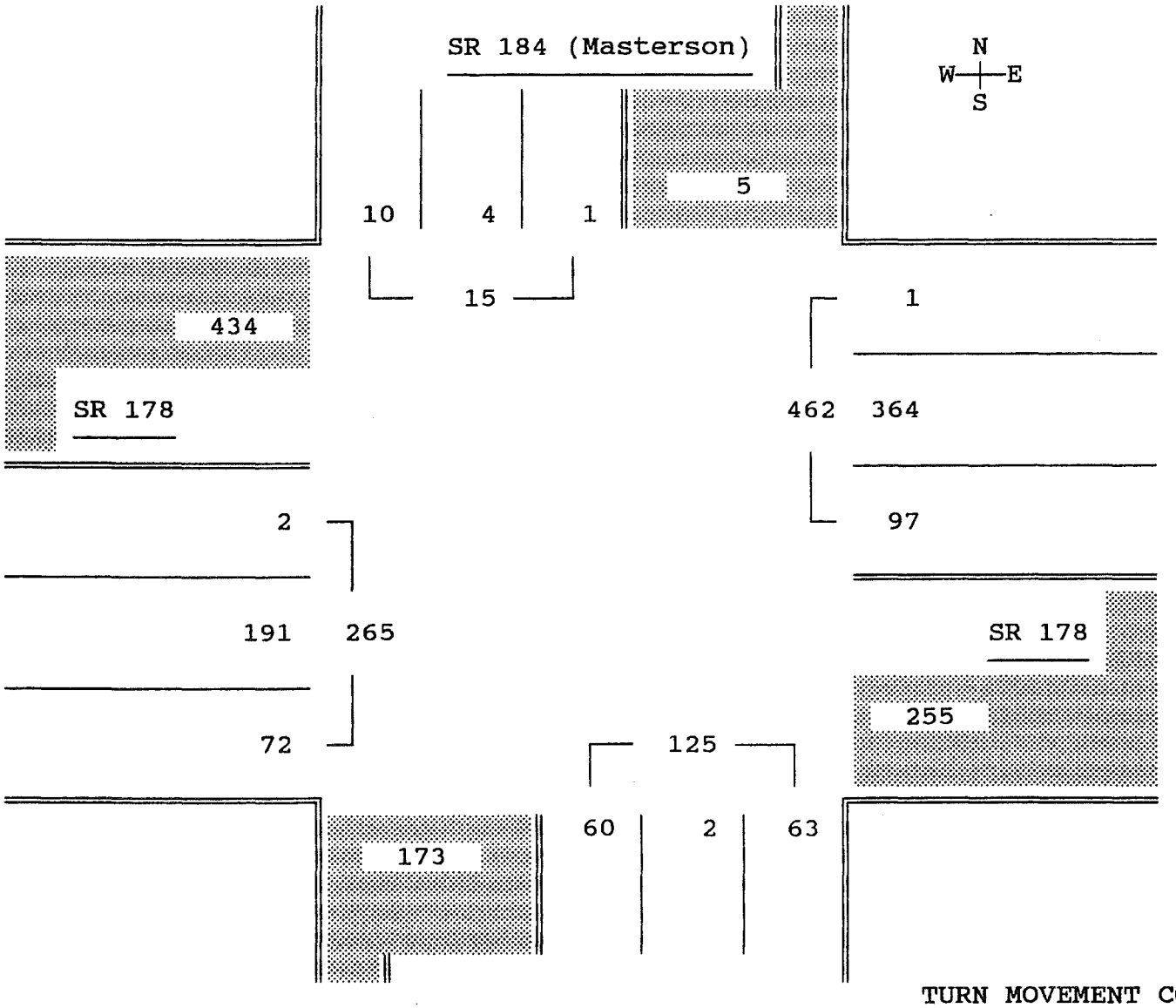
Site Code : 09137005
N / S : SR 184 (Masterson)
E / W : SR 178
OPERATOR : JC

Movements by: Primary

DATE: 10/26/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	6:15 AM	0.71	16	3	1	20	80	15	5
East	7:00 AM	0.77	1	364	97	462	0	79	21
South	7:00 AM	0.65	63	2	60	125	50	2	48
West	7:00 AM	0.87	72	191	2	265	27	72	1
Entire Intersection									
North	7:00 AM	0.75	10	4	1	15	67	27	7
East		0.77	1	364	97	462	0	79	21
South		0.65	63	2	60	125	50	2	48
West		0.87	72	191	2	265	27	72	1



TURN MOVEMENT COUNTS

Site Code : 09137003
N-S STREET: Fairfax Road
E-W STREET: Paladino Drive
DATE :

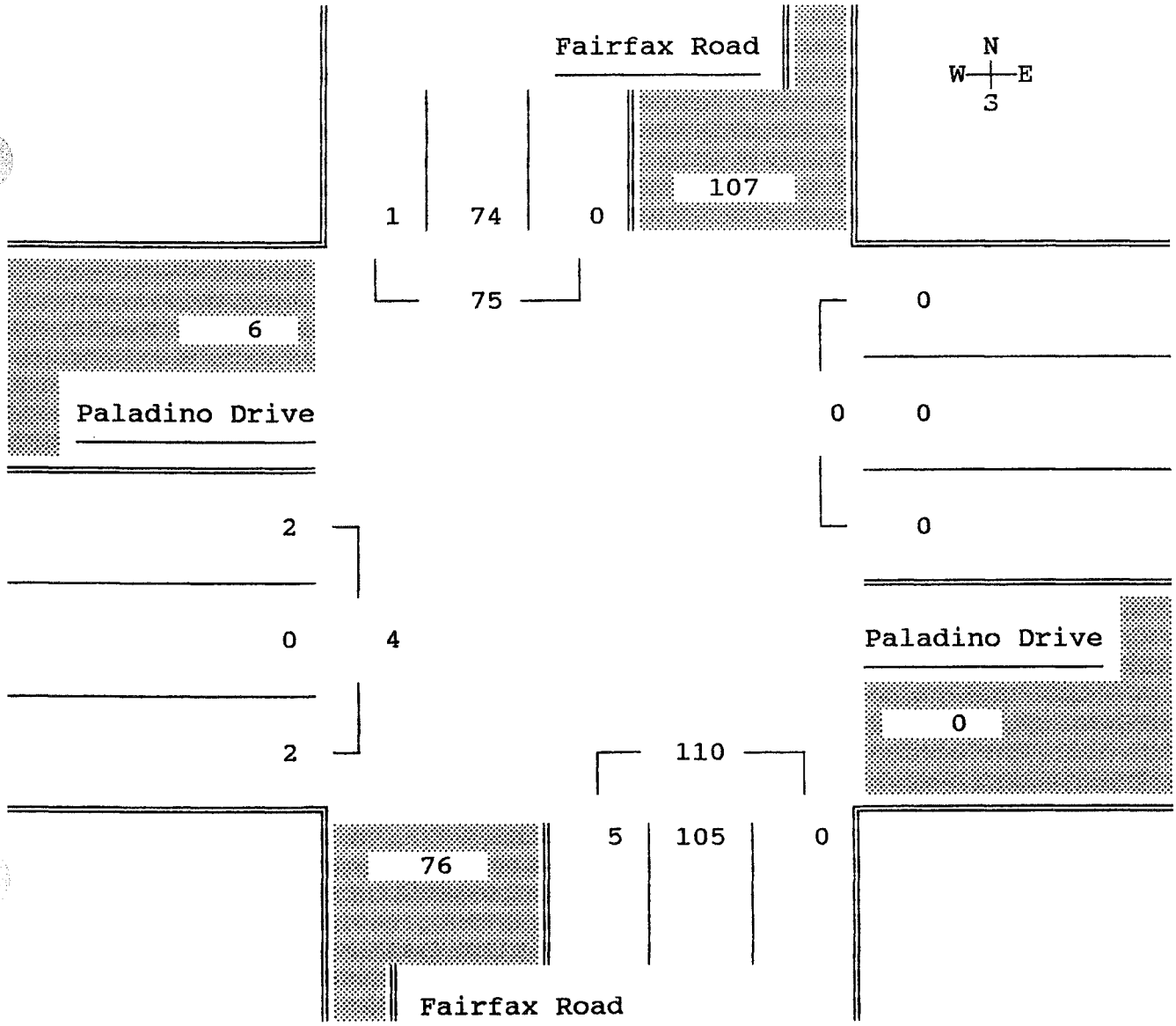
PAGE: 1
FILE: temp-1

Movements by: Primary

DATE: 10/26/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:30 AM - 8:30 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:15 AM	0.76	3	76	0	79	4	96	0
East	7:15 AM	0.00	0	0	0	0	0	0	0
South	6:30 AM	0.94	0	114	2	116	0	98	2
West	6:30 AM	0.63	0	0	5	5	0	0	%100
Entire Intersection									
North	7:00 AM	0.72	1	74	0	75	1	99	0
East		0.00	0	0	0	0	0	0	0
South		0.79	0	105	5	110	0	95	5
West		0.50	2	0	2	4	50	0	50



TURN MOVEMENT COUNTS

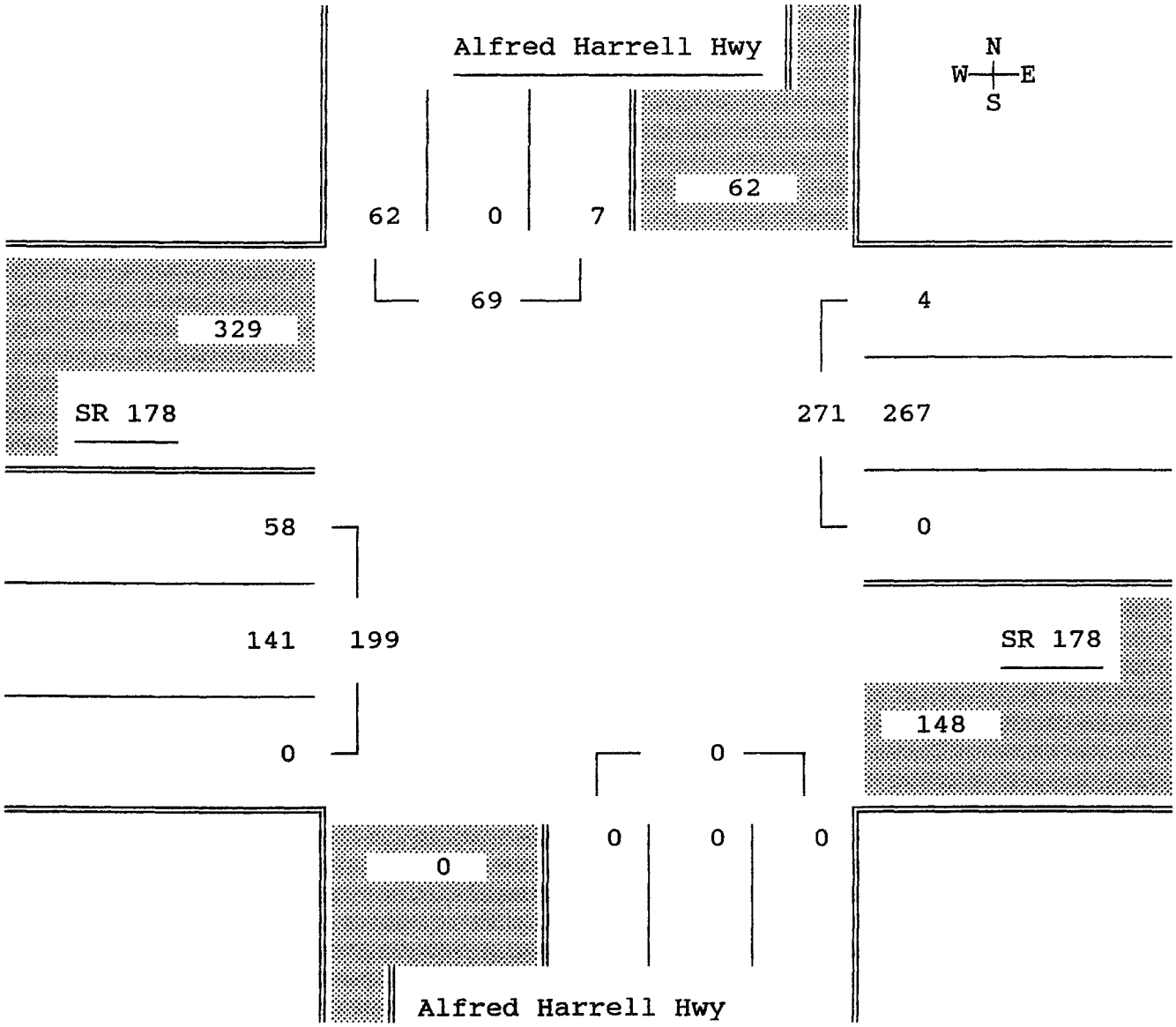
Site Code : 09137007
N / S : Alfred Harrell Hwy
E / W : SR 178
OPERATOR : DB

Movements by: Primary

PAGE: 1
FILE: 9137007
DATE: 10/27/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.78	62	0	7	69	90	0	10
East	7:00 AM	0.85	4	267	0	271	1	99	0
South	7:00 AM	0.00	0	0	0	0	0	0	0
West	7:00 AM	0.73	0	141	58	199	0	71	29
Entire Intersection									
North	7:00 AM	0.78	62	0	7	69	90	0	10
East		0.85	4	267	0	271	1	99	0
South		0.00	0	0	0	0	0	0	0
West		0.73	0	141	58	199	0	71	29



TURN MOVEMENT COUNTS

Site Code : 09137006
N / S : Commanche Dr
E : SR 178
OPERATOR : JC

Movements by: Primary

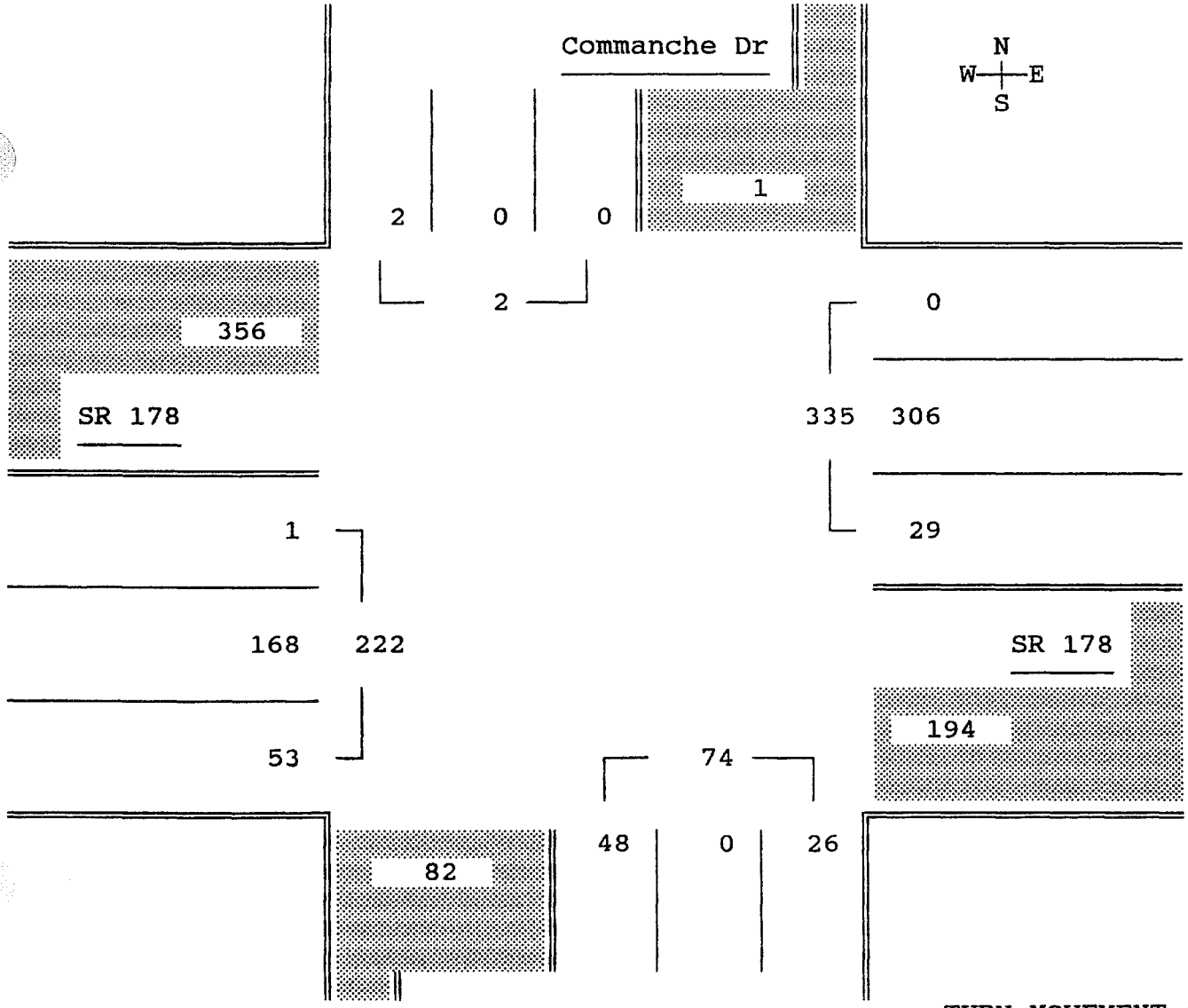
PAGE: 1
FILE: 9137006
DATE: 10/27/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.50	2	0	0	2	%100	0	0
East	7:00 AM	0.86	0	306	29	335	0	91	9
South	7:00 AM	0.74	26	0	48	74	35	0	65
West	7:00 AM	0.75	53	168	1	222	24	76	0

Entire Intersection

North	7:00 AM	0.50	2	0	0	2	%100	0	0
East		0.86	0	306	29	335	0	91	9
South		0.74	26	0	48	74	35	0	65
West		0.75	53	168	1	222	24	76	0



TURN MOVEMENT COUNTS

Site Code : 09137010
N-S STREET: Morning Drive
E-W STREET: Panaroma Drive
DAY : thur IL

Movements by: Primary

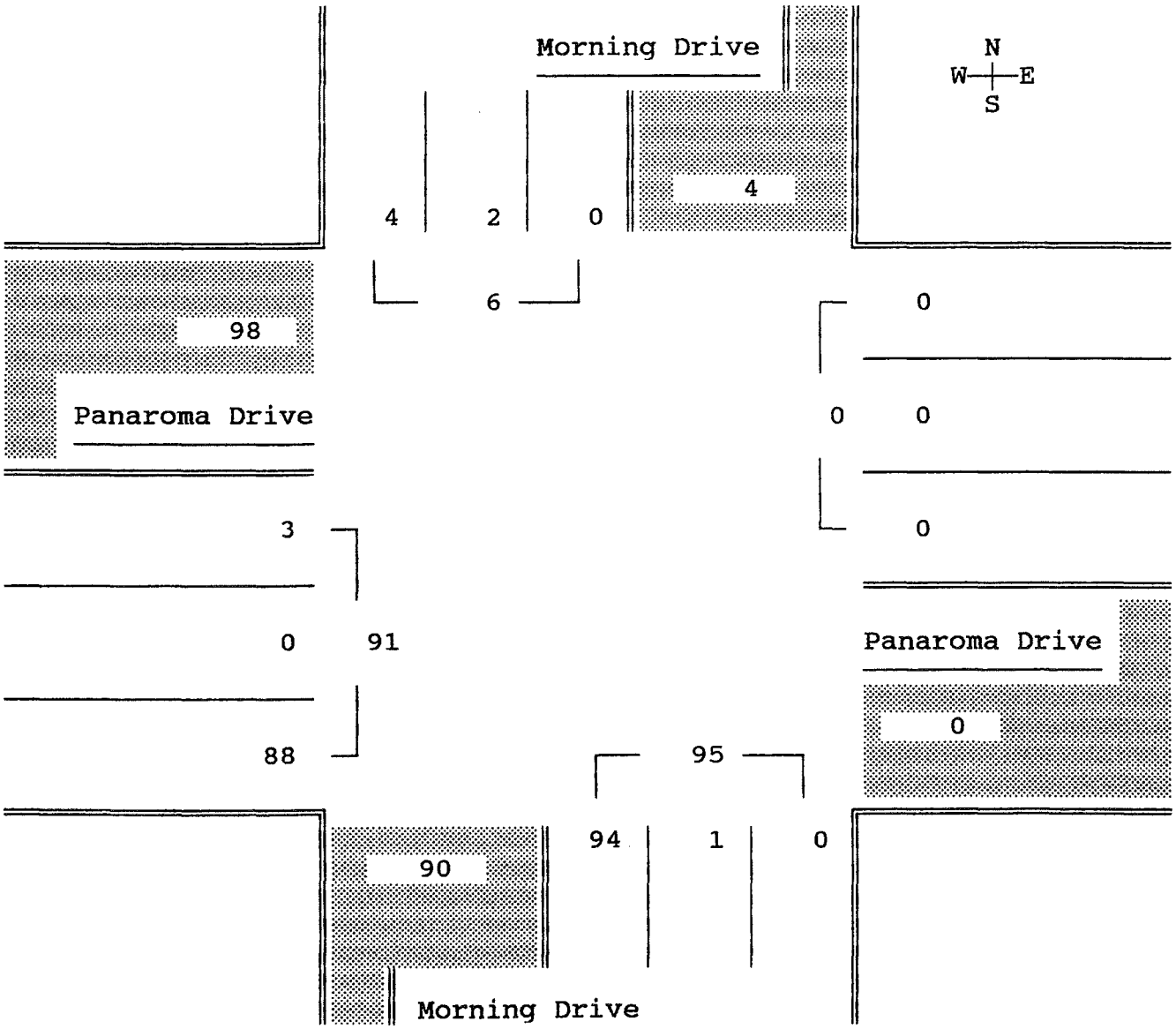
PAGE: 1
FILE: TEMP-2
DATE: 10/28/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.75	4	2	0	6	67	33	0
East	7:00 AM	0.00	0	0	0	0	0	0	0
South	7:00 AM	0.59	0	1	94	95	0	1	99
West	7:00 AM	0.61	88	0	3	91	97	0	3

Entire Intersection

North	7:00 AM	0.75	4	2	0	6	67	33	0
East		0.00	0	0	0	0	0	0	0
South		0.59	0	1	94	95	0	1	99
West		0.61	88	0	3	91	97	0	3



TURN MOVEMENT COUNTS

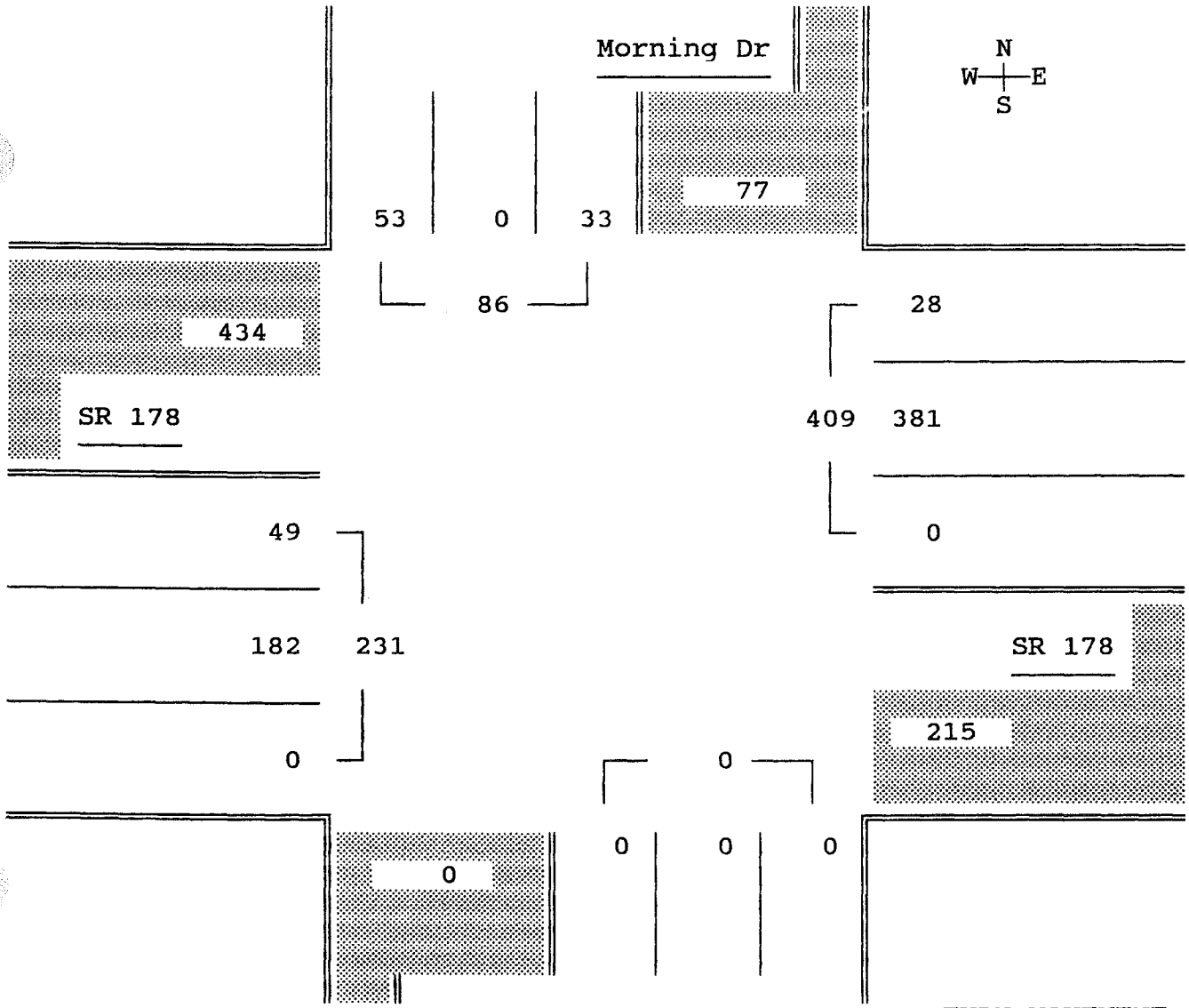
Site Code : 09137001
N / S : Morning Dr
E : SR 178
OPERATOR : JC

Movements by: Primary

PAGE: 1
FILE: 9137001
DATE: 10/28/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.58	53	0	33	86	62	0	38
East	7:00 AM	0.79	28	381	0	409	7	93	0
South	7:00 AM	0.00	0	0	0	0	0	0	0
West	7:00 AM	0.70	0	182	49	231	0	79	21
Entire Intersection									
North	7:00 AM	0.58	53	0	33	86	62	0	38
East		0.79	28	381	0	409	7	93	0
South		0.00	0	0	0	0	0	0	0
West		0.70	0	182	49	231	0	79	21



TURN MOVEMENT COUNTS

TURN MOVEMENT COUNTS

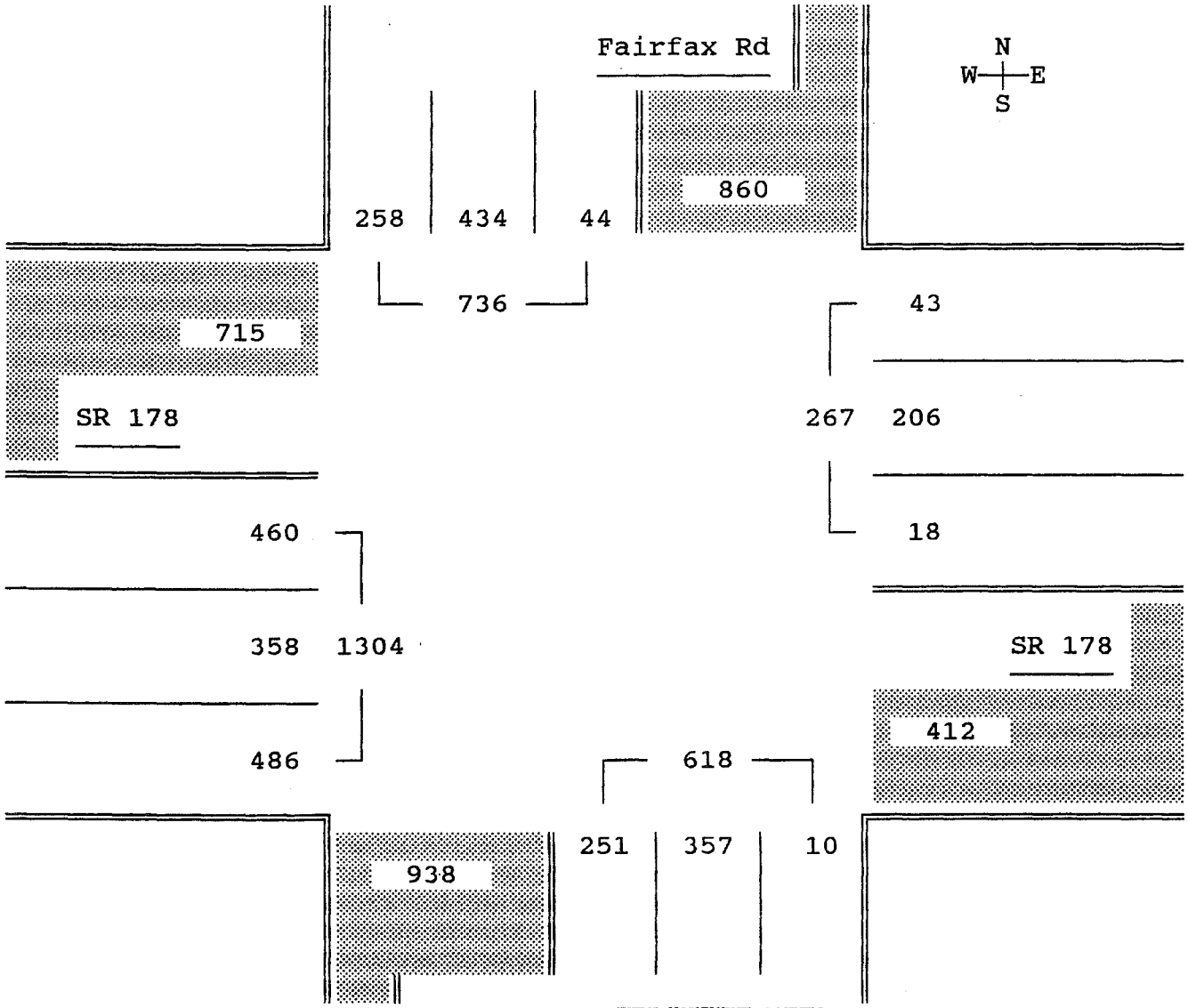
Site Code : 09137008
N / S : Fairfax Rd
E / W : SR 178
OPERATOR : DB

Movements by: Primary

PAGE: 1
FILE: temp2
DATE: 0/02/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	5:00 PM	0.89	258	434	44	736	35	59	6
East	4:15 PM	0.94	38	236	16	290	13	81	6
South	5:00 PM	0.87	10	357	251	618	2	58	41
West	5:00 PM	0.91	486	358	460	1304	37	27	35
Entire Intersection									
North	5:00 PM	0.89	258	434	44	736	35	59	6
East		0.83	43	206	18	267	16	77	7
South		0.87	10	357	251	618	2	58	40
West		0.91	486	358	460	1304	37	27	36



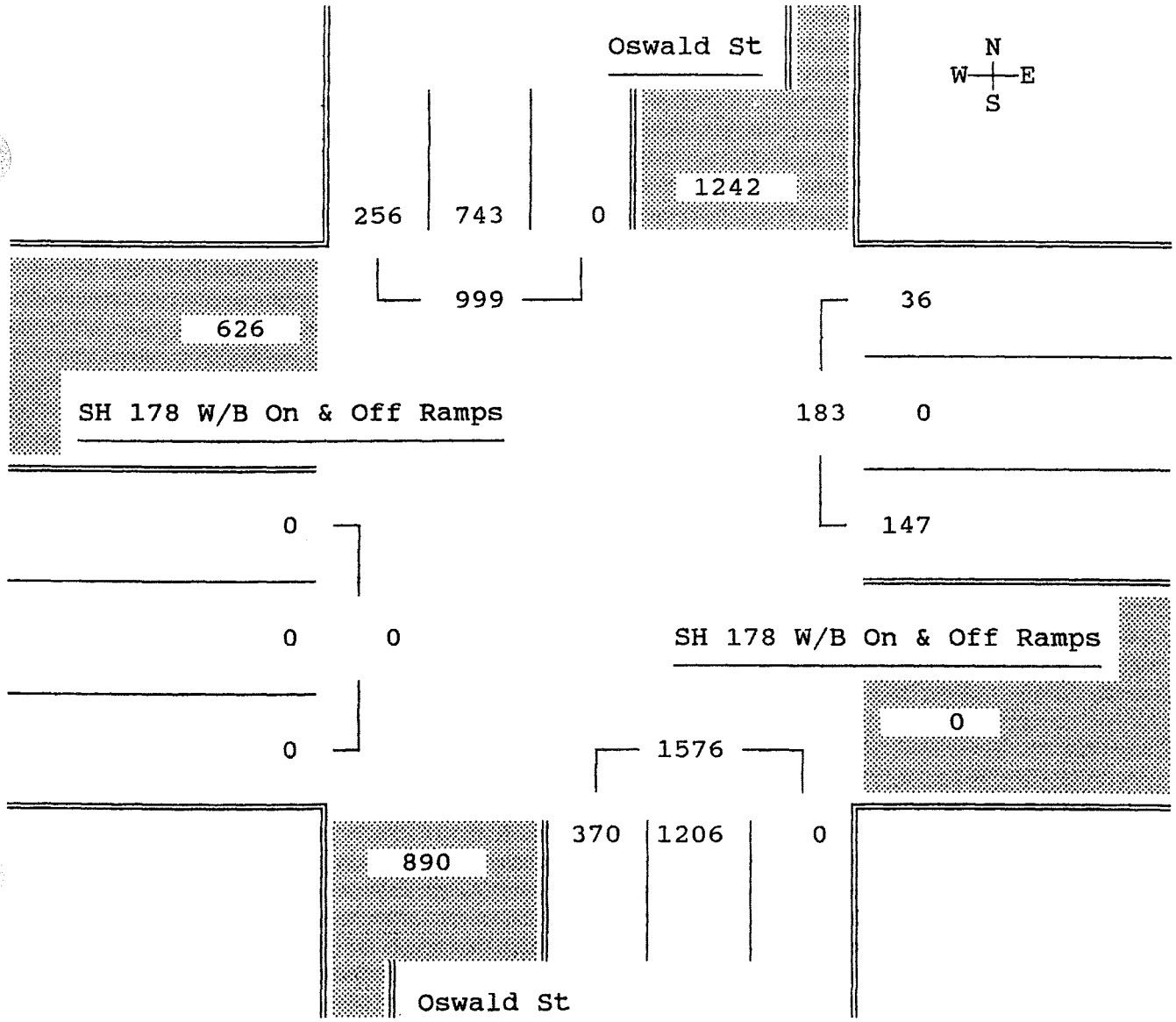
Site Code : 09999991
N-S Street: Oswald St
E-W Street: SH 178 W/B On & Off Ramps
Weather : Tue DB

Movements by: Primary

PAGE: 1
FILE: 99999991
9-137
DATE: 12/21/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:00 PM	0.95	274	761	0	1035	26	74	0
East	4:15 PM	0.91	41	0	145	186	22	0	78
South	4:45 PM	0.91	0	1215	373	1588	0	77	23
West	4:45 PM	0.00	0	0	0	0	0	0	0
Entire Intersection									
North	4:30 PM	0.94	256	743	0	999	26	74	0
East		0.90	36	0	147	183	20	0	80
South		0.91	0	1206	370	1576	0	77	23
West		0.00	0	0	0	0	0	0	0



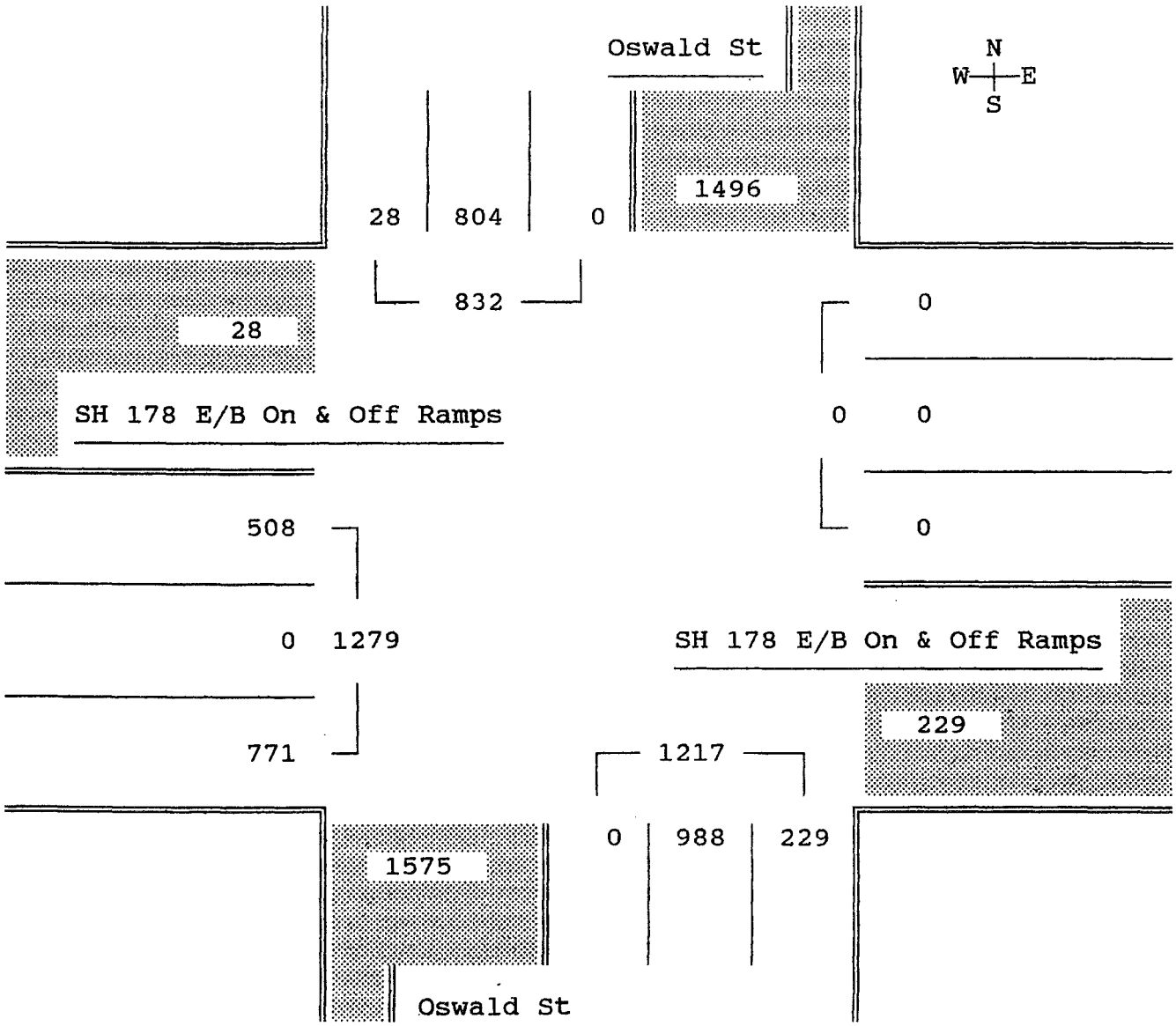
Site Code : 09999992
N-S Street: Oswald St
E-W Street: SH 178 E/B On & Off Ramps
Weather : Tue JC

Movements by: Primary

PAGE: 1
FILE: 99999992
9-131
DATE: 12/21/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:00 PM	0.93	31	839	0	870	4	96	0
East	4:00 PM	0.00	0	0	0	0	0	0	0
South	4:30 PM	0.87	218	1053	0	1271	17	83	0
West	5:00 PM	0.84	771	0	508	1279	60	0	40
Entire Intersection									
North	5:00 PM	0.97	28	804	0	832	3	97	0
East		0.00	0	0	0	0	0	0	0
South		0.83	229	988	0	1217	19	81	0
West		0.84	771	0	508	1279	60	0	40



TURN MOVEMENT COUNTS

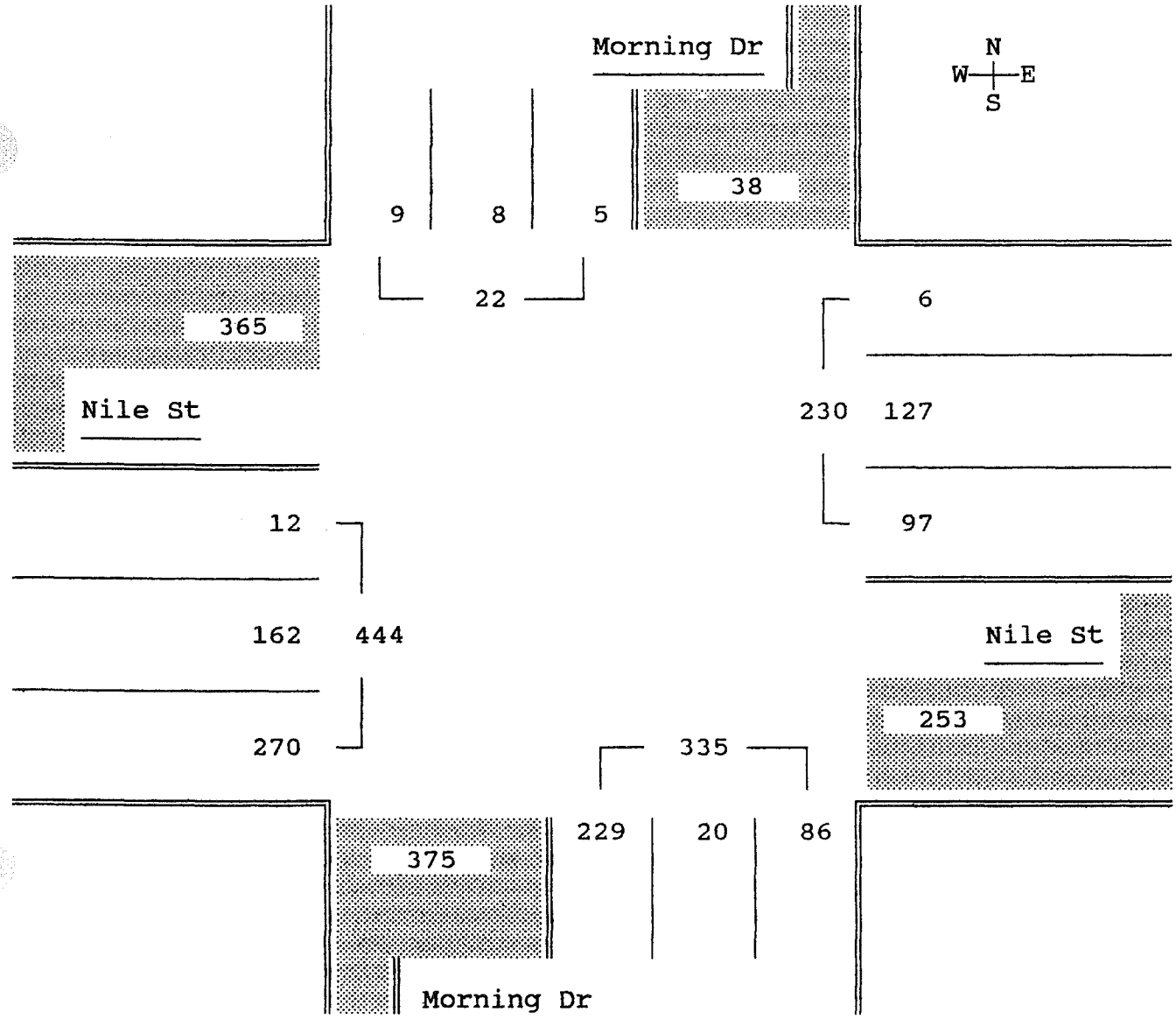
Site Code : 09137014
N-S STREET: Morning Dr
E-W STREET: Nile St
DAY : Wed

Movements by: Primary

PAGE: 1
FILE: temp-3
DATE: 12/29/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:45 PM	0.86	12	9	3	24	50	38	12
East	4:30 PM	0.86	6	127	97	230	3	55	42
South	4:00 PM	0.90	92	13	230	335	27	4	69
West	4:30 PM	0.94	270	162	12	444	61	36	3
Entire Intersection									
North	4:30 PM	0.92	9	8	5	22	41	36	23
East		0.86	6	127	97	230	3	55	42
South		0.90	86	20	229	335	26	6	68
West		0.94	270	162	12	444	61	36	3



TURN MOVEMENT COUNTS

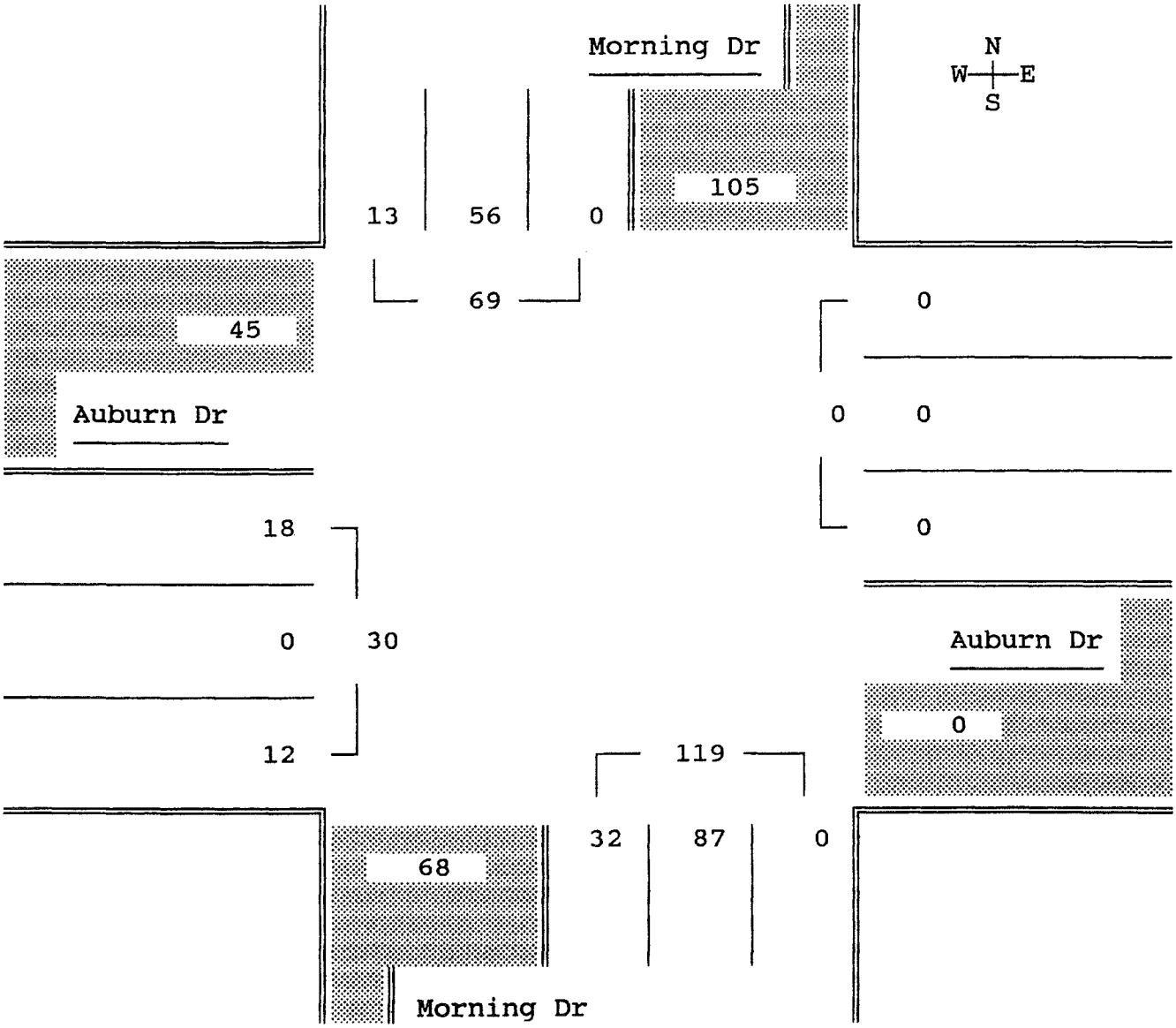
Site Code : 09137013
N-S STREET: Morning Dr
E-W STREET: Auburn Dr
DAY : Tue JC

Movements by: Primary

PAGE: 1
FILE: temp-1
DATE: 11/02/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:45 PM	0.75	13	56	0	69	19	81	0
East	4:45 PM	0.00	0	0	0	0	0	0	0
South	4:45 PM	0.73	0	87	32	119	0	73	27
West	4:30 PM	0.70	12	0	19	31	39	0	61
Entire Intersection									
North	4:45 PM	0.75	13	56	0	69	19	81	0
East		0.00	0	0	0	0	0	0	0
South		0.73	0	87	32	119	0	73	27
West		0.68	12	0	18	30	40	0	60



TURN MOVEMENT COUNTS

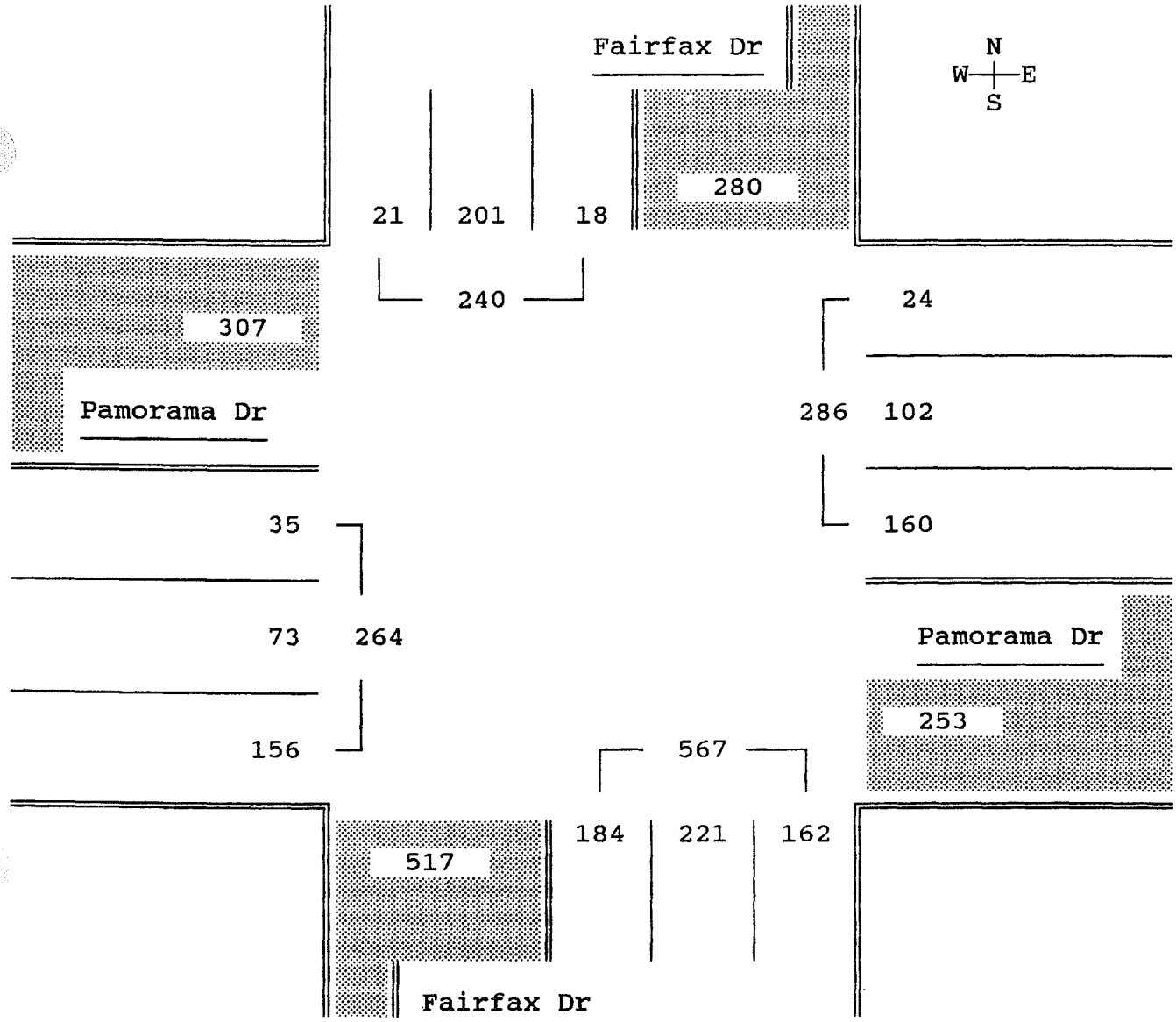
Site Code : 09137009
N-S STREET: Fairfax Dr
E-W STREET: Pamorama Dr
DAY : Tue DB

Movements by: Primary

PAGE: 1
FILE: temp-1
DATE: 11/02/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:30 PM	0.87	29	202	23	254	11	80	9
East	5:00 PM	0.64	24	102	160	286	8	36	56
South	5:00 PM	0.80	162	221	184	567	29	39	32
West	5:00 PM	0.87	156	73	35	264	59	28	13
Entire Intersection									
North	5:00 PM	0.87	21	201	18	240	9	84	8
East		0.64	24	102	160	286	8	36	56
South		0.80	162	221	184	567	29	39	32
West		0.87	156	73	35	264	59	28	13



TURN MOVEMENT COUNTS

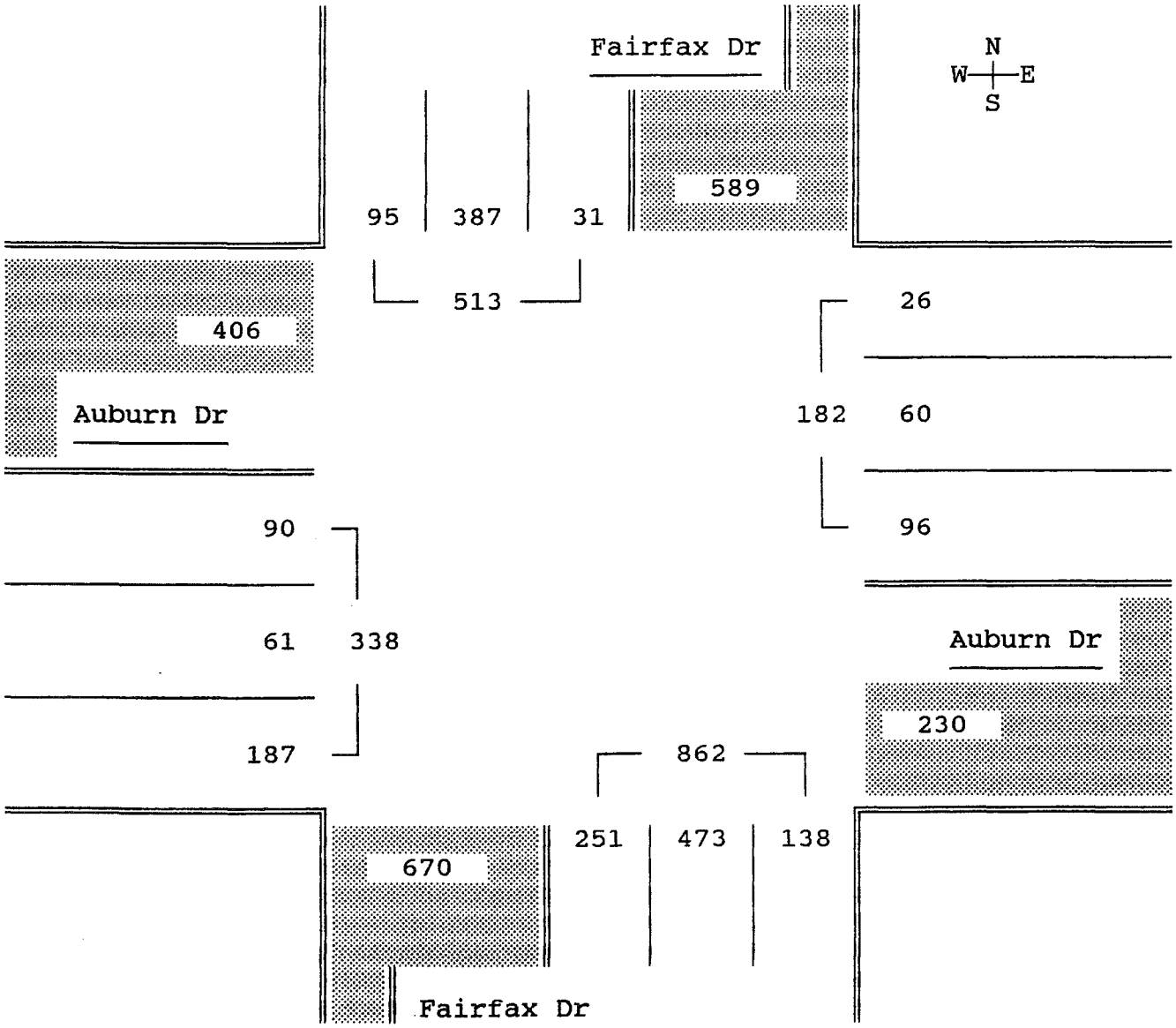
Site Code : 00913011
N-S STREET: Fairfax Dr
E-W STREET: Auburn Dr
DAY : wed DB

Movements by: Primary

PAGE: 1
FILE: TEMP-2
DATE: 11/03/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	5:00 PM	0.93	95	387	31	513	19	75	6
East	5:00 PM	0.88	26	60	96	182	14	33	53
South	5:00 PM	0.92	138	473	251	862	16	55	29
West	5:00 PM	0.86	187	61	90	338	55	18	27
Entire Intersection									
North	5:00 PM	0.93	95	387	31	513	19	75	6
East		0.88	26	60	96	182	14	33	53
South		0.92	138	473	251	862	16	55	29
West		0.86	187	61	90	338	55	18	27



TURN MOVEMENT COUNTS

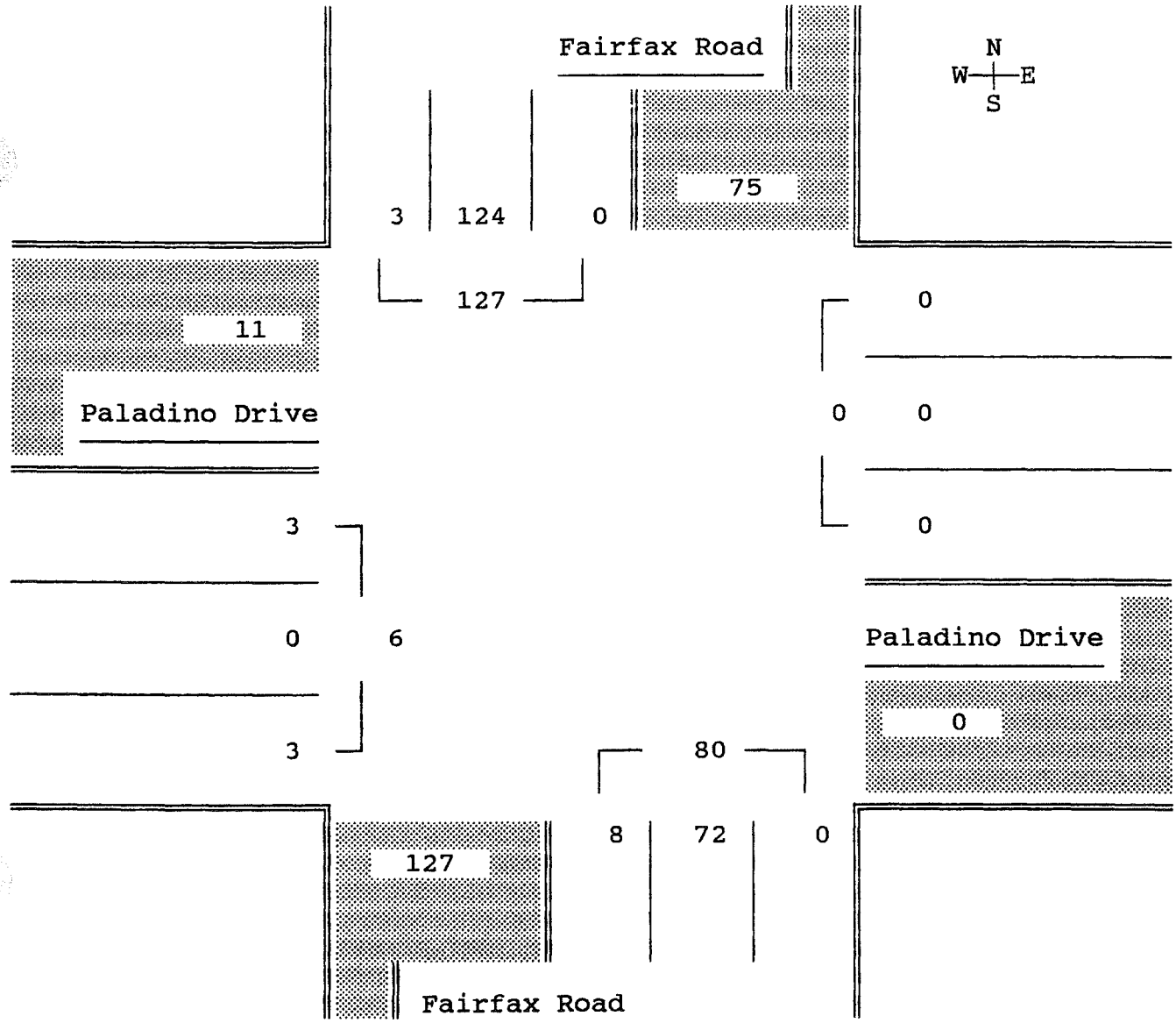
Site Code : 09137003
N-S STREET: Fairfax Road
E-W STREET: Paladino Drive
DAY :

Movements by: Primary

PAGE: 1
FILE: temp-1
DATE: 10/26/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 5:45 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:45 PM	0.79	3	124	0	127	2	98	0
East	4:45 PM	0.00	0	0	0	0	0	0	0
South	4:45 PM	0.65	0	72	8	80	0	90	10
West	4:15 PM	0.58	2	0	5	7	29	0	71
Entire Intersection									
North	4:45 PM	0.79	3	124	0	127	2	98	0
East		0.00	0	0	0	0	0	0	0
South		0.65	0	72	8	80	0	90	10
West		0.50	3	0	3	6	50	0	50



▸&kOS

TURN MOVEMENT COUNTS

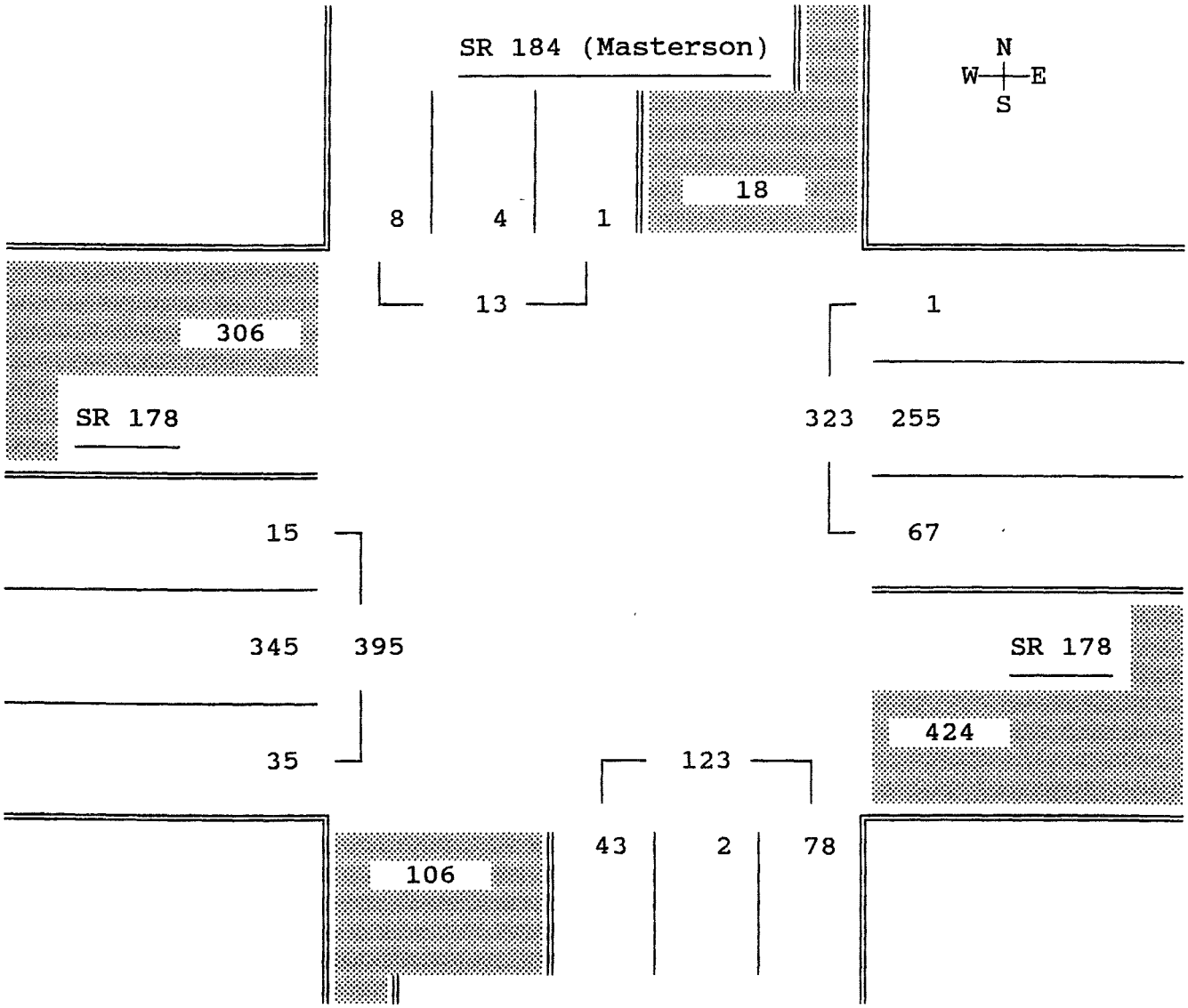
Site Code : 09137005
N / S : SR 184 (Masterson)
E / W : SR 178
OPERATOR : JC

Movements by: Primary

PAGE: 1
FILE: 9137005
DATE: 10/26/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:15 PM	0.67	8	7	1	16	50	44	6
East	4:45 PM	0.92	1	255	67	323	0	79	21
South	4:15 PM	0.75	77	4	60	141	55	3	43
West	5:00 PM	0.94	27	374	14	415	7	90	3
Entire Intersection									
North	4:45 PM	0.54	8	4	1	13	62	31	8
East		0.92	1	255	67	323	0	79	21
South		0.65	78	2	43	123	63	2	35
West		0.91	35	345	15	395	9	87	4



TURN MOVEMENT COUNTS

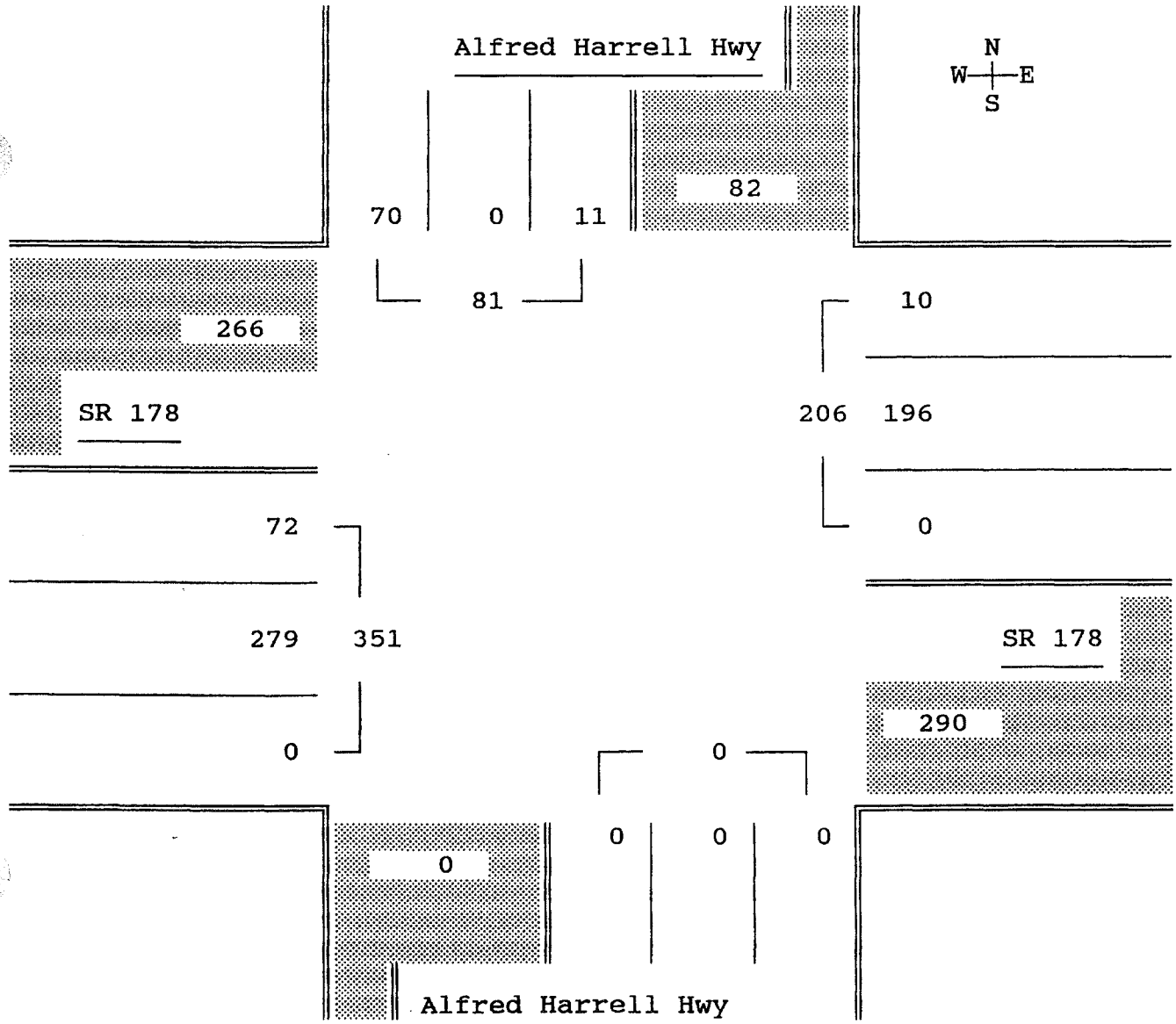
Site Code : 09137007
N / S : Alfred Harrell Hwy
E : SR 178
OPERATOR : DB

Movements by: Primary

PAGE: 1
FILE: 9137007
DATE: 10/27/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	5:00 PM	0.95	83	0	8	91	91	0	9
East	4:30 PM	0.86	10	196	0	206	5	95	0
South	4:30 PM	0.00	0	0	0	0	0	0	0
West	4:45 PM	0.88	0	280	72	352	0	80	20
Entire Intersection									
North	4:30 PM	0.84	70	0	11	81	86	0	14
East		0.86	10	196	0	206	5	95	0
South		0.00	0	0	0	0	0	0	0
West		0.89	0	279	72	351	0	79	21



TURN MOVEMENT COUNTS

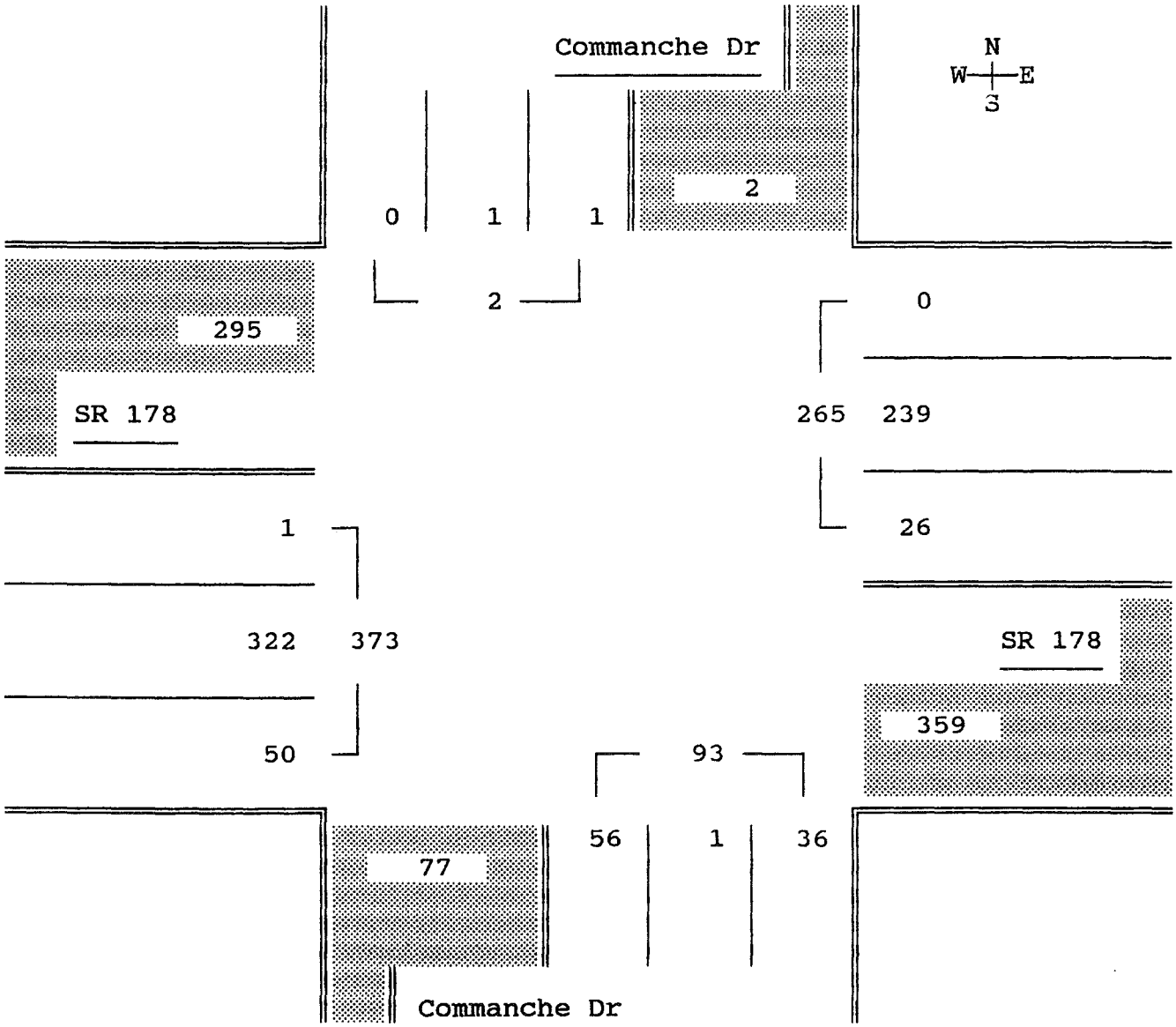
Site Code : 09137006
N / S : Commanche Dr
E / W : SR 178
OPERATOR : JC

Movements by: Primary

PAGE: 1
FILE: 9137006
DATE: 10/27/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:00 PM	0.50	1	1	0	2	50	50	0
East	4:30 PM	0.86	0	239	26	265	0	90	10
South	4:15 PM	0.74	39	1	63	103	38	1	61
West	4:30 PM	0.86	50	322	1	373	13	86	0
Entire Intersection									
North	4:30 PM	0.50	0	1	1	2	0	50	50
East		0.86	0	239	26	265	0	90	10
South		0.83	36	1	56	93	39	1	60
West		0.86	50	322	1	373	13	86	0



TURN MOVEMENT COUNTS

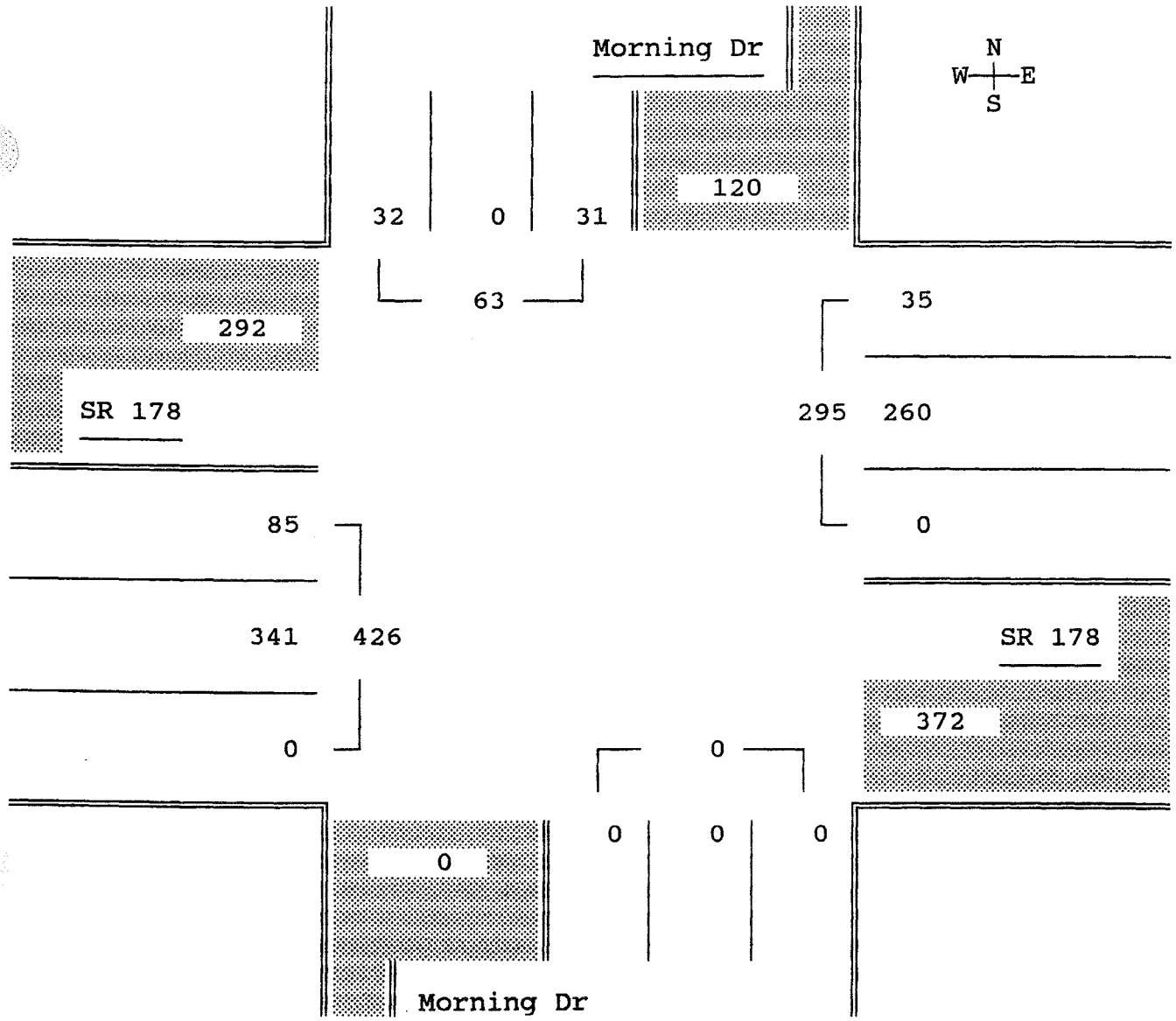
Site Code : 09137001
N / S : Morning Dr
E / W : SR 178
OPERATOR : JC

Movements by: Primary

PAGE: 1
FILE: 9137001
DATE: 10/28/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:45 PM	0.83	32	0	31	63	51	0	49
East	4:15 PM	0.84	29	270	0	299	10	90	0
South	4:00 PM	0.50	0	0	2	2	0	0	%100
West	5:00 PM	0.90	0	356	71	427	0	83	17
Entire Intersection									
North	4:45 PM	0.83	32	0	31	63	51	0	49
East		0.83	35	260	0	295	12	88	0
South		0.00	0	0	0	0	0	0	0
West		0.90	0	341	85	426	0	80	20



TURN MOVEMENT COUNTS

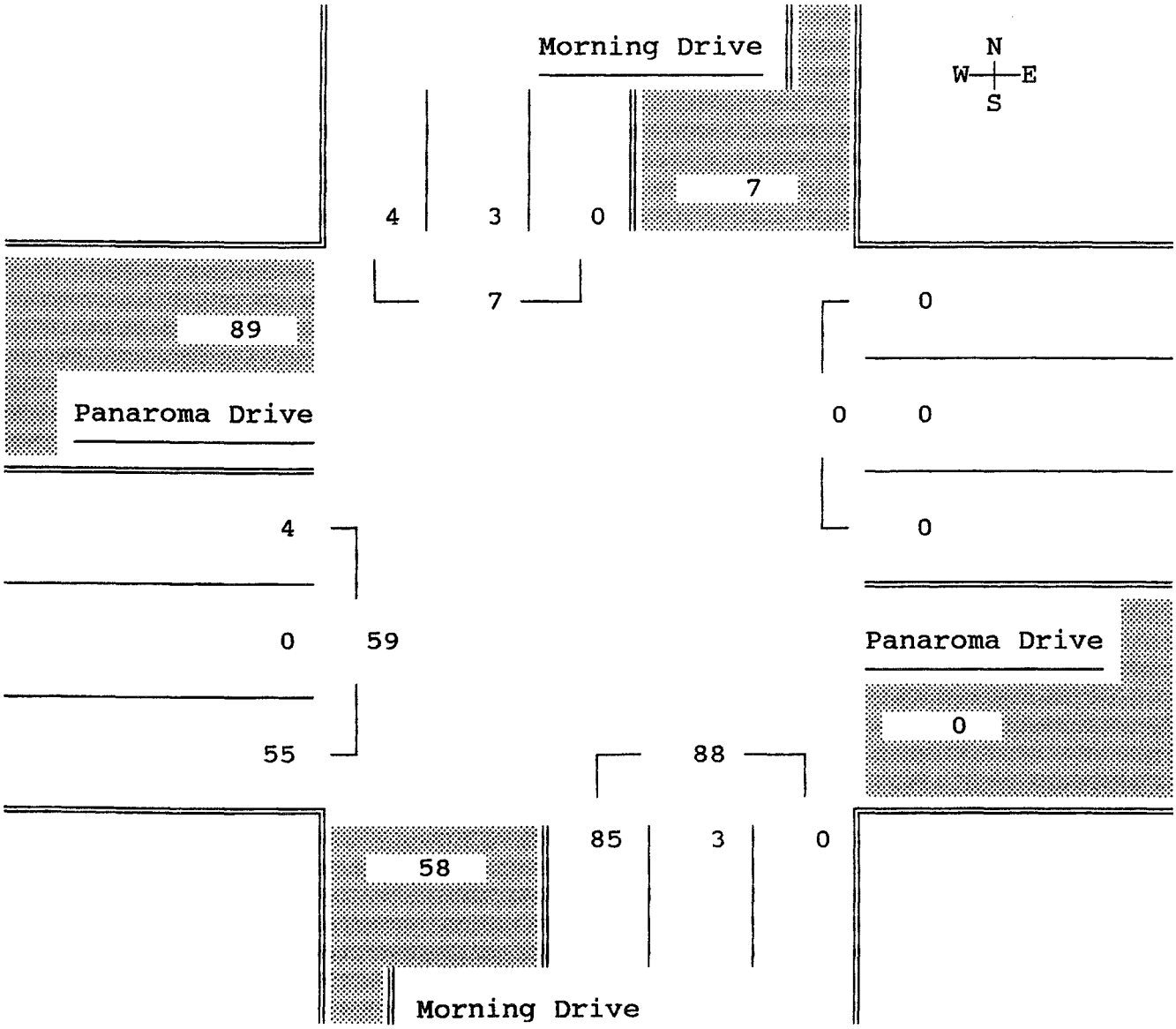
Site Code : 09137010
N-S STREET: Morning Drive
E-W STREET: Panaroma Drive
DAY : thur IL

Movements by: Primary

PAGE: 1
FILE: TEMP-2
DATE: 10/28/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:45 PM	0.44	4	3	0	7	57	43	0
East	4:45 PM	0.00	0	0	0	0	0	0	0
South	4:45 PM	0.63	0	3	85	88	0	3	97
West	5:00 PM	0.70	60	0	4	64	94	0	6
Entire Intersection									
North	4:45 PM	0.44	4	3	0	7	57	43	0
East		0.00	0	0	0	0	0	0	0
South		0.63	0	3	85	88	0	3	97
West		0.64	55	0	4	59	93	0	7



TURN MOVEMENT COUNTS

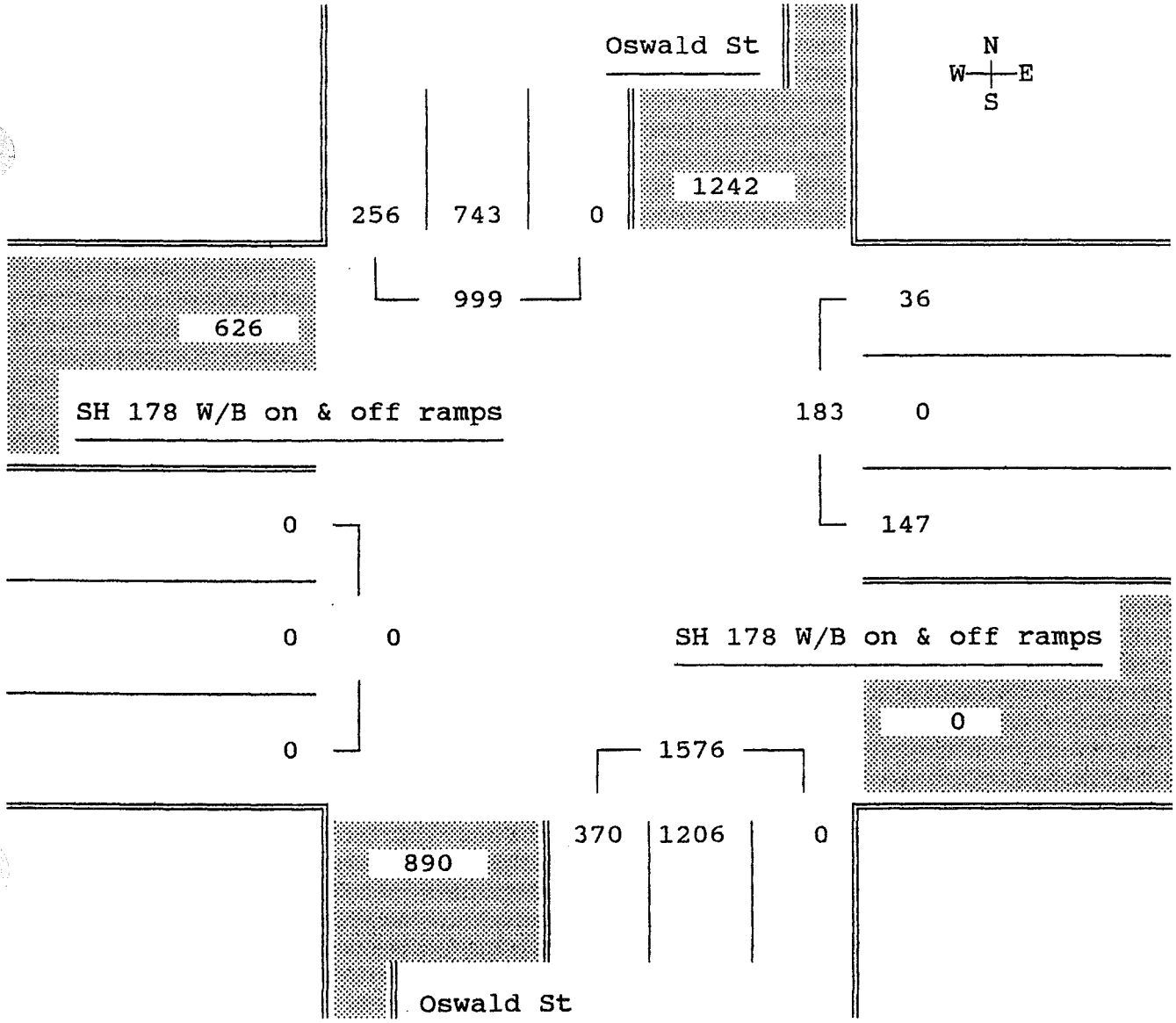
Site Code : 09999991
N-S STREET: Oswald St
E-W STREET: SH 178 W/B on & off ramps
DAY : Tue DB

Movements by: Primary

PAGE: 1
FILE: 99999991
DATE: 12/21/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:00 PM	0.95	274	761	0	1035	26	74	0
East	4:15 PM	0.91	41	0	145	186	22	0	78
South	4:45 PM	0.91	0	1215	373	1588	0	77	23
West	4:45 PM	0.00	0	0	0	0	0	0	0
Entire Intersection									
North	4:30 PM	0.94	256	743	0	999	26	74	0
East		0.90	36	0	147	183	20	0	80
South		0.91	0	1206	370	1576	0	77	23
West		0.00	0	0	0	0	0	0	0



TURN MOVEMENT COUNTS

Site Code : 09999991
N-S STREET: Oswald St
E-W STREET: SH 178 W/B on & off ramps
DAY : Tue DB

Movements by: Primary

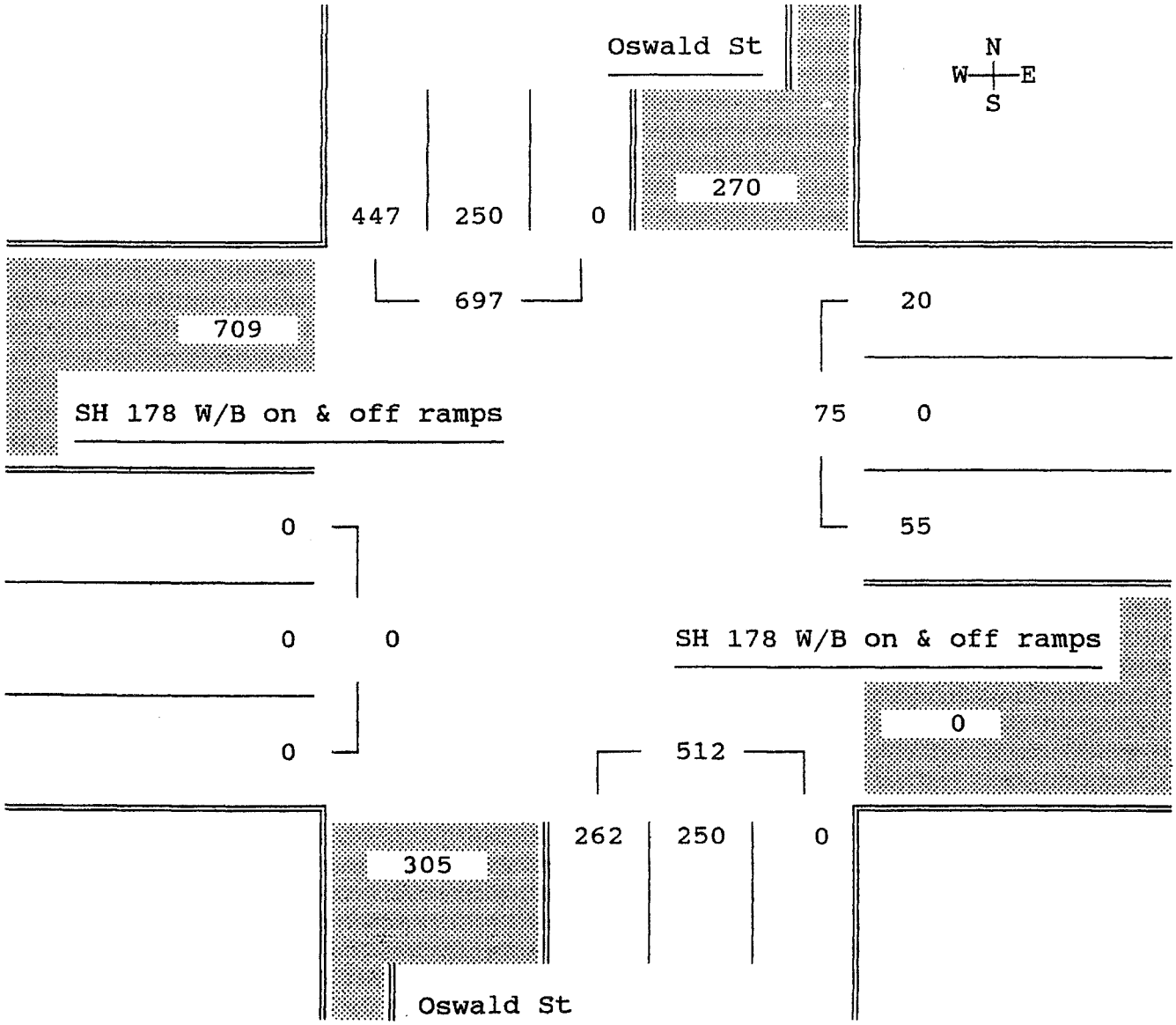
PAGE: 1
FILE: 99999991
DATE: 12/21/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.68	447	250	0	697	64	36	0
East	7:00 AM	0.75	20	0	55	75	27	0	73
South	7:00 AM	0.86	0	250	262	512	0	49	51
West	7:00 AM	0.00	0	0	0	0	0	0	0

Entire Intersection

North	7:00 AM	0.68	447	250	0	697	64	36	0
East		0.75	20	0	55	75	27	0	73
South		0.86	0	250	262	512	0	49	51
West		0.00	0	0	0	0	0	0	0



TURN MOVEMENT COUNTS

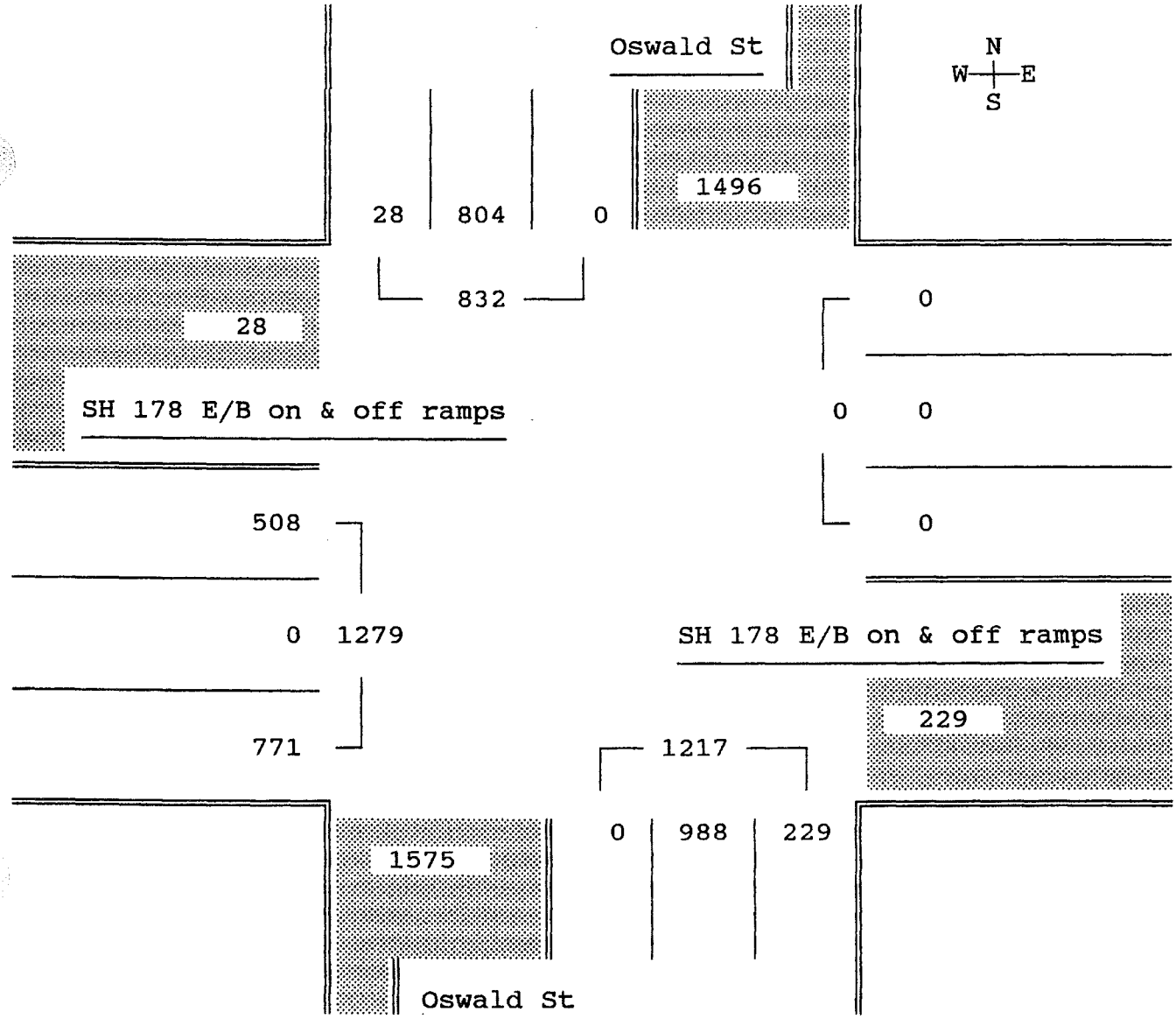
Site Code : 09999992
N-S STREET: Oswald St
E-W STREET: SH 178 E/B on & off ramps
DAY : Tue JC

Movements by: Primary

PAGE: 1
FILE: temp-1
DATE: 12/21/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 4:00 PM - 6:00 PM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	4:00 PM	0.93	31	839	0	870	4	96	0
East	4:00 PM	0.00	0	0	0	0	0	0	0
South	4:30 PM	0.87	218	1053	0	1271	17	83	0
West	5:00 PM	0.84	771	0	508	1279	60	0	40
Entire Intersection									
North	5:00 PM	0.97	28	804	0	832	3	97	0
East		0.00	0	0	0	0	0	0	0
South		0.83	229	988	0	1217	19	81	0
West		0.84	771	0	508	1279	60	0	40



TURN MOVEMENT COUNTS

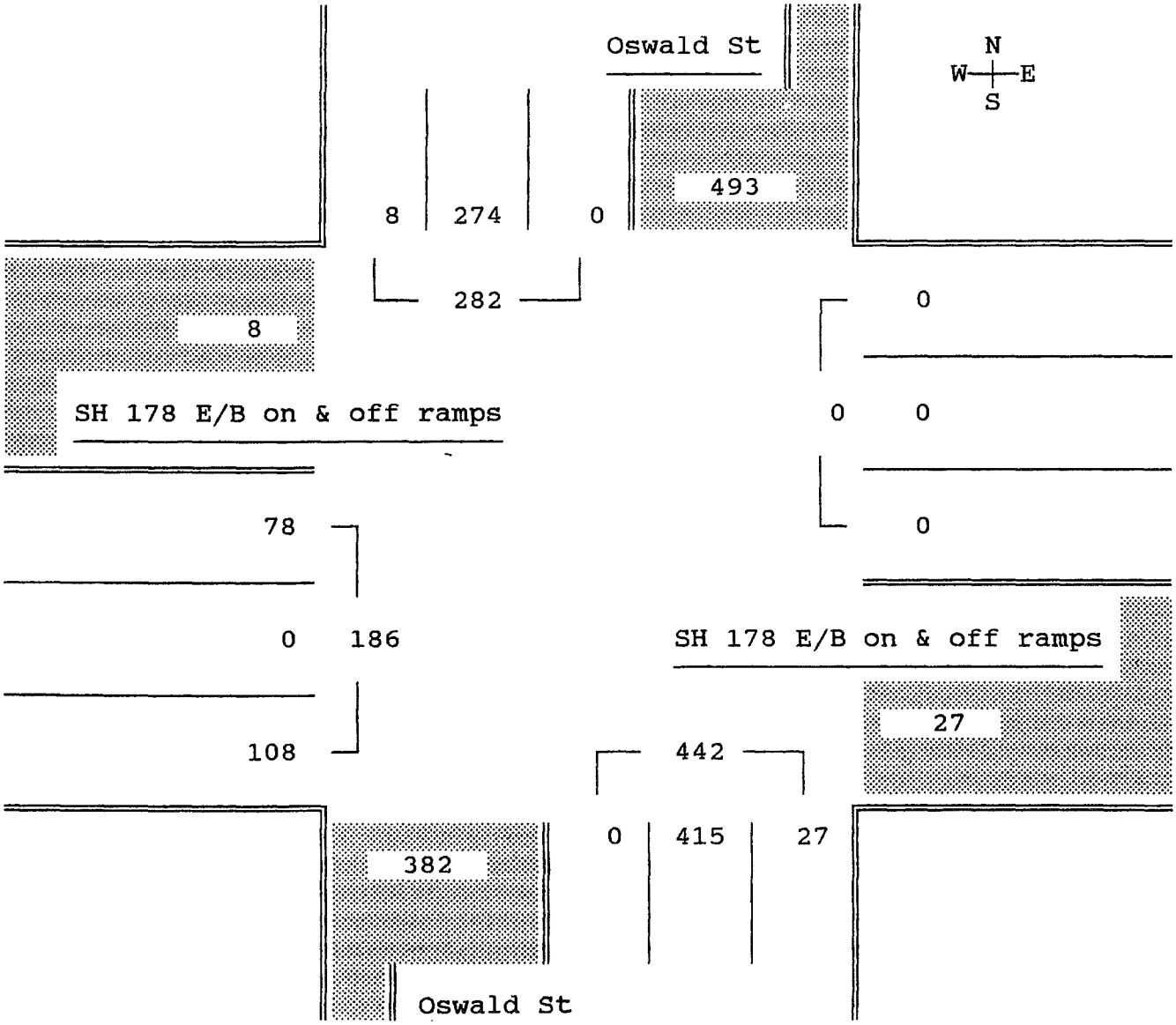
Site Code : 09999992
N-S STREET: Oswald St
E-W STREET: SH 178 E/B on & off ramps
DAY : Tue JC

Movements by: Primary

PAGE: 1
FILE: temp-1
DATE: 12/21/99

PEAK PERIOD ANALYSIS FOR THE PERIOD: 6:00 AM - 8:00 AM

DIRECTION FROM	START PEAK HOUR	PEAK HR FACTOR	VOLUMES Right	Thru	Left	Total	PERCENTS Right	Thru	Left
North	7:00 AM	0.85	8	274	0	282	3	97	0
East	7:00 AM	0.00	0	0	0	0	0	0	0
South	7:00 AM	0.84	27	415	0	442	6	94	0
West	7:00 AM	0.80	108	0	78	186	58	0	42
Entire Intersection									
North	7:00 AM	0.85	8	274	0	282	3	97	0
East		0.00	0	0	0	0	0	0	0
South		0.84	27	415	0	442	6	94	0
West		0.80	108	0	78	186	58	0	42



Center For Microcomputers In Transportation
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Ph: (352) 392-0378

Streets: (N-S) Alfred Harrell (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....PM Existing Volumes
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	1	0	0	0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	72	279			196	10				11	0	70
PHF	.95	.95			.95	.95				.95	.95	.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		206
Potential Capacity: (pcph)		1089
Movement Capacity: (pcph)		1089
Prob. of Queue-Free State:		0.93

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		217
Potential Capacity: (pcph)		1351
Movement Capacity: (pcph)		1351
Prob. of Queue-Free State:		0.94

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)		576
Potential Capacity: (pcph)		544
Capacity Adjustment Factor due to Impeding Movements		0.94
Movement Capacity: (pcph)		510
Prob. of Queue-Free State:		1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		576
Potential Capacity: (pcph)		491
Major LT, Minor TH Impedance Factor:		0.94
Adjusted Impedance Factor:		0.94
Capacity Adjustment Factor due to Impeding Movements		0.94
Movement Capacity: (pcph)		460

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB	L	13	460 >					
SB	T	0	510 >	916	4.4	0.3	A	4.4
SB	R	81	1089 >					
EB	L	84	1351		2.8	0.1	A	0.6

Intersection Delay = 0.9 sec/veh

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Streets: (N-S) Commanche Dr (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....AM Existing Volumes
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	1	322	50	26	239	0	56	1	36	1	1	0
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	366	252
Potential Capacity: (pcph)	903	1032
Movement Capacity: (pcph)	903	1032
Prob. of Queue-Free State:	0.95	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	392	252
Potential Capacity: (pcph)	1115	1300
Movement Capacity: (pcph)	1115	1300
Prob. of Queue-Free State:	0.97	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.97	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	646	672
Potential Capacity: (pcph)	500	484
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	484	468
Prob. of Queue-Free State:	1.00	1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	646	665
Potential Capacity: (pcph)	447	436
Major LT, Minor TH Impedance Factor:	0.97	0.97
Adjusted Impedance Factor:	0.97	0.97
Capacity Adjustment Factor due to Impeding Movements	0.97	0.93
Movement Capacity: (pcph)	435	405

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	65	435 >					
NB T	1	484 >	545	8.2	0.8	B	8.2
NB R	42	903 >					
SB L	1	405 >					
SB T	1	468 >	434	8.3	0.0	B	8.3
SB R	0	1032 >					
EB L	1	1300		2.8	0.0	A	0.0
WB L	30	1115		3.3	0.0	A	0.3

Intersection Delay = 1.2 sec/veh

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Streets: (N-S) SR 184-Masterson St (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....AM Existing Volumes
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	15	345	35	67	255	1	43	2	78	1	1	0
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	382	268
Potential Capacity: (pcph)	887	1013
Movement Capacity: (pcph)	887	1013
Prob. of Queue-Free State:	0.90	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	400	269
Potential Capacity: (pcph)	1105	1276
Movement Capacity: (pcph)	1105	1276
Prob. of Queue-Free State:	0.93	0.99

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	738	756
Potential Capacity: (pcph)	447	438
Capacity Adjustment Factor due to Impeding Movements	0.92	0.92
Movement Capacity: (pcph)	410	401
Prob. of Queue-Free State:	1.00	1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	738	779
Potential Capacity: (pcph)	396	375
Major LT, Minor TH Impedance Factor:	0.91	0.91
Adjusted Impedance Factor:	0.93	0.93
Capacity Adjustment Factor due to Impeding Movements	0.93	0.84
Movement Capacity: (pcph)	370	314

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	50	370 >					
NB T	2	410 >	588	8.1	1.0	B	8.1
NB R	90	887 >					
SB L	1	314 >					
SB T	1	401 >	352	10.3	0.0	C	10.3
SB R	0	1013 >					
EB L	18	1276		2.9	0.0	A	0.1
WB L	78	1105		3.5	0.1	A	0.7

Intersection Delay = 1.5 sec/veh

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Streets: (N-S) Morning Drive (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....Existing Volumes PM
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	85	341			260	35				31		32
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		137
Potential Capacity: (pcph)		1180
Movement Capacity: (pcph)		1180
Prob. of Queue-Free State:		0.97

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		311
Potential Capacity: (pcph)		1167
Movement Capacity: (pcph)		1167
Prob. of Queue-Free State:		0.92

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		722
Potential Capacity: (pcph)		366
Major LT, Minor TH Impedance Factor:		0.92
Adjusted Impedance Factor:		0.92
Capacity Adjustment Factor due to Impeding Movements		0.92
Movement Capacity: (pcph)		335

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB L	36	335		12.0	0.3	C	
							7.5
SB R	37	1180		3.1	0.0	A	
EB L	98	1167		3.4	0.2	A	0.7

Intersection Delay = 1.0 sec/veh

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Streets: (N-S) Morning Drive (E-W) Auburn Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....Existing Volumes PM
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	12		18				32	87			56	13
PHF	.95		.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		0.99

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		0.99

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	13	32
Potential Capacity: (pcph)	1072	1045
Capacity Adjustment Factor due to Impeding Movements	0.99	0.99
Movement Capacity: (pcph)	1063	1036
Prob. of Queue-Free State:	0.90	0.94

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	50	
Potential Capacity: (pcph)	984	
Major LT, Minor TH Impedance Factor:	0.93	
Adjusted Impedance Factor:	0.95	
Capacity Adjustment Factor due to Impeding Movements	0.94	
Movement Capacity: (pcph)	921	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	37	921		4.1	0.0	A	
NB T	101	1063		3.7	0.3	A	3.8
SB T	65	1036		3.7	0.1	A	3.5
SB R	15	1385		2.6	0.0	A	
EB L	14	1714		2.1	0.0	A	0.8

Intersection Delay = 3.3 sec/veh

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Streets: (N-S) Morning Drive (E-W) Panorama Dr
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....Existing Volumes PM
All-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	1	0	0	1	1
Volumes	4		55				85	3			3	4
PHF	.95		.95				.95	.95			.95	.95

Volume Summary and Capacity Analysis WorkSheet

	EB	WB	NB	SB
LT Flow Rate	4		89	0
RT Flow Rate	58		0	4
Approach Flow Rate	62		92	7
Proportion LT	0.06		0.97	0.00
Proportion RT	0.94		0.00	0.57
Opposing Approach Flow Rate	0		7	92
Conflicting Approaches Flow Rate	99		62	62
Proportion, Subject Approach Flow Rate	0.39		0.57	0.04
Proportion, Opposing Approach Flow Rate	0.00		0.04	0.57
Lanes on Subject Approach	2		2	2
Lanes on Opposing Approach	0		2	2
LT, Opposing Approach	0		0	89
RT, Opposing Approach	0		4	0
LT, Conflicting Approaches	89		4	4
RT, Conflicting Approaches	4		58	58
Proportion LT, Opposing Approach	0.00		0.00	0.97
Proportion RT, Opposing Approach	0.00		0.57	0.00
Proportion LT, Conflicting Approaches	0.90		0.06	0.06
Proportion RT, Conflicting Approaches	0.04		0.94	0.94
Approach Capacity	528		1177	615

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
EB	62	528	0.12	1.6	A
NB	92	1177	0.08	1.3	A
SB	7	615	0.01	1.0	A

Intersection Delay = 1.4
Level of Service (Intersection) = A

Center For Microcomputers In Transportation
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Streets: (N-S) Fairfax Road (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....Existing Volumes PM
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	3	0	3				8	72			124	3
PHF	.95	.95	.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		1.00
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:		1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	4	6
Potential Capacity: (pcph)	1086	1083
Capacity Adjustment Factor due to Impeding Movements	1.00	1.00
Movement Capacity: (pcph)	1084	1081
Prob. of Queue-Free State:	0.92	0.87

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	72	
Potential Capacity: (pcph)	962	
Major LT, Minor TH Impedance Factor:	0.87	
Adjusted Impedance Factor:	0.90	
Capacity Adjustment Factor due to Impeding Movements	0.89	
Movement Capacity: (pcph)	861	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	9	861		4.2	0.0	A	
NB T	84	1084		3.6	0.2	A	3.7
SB T	144	1081		3.8	0.5	A	3.8
SB R	3	1385		2.6	0.0	A	
EB L	3	1714		2.1	0.0	A	1.1

Intersection Delay = 3.7 sec/veh

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Streets: (N-S) Morning Drive (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....Existing Volumes
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	49	82			381	28				80		29
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		200
Potential Capacity: (pcph)		1096
Movement Capacity: (pcph)		1096
Prob. of Queue-Free State:		0.97

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		430
Potential Capacity: (pcph)		1007
Movement Capacity: (pcph)		1007
Prob. of Queue-Free State:		0.94

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		540
Potential Capacity: (pcph)		478
Major LT, Minor TH Impedance Factor:		0.94
Adjusted Impedance Factor:		0.94
Capacity Adjustment Factor due to Impeding Movements		0.94
Movement Capacity: (pcph)		451

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB L	92	451		10.0	0.8	C	
							8.3
SB R	34	1096		3.4	0.0	A	
EB L	57	1007		3.8	0.0	A	1.4

Intersection Delay = 1.7 sec/veh

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512 Weil Hall
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Streets: (N-S) Morning Drive (E-W) Auburn Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....Existing Volumes
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	34		14				10	67			80	29
PHF	.95		.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		0.98

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		0.98

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	36	51
Potential Capacity: (pcph)	1039	1018
Capacity Adjustment Factor due to Impeding Movements	0.98	0.98
Movement Capacity: (pcph)	1015	994
Prob. of Queue-Free State:	0.92	0.91

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	94	
Potential Capacity: (pcph)	922	
Major LT, Minor TH Impedance Factor:	0.89	
Adjusted Impedance Factor:	0.91	
Capacity Adjustment Factor due to Impeding Movements	0.89	
Movement Capacity: (pcph)	821	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	12	821		4.4	0.0	A	
NB T	78	1015		3.8	0.2	A	3.9
SB T	92	994		4.0	0.2	A	3.6
SB R	34	1385		2.7	0.0	A	
EB L	40	1714		2.2	0.0	A	1.5

Intersection Delay = 3.3 sec/veh

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Streets: (N-S) Morning Drive (E-W) Panorama Dr
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....Existing Volumes
All-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	1	0	0	1	1
Volumes	34		14				10	67			80	29
PHF	.95		.95				.95	.95			.95	.95

Volume Summary and Capacity Analysis WorkSheet

	EB	WB	NB	SB
LT Flow Rate	36		11	0
RT Flow Rate	15		0	31
Approach Flow Rate	51		82	115
Proportion LT	0.71		0.13	0.00
Proportion RT	0.29		0.00	0.27
Opposing Approach Flow Rate	0		115	82
Conflicting Approaches Flow Rate	197		51	51
Proportion, Subject Approach Flow Rate	0.21		0.33	0.46
Proportion, Opposing Approach Flow Rate	0.00		0.46	0.33
Lanes on Subject Approach	2		2	2
Lanes on Opposing Approach	0		2	2
LT, Opposing Approach	0		0	11
RT, Opposing Approach	0		31	0
LT, Conflicting Approaches	11		36	36
RT, Conflicting Approaches	31		15	15
Proportion LT, Opposing Approach	0.00		0.00	0.13
Proportion RT, Opposing Approach	0.00		0.27	0.00
Proportion LT, Conflicting Approaches	0.06		0.71	0.71
Proportion RT, Conflicting Approaches	0.16		0.29	0.29
Approach Capacity	636		786	731

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
EB	51	636	0.08	1.4	A
NB	82	786	0.10	1.5	A
SB	115	731	0.16	1.8	A

Intersection Delay = 1.6
Level of Service (Intersection) = A

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Streets: (N-S) SR 184-Masterson St (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....AM Existing Volumes
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	2	191	72	97	364	1	60	2	63	2	1	1
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	239	384
Potential Capacity: (pcph)	1048	885
Movement Capacity: (pcph)	1048	885
Prob. of Queue-Free State:	0.93	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	277	384
Potential Capacity: (pcph)	1265	1125
Movement Capacity: (pcph)	1265	1125
Prob. of Queue-Free State:	0.91	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	727	764
Potential Capacity: (pcph)	453	433
Capacity Adjustment Factor due to Impeding Movements	0.91	0.91
Movement Capacity: (pcph)	412	394
Prob. of Queue-Free State:	1.00	1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	728	760
Potential Capacity: (pcph)	401	384
Major LT, Minor TH Impedance Factor:	0.91	0.91
Adjusted Impedance Factor:	0.93	0.93
Capacity Adjustment Factor due to Impeding Movements	0.93	0.86
Movement Capacity: (pcph)	372	331

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	69	372 >					
NB T	2	412 >	554	8.8	1.1	B	8.8
NB R	73	1048 >					
SB L	2	331 >					
SB T	1	394 >	412	8.8	0.0	B	8.8
SB R	1	885 >					
EB L	2	1125		3.2	0.0	A	0.0
WB L	112	1265		3.1	0.2	A	0.7

Intersection Delay = 1.7 sec/veh

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
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Streets: (N-S) Commanche Dr (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....AM Existing Volumes
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	1	168	53	29	306	0	48	0	26	12	1	2
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	205	322
Potential Capacity: (pcph)	1090	951
Movement Capacity: (pcph)	1090	951
Prob. of Queue-Free State:	0.97	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	233	322
Potential Capacity: (pcph)	1328	1204
Movement Capacity: (pcph)	1328	1204
Prob. of Queue-Free State:	0.97	1.00
TH Saturation Flow Rate: (pcphpl)	1700	1700
RT Saturation Flow Rate: (pcphpl)	1700	1700
Major LT Shared Lane Prob. of Queue-Free State:	0.97	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	559	587
Potential Capacity: (pcph)	555	537
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	537	520
Prob. of Queue-Free State:	1.00	1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	560	572
Potential Capacity: (pcph)	502	494
Major LT, Minor TH Impedance Factor:	0.97	0.97
Adjusted Impedance Factor:	0.97	0.98
Capacity Adjustment Factor due to Impeding Movements	0.97	0.95
Movement Capacity: (pcph)	488	468

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	56	488 >					
NB T	0	537 >	604	6.9	0.5	B	6.9
NB R	30	1090 >					
SB L	14	468 >					
SB T	1	520 >	501	7.4	0.0	B	7.4
SB R	2	951 >					
EB L	1	1204		3.0	0.0	A	0.0
WB L	34	1328		2.8	0.0	A	0.2

Intersection Delay = 1.1 sec/veh

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Streets: (N-S) Alfred Harrell (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....AM Existing Volumes
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	1	0	0	0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	58	141			267	4				7	0	62
PHF	.95	.95			.95	.95				.95	.95	.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		281
Potential Capacity: (pcph)		998
Movement Capacity: (pcph)		998
Prob. of Queue-Free State:		0.93

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		285
Potential Capacity: (pcph)		1254
Movement Capacity: (pcph)		1254
Prob. of Queue-Free State:		0.95

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)		490
Potential Capacity: (pcph)		603
Capacity Adjustment Factor due to Impeding Movements		0.95
Movement Capacity: (pcph)		571
Prob. of Queue-Free State:		1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		490
Potential Capacity: (pcph)		551
Major LT, Minor TH Impedance Factor:		0.95
Adjusted Impedance Factor:		0.95
Capacity Adjustment Factor due to Impeding Movements		0.95
Movement Capacity: (pcph)		522

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB L	8	522 >					
SB T	0	571 >	915	4.3	0.2	A	4.3
SB R	72	998 >					
EB L	67	1254		3.0	0.0	A	0.9

Intersection Delay = 0.9 sec/veh

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Streets: (N-S) Fairfax Road (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 12/20/99
Other Information.....AM Existing Volumes
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	2	0	2				5	105			74	1
PHF	.95	.95	.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		1.00
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:		1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	3	4
Potential Capacity: (pcph)	1087	1086
Capacity Adjustment Factor due to Impeding Movements	1.00	1.00
Movement Capacity: (pcph)	1086	1085
Prob. of Queue-Free State:	0.89	0.92

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	42	
Potential Capacity: (pcph)	1001	
Major LT, Minor TH Impedance Factor:	0.92	
Adjusted Impedance Factor:	0.94	
Capacity Adjustment Factor due to Impeding Movements	0.94	
Movement Capacity: (pcph)	939	

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	6	939		3.9	0.0	A	
NB	T	122	1086		3.7	0.4	A	3.7
SB	T	86	1085		3.6	0.2	A	3.6
SB	R	1	1385		2.6	0.0	A	
EB	L	2	1714		2.1	0.0	A	1.1

Intersection Delay = 3.6 sec/veh

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) State Route 178 EB (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: AOSRE.HC9
Area Type: Other 12-29-99 AM Peak
Comment: Existing Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	78		108					415	27		274	8
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			50						10			4
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.116	0.400	5.5	B	3.1	A
	R	1583	1583	0.039	1.000	0.0	A		
NB	T	1739	3725	0.264	0.467	4.7	A	4.7	A
	R	739	1583	0.023	0.467	4.2	A		
SB	T	1739	3725	0.174	0.467	4.5	A	4.4	A
	R	1583	1583	0.003	1.000	0.0	A		

Intersection Delay = 4.4 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.196

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: OESRE.HC9
Area Type: Other 12-29-99 PM Peak
Comment: Existing Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	508		771					988	229		804	28
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			50						10			4
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.756	0.400	10.7	B	4.5	A
	R	1583	1583	0.479	1.000	0.2	A		
NB	T	1739	3725	0.628	0.467	6.4	B	6.1	B
	R	739	1583	0.311	0.467	4.9	A		
SB	T	1739	3725	0.511	0.467	5.6	B	5.5	B
	R	1583	1583	0.016	1.000	0.0	A		

Intersection Delay = 5.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.687

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: AOES25WP.HC9
Area Type: Other 12-29-99 AM Peak
Comment: 2005 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	90		130					495	30		325	10
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			0						15			5
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
WB Left					SB Left				
Thru					Thru	*			
Right					Right	*			
Peds					Peds				
NB Right					EB Right	*			
SB Right	*				WB Right				
Green	17.0A				Green	20.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.134	0.400	5.5	B	2.3	A
	R	1583	1583	0.087	1.000	0.0	A		
NB	T	1739	3725	0.315	0.467	4.9	A	4.9	A
	R	739	1583	0.022	0.467	4.2	A		
SB	T	1739	3725	0.206	0.467	4.6	A	4.5	A
	R	1583	1583	0.004	1.000	0.0	A		

Intersection Delay = 4.2 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.231

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: OESR20WP.HC9
Area Type: Other 12-29-99 PM Peak
Comment: 2005 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	600		915					1180	270		995	35
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			400						120			15
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.893	0.400	17.9	C	9.7	B
	R	1583	1583	0.342	1.000	0.1	A		
NB	T	1739	3725	0.750	0.467	7.7	B	7.3	B
	R	739	1583	0.214	0.467	4.6	A		
SB	T	1739	3725	0.632	0.467	6.4	B	6.3	B
	R	1583	1583	0.013	1.000	0.0	A		

Intersection Delay = 7.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.816

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: AOES25P.HC9
Area Type: Other 12-29-99 AM Peak
Comment: 2005 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	80		130					495	40		335	10
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			0						15			5
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.119	0.400	5.5	B	2.1	A
	R	1583	1583	0.087	1.000	0.0	A		
NB	T	1739	3725	0.315	0.467	4.9	A	4.9	A
	R	739	1583	0.035	0.467	4.2	A		
SB	T	1739	3725	0.213	0.467	4.6	A	4.5	A
	R	1583	1583	0.004	1.000	0.0	A		

Intersection Delay = 4.2 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.224

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: OES05P.HC9
Area Type: Other 12-29-99 PM Peak
Comment: 2005 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	600		915					1180	420		575	35
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			400						200			15
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.893	0.400	17.9	C	9.7	B
	R	1583	1583	0.342	1.000	0.1	A		
NB	T	1739	3725	0.750	0.467	7.7	B	7.3	B
	R	739	1583	0.313	0.467	4.9	A		
SB	T	1739	3725	0.365	0.467	5.0	A	4.9	A
	R	1583	1583	0.013	1.000	0.0	A		

Intersection Delay = 7.6 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.816

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: OES20P.HC9
Area Type: Other 12-29-99 PM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	600		915					745	420		955	150
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			400						200			15
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.893	0.400	17.9	C	9.7	B
	R	1583	1583	0.342	1.000	0.1	A		
NB	T	1739	3725	0.473	0.467	5.5	B	5.3	B
	R	739	1583	0.313	0.467	4.9	A		
SB	T	1739	3725	0.607	0.467	6.2	B	5.5	B
	R	1583	1583	0.090	1.000	0.0	A		

Intersection Delay = 6.9 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.739

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: AWSRO20E.HC9
Area Type: Other 12-29-99 AM Peak
Comment: Existing Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				20		55	262	250			250	447
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						25			100			200
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.038	0.311	7.0	B	2.8	A
	R	1583	1583	0.020	1.000	0.0	A		
NB	L	748	1347	0.380	0.556	3.8	A	3.5	A
	T	2070	3725	0.133	0.556	3.1	A		
SB	T	2070	3725	0.133	0.556	3.1	A	1.6	A
	R	1583	1583	0.164	1.000	0.0	A		

Intersection Delay = 2.6 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.257

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: WSRO20E.HC9
Area Type: Other 12-29-99 PM Peak
Comment: Existing Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				36		147	370	1206			743	256
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						25			100			200
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left		*			SB	Left				
	Thru						Thru	*			
	Right		*				Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right		*			WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.069	0.311	7.1	B	1.6	A
	R	1583	1583	0.081	1.000	0.0	A		
NB	L	662	1192	0.605	0.556	5.5	B	5.1	B
	T	2070	3725	0.644	0.556	5.0	A		
SB	T	2070	3725	0.397	0.556	3.8	A	3.5	A
	R	1583	1583	0.037	1.000	0.0	A		

Intersection Delay = 4.4 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.437

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: AWBSR05WP.HC9
Area Type: Other 12-29-99 AM Peak
Comment: 2005 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				25		65	300	310			300	530
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						35			100			250
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.047	0.311	7.0	B	3.2	A
	R	1583	1583	0.020	1.000	0.0	A		
NB	L	653	1175	0.498	0.556	4.5	A	3.8	A
	T	2070	3725	0.165	0.556	3.2	A		
SB	T	2070	3725	0.160	0.556	3.2	A	1.7	A
	R	1583	1583	0.186	1.000	0.0	A		

Intersection Delay = 2.8 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.336

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: WBSRO5WP.HC9
Area Type: Other 12-29-99 PM Peak
Comment: 2005 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				40		175	440	1430			850	30
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.
RTOR Vols						70			100			150
Lost Time				3.00		3.00	3.00	3.00			3.00	3.0

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.076	0.311	7.1	B	2.0	A
	R	1583	1583	0.069	1.000	0.0	A		
NB	L	725	1304	0.658	0.556	6.1	B	6.2	B
	T	2070	3725	0.763	0.556	6.2	B		
SB	T	2070	3725	0.454	0.556	4.0	A	3.4	A
	R	1583	1583	0.100	1.000	0.0	A		

Intersection Delay = 5.1 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.517

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 12-29-1999
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: Wwc 9-137 File Name: AWBSR05P.HC9
Area Type: Other 12-29-99 AM Peak
Comment: 2005 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				50		190	440	1440			850	320
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						35			100			250
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.096	0.311	7.1	B	1.7	A
	R	1583	1583	0.103	1.000	0.0	A		
NB	L	724	1304	0.658	0.556	6.1	B	6.2	B
	T	2069	3725	0.769	0.556	6.3	B		
SB	T	2069	3725	0.454	0.556	4.0	A	3.7	A
	R	1583	1583	0.047	1.000	0.0	A		

Intersection Delay = 5.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.528

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 12-20-1999
Center For Microcomputers In Transportation

Streets: (E-W) State Route 178 (N-S) Fairfax Road
Analyst: Wwc 9-137 File Name: AFSRE.HC9
Area Type: Other 12-20-99 AM Peak
Comment: Existing Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	< 0	2	2	< 0	1	2	1
Volumes	174	172	183	17	372	42	411	302	20	47	346	546
Lane W (ft)	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			85			40			10			250
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A	22.0A			Green		20.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 95 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	261	1770	0.702	0.147	30.4	D	23.5	C
	T	863	3725	0.220	0.232	19.1	C		
	R	367	1583	0.284	0.232	19.5	C		
WB	L	261	1770	0.069	0.147	22.5	C	20.8	C
	TR	862	3723	0.480	0.232	20.7	C		
NB	L	633	3539	0.704	0.179	26.1	D	21.7	C
	TR	1171	3708	0.294	0.316	15.9	C		
SB	L	317	1770	0.155	0.179	21.3	C	17.9	C
	T	1176	3725	0.325	0.316	16.1	C		
	R	500	1583	0.624	0.316	19.6	C		

Intersection Delay = 20.7 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.615

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 12-20-1999
Center For Microcomputers In Transportation

Streets: (E-W) Auburn Street (N-S) Fairfax Road
Analyst: Wwc 9-137 File Name: AFAE.HC9
Area Type: Other 12-20-99 AM Peak
Comment: Existing Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	41	29	229	158	72	25	238	281	54	9	540	72
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			110			10			25			35
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.125	0.194	21.1	C	23.4	C
	TR	502	3278	0.327	0.153	24.0	C		
WB	L	343	1770	0.484	0.194	23.6	C	23.5	C
	TR	556	3633	0.173	0.153	23.3	C		
NB	L	397	1770	0.632	0.224	24.5	C	20.1	C
	TR	1124	3673	0.305	0.306	16.9	C		
SB	L	397	1770	0.023	0.224	19.1	C	18.9	C
	TR	1129	3690	0.564	0.306	18.9	C		

Intersection Delay = 20.6 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.522

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 12-20-1999
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: Wwc 9-137 File Name: APFE.HC9
Area Type: Other 12-20-99 AM Peak
Comment: Existing Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	29	105	199	187	9	18	140	143	80	50	208	43
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			110			10			25			35
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A	15.0A			Green		15.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 73 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	339	1770	0.091	0.192	15.7	C	15.9	C
	TR	713	3471	0.300	0.205	15.9	C		
WB	L	339	1770	0.580	0.192	19.2	C	18.8	C
	TR	711	3463	0.025	0.205	15.0	B		
NB	L	291	1770	0.505	0.164	19.2	C	15.6	C
	TR	978	3570	0.224	0.274	13.3	B		
SB	L	291	1770	0.182	0.164	17.0	C	14.0	B
	TR	1015	3706	0.234	0.274	13.3	B		

Intersection Delay = 15.9 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.383

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 12-20-1999
Center For Microcomputers In Transportation

Streets: (E-W) State Route 178 (N-S) Fairfax Road
Analyst: Wwc 9-137 File Name: FSRE.HC9
Area Type: Other 12-20-99 PM Peak
Comment: Existing Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	< 0	2	2	< 0	1	2	1
Volumes	460	358	486	18	206	43	251	357	10	44	434	258
Lane W (ft)	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			85			40			10			250
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*	*			NB	Left	*	*		
	Thru		*	*			Thru		*	*	
	Right		*	*			Right		*	*	
	Peds						Peds				
WB	Left	*				SB	Left	*	*		
	Thru			*			Thru			*	
	Right			*			Right			*	
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		7.0A	22.0A	10.0A		Green		5.0A	17.0A	20.0A	
Yellow/AR		0.0	3.0	3.0		Yellow/AR		0.0	3.0	3.0	

Cycle Length: 93 secs Phase combination order: #1 #2 #3 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	552	1770	0.877	0.312	30.0	D	21.2	C
	T	1402	3725	0.282	0.376	13.1	B		
	R	596	1583	0.710	0.376	18.7	C		
WB	L	76	1770	0.250	0.043	28.2	D	27.1	D
	TR	400	3718	0.578	0.108	27.0	D		
NB	L	837	3539	0.325	0.237	19.0	C	14.2	B
	TR	1602	3725	0.247	0.430	10.9	B		
SB	L	151	1770	0.305	0.237	18.5	C	21.8	C
	T	801	3725	0.599	0.215	22.2	C		
	R	341	1583	0.026	0.215	18.6	C		

Intersection Delay = 20.2 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.622

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 12-20-1999
Center For Microcomputers In Transportation

Streets: (E-W) Auburn Street (N-S) Fairfax Road
Analyst: Wwc 9-137 File Name: FAE.HC9
Area Type: Other 12-20-99 PM Peak
Comment: Existing Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	90	61	187	96	60	26	251	473	138	31	387	95
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			90			10			60			40
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.277	0.194	21.9	C	23.3	C
	TR	518	3382	0.336	0.153	24.1	C		
WB	L	343	1770	0.294	0.194	22.0	C	22.5	C
	TR	553	3612	0.150	0.153	23.2	C		
NB	L	397	1770	0.665	0.224	25.3	D	20.7	C
	TR	1116	3646	0.546	0.306	18.7	C		
SB	L	397	1770	0.083	0.224	19.4	C	17.9	C
	TR	1119	3656	0.436	0.306	17.8	C		

Intersection Delay = 20.5 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.484

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 12-20-1999
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: Wwc 9-137 File Name: PFE.HC9
Area Type: Other 12-20-99 PM Peak
Comment: Existing Volumes

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	35	73	156	160	102	24	184	221	162	18	201	21
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			75			10			80			10
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A	15.0A			Green		15.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 73 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	339	1770	0.109	0.192	15.7	C	15.7	C
	TR	705	3432	0.241	0.205	15.7	C		
WB	L	339	1770	0.495	0.192	18.0	C	16.9	C
	TR	752	3661	0.169	0.205	15.4	C		
NB	L	291	1770	0.667	0.164	22.4	C	17.0	C
	TR	979	3574	0.343	0.274	13.8	B		
SB	L	291	1770	0.065	0.164	16.6	C	13.5	B
	TR	1013	3698	0.231	0.274	13.3	B		

Intersection Delay = 16.1 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.417

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 01-03-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: Wwc 9-137 File Name: AWMNE.HC9
Area Type: Other 1-3-0 AM Peak
Comment: Existing Volumes AM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	3	37	67	60	89	2	113	4	42	4	15	4
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			30			1			20			2
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	562	1406	0.005	0.400	5.2	B	5.4	B
	TR	1378	3446	0.059	0.400	5.4	B		
WB	L	584	1460	0.108	0.400	5.5	B	5.4	B
	TR	1488	3720	0.067	0.400	5.4	B		
NB	L	775	1661	0.154	0.467	4.5	A	4.4	A
	TR	1516	3249	0.018	0.467	4.2	A		
SB	LTR	765	1638	0.029	0.467	4.2	A	4.2	A

Intersection Delay = 5.0 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.132

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4f 01-03-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: Wwc 9-137 File Name: WMNE.HC9
Area Type: Other 1-3-0 PM Peak
Comment: Existing Volumes PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	12	162	270	97	127	6	229	20	86	5	8	9
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			135			6			40			4
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	518	1296	0.025	0.400	5.3	B	5.8	B
	TR	1389	3472	0.237	0.400	5.8	B		
WB	L	375	937	0.272	0.400	6.0	B	5.7	B
	TR	1490	3725	0.095	0.400	5.4	B		
NB	L	784	1680	0.307	0.467	4.9	A	4.7	A
	TR	1556	3334	0.047	0.467	4.2	A		
SB	LTR	728	1559	0.025	0.467	4.2	A	4.2	A

Intersection Delay = 5.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.291

Figure 9-1
TRAFFIC SIGNAL WARRANTS

DIST ____ CO ____ RTE ____ PM ____

CALC W/c DATE 12-30-99
CHK ____ DATE ____

Major St: State Route 178 Critical Approach Speed 55 mph
Minor St: Morning Drive Critical Approach Speed ____ mph

Critical speed of major street traffic ≥ 40 mph ☑ or
In built up area of isolated community of < 10,000 pop. ☐ } RURAL (R)
☐ URBAN (U)

WARRANT 1 - Minimum Vehicular Volume

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												AM Hour	PM Hour
	U	R	U	R										
APPROACH LANES	1		2 or more											
Both Apprchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)									384	432
Highest Apprch. Minor Street	150 (120)	105 (84)	200 (160)	140 (112)									52	38

WARRANT 2 - Interruption of Continuous Traffic

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												AM Hour	PM Hour
	U	R	U	R										
APPROACH LANES	1		2 or more											
Both Apprchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)									384	432
Highest Apprch. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)									52	38

WARRANT 3 - Minimum Pedestrian Volume

100% SATISFIED YES ☐ NO ☐

REQUIREMENT	FULFILLED
Pedestrian volume crossing the major street is 100 or more for each of any four hours or is 190 or more during any one hour; AND	Yes ☐ No ☐
There are less than 60 gaps per hour in the major street traffic stream of adequate length for pedestrians to cross; AND	Yes ☐ No ☐
The nearest traffic signal along the major street is greater than 300 feet; AND	Yes ☐ No ☐
The new traffic signal will not seriously disrupt progressive traffic flow on the major street.	Yes ☐ No ☐

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-1
TRAFFIC SIGNAL WARRANTS

DIST ____ CO ____ RTE ____ PM ____

CALC WC DATE 12-30-99
CHK ____ DATE ____

Major St: State Route 178 Critical Approach Speed 55 mph
Minor St: Masterson St. (SR 184) Critical Approach Speed ____ mph

Critical speed of major street traffic ≥ 40 mph ☒ or ☐ } RURAL (R)
In built up area of isolated community of < 10,000 pop. ☐ } URBAN (U)
☐ URBAN (U)

WARRANT 1 - Minimum Vehicular Volume

100% SATISFIED YES ☐ NO ☒ (AM) ☐ (PM) ☒
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												AM Hour	PM Hour
	U	R	U	R										
APPROACH LANES	1		2 or more											
Both Apprchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)									436	430
Highest Apprch. Minor Street	150 (120)	105 (84)	200 (160)	140 (112)									75	73

WARRANT 2 - Interruption of Continuous Traffic

100% SATISFIED YES ☐ NO ☒ (AM) ☐ (PM) ☒
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												AM Hour	PM Hour
	U	R	U	R										
APPROACH LANES	1		2 or more											
Both Apprchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)									436	430
Highest Apprch. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)									75	73

WARRANT 3 - Minimum Pedestrian Volume

100% SATISFIED YES ☐ NO ☐

REQUIREMENT	FULFILLED
Pedestrian volume crossing the major street is 100 or more for each of any four hours or is 190 or more during any one hour; AND	Yes ☐ No ☐
There are less than 60 gaps per hour in the major street traffic stream of adequate length for pedestrians to cross; AND	Yes ☐ No ☐
The nearest traffic signal along the major street is greater than 300 feet; AND	Yes ☐ No ☐
The new traffic signal will not seriously disrupt progressive traffic flow on the major street.	Yes ☐ No ☐

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-1
TRAFFIC SIGNAL WARRANTS

DIST ____ CO ____ RTE ____ PM ____

CALC W/C DATE 12-30-99
CHK ____ DATE ____

Major St: State Route 178 Critical Approach Speed 55 mph
Minor St: Comanche Dr. Critical Approach Speed ____ mph

Critical speed of major street traffic ≥ 40 mph ☒ or
In built up area of isolated community of < 10,000 pop. ☐ } RURAL (R)
☐ URBAN (U)

WARRANT 1 - Minimum Vehicular Volume

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)														AM Hour	PM Hour
	U	R	U	R												
APPROACH LANES	1		2 or more													
Both Approchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)											334	382
Highest Approch. Minor Street	150 (120)	105 (84)	200 (160)	140 (112)											45	56

WARRANT 2 - Interruption of Continuous Traffic

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)														AM Hour	PM Hour
	U	R	U	R												
APPROACH LANES	1		2 or more													
Both Approchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)											334	382
Highest Approch. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)											45	56

WARRANT 3 - Minimum Pedestrian Volume

100% SATISFIED YES ☐ NO ☐

REQUIREMENT	FULFILLED
Pedestrian volume crossing the major street is 100 or more for each of any four hours or is 190 or more during any one hour; AND	Yes ☐ No ☐
There are less than 60 gaps per hour in the major street traffic stream of adequate length for pedestrians to cross; AND	Yes ☐ No ☐
The nearest traffic signal along the major street is greater than 300 feet; AND	Yes ☐ No ☐
The new traffic signal will not seriously disrupt progressive traffic flow on the major street.	Yes ☐ No ☐

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-1
TRAFFIC SIGNAL WARRANTS

DIST ____ CO ____ RTE ____ PM ____

CALC W/C DATE 12-30-99
CHK ____ DATE ____

Major St: State Route 178 Critical Approach Speed 55 mph
Minor St: Alfred Harrell Hwy Critical Approach Speed ____ mph

Critical speed of major street traffic ≥ 40 mph ☒ or
In built up area of isolated community of < 10,000 pop. ☐ } RURAL (R)
☐ URBAN (U)

WARRANT 1 - Minimum Vehicular Volume

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)													
	U	R	U	R									AM Hour	PM Hour
APPROACH LANES	1		2 or more											
Both Approns. Major Street	500 (400)	350 (280)	600 (480)	420 (336)									282	334
Highest Appron. Minor Street	150 (120)	105 (84)	200 (160)	140 (112)									41	49

WARRANT 2 - Interruption of Continuous Traffic

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)													
	U	R	U	R									AM Hour	PM Hour
APPROACH LANES	1		2 or more											
Both Approns. Major Street	750 (600)	525 (420)	900 (720)	630 (504)									282	334
Highest Appron. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)									41	49

WARRANT 3 - Minimum Pedestrian Volume

100% SATISFIED YES ☐ NO ☐

REQUIREMENT	FULFILLED
Pedestrian volume crossing the major street is 100 or more for each of any four hours or is 190 or more during any one hour; AND	Yes ☐ No ☐
There are less than 60 gaps per hour in the major street traffic stream of adequate length for pedestrians to cross; AND	Yes ☐ No ☐
The nearest traffic signal along the major street is greater than 300 feet; AND	Yes ☐ No ☐
The new traffic signal will not seriously disrupt progressive traffic flow on the major street.	Yes ☐ No ☐

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-1
TRAFFIC SIGNAL WARRANTS

DIST ____ CO ____ RTE ____ PM ____

CALC W/C DATE 12-30-99
CHK ____ DATE ____

Major St: Fairfax Road Critical Approach Speed 50 mph
Minor St: Paladino Dr. Critical Approach Speed ____ mph

Critical speed of major street traffic ≥ 40 mph ☒ or
In built up area of isolated community of < 10,000 pop. ☐ } RURAL (R)
☐ URBAN (U)

WARRANT 1 - Minimum Vehicular Volume

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												AM Hour	PM Hour
	U	R	U	R										
APPROACH LANES	1		2 or more											
Both Apprchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)									111	124
Highest Apprch. Minor Street	150 (120)	105 (84)	200 (160)	140 (112)									3	2

WARRANT 2 - Interruption of Continuous Traffic

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)												AM Hour	PM Hour
	U	R	U	R										
APPROACH LANES	1		2 or more											
Both Apprchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)									111	124
Highest Apprch. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)									3	2

WARRANT 3 - Minimum Pedestrian Volume

100% SATISFIED YES ☐ NO ☐

REQUIREMENT	FULFILLED
Pedestrian volume crossing the major street is 100 or more for each of any four hours or is 190 or more during any one hour; AND	Yes ☐ No ☐
There are less than 60 gaps per hour in the major street traffic stream of adequate length for pedestrians to cross; AND	Yes ☐ No ☐
The nearest traffic signal along the major street is greater than 300 feet; AND	Yes ☐ No ☐
The new traffic signal will not seriously disrupt progressive traffic flow on the major street.	Yes ☐ No ☐

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-1
TRAFFIC SIGNAL WARRANTS

DIST ____ CO ____ RTE ____ PM ____

CALC W.C DATE 12-30-99
CHK ____ DATE ____

Major St: Panorama Dr. Critical Approach Speed ____ mph
Minor St: Manning Dr. Critical Approach Speed ____ mph

Critical speed of major street traffic ≥ 40 mph ☐ or
In built up area of isolated community of < 10,000 pop. ☒ } RURAL (R)
☐ URBAN (U)

WARRANT 1 - Minimum Vehicular Volume

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)													AM Hour	PM Hour
	U	R	U	R											
APPROACH LANES	1		2 or more												
Both Apprchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)										60	
Highest Apprch.: Minor Street	150 (120)	105 (84)	200 (160)	140 (112)										55	35

WARRANT 2 - Interruption of Continuous Traffic

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ ☐ ☒

	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)													AM Hour	PM Hour
	U	R	U	R											
APPROACH LANES	1		2 or more												
Both Apprchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)										60	5
Highest Apprch. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)										55	35

WARRANT 3 - Minimum Pedestrian Volume

100% SATISFIED YES ☐ NO ☐

REQUIREMENT	FULFILLED
Pedestrian volume crossing the major street is 100 or more for each of any four hours or is 190 or more during any one hour; AND	Yes ☐ No ☐
There are less than 60 gaps per hour in the major street traffic stream of adequate length for pedestrians to cross; AND	Yes ☐ No ☐
The nearest traffic signal along the major street is greater than 300 feet; AND	Yes ☐ No ☐
The new traffic signal will not seriously disrupt progressive traffic flow on the major street.	Yes ☐ No ☐

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Figure 9-1
TRAFFIC SIGNAL WARRANTS

DIST ____ CO ____ RTE ____ PM ____

CALC WJC DATE 12-30-99
CHK ____ DATE ____

Major St: Auburn Street Critical Approach Speed ____ mph
Minor St: Manning Drive Critical Approach Speed ____ mph

Critical speed of major street traffic ≥ 40 mph ☐ or
In built up area of isolated community of < 10,000 pop. ☒ } RURAL (R)
☐ URBAN (U)

WARRANT 1 - Minimum Vehicular Volume

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or more U	2 or more R								AM Hour	PM Hour
Both Apprchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)								129	112
Highest Apprch. Minor Street	150 (120)	105 (84)	200 (160)	140 (112)								28	18

WARRANT 2 - Interruption of Continuous Traffic

100% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)
80% SATISFIED YES ☐ NO ☒ (AM) ☐ ☒ (PM)

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or more U	2 or more R								AM Hour	PM Hour
Both Apprchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)								129	112
Highest Apprch. Minor Street	75 (60)	53 (42)	100 (80)	70 (56)								28	18

WARRANT 3 - Minimum Pedestrian Volume

100% SATISFIED YES ☐ NO ☐

REQUIREMENT	FULFILLED
Pedestrian volume crossing the major street is 100 or more for each of any four hours or is 190 or more during any one hour; AND	Yes ☐ No ☐
There are less than 60 gaps per hour in the major street traffic stream of adequate length for pedestrians to cross; AND	Yes ☐ No ☐
The nearest traffic signal along the major street is greater than 300 feet; AND	Yes ☐ No ☐
The new traffic signal will not seriously disrupt progressive traffic flow on the major street.	Yes ☐ No ☐

The satisfaction of a warrant is not necessarily justification for a signal. Delay, congestion, confusion or other evidence of the need for right-of-way assignment must be shown.

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Morning Drive (E-W) Panorama Dr
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....AM2010 WITHOUT PROJECT
All-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	1	0	0	1	1
Volumes	5		120				125	5			5	5
PHF	.95		.95				.95	.95			.95	.95

Volume Summary and Capacity Analysis WorkSheet

	EB	WB	NB	SB
LT Flow Rate	5		132	0
RT Flow Rate	126		0	5
Approach Flow Rate	131		137	10
Proportion LT	0.04		0.96	0.00
Proportion RT	0.96		0.00	0.50
Opposing Approach Flow Rate	0		10	137
Conflicting Approaches Flow Rate	147		131	131
Proportion, Subject Approach Flow Rate	0.47		0.49	0.04
Proportion, Opposing Approach Flow Rate	0.00		0.04	0.49
Lanes on Subject Approach	2		2	2
Lanes on Opposing Approach	0		2	2
LT, Opposing Approach	0		0	132
RT, Opposing Approach	0		5	0
LT, Conflicting Approaches	132		5	5
RT, Conflicting Approaches	5		126	126
Proportion LT, Opposing Approach	0.00		0.00	0.96
Proportion RT, Opposing Approach	0.00		0.50	0.00
Proportion LT, Conflicting Approaches	0.90		0.04	0.04
Proportion RT, Conflicting Approaches	0.03		0.96	0.96
Approach Capacity	612		1095	569

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
EB	131	612	0.21	2.3	A
NB	137	1095	0.13	1.6	A
SB	10	569	0.02	1.1	A

Intersection Delay = 1.9
Level of Service (Intersection) = A

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Fairfax Road (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....AM 2010 WITHOUT PROJECT
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	5	0	5				10	140			100	5
PHF	.95	.95	.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		1.00
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:		1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	8	10
Potential Capacity: (pcph)	1080	1078
Capacity Adjustment Factor due to Impeding Movements	1.00	1.00
Movement Capacity: (pcph)	1076	1074
Prob. of Queue-Free State:	0.85	0.89

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	62	
Potential Capacity: (pcph)	975	
Major LT, Minor TH Impedance Factor:	0.89	
Adjusted Impedance Factor:	0.91	
Capacity Adjustment Factor due to Impeding Movements	0.91	
Movement Capacity: (pcph)	888	

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	12	888		4.1	0.0	A	
NB	T	162	1076		3.9	0.6	A	3.9
SB	T	116	1074		3.8	0.3	A	3.7
SB	R	6	1385		2.6	0.0	A	
EB	L	6	1714		2.1	0.0	A	1.1

Intersection Delay = 3.7 sec/veh

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Morning Drive (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....2010 without project AM
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	65	245			510	40				45		70
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		268
Potential Capacity: (pcph)		1013
Movement Capacity: (pcph)		1013
Prob. of Queue-Free State:		0.92

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		579
Potential Capacity: (pcph)		838
Movement Capacity: (pcph)		838
Prob. of Queue-Free State:		0.91

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		863
Potential Capacity: (pcph)		297
Major LT, Minor TH Impedance Factor:		0.91
Adjusted Impedance Factor:		0.91
Capacity Adjustment Factor due to Impeding Movements		0.91
Movement Capacity: (pcph)		270

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB L	52	270		16.5	0.7	C	8.8
SB R	81	1013		3.9	0.2	A	
EB L	75	838		4.7	0.2	A	1.0

Intersection Delay = 1.4 sec/veh

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Alfred Harrell (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....AM 2010 without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	0	> 1	< 0
Stop/Yield			N			N						
Volumes	75	190	70	40	360	5	65	0	35	10	0	85
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	200	379
Potential Capacity: (pcph)	1096	890
Movement Capacity: (pcph)	1096	890
Prob. of Queue-Free State:	0.96	0.89

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	274	384
Potential Capacity: (pcph)	1269	1125
Movement Capacity: (pcph)	1269	1125
Prob. of Queue-Free State:	0.96	0.92

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	705	774
Potential Capacity: (pcph)	465	428
Capacity Adjustment Factor due to Impeding Movements	0.89	0.89
Movement Capacity: (pcph)	413	381
Prob. of Queue-Free State:	1.00	1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	744	719
Potential Capacity: (pcph)	393	406
Major LT, Minor TH Impedance Factor:	0.89	0.89
Adjusted Impedance Factor:	0.92	0.92
Capacity Adjustment Factor due to Impeding Movements	0.81	0.88
Movement Capacity: (pcph)	320	358

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	75	320		14.7	0.9	C	
NB T	0	413		8.7	0.0	B	10.7
NB R	41	1096		3.4	0.0	A	
SB L	12	358 >					
SB T	0	381 >	766	5.5	0.5	B	5.5
SB R	98	890 >					
EB L	87	1125		3.5	0.2	A	0.8
WB L	46	1269		2.9	0.0	A	0.3

Intersection Delay = 2.1 sec/veh

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: Wwc 9-137R File Name: AOESR10WP.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2010 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	105		145					555	35		370	10
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			0						15			5
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
WB Left					SB Left				
Thru					Thru	*			
Right					Right	*			
Peds					Peds				
NB Right					EB Right	*			
SB Right	*				WB Right				
Green	17.0A				Green	20.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.157	0.400	5.6	B	2.4	A
	R	1583	1583	0.097	1.000	0.0	A		
NB	T	1739	3725	0.353	0.467	5.0	A	5.0	A
	R	739	1583	0.028	0.467	4.2	A		
SB	T	1739	3725	0.235	0.467	4.7	A	4.6	A
	R	1583	1583	0.004	1.000	0.0	A		

Intersection Delay = 4.3 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.262

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: Wwc 9-137R File Name: WBSR010WP.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2010 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				75		25	350	335			335	600
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						10			100			250
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.143	0.311	7.2	B	6.1	B
	R	1583	1583	0.009	1.000	0.0	A		
NB	L	597	1075	0.635	0.556	6.0	B	4.6	A
	T	2070	3725	0.179	0.556	3.2	A		
SB	T	2070	3725	0.179	0.556	3.2	A	1.6	A
	R	1583	1583	0.233	1.000	0.0	A		

Intersection Delay = 3.3 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.458

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) State Route 178 (N-S) Fairfax Road
Analyst: Wwc 9-137R File Name: AFSR10WP.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2010 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	< 0	2	2	< 0	1	2	1
Volumes	235	230	245	20	500	55	550	405	25	55	410	650
Lane W (ft)	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			100			25			10			300
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*	*			NB	Left	*	*		
	Thru		*	*			Thru		*	*	
	Right		*	*			Right		*	*	
	Peds						Peds				
WB	Left	*				SB	Left	*	*		
	Thru			*			Thru			*	
	Right			*			Right			*	
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*	*	*		WB	Right				
Green		7.0A	22.0A	20.0A		Green		5.0A	17.0A	20.0A	
Yellow/AR		0.0	3.0	3.0		Yellow/AR		0.0	3.0	3.0	

Cycle Length: 103 secs Phase combination order: #1 #2 #3 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	498	1770	0.496	0.282	20.6	C	14.9	B
	T	1628	3725	0.156	0.437	11.3	B		
	R	692	1583	0.221	0.437	11.7	B		
WB	L	69	1770	0.306	0.039	31.9	D	30.8	D
	TR	717	3693	0.817	0.194	30.8	D		
NB	L	756	3539	0.788	0.214	28.6	D	22.4	C
	TR	1439	3706	0.322	0.388	14.3	B		
SB	L	107	1770	0.542	0.214	27.2	D	16.8	C
	T	723	3725	0.628	0.194	25.8	D		
	R	1107	1583	0.332	0.699	4.0	A		

Intersection Delay = 20.9 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.666

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) Auburn Street (N-S) Fairfax Road
Analyst: Wwc 9-137R File Name: AFA10WP.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2010 without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	55	40	305	210	45	35	320	375	70	10	725	95
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			135			15			35			40
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.169	0.194	21.3	C	24.2	C
	TR	501	3273	0.463	0.153	24.9	C		
WB	L	343	1770	0.644	0.194	26.4	D	25.6	D
	TR	544	3553	0.131	0.153	23.2	C		
NB	L	397	1770	0.848	0.224	34.4	D	24.7	C
	TR	1126	3678	0.403	0.306	17.5	C		
SB	L	397	1770	0.028	0.224	19.2	C	22.1	C
	TR	1128	3686	0.764	0.306	22.1	C		

Intersection Delay = 23.7 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.707

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: Wwc 9-137R File Name: WBSRO10WP.HC9
Area Type: Other 3-8-0 PM Peak
Comment: 2010 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				195		50	495	1620			985	345
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						25			100			150
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.372	0.311	8.0	B	7.1	B
	R	1583	1583	0.017	1.000	0.0	A		
NB	L	833	1499	0.645	0.556	5.7	B	7.8	B
	T	2070	3725	0.865	0.556	8.5	B		
SB	T	2070	3725	0.526	0.556	4.3	A	3.6	A
	R	1583	1583	0.129	1.000	0.0	A		

Intersection Delay = 6.4 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.688

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Streets: (N-S) SR 184-Masterson St (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....AM 2010 without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	5	225	95	130	490	5	80	5	85	5	5	15
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	287	518
Potential Capacity: (pcph)	991	757
Movement Capacity: (pcph)	991	757
Prob. of Queue-Free State:	0.90	0.98

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	337	521
Potential Capacity: (pcph)	1184	968
Movement Capacity: (pcph)	1184	968
Prob. of Queue-Free State:	0.87	0.99

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	950	998
Potential Capacity: (pcph)	346	327
Capacity Adjustment Factor due to Impeding Movements	0.87	0.87
Movement Capacity: (pcph)	300	284
Prob. of Queue-Free State:	0.98	0.98

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	958	994
Potential Capacity: (pcph)	295	281
Major LT, Minor TH Impedance Factor:	0.85	0.85
Adjusted Impedance Factor:	0.88	0.88
Capacity Adjustment Factor due to Impeding Movements	0.86	0.80
Movement Capacity: (pcph)	255	224

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	92	255 >					
NB	T	6	300 >	409	16.6	2.5	C	16.6
NB	R	98	991 >					
SB	L	6	224 >					
SB	T	6	284 >	418	9.3	0.1	B	9.3
SB	R	18	757 >					
EB	L	6	968		3.7	0.0	A	0.1
WB	L	151	1184		3.5	0.4	A	0.7

Intersection Delay = 3.1 sec/veh

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Streets: (N-S) Morning Drive (E-W) Auburn Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....AM 2010 without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	45		20				15	90			105	40
PHF	.95		.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		0.97

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		0.97

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	47	68
Potential Capacity: (pcph)	1024	995
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	993	965
Prob. of Queue-Free State:	0.89	0.87

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	124	
Potential Capacity: (pcph)	882	
Major LT, Minor TH Impedance Factor:	0.85	
Adjusted Impedance Factor:	0.88	
Capacity Adjustment Factor due to Impeding Movements	0.85	
Movement Capacity: (pcph)	753	

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	18	753		4.9	0.0	A	
NB	T	105	993		4.1	0.3	A	4.2
SB	T	122	965		4.3	0.4	A	3.8
SB	R	46	1385		2.7	0.0	A	
EB	L	52	1714		2.2	0.0	A	1.5

Intersection Delay = 3.5 sec/veh

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Streets: (N-S) Fairfax Road (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM 2010 WITHOUT PROJECT
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	5	0	5				10	95			165	5
PHF	.95	.95	.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		1.00
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:		1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	8	10
Potential Capacity: (pcph)	1080	1078
Capacity Adjustment Factor due to Impeding Movements	1.00	1.00
Movement Capacity: (pcph)	1076	1074
Prob. of Queue-Free State:	0.90	0.82

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	97	
Potential Capacity: (pcph)	930	
Major LT, Minor TH Impedance Factor:	0.82	
Adjusted Impedance Factor:	0.86	
Capacity Adjustment Factor due to Impeding Movements	0.86	
Movement Capacity: (pcph)	797	

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Streets: (N-S) Alfred Harrell (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM 2010 without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	1	1	1	1	1	1	0	> 0	< 1
Stop/Yield			N			N						
Volumes	95	375		35	265	15	75	5	40	15		90
PHF	.95	.95		.95	.95	.95	.95	.95	.95	.95		.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	12	797		4.6	0.0	A	
NB T	110	1076		3.7	0.3	A	3.8
SB T	191	1074		4.1	0.7	A	4.0
SB R	6	1385		2.6	0.0	A	
EB L	6	1714		2.1	0.0	A	1.1

Intersection Delay = 3.8 sec/veh

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	395	279
Potential Capacity: (pcph)	873	1000
Movement Capacity: (pcph)	873	1000
Prob. of Queue-Free State:	0.95	0.89

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	395	295
Potential Capacity: (pcph)	1111	1240
Movement Capacity: (pcph)	1111	1240
Prob. of Queue-Free State:	0.96	0.91

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	827	
Potential Capacity: (pcph)	402	
Capacity Adjustment Factor due to Impeding Movements	0.88	
Movement Capacity: (pcph)	353	
Prob. of Queue-Free State:	0.98	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	858	834
Potential Capacity: (pcph)	337	348
Major LT, Minor TH Impedance Factor:	0.88	0.86
Adjusted Impedance Factor:	0.88	0.89
Capacity Adjustment Factor due to Impeding Movements	0.79	0.85
Movement Capacity: (pcph)	265	295

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	87	265		20.1	1.4	D	
NB	T	6	353		10.4	0.0	C	14.4
NB	R	46	873		4.4	0.0	A	
SB	L	18	295 >					
				741	5.8	0.6	B	5.8
SB	R	105	1000 >					
EB	L	110	1240		3.2	0.2	A	0.6
WB	L	41	1111		3.4	0.0	A	0.4

Intersection Delay = 2.7 sec/veh

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Streets: (N-S) Morning Drive (E-W) Panorama Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/99
Other Information.....PM 2010 WITHOUT PROJECT
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	5		75				115	5			5	5
PHF	.95		.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	5	84
Potential Capacity: (pcph)	1084	974
Capacity Adjustment Factor due to Impeding Movements	1.00	1.00
Movement Capacity: (pcph)	1080	971
Prob. of Queue-Free State:	0.99	0.99

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	10	
Potential Capacity: (pcph)	1043	
Major LT, Minor TH Impedance Factor:	0.99	
Adjusted Impedance Factor:	0.99	
Capacity Adjustment Factor due to Impeding Movements	0.99	
Movement Capacity: (pcph)	1031	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	133	1031		4.0	0.4	A	
NB T	6	1080		3.4	0.0	A	4.0
SB T	6	971		3.7	0.0	A	3.2
SB R	6	1385		2.6	0.0	A	
EB L	6	1714		2.1	0.0	A	0.1

Intersection Delay = 2.5 sec/veh

Center For Microcomputers In Transportation
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512 Weil Hall
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Ph: (352) 392-0378

Streets: (N-S) Morning Drive (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM 2010 without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	115	460			350	50				40		45
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		184
Potential Capacity: (pcph)		1117
Movement Capacity: (pcph)		1117
Prob. of Queue-Free State:		0.95

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		421
Potential Capacity: (pcph)		1019
Movement Capacity: (pcph)		1019
Prob. of Queue-Free State:		0.87

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		974
Potential Capacity: (pcph)		252
Major LT, Minor TH Impedance Factor:		0.87
Adjusted Impedance Factor:		0.87
Capacity Adjustment Factor due to Impeding Movements		0.87
Movement Capacity: (pcph)		219

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB	L	46	219		20.8	0.8	D	11.6
SB	R	52	1117		3.4	0.0	A	
EB	L	133	1019		4.1	0.5	A	0.8

Intersection Delay = 1.4 sec/veh

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Ph: (352) 392-0378

Streets: (N-S) SR 184-Masterson St (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM 2010 without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1 <	0	1	1 <	0	0 >	1 <	0	0 >	1 <	0
Stop/Yield			N			N						
Volumes	20	465	45	90	340	5	65	5	105	5	5	10
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	512	360
Potential Capacity: (pcph)	762	910
Movement Capacity: (pcph)	762	910
Prob. of Queue-Free State:	0.84	0.99

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	536	363
Potential Capacity: (pcph)	952	1151
Movement Capacity: (pcph)	952	1151
Prob. of Queue-Free State:	0.89	0.98

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	992	1012
Potential Capacity: (pcph)	329	321
Capacity Adjustment Factor due to Impeding Movements	0.87	0.87
Movement Capacity: (pcph)	287	280
Prob. of Queue-Free State:	0.98	0.98

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	997	1047
Potential Capacity: (pcph)	280	262
Major LT, Minor TH Impedance Factor:	0.85	0.85
Adjusted Impedance Factor:	0.89	0.89
Capacity Adjustment Factor due to Impeding Movements	0.88	0.75
Movement Capacity: (pcph)	245	195

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	75	245 >					
NB	T	6	287 >	417	16.6	2.6	C	16.6
NB	R	122	762 >					
SB	L	6	195 >					
SB	T	6	280 >	367	10.5	0.1	C	10.5
SB	R	12	910 >					
EB	L	23	1151		3.2	0.0	A	0.1
WB	L	105	952		4.2	0.3	A	0.9

Intersection Delay = 3.1 sec/veh

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Ph: (352) 392-0378

Streets: (N-S) Morning Drive (E-W) Auburn Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM2010 without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	25		15				45	115			75	20
PHF	.95		.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		0.98

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		0.98

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	26	42
Potential Capacity: (pcph)	1053	1031
Capacity Adjustment Factor due to Impeding Movements	0.98	0.98
Movement Capacity: (pcph)	1035	1014
Prob. of Queue-Free State:	0.87	0.91

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	76	
Potential Capacity: (pcph)	947	
Major LT, Minor TH Impedance Factor:	0.90	
Adjusted Impedance Factor:	0.92	
Capacity Adjustment Factor due to Impeding Movements	0.91	
Movement Capacity: (pcph)	859	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	52	859		4.5	0.1	A	
NB T	133	1035		4.0	0.4	A	4.1
SB T	87	1014		3.9	0.2	A	3.6
SB R	23	1385		2.6	0.0	A	
EB L	29	1714		2.1	0.0	A	1.3

Intersection Delay = 3.6 sec/veh

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: Wwc 9-137R File Name: WBSR10WP.HC9
Area Type: Other 3-7-0 PM Peak
Comment: 2010 Without Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				50		195	495	1620			985	345
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						70			100			150
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.096	0.311	7.1	B	2.0	A
	R	1583	1583	0.083	1.000	0.0	A		
NB	L	833	1499	0.645	0.556	5.7	B	7.8	B
	T	2069	3725	0.865	0.556	8.5	B		
SB	T	2069	3725	0.526	0.556	4.3	A	3.6	A
	R	1583	1583	0.130	1.000	0.0	A		

Intersection Delay = 6.1 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.589

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: Wwc 9-137 File Name: WMN10WP.HC9
Area Type: Other 1-3-0 PM Peak
Comment: 2010 Without Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	15	275	360	145	220	15	305	30	150	15	10	10
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			20			5			45			5
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	422	1055	0.038	0.400	5.3	B	6.7	B
	TR	1367	3416	0.497	0.400	6.8	B		
WB	L	181	452	0.847	0.400	27.9	D	14.0	B
	TR	1480	3700	0.172	0.400	5.6	B		
NB	L	751	1610	0.427	0.467	5.4	B	5.1	B
	TR	1536	3292	0.098	0.467	4.3	A		
SB	LTR	676	1449	0.049	0.467	4.2	A	4.2	A

Intersection Delay = 8.0 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.621

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: WWC 9-137R File Name: PMOSR10WP.HC9
Area Type: Other 3-7-0 PM Peak
Comment: 2010 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	680		1035					1340	305		1080	40
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			400						120			15
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	1.012	0.400	37.6	D	19.5	C
	R	1583	1583	0.422	1.000	0.1	A		
NB	T	1739	3725	0.852	0.467	10.0	B	9.3	B
	R	739	1583	0.264	0.467	4.8	A		
SB	T	1739	3725	0.687	0.467	6.9	B	6.7	B
	R	1583	1583	0.016	1.000	0.0	A		

Intersection Delay = 11.9 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.926

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) State Route 178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: FSR10WP.HC9
Area Type: Other 3-7-0 PM Peak
Comment: PM 2010 WITHOUT PROJECT

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	< 0	2	2	< 0	1	2	1
Volumes	620	480	655	25	275	55	335	480	15	60	585	345
Lane W (ft)	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			225			25			5			150
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*	*			NB	Left	*	*		
	Thru		*	*			Thru		*	*	
	Right		*	*			Right		*	*	
	Peds						Peds				
WB	Left	*				SB	Left	*	*		
	Thru			*			Thru			*	
	Right			*			Right			*	
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		7.0A	22.0A	10.0A		Green		5.0A	17.0A	20.0A	
Yellow/AR		0.0	3.0	3.0		Yellow/AR		0.0	3.0	3.0	

Cycle Length: 93 secs Phase combination order: #1 #2 #3 #5 #6 #7

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	552	1770	1.183	0.312	*	*	*	*
	T	1402	3725	0.378	0.376	13.7	B		
	R	596	1583	0.759	0.376	20.2	C		
WB	L	76	1770	0.342	0.043	29.0	D	37.1	D
	TR	395	3670	0.854	0.108	37.8	D		
NB	L	837	3539	0.435	0.237	19.8	C	14.8	B
	TR	1597	3714	0.339	0.430	11.5	B		
SB	L	118	1770	0.534	0.237	23.3	C	25.7	D
	T	801	3725	0.808	0.215	26.7	D		
	R	341	1583	0.602	0.215	23.4	C		

Intersection Delay = * (sec/veh) Intersection LOS = *
(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) Auburn Street (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: FA10WP.HC9
Area Type: Other 3-7-0 PM Peak
Comment: 2010 WITHOUT PROJECT

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	120	80	250	130	80	35	335	635	185	40	520	125
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			90			10			60			40
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.367	0.194	22.5	C	24.5	C
	TR	513	3353	0.516	0.153	25.4	D		
WB	L	343	1770	0.399	0.194	22.7	C	23.1	C
	TR	550	3593	0.209	0.153	23.5	C		
NB	L	397	1770	0.889	0.224	38.6	D	26.8	D
	TR	1112	3633	0.755	0.306	21.9	C		
SB	L	397	1770	0.106	0.224	19.5	C	19.3	C
	TR	1116	3647	0.599	0.306	19.3	C		

Intersection Delay = 24.0 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.669

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: PF10WP.HC9
Area Type: Other 3-7-0 PM Peak
Comment: 2010 Without Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	45	100	210	215	135	30	250	295	220	25	270	30
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			75			10			80			10
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A	15.0A			Green		15.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 73 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	339	1770	0.138	0.192	15.8	C	16.2	C
	TR	699	3404	0.370	0.205	16.3	C		
WB	L	339	1770	0.666	0.192	21.0	C	18.7	C
	TR	751	3653	0.228	0.205	15.6	C		
NB	L	291	1770	0.904	0.164	40.1	E	23.7	C
	TR	971	3545	0.496	0.274	14.7	B		
SB	L	291	1770	0.089	0.164	16.7	C	13.9	B
	TR	1010	3687	0.317	0.274	13.7	B		

Intersection Delay = 19.4 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.584

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: Wwc 9-137R File Name: WMN10WP.HC9
Area Type: Other 3-8-0 PM Peak
Comment: 2010 Without Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	15	215	360	130	170	10	305	130	115	5	10	10
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			20			5			45			5
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	471	1176	0.034	0.400	5.3	B	6.5	B
	TR	1353	3383	0.453	0.400	6.6	B		
WB	L	215	537	0.638	0.400	11.3	B	7.9	B
	TR	1483	3707	0.131	0.400	5.5	B		
NB	L	775	1661	0.414	0.467	5.3	B	5.0	A
	TR	1647	3530	0.135	0.467	4.4	A		
SB	LTR	706	1513	0.031	0.467	4.2	A	4.2	A

Intersection Delay = 6.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.517

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Streets: (N-S) Fairfax Road (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....AM 2010 WITH PROJECT
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	5	0	5				10	145			105	5
PHF	.95	.95	.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		1.00
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:		1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	8	10
Potential Capacity: (pcph)	1080	1078
Capacity Adjustment Factor due to Impeding Movements	1.00	1.00
Movement Capacity: (pcph)	1076	1074
Prob. of Queue-Free State:	0.84	0.89

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	66	
Potential Capacity: (pcph)	970	
Major LT, Minor TH Impedance Factor:	0.88	
Adjusted Impedance Factor:	0.91	
Capacity Adjustment Factor due to Impeding Movements	0.91	
Movement Capacity: (pcph)	879	

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	12	879		4.2	0.0	A	
NB	T	168	1076		4.0	0.6	A	4.0
SB	T	122	1074		3.8	0.4	A	3.7
SB	R	6	1385		2.6	0.0	A	
EB	L	6	1714		2.1	0.0	A	1.1

Intersection Delay = 3.8 sec/veh

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Streets: (N-S) SR 184-Masterson St (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....AM 2010 with project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	15	280	105	130	500	45	85	70	85	85	165	40
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	350	550
Potential Capacity: (pcph)	920	729
Movement Capacity: (pcph)	920	729
Prob. of Queue-Free State:	0.89	0.94

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	406	573
Potential Capacity: (pcph)	1098	914
Movement Capacity: (pcph)	1098	914
Prob. of Queue-Free State:	0.86	0.98

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	1076	1108
Potential Capacity: (pcph)	297	286
Capacity Adjustment Factor due to Impeding Movements	0.85	0.85
Movement Capacity: (pcph)	251	242
Prob. of Queue-Free State:	0.68	0.21

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1161	1134
Potential Capacity: (pcph)	225	233
Major LT, Minor TH Impedance Factor:	0.18	0.57
Adjusted Impedance Factor:	0.31	0.67
Capacity Adjustment Factor due to Impeding Movements	0.29	0.60
Movement Capacity: (pcph)	66	139

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	98	66 >					
NB	T	81	251 >	145	481.2	19.0	F	481.2
NB	R	98	920 >					
SB	L	98	139 >					
SB	T	191	242 >	215	308.2	18.8	F	308.2
SB	R	46	729 >					
EB	L	18	914		4.0	0.0	A	0.2
WB	L	151	1098		3.8	0.5	A	0.7

Intersection Delay = 128.0 sec/veh

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Streets: (N-S) Morning Drive (E-W) Panorama Dr
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....AM2010 With Project
All-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Volumes	5	35	120	135	30	5	125	5	65	5	5	5
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95

Volume Summary and Capacity Analysis WorkSheet

	EB	WB	NB	SB
LT Flow Rate	5	142	132	5
RT Flow Rate	126	5	68	5
Approach Flow Rate	168	179	205	15
Proportion LT	0.03	0.79	0.64	0.33
Proportion RT	0.75	0.03	0.33	0.33
Opposing Approach Flow Rate	179	168	15	205
Conflicting Approaches Flow Rate	220	220	347	347
Proportion, Subject Approach Flow Rate	0.30	0.32	0.36	0.03
Proportion, Opposing Approach Flow Rate	0.32	0.30	0.03	0.36
Lanes on Subject Approach	3	3	3	3
Lanes on Opposing Approach	3	3	3	3
LT, Opposing Approach	142	5	5	132
RT, Opposing Approach	5	126	5	68
LT, Conflicting Approaches	137	137	147	147
RT, Conflicting Approaches	73	73	131	131
Proportion LT, Opposing Approach	0.79	0.03	0.33	0.64
Proportion RT, Opposing Approach	0.03	0.75	0.33	0.33
Proportion LT, Conflicting Approaches	0.62	0.62	0.42	0.42
Proportion RT, Conflicting Approaches	0.33	0.33	0.38	0.38
Approach Capacity	498	877	633	439

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
EB	168	498	0.34	3.6	A
WB	179	877	0.20	2.2	A
NB	205	633	0.32	3.4	A
SB	15	439	0.03	1.1	A

Intersection Delay = 3.0
Level of Service (Intersection) = A

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Ph: (352) 392-0378

Streets: (N-S) Alfred Harrell (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....AM 2010 with project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	0	1
Stop/Yield												
Volumes	85	225	95	40	395	5	75	5	35	10		90
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95		.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	237	416
Potential Capacity: (pcph)	1050	852
Movement Capacity: (pcph)	1050	852
Prob. of Queue-Free State:	0.96	0.88

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	337	421
Potential Capacity: (pcph)	1184	1080
Movement Capacity: (pcph)	1184	1080
Prob. of Queue-Free State:	0.96	0.91

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	789	
Potential Capacity: (pcph)	420	
Capacity Adjustment Factor due to Impeding Movements	0.87	
Movement Capacity: (pcph)	367	
Prob. of Queue-Free State:	0.98	

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	832	806
Potential Capacity: (pcph)	349	361
Major LT, Minor TH Impedance Factor:	0.87	0.86
Adjusted Impedance Factor:	0.87	0.89
Capacity Adjustment Factor due to Impeding Movements	0.77	0.86
Movement Capacity: (pcph)	267	310

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	87	267		19.9	1.4	C	
NB	T	6	367		10.0	0.0	B	14.5
NB	R	41	1050		3.6	0.0	A	
SB	L	12	310		12.1	0.0	C	5.5
SB	R	105	852		4.8	0.4	A	
EB	L	98	1080		3.7	0.2	A	0.8
WB	L	46	1184		3.2	0.0	A	0.3

Intersection Delay = 2.5 sec/veh

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) Auburn Street (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: AFA10P.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2010 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	60	40	305	215	45	40	320	385	75	10	730	95
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			135			15			35			40
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.184	0.194	21.4	C	24.2	C
	TR	501	3273	0.463	0.153	24.9	C		
WB	L	343	1770	0.659	0.194	26.8	D	25.9	D
	TR	540	3526	0.143	0.153	23.2	C		
NB	L	397	1770	0.848	0.224	34.4	D	24.6	C
	TR	1124	3673	0.417	0.306	17.6	C		
SB	L	397	1770	0.028	0.224	19.2	C	22.2	C
	TR	1128	3686	0.768	0.306	22.2	C		

Intersection Delay = 23.8 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.711

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: WWC 9-137R File Name: AOES10P.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2010 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	105		145					555	40		375	10
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			0						15			5
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
WB Left					SB Left				
Thru					Thru	*			
Right					Right	*			
Peds					Peds				
NB Right					EB Right	*			
SB Right	*				WB Right				
Green	17.0A				Green	20.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.157	0.400	5.6	B	2.4	A
	R	1583	1583	0.097	1.000	0.0	A		
NB	T	1739	3725	0.353	0.467	5.0	A	5.0	A
	R	739	1583	0.035	0.467	4.2	A		
SB	T	1739	3725	0.239	0.467	4.7	A	4.6	A
	R	1583	1583	0.004	1.000	0.0	A		

Intersection Delay = 4.3 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.262

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) State Route 178 (N-S) Fairfax Road
Analyst: Wwc 9-137R File Name: AFSR10P.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2010 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	< 0	2	2	< 0	1	2	1
Volumes	240	335	245	45	765	60	550	405	80	85	415	665
Lane W (ft)	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			100			25			10			300
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*	*			NB	Left	*	*		
	Thru		*	*			Thru		*	*	
	Right		*	*			Right		*	*	
	Peds						Peds				
WB	Left	*				SB	Left	*	*		
	Thru			*			Thru			*	
	Right			*			Right			*	
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*	*	*		WB	Right				
Green		9.0A	25.0A	22.0A		Green		5.0A	17.0A	20.0A	
Yellow/AR		0.0	3.0	3.0		Yellow/AR		0.0	3.0	3.0	

Cycle Length: 110 secs Phase combination order: #1 #2 #3 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	547	1770	0.463	0.309	20.3	C	14.5	B
	T	1693	3725	0.219	0.455	11.8	B		
	R	720	1583	0.213	0.455	11.7	B		
WB	L	97	1770	0.487	0.055	35.6	D	*	*
	TR	740	3701	1.194	0.200	*	*		
NB	L	708	3539	0.842	0.200	33.7	D	25.8	D
	TR	1325	3644	0.395	0.364	16.9	C		
SB	L	100	1770	0.890	0.200	67.5	F	22.3	C
	T	677	3725	0.678	0.182	29.0	D		
	R	1137	1583	0.338	0.718	3.8	A		

Intersection Delay = * (sec/veh) Intersection LOS = *
(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: Wwc 9-137R File Name: AWMN10P.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2010 With Project AM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	5	100	90	140	190	10	150	5	120	10	20	5
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			20			5			45			5
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	452	1130	0.011	0.400	5.3	B	5.5	B
	TR	1398	3494	0.134	0.400	5.5	B		
WB	L	475	1189	0.309	0.400	6.1	B	5.8	B
	TR	1484	3709	0.146	0.400	5.6	B		
NB	L	753	1614	0.210	0.467	4.6	A	4.5	A
	TR	1493	3200	0.059	0.467	4.3	A		
SB	LTR	825	1768	0.039	0.467	4.2	A	4.2	A

Intersection Delay = 5.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.256

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: Wwc 9-137R File Name: APF10P.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2010 With Project AM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	40	155	265	260	120	30	185	190	145	65	250	50
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			75			10			80			10
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A	15.0A			Green		15.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 73 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	339	1770	0.124	0.192	15.8	C	17.3	C
	TR	702	3418	0.543	0.205	17.4	C		
WB	L	339	1770	0.807	0.192	27.4	D	23.2	C
	TR	749	3646	0.206	0.205	15.6	C		
NB	L	291	1770	0.670	0.164	22.5	C	17.2	C
	TR	981	3582	0.287	0.274	13.5	B		
SB	L	291	1770	0.234	0.164	17.2	C	14.3	B
	TR	1000	3649	0.320	0.274	13.7	B		

Intersection Delay = 18.1 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.556

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Streets: (N-S) QUEEN STREET (E-W) Panorama Drive
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....PM 2010 with project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	70	235			200	15				25		55
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		106
Potential Capacity: (pcph)		1224
Movement Capacity: (pcph)		1224
Prob. of Queue-Free State:		0.95

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		227
Potential Capacity: (pcph)		1295
Movement Capacity: (pcph)		1295
Prob. of Queue-Free State:		0.94

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		532
Potential Capacity: (pcph)		484
Major LT, Minor TH Impedance Factor:		0.94
Adjusted Impedance Factor:		0.94
Capacity Adjustment Factor due to Impeding Movements		0.94
Movement Capacity: (pcph)		454

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB L	29	454		8.5	0.1	B	4.8
SB R	64	1224		3.1	0.0	A	
EB L	81	1295		3.0	0.1	A	0.7

Intersection Delay = 1.0 sec/veh

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Streets: (N-S) Vineland Road (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....PM 2010 with project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	225	130			125	120				50		200
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		66
Potential Capacity: (pcph)		1282
Movement Capacity: (pcph)		1282
Prob. of Queue-Free State:		0.82

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		258
Potential Capacity: (pcph)		1246
Movement Capacity: (pcph)		1246
Prob. of Queue-Free State:		0.79

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		506
Potential Capacity: (pcph)		503
Major LT, Minor TH Impedance Factor:		0.79
Adjusted Impedance Factor:		0.79
Capacity Adjustment Factor due to Impeding Movements		0.79
Movement Capacity: (pcph)		398

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB L	58	398		10.6	0.5	C	
							4.9
SB R	232	1282		3.4	0.7	A	
EB L	261	1246		3.7	0.9	A	2.3

Intersection Delay = 2.4 sec/veh

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Streets: (N-S) Fairfax Road (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....2010 With Project PM
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	2	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	5	0	5	0	0	0	10	100	0	0	170	5
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	0	0
Potential Capacity: (pcph)	1385	1385
Movement Capacity: (pcph)	1385	1385
Prob. of Queue-Free State:	1.00	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	5	0
Potential Capacity: (pcph)	1705	1714
Movement Capacity: (pcph)	1705	1714
Prob. of Queue-Free State:	1.00	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	5	10
Potential Capacity: (pcph)	1084	1078
Capacity Adjustment Factor due to Impeding Movements	1.00	1.00
Movement Capacity: (pcph)	1080	1074
Prob. of Queue-Free State:	0.89	0.82

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	96	58
Potential Capacity: (pcph)	932	980
Major LT, Minor TH Impedance Factor:	0.81	0.89
Adjusted Impedance Factor:	0.86	0.92
Capacity Adjustment Factor due to Impeding Movements	0.85	0.92
Movement Capacity: (pcph)	795	897

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	12	795		4.6	0.0	A	
NB T	116	1080		3.7	0.3	A	3.8
NB R	0	1385		2.6	0.0	A	
SB L	0	897		4.0	0.0	A	
SB T	197	1074		4.1	0.7	A	4.1
SB R	6	1385		2.6	0.0	A	
EB L	6	1714		2.1	0.0	A	1.1
WB L	0	1705		2.1	0.0	A	0.0

Intersection Delay = 3.9 sec/veh

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Streets: (N-S) Morning Drive (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM 2010 WITH PROJECT
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	465	1310			885	85				65		200
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		466
Potential Capacity: (pcph)		804
Movement Capacity: (pcph)		804
Prob. of Queue-Free State:		0.71

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		1021
Potential Capacity: (pcph)		485
Movement Capacity: (pcph)		485
Prob. of Queue-Free State:		0.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		2800
Potential Capacity: (pcph)		17
Major LT, Minor TH Impedance Factor:		0.00
Adjusted Impedance Factor:		0.00
Capacity Adjustment Factor due to Impeding Movements		0.00
Movement Capacity: (pcph)		0

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB	L	75	0		*	*	F	*
SB	R	232	804		6.3	1.3	B	
EB	L	538	485		97.7	16.3	F	25.6

Intersection Delay = *

* The calculated value was greater than 999.9.

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Streets: (N-S) Morning Drive (E-W) Auburn St
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM 2010 WITH PROJECT
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	70		15				40	515			265	65
PHF	.95		.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		0.95

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		0.95

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	74	90
Potential Capacity: (pcph)	987	966
Capacity Adjustment Factor due to Impeding Movements	0.95	0.95
Movement Capacity: (pcph)	940	920
Prob. of Queue-Free State:	0.37	0.67

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	248	
Potential Capacity: (pcph)	735	
Major LT, Minor TH Impedance Factor:	0.63	
Adjusted Impedance Factor:	0.72	
Capacity Adjustment Factor due to Impeding Movements	0.68	
Movement Capacity: (pcph)	498	

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	46	498		8.0	0.2	B	
NB	T	596	940		10.2	4.7	C	10.1
SB	T	307	920		5.9	1.6	B	5.2
SB	R	75	1385		2.7	0.0	A	
EB	L	81	1714		2.2	0.0	A	1.8

Intersection Delay = 7.7 sec/veh

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Streets: (N-S) SR 184-Masterson St (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM 2010 WITH PROJECT
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	65	465	45	90	340	25	140	100	105	85	95	60
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	512	371
Potential Capacity: (pcph)	762	898
Movement Capacity: (pcph)	762	898
Prob. of Queue-Free State:	0.84	0.92

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	536	384
Potential Capacity: (pcph)	952	1125
Movement Capacity: (pcph)	952	1125
Prob. of Queue-Free State:	0.89	0.93

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	1060	1070
Potential Capacity: (pcph)	303	299
Capacity Adjustment Factor due to Impeding Movements	0.83	0.83
Movement Capacity: (pcph)	252	248
Prob. of Queue-Free State:	0.54	0.56

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1128	1154
Potential Capacity: (pcph)	235	227
Major LT, Minor TH Impedance Factor:	0.46	0.45
Adjusted Impedance Factor:	0.57	0.56
Capacity Adjustment Factor due to Impeding Movements	0.53	0.47
Movement Capacity: (pcph)	125	107

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	162	125 >					
NB T	116	252 >	209	461.8	26.6	F	461.8
NB R	122	762 >					
SB L	98	107 >					
SB T	110	248 >	193	263.7	14.7	F	263.7
SB R	69	898 >					
EB L	75	1125		3.4	0.1	A	0.4
WB L	105	952		4.2	0.3	A	0.8

Intersection Delay = 138.2 sec/veh

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Streets: (N-S) Morning Drive (E-W) Panorama Dr
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM 2010 WITH PROJECT
All-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	< 0	1	1	1	1	1	< 0
Volumes	5	80	75	200	50	5	115	25	200	20	5	5
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95

Volume Summary and Capacity Analysis WorkSheet

	EB	WB	NB	SB
LT Flow Rate	5	211	121	21
RT Flow Rate	79	5	211	5
Approach Flow Rate	168	269	358	31
Proportion LT	0.03	0.78	0.34	0.68
Proportion RT	0.47	0.02	0.59	0.16
Opposing Approach Flow Rate	269	168	31	358
Conflicting Approaches Flow Rate	389	389	437	437
Proportion, Subject Approach Flow Rate	0.20	0.33	0.43	0.04
Proportion, Opposing Approach Flow Rate	0.33	0.20	0.04	0.43
Lanes on Subject Approach	2	2	3	2
Lanes on Opposing Approach	2	2	2	3
LT, Opposing Approach	211	5	21	121
RT, Opposing Approach	5	79	5	211
LT, Conflicting Approaches	142	142	216	216
RT, Conflicting Approaches	216	216	84	84
Proportion LT, Opposing Approach	0.78	0.03	0.68	0.34
Proportion RT, Opposing Approach	0.02	0.47	0.16	0.59
Proportion LT, Conflicting Approaches	0.37	0.37	0.49	0.49
Proportion RT, Conflicting Approaches	0.56	0.56	0.19	0.19
Approach Capacity	457	810	598	367

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
EB	168	457	0.37	4.0	A
WB	269	810	0.33	3.5	A
NB	358	598	0.60	9.7	B
SB	31	367	0.08	1.4	A

Intersection Delay = 6.2
Level of Service (Intersection) = B

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Streets: (N-S) Alfred Harrell (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM 2010 WITH PROJECT
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	0	1	1	1	1	1	0	> 1	< 0
Stop/Yield			N			N						
Volumes	50	420	25		315	15	125	5	40	15	5	105
PHF	.95	.95	.95		.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	442	332
Potential Capacity: (pcph)	827	940
Movement Capacity: (pcph)	827	940
Prob. of Queue-Free State:	0.94	0.87

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		348
Potential Capacity: (pcph)		1170
Movement Capacity: (pcph)		1170
Prob. of Queue-Free State:		0.95

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	843	853
Potential Capacity: (pcph)	394	389
Capacity Adjustment Factor due to Impeding Movements	0.95	0.95
Movement Capacity: (pcph)	374	370
Prob. of Queue-Free State:	0.98	0.98

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	885	851
Potential Capacity: (pcph)	325	340
Major LT, Minor TH Impedance Factor:	0.94	0.94
Adjusted Impedance Factor:	0.95	0.95
Capacity Adjustment Factor due to Impeding Movements	0.83	0.90
Movement Capacity: (pcph)	269	305

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	145	269		28.0	2.8	D	
NB T	6	374		9.8	0.0	B	22.0
NB R	46	827		4.6	0.0	A	
SB L	18	305 >					
SB T	6	370 >	712	6.4	0.8	B	6.4
SB R	122	940 >					
EB L	58	1170		3.2	0.0	A	0.3

Intersection Delay = 4.2 sec/veh

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University of Florida
512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Morning Drive (E-W) Auburn St
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM2010 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	55		20				20	140			225	55
PHF	.95		.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		0.95

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		0.96

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	58	79
Potential Capacity: (pcph)	1009	981
Capacity Adjustment Factor due to Impeding Movements	0.96	0.96
Movement Capacity: (pcph)	971	944
Prob. of Queue-Free State:	0.83	0.72

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	206	
Potential Capacity: (pcph)	782	
Major LT, Minor TH Impedance Factor:	0.70	
Adjusted Impedance Factor:	0.77	
Capacity Adjustment Factor due to Impeding Movements	0.73	
Movement Capacity: (pcph)	571	

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	23	571		6.6	0.0	B	
NB	T	162	971		4.4	0.6	A	4.7
SB	T	261	944		5.3	1.3	B	4.8
SB	R	64	1385		2.7	0.0	A	
EB	L	64	1714		2.2	0.0	A	1.6

Intersection Delay = 4.3 sec/veh

Center For Microcomputers In Transportation
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Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Morning Drive (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/7/0
Other Information.....PM 2010 with project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	125	355			730	65				50		170
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		384
Potential Capacity: (pcph)		885
Movement Capacity: (pcph)		885
Prob. of Queue-Free State:		0.78

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		836
Potential Capacity: (pcph)		610
Movement Capacity: (pcph)		610
Prob. of Queue-Free State:		0.76

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		1274
Potential Capacity: (pcph)		162
Major LT, Minor TH Impedance Factor:		0.76
Adjusted Impedance Factor:		0.76
Capacity Adjustment Factor due to Impeding Movements		0.76
Movement Capacity: (pcph)		123

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB	L	58	123		53.0	1.9	F	16.1
SB	R	197	885		5.2	0.9	B	
EB	L	145	610		7.7	1.0	B	2.0

Intersection Delay = 3.0 sec/veh

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Ph: (352) 392-0378

Streets: (N-S) Morning Dr (E-W) Highland St
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 Without Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	20	165	30	30	185	35	60	65	15	40	75	20
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	174	195
Potential Capacity: (pcph)	1130	1103
Movement Capacity: (pcph)	1130	1103
Prob. of Queue-Free State:	0.98	0.98

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	206	232
Potential Capacity: (pcph)	1367	1329
Movement Capacity: (pcph)	1367	1329
Prob. of Queue-Free State:	0.97	0.98

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	459	454
Potential Capacity: (pcph)	626	630
Capacity Adjustment Factor due to Impeding Movements	0.96	0.96
Movement Capacity: (pcph)	599	603
Prob. of Queue-Free State:	0.85	0.88

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	464	472
Potential Capacity: (pcph)	570	564
Major LT, Minor TH Impedance Factor:	0.84	0.82
Adjusted Impedance Factor:	0.88	0.86
Capacity Adjustment Factor due to Impeding Movements	0.86	0.84
Movement Capacity: (pcph)	491	475

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	69	475		8.9	0.5	B	
EB	T	75	603		6.8	0.4	B	7.3
EB	R	18	1103		3.3	0.0	A	
WB	L	46	491		8.1	0.2	B	
WB	T	87	599		7.0	0.5	B	6.8
WB	R	23	1130		3.3	0.0	A	
NB	L	23	1329		2.8	0.0	A	0.3
SB	L	35	1367		2.7	0.0	A	0.3

Intersection Delay = 2.8 sec/veh

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Ph: (352) 392-0378

Streets: (N-S) Morning Dr (E-W) College Ave
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 Without Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	70	125	50	40	150	35	10	25	10	10	25	10
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	132	158
Potential Capacity: (pcph)	1187	1152
Movement Capacity: (pcph)	1187	1152
Prob. of Queue-Free State:	0.99	0.99

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	185	195
Potential Capacity: (pcph)	1399	1384
Movement Capacity: (pcph)	1399	1384
Prob. of Queue-Free State:	0.97	0.94

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	443	459
Potential Capacity: (pcph)	639	626
Capacity Adjustment Factor due to Impeding Movements	0.91	0.91
Movement Capacity: (pcph)	582	570
Prob. of Queue-Free State:	0.95	0.95

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	426	426
Potential Capacity: (pcph)	600	600
Major LT, Minor TH Impedance Factor:	0.86	0.87
Adjusted Impedance Factor:	0.90	0.90
Capacity Adjustment Factor due to Impeding Movements	0.89	0.89
Movement Capacity: (pcph)	532	533

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	12	533		6.9	0.0	B	
EB T	29	570		6.7	0.0	B	5.9
EB R	12	1152		3.2	0.0	A	
WB L	12	532		6.9	0.0	B	
WB T	29	582		6.5	0.0	B	5.8
WB R	12	1187		3.1	0.0	A	
NB L	81	1384		2.8	0.1	A	0.8
SB L	46	1399		2.7	0.0	A	0.5

Intersection Delay = 1.5 sec/veh

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512 Weil Hall
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Ph: (352) 392-0378

Streets: (N-S) Vineland St (E-W) Knolls
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 Without Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	1	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	30	120			135	50	85		25			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		142
Potential Capacity: (pcph)		1173
Movement Capacity: (pcph)		1173
Prob. of Queue-Free State:		0.98

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		195
Potential Capacity: (pcph)		1384
Movement Capacity: (pcph)		1384
Prob. of Queue-Free State:		0.97
TH Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:		0.97

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		300
Potential Capacity: (pcph)		710
Major LT, Minor TH Impedance Factor:		0.97
Adjusted Impedance Factor:		0.97
Capacity Adjustment Factor due to Impeding Movements		0.97
Movement Capacity: (pcph)		691

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	98	691		6.1	0.5	B	5.4
EB R	29	1173		3.1	0.0	A	
NB L	35	1384		2.7	0.0	A	0.5

Intersection Delay = 1.5 sec/veh

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Streets: (N-S) SR184 (E-W) Chase Ave
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 Without Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		620	60	30	450					20		15
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	684	
Potential Capacity: (pcph)	623	
Movement Capacity: (pcph)	623	
Prob. of Queue-Free State:	0.97	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	716	
Potential Capacity: (pcph)	781	
Movement Capacity: (pcph)	781	
Prob. of Queue-Free State:	0.96	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.94	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1190	
Potential Capacity: (pcph)	217	
Major LT, Minor TH Impedance Factor:	0.94	
Adjusted Impedance Factor:	0.94	
Capacity Adjustment Factor due to Impeding Movements	0.94	
Movement Capacity: (pcph)	204	

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB	L	23	204		19.9	0.3	C	13.9
WB	R	18	623		6.0	0.0	B	
SB	L	35	781		4.8	0.0	A	0.3

Intersection Delay = 0.5 sec/veh

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Ph: (352) 392-0378

Streets: (N-S) Morning Dr (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 Without Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	65	355	75	30	225	40	100	185	75	45	300	50
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	374	237
Potential Capacity: (pcph)	895	1050
Movement Capacity: (pcph)	895	1050
Prob. of Queue-Free State:	0.90	0.94

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	453	279
Potential Capacity: (pcph)	1043	1262
Movement Capacity: (pcph)	1043	1262
Prob. of Queue-Free State:	0.97	0.94

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	753	790
Potential Capacity: (pcph)	439	420
Capacity Adjustment Factor due to Impeding Movements	0.91	0.91
Movement Capacity: (pcph)	399	382
Prob. of Queue-Free State:	0.46	0.09

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	895	848
Potential Capacity: (pcph)	321	342
Major LT, Minor TH Impedance Factor:	0.08	0.42
Adjusted Impedance Factor:	0.20	0.54
Capacity Adjustment Factor due to Impeding Movements	0.19	0.49
Movement Capacity: (pcph)	60	166

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	116	60		580.3	8.9	F	
NB	T	215	399		19.1	3.1	C	171.9
NB	R	87	895		4.5	0.3	A	
SB	L	52	166		31.3	1.2	E	
SB	T	348	382		54.7	8.6	F	45.6
SB	R	58	1050		3.6	0.0	A	
EB	L	75	1262		3.0	0.1	A	0.4
WB	L	35	1043		3.6	0.0	A	0.4

Intersection Delay = 51.9 sec/veh

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Ph: (352) 392-0378

Streets: (N-S) Fairfax Road (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....AM 2020 WITHOUT PROJECT
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	< 0	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	5	5	5	225	25	160	30	350	175	5	490	40
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	8	26
Potential Capacity: (pcph)	1372	1343
Movement Capacity: (pcph)	1372	1343
Prob. of Queue-Free State:	0.85	0.97

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	10	194
Potential Capacity: (pcph)	1696	1386
Movement Capacity: (pcph)	1696	1386
Prob. of Queue-Free State:	0.85	1.00
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:		1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	444	278
Potential Capacity: (pcph)	638	780
Capacity Adjustment Factor due to Impeding Movements	0.84	0.84
Movement Capacity: (pcph)	537	657
Prob. of Queue-Free State:	0.25	0.14

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	554	552
Potential Capacity: (pcph)	506	507
Major LT, Minor TH Impedance Factor:	0.11	0.21
Adjusted Impedance Factor:	0.24	0.34
Capacity Adjustment Factor due to Impeding Movements	0.23	0.29
Movement Capacity: (pcph)	117	148

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	35	117		43.4	1.0	E	
NB	T	405	537		24.4	6.2	D	18.7
NB	R	202	1372		3.1	0.5	A	
SB	L	6	148		25.3	0.0	D	
SB	T	568	657		30.3	9.4	E	28.2
SB	R	46	1343		2.8	0.0	A	
EB	L	6	1386		2.6	0.0	A	0.9
WB	L	261	1696		2.5	0.6	A	1.4

Intersection Delay = 17.2 sec/veh

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University of Florida
512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) SR 184-Masterson St (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... wwc9-137R
Date of Analysis..... 3/8/0
Other Information.....AM 2020 Without Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	1	1	2	0
Stop/Yield			N			N						
Volumes				40		60		500	40	60	250	
PHF				.95		.95		.95	.95	.95	.95	
Grade					0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10				1.10	1.10	1.10	1.10	

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	0	
Potential Capacity: (pcph)	1385	
Movement Capacity: (pcph)	1385	
Prob. of Queue-Free State:	0.97	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	0	
Potential Capacity: (pcph)	1714	
Movement Capacity: (pcph)	1714	
Prob. of Queue-Free State:	0.97	

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	105	42
Potential Capacity: (pcph)	947	1031
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	922	1003
Prob. of Queue-Free State:	0.37	0.71

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		326
Potential Capacity: (pcph)		655
Major LT, Minor TH Impedance Factor:		0.36
Adjusted Impedance Factor:		0.49
Capacity Adjustment Factor due to Impeding Movements		0.47
Movement Capacity: (pcph)		309

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB T	579	922		10.3	4.6	C	9.7
NB R	46	1385		2.7	0.0	A	
SB L	69	309		15.0	0.9	C	
SB T	289	1003		5.0	1.3	B	7.0
WB L	46	1714		2.2	0.0	A	0.9

Intersection Delay = 7.9 sec/veh

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Streets: (N-S) Morning Drive (E-W) Auburn Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....AM 2020 without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	1	1	0	0	1	1
Stop/Yield			N			N						
Volumes	75		50				40	200			310	200
PHF	.95		.95				.95	.95			.95	.95
Grade		0						0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10	1.10			1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1385
Movement Capacity: (pcph)		1385
Prob. of Queue-Free State:		0.83

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		0
Potential Capacity: (pcph)		1714
Movement Capacity: (pcph)		1714
Prob. of Queue-Free State:		0.95

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	79	132
Potential Capacity: (pcph)	981	913
Capacity Adjustment Factor due to Impeding Movements	0.95	0.95
Movement Capacity: (pcph)	931	867
Prob. of Queue-Free State:	0.75	0.59

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	348	
Potential Capacity: (pcph)	634	
Major LT, Minor TH Impedance Factor:	0.56	
Adjusted Impedance Factor:	0.65	
Capacity Adjustment Factor due to Impeding Movements	0.54	
Movement Capacity: (pcph)	344	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	46	344		12.1	0.4	C	
NB T	232	931		5.1	1.1	B	6.3
SB T	359	867		7.1	2.2	B	5.5
SB R	232	1385		3.1	0.7	A	
EB L	87	1714		2.2	0.0	A	1.3

Intersection Delay = 5.1 sec/veh

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Streets: (N-S) Alfred Harrell (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....AM 2020 without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	0	> 1	< 0
Stop/Yield			N			N						
Volumes	30	115	20	10	100	10	85	5	20	10	0	160
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	121	105
Potential Capacity: (pcph)	1202	1225
Movement Capacity: (pcph)	1202	1225
Prob. of Queue-Free State:	0.98	0.85

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	142	116
Potential Capacity: (pcph)	1467	1509
Movement Capacity: (pcph)	1467	1509
Prob. of Queue-Free State:	0.99	0.98

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	280	290
Potential Capacity: (pcph)	778	768
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	754	744
Prob. of Queue-Free State:	0.99	1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	352	282
Potential Capacity: (pcph)	662	727
Major LT, Minor TH Impedance Factor:	0.97	0.96
Adjusted Impedance Factor:	0.98	0.97
Capacity Adjustment Factor due to Impeding Movements	0.83	0.95
Movement Capacity: (pcph)	549	692

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	98	549		8.0	0.7	B	
NB T	6	754		4.8	0.0	A	6.9
NB R	23	1202		3.1	0.0	A	
SB L	12	692	>				
SB T	0	744	> 1170	3.7	0.7	A	3.7
SB R	185	1225	>				
EB L	35	1509		2.4	0.0	A	0.4
WB L	12	1467		2.5	0.0	A	0.2

Intersection Delay = 2.6 sec/veh

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Streets: (N-S) Morning Drive (E-W) Panorama Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....PM 2020 Without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	40	105	135	50	25	20	90	130	180	115	190	110
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	111	26
Potential Capacity: (pcph)	1216	1343
Movement Capacity: (pcph)	1216	1343
Prob. of Queue-Free State:	0.83	0.90

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	253	47
Potential Capacity: (pcph)	1299	1628
Movement Capacity: (pcph)	1299	1628
Prob. of Queue-Free State:	0.96	0.97

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	253	374
Potential Capacity: (pcph)	804	694
Capacity Adjustment Factor due to Impeding Movements	0.93	0.93
Movement Capacity: (pcph)	746	644
Prob. of Queue-Free State:	0.80	0.66

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	390	395
Potential Capacity: (pcph)	629	625
Major LT, Minor TH Impedance Factor:	0.61	0.74
Adjusted Impedance Factor:	0.70	0.80
Capacity Adjustment Factor due to Impeding Movements	0.63	0.66
Movement Capacity: (pcph)	397	414

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	105	397		12.3	1.1	C	
NB	T	151	746		6.0	0.8	B	6.3
NB	R	208	1216		3.6	0.7	A	
SB	L	133	414		12.8	1.4	C	
SB	T	220	644		8.5	1.6	B	8.2
SB	R	128	1343		3.0	0.3	A	
EB	L	46	1628		2.3	0.0	A	0.3
WB	L	58	1299		2.9	0.0	A	1.5

Intersection Delay = 5.2 sec/veh

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Streets: (N-S) SR 184-Masterson St (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....PM 2020 without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	1	1	1	1	0
Stop/Yield			N			N						
Volumes				95		65		400	100	125	400	
PHF				.95		.95		.95	.95	.95	.95	
Grade					0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10				1.10	1.10	1.10	1.10	

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	0	
Potential Capacity: (pcph)	1385	
Movement Capacity: (pcph)	1385	
Prob. of Queue-Free State:	0.92	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	0	
Potential Capacity: (pcph)	1714	
Movement Capacity: (pcph)	1714	
Prob. of Queue-Free State:	0.94	

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	168	100
Potential Capacity: (pcph)	870	953
Capacity Adjustment Factor due to Impeding Movements	0.94	0.94
Movement Capacity: (pcph)	814	892
Prob. of Queue-Free State:	0.43	0.48

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		363
Potential Capacity: (pcph)		620
Major LT, Minor TH Impedance Factor:		0.40
Adjusted Impedance Factor:		0.52
Capacity Adjustment Factor due to Impeding Movements		0.48
Movement Capacity: (pcph)		298

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB T	463	814		10.1	3.7	C	8.6
NB R	116	1385		2.8	0.2	A	
SB L	145	298		23.0	2.5	D	
SB T	463	892		8.3	3.2	B	11.8
WB L	110	1714		2.2	0.1	A	1.3

Intersection Delay = 9.1 sec/veh

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Streets: (N-S) Alfred Harrell (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....PM 2020 without project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	50	1150	20	10	350	20	165	10	55	55	10	110
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	606	368
Potential Capacity: (pcph)	683	901
Movement Capacity: (pcph)	683	901
Prob. of Queue-Free State:	0.91	0.86

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1232	389
Potential Capacity: (pcph)	444	1119
Movement Capacity: (pcph)	444	1119
Prob. of Queue-Free State:	0.97	0.95

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	1664	1664
Potential Capacity: (pcph)	146	146
Capacity Adjustment Factor due to Impeding Movements	0.92	0.92
Movement Capacity: (pcph)	135	135
Prob. of Queue-Free State:	0.91	0.91

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1708	1649
Potential Capacity: (pcph)	109	117
Major LT, Minor TH Impedance Factor:	0.84	0.84
Adjusted Impedance Factor:	0.88	0.88
Capacity Adjustment Factor due to Impeding Movements	0.75	0.80
Movement Capacity: (pcph)	82	93

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	191	82		711.0	15.3	F	
NB	T	12	135		29.3	0.2	D	512.8
NB	R	64	683		5.8	0.2	B	
SB	L	64	93		98.6	2.8	F	
SB	T	12	135		29.3	0.2	D	35.6
SB	R	128	901		4.7	0.5	A	
EB	L	58	1119		3.4	0.0	A	0.1
WB	L	12	444		8.3	0.0	B	0.2

Intersection Delay = 62.1 sec/veh

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Ph: (352) 392-0378

Streets: (N-S) Fairfax Road (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....PM 2020 WITHOUT PROJECT
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	10	10	10	460	50	260	50	645	195	30	240	65
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	11	53
Potential Capacity: (pcph)	1367	1302
Movement Capacity: (pcph)	1367	1302
Prob. of Queue-Free State:	0.83	0.94

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	22	327
Potential Capacity: (pcph)	1673	1197
Movement Capacity: (pcph)	1673	1197
Prob. of Queue-Free State:	0.68	0.99

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	833	570
Potential Capacity: (pcph)	399	548
Capacity Adjustment Factor due to Impeding Movements	0.68	0.68
Movement Capacity: (pcph)	269	370
Prob. of Queue-Free State:	0.00	0.25

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	719	1002
Potential Capacity: (pcph)	406	278
Major LT, Minor TH Impedance Factor:	0.17	0.00
Adjusted Impedance Factor:	0.30	0.00
Capacity Adjustment Factor due to Impeding Movements	0.28	0.00
Movement Capacity: (pcph)	116	0

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	58	116		58.7	2.0	F	
NB	T	747	269		833.4	61.3	F	608.0
NB	R	226	1367		3.2	0.6	A	
SB	L	35	0		*	*	F	
SB	T	278	370		33.9	5.5	E	*
SB	R	75	1302		2.9	0.0	A	
EB	L	12	1197		3.0	0.0	A	1.0
WB	L	532	1673		3.2	1.6	A	1.9

Intersection Delay = *

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Streets: (N-S) Morning Drive (E-W) Panorama Dr
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....AM2020 WITHOUT PROJECT
All-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Volumes	85	65	80	185	50	10	55	95	155	70	215	65
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95

Volume Summary and Capacity Analysis WorkSheet

	EB	WB	NB	SB
LT Flow Rate	89	195	58	74
RT Flow Rate	84	11	163	68
Approach Flow Rate	241	259	321	368
Proportion LT	0.37	0.75	0.18	0.20
Proportion RT	0.35	0.04	0.51	0.18
Opposing Approach Flow Rate	259	241	368	321
Conflicting Approaches Flow Rate	689	689	500	500
Proportion, Subject Approach Flow Rate	0.20	0.22	0.27	0.31
Proportion, Opposing Approach Flow Rate	0.22	0.20	0.31	0.27
Lanes on Subject Approach	3	3	3	3
Lanes on Opposing Approach	3	3	3	3
LT, Opposing Approach	195	89	74	58
RT, Opposing Approach	11	84	68	163
LT, Conflicting Approaches	132	132	284	284
RT, Conflicting Approaches	231	231	95	95
Proportion LT, Opposing Approach	0.75	0.37	0.20	0.18
Proportion RT, Opposing Approach	0.04	0.35	0.18	0.51
Proportion LT, Conflicting Approaches	0.19	0.19	0.57	0.57
Proportion RT, Conflicting Approaches	0.34	0.34	0.19	0.19
Approach Capacity	481	662	650	732

Intersection Performance Summary

Movement	Approach Flow Rate	Approach Capacity	V/C Ratio	Average Total Delay	LOS
EB	241	481	0.50	6.7	B
WB	259	662	0.39	4.4	A
NB	321	650	0.49	6.5	B
SB	368	732	0.50	6.8	B

Intersection Delay = 6.2
Level of Service (Intersection) = B

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Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Vineland (E-W) Highland-Knolls
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 Without Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	1	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	50	200			320	80	140		45			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		337
Potential Capacity: (pcph)		934
Movement Capacity: (pcph)		934
Prob. of Queue-Free State:		0.94

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		421
Potential Capacity: (pcph)		1080
Movement Capacity: (pcph)		1080
Prob. of Queue-Free State:		0.95

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		601
Potential Capacity: (pcph)		475
Major LT, Minor TH Impedance Factor:		0.95
Adjusted Impedance Factor:		0.95
Capacity Adjustment Factor due to Impeding Movements		0.95
Movement Capacity: (pcph)		449

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	162	449		12.5	1.7	C	10.4
EB	R	52	934		4.1	0.0	A	
NB	L	58	1080		3.5	0.0	A	0.7

Intersection Delay = 2.5 sec/veh

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Streets: (N-S) Vineland (E-W) Knolls
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 Without Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	1	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	50	200			320	80	140		45			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		337
Potential Capacity: (pcph)		934
Movement Capacity: (pcph)		934
Prob. of Queue-Free State:		0.94

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		421
Potential Capacity: (pcph)		1080
Movement Capacity: (pcph)		1080
Prob. of Queue-Free State:		0.95

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		601
Potential Capacity: (pcph)		475
Major LT, Minor TH Impedance Factor:		0.95
Adjusted Impedance Factor:		0.95
Capacity Adjustment Factor due to Impeding Movements		0.95
Movement Capacity: (pcph)		449

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	162	449		12.5	1.7	C	10.4
EB	R	52	934		4.1	0.0	A	
NB	L	58	1080		3.5	0.0	A	0.7

Intersection Delay = 2.5 sec/veh

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University of Florida
512 Weil Hall
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Ph: (352) 392-0378

Streets: (N-S) Morning Dr (E-W) Highland-Knolls
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 Without Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	30	270	50	50	310	55	100	110	20	60	120	30
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	284	326
Potential Capacity: (pcph)	994	947
Movement Capacity: (pcph)	994	947
Prob. of Queue-Free State:	0.96	0.98

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	337	384
Potential Capacity: (pcph)	1184	1125
Movement Capacity: (pcph)	1184	1125
Prob. of Queue-Free State:	0.95	0.97

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	753	748
Potential Capacity: (pcph)	439	442
Capacity Adjustment Factor due to Impeding Movements	0.92	0.92
Movement Capacity: (pcph)	405	407
Prob. of Queue-Free State:	0.66	0.69

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	763	774
Potential Capacity: (pcph)	383	377
Major LT, Minor TH Impedance Factor:	0.63	0.61
Adjusted Impedance Factor:	0.71	0.69
Capacity Adjustment Factor due to Impeding Movements	0.70	0.67
Movement Capacity: (pcph)	267	252

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	116	252		25.9	2.2	D	
EB	T	128	407		12.9	1.4	C	17.8
EB	R	23	947		3.9	0.0	A	
WB	L	69	267		18.1	1.0	C	
WB	T	139	405		13.5	1.6	C	13.4
WB	R	35	994		3.8	0.0	A	
NB	L	35	1125		3.3	0.0	A	0.3
SB	L	58	1184		3.2	0.0	A	0.4

Intersection Delay = 5.9 sec/veh

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Streets: (N-S) SR 184 (E-W) Chase Ave
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 Without Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		720	100	50	750					30		30
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	758	
Potential Capacity: (pcph)	572	
Movement Capacity: (pcph)	572	
Prob. of Queue-Free State:	0.94	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	863	
Potential Capacity: (pcph)	665	
Movement Capacity: (pcph)	665	
Prob. of Queue-Free State:	0.91	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1600	
Potential Capacity: (pcph)	125	
Major LT, Minor TH Impedance Factor:	0.91	
Adjusted Impedance Factor:	0.91	
Capacity Adjustment Factor due to Impeding Movements	0.91	
Movement Capacity: (pcph)	114	

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB	L	35	114		45.0	1.1	E	25.8
WB	R	35	572		6.7	0.1	B	
SB	L	58	665		5.9	0.2	B	0.4

Intersection Delay = 1.1 sec/veh

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Streets: (N-S) Vineland (E-W) SR184
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 Without Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	200	1150	50	50	810	50	75	125	25	50	150	50
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	1211	853
Potential Capacity: (pcph)	337	512
Movement Capacity: (pcph)	337	512
Prob. of Queue-Free State:	0.91	0.89

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1264	906
Potential Capacity: (pcph)	428	634
Movement Capacity: (pcph)	428	634
Prob. of Queue-Free State:	0.86	0.63

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	2381	2381
Potential Capacity: (pcph)	61	61
Capacity Adjustment Factor due to Impeding Movements	0.55	0.55
Movement Capacity: (pcph)	33	33
Prob. of Queue-Free State:	0.00	0.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	2434	2408
Potential Capacity: (pcph)	41	43
Major LT, Minor TH Impedance Factor:	0.00	0.00
Adjusted Impedance Factor:	0.00	0.00
Capacity Adjustment Factor due to Impeding Movements	0.00	0.00
Movement Capacity: (pcph)	0	0

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	87	0		*	*	F	
NB	T	145	33		*	14.7	F	*
NB	R	29	337		11.7	0.2	C	
SB	L	58	0		*	*	F	
SB	T	174	33		*	18.2	F	*
SB	R	58	512		7.9	0.3	B	
EB	L	232	634		8.9	1.8	B	1.3
WB	L	58	428		9.7	0.5	B	0.5

Intersection Delay = *

* The calculated value was greater than 999.9.

Center For Microcomputers In Transportation
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512 Weil Hall
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Ph: (352) 392-0378

Streets: (N-S) Fairfax Road (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....AM 2020 WITH PROJECT
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	0	1	1
Stop/Yield			N			N						
Volumes	5	5	5	335	30	170	30	350	185		490	40
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95		.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10		1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	5	32
Potential Capacity: (pcph)	1377	1334
Movement Capacity: (pcph)	1377	1334
Prob. of Queue-Free State:	0.84	0.97

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	10	211
Potential Capacity: (pcph)	1696	1360
Movement Capacity: (pcph)	1696	1360
Prob. of Queue-Free State:	0.77	1.00

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	574	400
Potential Capacity: (pcph)	545	673
Capacity Adjustment Factor due to Impeding Movements	0.77	0.77
Movement Capacity: (pcph)	418	517
Prob. of Queue-Free State:	0.03	0.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	674	
Potential Capacity: (pcph)	431	
Major LT, Minor TH Impedance Factor:	0.00	
Adjusted Impedance Factor:	0.00	
Capacity Adjustment Factor due to Impeding Movements	0.00	
Movement Capacity: (pcph)	0	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	35	0		*	*	F	
NB T	405	418		63.3	10.4	F	*
NB R	215	1377		3.1	0.6	A	
SB T	568	517		91.9	16.5	F	85.2
SB R	46	1334		2.8	0.0	A	
EB L	6	1360		2.7	0.0	A	0.9
WB L	388	1696		2.8	1.0	A	1.7

Intersection Delay = *

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University of Florida
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Streets: (N-S) Alfred Harrell (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....AM 2020 with project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	40	155	30	85	200	10	40	0	0	10	20	160
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	163	211
Potential Capacity: (pcph)	1145	1082
Movement Capacity: (pcph)	1145	1082
Prob. of Queue-Free State:	1.00	0.83

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	195	222
Potential Capacity: (pcph)	1384	1344
Movement Capacity: (pcph)	1384	1344
Prob. of Queue-Free State:	0.93	0.97

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	516	537
Potential Capacity: (pcph)	585	570
Capacity Adjustment Factor due to Impeding Movements	0.90	0.90
Movement Capacity: (pcph)	525	512
Prob. of Queue-Free State:	1.00	0.96

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	600	504
Potential Capacity: (pcph)	476	541
Major LT, Minor TH Impedance Factor:	0.86	0.90
Adjusted Impedance Factor:	0.89	0.92
Capacity Adjustment Factor due to Impeding Movements	0.74	0.92
Movement Capacity: (pcph)	351	498

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	46	351		11.8	0.4	C	
NB	T	0	525		6.9	0.0	B	11.8
NB	R	0	1145		3.1	0.0	A	
SB	L	12	498		7.4	0.0	B	
SB	T	23	512		7.4	0.0	B	4.5
SB	R	185	1082		4.0	0.7	A	
EB	L	46	1344		2.8	0.0	A	0.5
WB	L	98	1384		2.8	0.1	A	0.8

Intersection Delay = 2.2 sec/veh

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Ph: (352) 392-0378

Streets: (N-S) SR 184-Masterson St (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....AM 2020 with project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	1	1	1	0
Stop/Yield			N			N						
Volumes				40		145		600	40	110	380	
PHF				.95		.95		.95	.95	.95	.95	
Grade					0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10				1.10	1.10	1.10	1.10	

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	0	
Potential Capacity: (pcph)	1385	
Movement Capacity: (pcph)	1385	
Prob. of Queue-Free State:	0.97	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	0	
Potential Capacity: (pcph)	1714	
Movement Capacity: (pcph)	1714	
Prob. of Queue-Free State:	0.97	

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	195	42
Potential Capacity: (pcph)	839	1031
Capacity Adjustment Factor due to Impeding Movements	0.97	0.97
Movement Capacity: (pcph)	816	1003
Prob. of Queue-Free State:	0.15	0.56

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		380
Potential Capacity: (pcph)		605
Major LT, Minor TH Impedance Factor:		0.14
Adjusted Impedance Factor:		0.28
Capacity Adjustment Factor due to Impeding Movements		0.27
Movement Capacity: (pcph)		161

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB T	695	816		24.0	9.7	D	22.7
NB R	46	1385		2.7	0.0	A	
SB L	128	161		76.9	4.4	F	
SB T	440	1003		6.4	2.4	B	22.2
WB L	46	1714		2.2	0.0	A	0.5

Intersection Delay = 19.4 sec/veh

Center For Microcomputers In Transportation
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Ph: (352) 392-0378

Streets: (N-S) ~~Vineland~~ Rosen St (E-W) Panorama Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/10/0
Other Information.....AM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	< 0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	25	435			190	20				5		30
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		210
Potential Capacity: (pcph)		1084
Movement Capacity: (pcph)		1084
Prob. of Queue-Free State:		0.97

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		221
Potential Capacity: (pcph)		1345
Movement Capacity: (pcph)		1345
Prob. of Queue-Free State:		0.98
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.97

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		694
Potential Capacity: (pcph)		420
Major LT, Minor TH Impedance Factor:		0.97
Adjusted Impedance Factor:		0.97
Capacity Adjustment Factor due to Impeding Movements		0.97
Movement Capacity: (pcph)		408

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB	L	6	408		9.0	0.0	B	
								4.2
SB	R	35	1084		3.4	0.0	A	
EB	L	29	1345		2.7	0.0	A	0.1

Intersection Delay = 0.3 sec/veh

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Streets: (N-S) Morning Dr (E-W) College St
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 With Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	70	135	50	50	170	45	15	25	10	10	25	15
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	142	179
Potential Capacity: (pcph)	1173	1124
Movement Capacity: (pcph)	1173	1124
Prob. of Queue-Free State:	0.98	0.99

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	195	226
Potential Capacity: (pcph)	1384	1338
Movement Capacity: (pcph)	1384	1338
Prob. of Queue-Free State:	0.96	0.94

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	495	501
Potential Capacity: (pcph)	600	595
Capacity Adjustment Factor due to Impeding Movements	0.90	0.90
Movement Capacity: (pcph)	540	536
Prob. of Queue-Free State:	0.95	0.95

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	466	470
Potential Capacity: (pcph)	569	566
Major LT, Minor TH Impedance Factor:	0.85	0.85
Adjusted Impedance Factor:	0.89	0.89
Capacity Adjustment Factor due to Impeding Movements	0.88	0.87
Movement Capacity: (pcph)	499	494

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	18	494		7.6	0.0	B	
EB	T	29	536		7.1	0.0	B	6.5
EB	R	12	1124		3.2	0.0	A	
WB	L	12	499		7.4	0.0	B	
WB	T	29	540		7.0	0.0	B	5.9
WB	R	18	1173		3.1	0.0	A	
NB	L	81	1338		2.9	0.1	A	0.8
SB	L	58	1384		2.7	0.0	A	0.5

Intersection Delay = 1.5 sec/veh

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Streets: (N-S) Vineland Road (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....AM 2010 with project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	0	0	2	1	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	100	360			600	20				35		195
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		316
Potential Capacity: (pcph)		958
Movement Capacity: (pcph)		958
Prob. of Queue-Free State:		0.76

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		653
Potential Capacity: (pcph)		765
Movement Capacity: (pcph)		765
Prob. of Queue-Free State:		0.85

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		1116
Potential Capacity: (pcph)		205
Major LT, Minor TH Impedance Factor:		0.85
Adjusted Impedance Factor:		0.85
Capacity Adjustment Factor due to Impeding Movements		0.85
Movement Capacity: (pcph)		174

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB L	41	174		27.0	0.8	D	
							8.3
SB R	226	958		4.9	1.0	A	
EB L	116	765		5.5	0.6	B	1.2

Intersection Delay = 1.9 sec/veh

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Streets: (N-S) Vineland St (E-W) Knolls
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 With Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	1	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	30	170			205	60	95		25			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		216
Potential Capacity: (pcph)		1076
Movement Capacity: (pcph)		1076
Prob. of Queue-Free State:		0.97

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		279
Potential Capacity: (pcph)		1262
Movement Capacity: (pcph)		1262
Prob. of Queue-Free State:		0.97

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		426
Potential Capacity: (pcph)		600
Major LT, Minor TH Impedance Factor:		0.97
Adjusted Impedance Factor:		0.97
Capacity Adjustment Factor due to Impeding Movements		0.97
Movement Capacity: (pcph)		583

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	110	583		7.6	0.7	B	6.7
EB R	29	1076		3.4	0.0	A	
NB L	35	1262		2.9	0.0	A	0.4

Intersection Delay = 1.5 sec/veh

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Streets: (N-S) Vineland St (E-W) SR184
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	< 0	1	1	< 0	0	> 1	< 0	0	> 1	< 0
Stop/Yield			N			N						
Volumes	140	760	30	55	650	45	45	85	20	40	100	80
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	816	708
Potential Capacity: (pcph)	534	606
Movement Capacity: (pcph)	534	606
Prob. of Queue-Free State:	0.96	0.85

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	832	731
Potential Capacity: (pcph)	688	769
Movement Capacity: (pcph)	688	769
Prob. of Queue-Free State:	0.91	0.79

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	1752	1744
Potential Capacity: (pcph)	131	133
Capacity Adjustment Factor due to Impeding Movements	0.72	0.72
Movement Capacity: (pcph)	94	95
Prob. of Queue-Free State:	0.00	0.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1823	1784
Potential Capacity: (pcph)	93	98
Major LT, Minor TH Impedance Factor:	0.00	0.00
Adjusted Impedance Factor:	0.00	0.00
Capacity Adjustment Factor due to Impeding Movements	0.00	0.00
Movement Capacity: (pcph)	0	0

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	52	0 >					
NB	T	98	94 >	0	*	*	F	*
NB	R	23	534 >					
SB	L	46	0 >					
SB	T	116	95 >	0	*	*	F	*
SB	R	92	606 >					
EB	L	162	769		5.9	0.9	B	0.9
WB	L	64	688		5.8	0.2	B	0.4

Intersection Delay = *

* The calculated value was greater than 999.9.

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Streets: (N-S) SR184 (E-W) Chase Ave
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 With Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	< 0	0	> 1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		720	60	35	740					20		30
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	790	
Potential Capacity: (pcph)	551	
Movement Capacity: (pcph)	551	
Prob. of Queue-Free State:	0.94	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	821	
Potential Capacity: (pcph)	696	
Movement Capacity: (pcph)	696	
Prob. of Queue-Free State:	0.94	
TH Saturation Flow Rate: (pcphpl)	1700	
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:	0.89	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	1606	
Potential Capacity: (pcph)	124	
Major LT, Minor TH Impedance Factor:	0.89	
Adjusted Impedance Factor:	0.89	
Capacity Adjustment Factor due to Impeding Movements	0.89	
Movement Capacity: (pcph)	111	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	23	111		40.7	0.6	E	20.5
WB R	35	551		7.0	0.1	B	
SB L	41	696		5.5	0.1	B	0.2

Intersection Delay = 0.8 sec/veh

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Streets: (N-S) Morning Dr (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	65	370	80	80	255	40	100	185	90	45	300	50
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	389	268
Potential Capacity: (pcph)	879	1013
Movement Capacity: (pcph)	879	1013
Prob. of Queue-Free State:	0.88	0.94

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	473	310
Potential Capacity: (pcph)	1020	1220
Movement Capacity: (pcph)	1020	1220
Prob. of Queue-Free State:	0.91	0.94

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	851	893
Potential Capacity: (pcph)	390	371
Capacity Adjustment Factor due to Impeding Movements	0.85	0.85
Movement Capacity: (pcph)	333	317
Prob. of Queue-Free State:	0.35	0.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	993	954
Potential Capacity: (pcph)	282	297
Major LT, Minor TH Impedance Factor:	0.00	0.30
Adjusted Impedance Factor:	0.00	0.44
Capacity Adjustment Factor due to Impeding Movements	0.00	0.38
Movement Capacity: (pcph)	0	114

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	116	0		*	*	F	
NB	T	215	333		28.5	4.0	D	*
NB	R	105	879		4.7	0.4	A	
SB	L	52	114		55.7	1.7	F	
SB	T	348	317		111.4	12.0	F	91.4
SB	R	58	1013		3.8	0.0	A	
EB	L	75	1220		3.1	0.1	A	0.4
WB	L	92	1020		3.9	0.2	A	0.8

Intersection Delay = *

* The calculated value was greater than 999.9.

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Streets: (N-S) ~~Vineland St~~ Queen St. (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	65	370	50	20	280	0	30	0	10	20	0	40
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	389	295
Potential Capacity: (pcph)	879	981
Movement Capacity: (pcph)	879	981
Prob. of Queue-Free State:	0.99	0.95

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	442	295
Potential Capacity: (pcph)	1056	1240
Movement Capacity: (pcph)	1056	1240
Prob. of Queue-Free State:	0.98	0.94

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	773	826
Potential Capacity: (pcph)	429	402
Capacity Adjustment Factor due to Impeding Movements	0.92	0.92
Movement Capacity: (pcph)	394	369
Prob. of Queue-Free State:	1.00	1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	794	778
Potential Capacity: (pcph)	367	375
Major LT, Minor TH Impedance Factor:	0.92	0.92
Adjusted Impedance Factor:	0.94	0.94
Capacity Adjustment Factor due to Impeding Movements	0.89	0.93
Movement Capacity: (pcph)	328	347

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	35	328		12.3	0.3	C	
NB T	0	394		9.1	0.0	B	10.2
NB R	12	879		4.2	0.0	A	
SB L	23	347		11.1	0.1	C	
SB T	0	369		9.8	0.0	B	6.3
SB R	46	981		3.9	0.0	A	
EB L	75	1240		3.1	0.1	A	0.4
WB L	23	1056		3.5	0.0	A	0.2

Intersection Delay = 1.2 sec/veh

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512 Weil Hall
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Ph: (352) 392-0378

Streets: (N-S) Masterson St (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	50	300	50	110	240	0	30	0	10	0	0	0
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	316	253
Potential Capacity: (pcph)	958	1031
Movement Capacity: (pcph)	958	1031
Prob. of Queue-Free State:	0.99	1.00

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	369	253
Potential Capacity: (pcph)	1144	1299
Movement Capacity: (pcph)	1144	1299
Prob. of Queue-Free State:	0.89	0.96

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	738	791
Potential Capacity: (pcph)	447	419
Capacity Adjustment Factor due to Impeding Movements	0.85	0.85
Movement Capacity: (pcph)	379	356
Prob. of Queue-Free State:	1.00	1.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	738	744
Potential Capacity: (pcph)	396	393
Major LT, Minor TH Impedance Factor:	0.85	0.85
Adjusted Impedance Factor:	0.88	0.88
Capacity Adjustment Factor due to Impeding Movements	0.88	0.87
Movement Capacity: (pcph)	350	343

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	35	350		11.4	0.3	C	
NB T	0	379		9.5	0.0	B	9.5
NB R	12	958		3.8	0.0	A	
SB L	0	343		10.5	0.0	C	
SB T	0	356		10.1	0.0	C	0.0
SB R	0	1031		3.5	0.0	A	
EB L	58	1299		2.9	0.0	A	0.4
WB L	128	1144		3.5	0.4	A	1.1

Intersection Delay = 1.2 sec/veh

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) Morning Dr (E-W) Panorama Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/10/0
Other Information.....AM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	85	115	80	410	60	30	55	95	250	70	115	65
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	121	63
Potential Capacity: (pcph)	1202	1286
Movement Capacity: (pcph)	1202	1286
Prob. of Queue-Free State:	0.76	0.94

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	205	95
Potential Capacity: (pcph)	1369	1545
Movement Capacity: (pcph)	1369	1545
Prob. of Queue-Free State:	0.65	0.94

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	737	789
Potential Capacity: (pcph)	448	420
Capacity Adjustment Factor due to Impeding Movements	0.61	0.61
Movement Capacity: (pcph)	274	257
Prob. of Queue-Free State:	0.60	0.48

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	800	886
Potential Capacity: (pcph)	364	325
Major LT, Minor TH Impedance Factor:	0.30	0.37
Adjusted Impedance Factor:	0.43	0.49
Capacity Adjustment Factor due to Impeding Movements	0.40	0.37
Movement Capacity: (pcph)	147	122

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	64	147		42.1	1.8	E	
NB T	110	274		21.7	1.8	D	13.4
NB R	289	1202		3.9	1.1	A	
SB L	81	122		74.4	3.0	F	
SB T	133	257		28.1	2.6	D	34.6
SB R	75	1286		3.0	0.1	A	
EB L	98	1545		2.5	0.1	A	0.8
WB L	475	1369		4.0	1.8	A	3.3

Intersection Delay = 11.1 sec/veh

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Streets: (N-S) Morning Dr (E-W) Highland Knolls
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 With Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	20	165	30	30	185	35	60	65	15	40	75	20
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	174	195
Potential Capacity: (pcph)	1130	1103
Movement Capacity: (pcph)	1130	1103
Prob. of Queue-Free State:	0.98	0.98

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	206	232
Potential Capacity: (pcph)	1367	1329
Movement Capacity: (pcph)	1367	1329
Prob. of Queue-Free State:	0.97	0.98

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	459	454
Potential Capacity: (pcph)	626	630
Capacity Adjustment Factor due to Impeding Movements	0.96	0.96
Movement Capacity: (pcph)	599	603
Prob. of Queue-Free State:	0.85	0.88

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	464	472
Potential Capacity: (pcph)	570	564
Major LT, Minor TH Impedance Factor:	0.84	0.82
Adjusted Impedance Factor:	0.88	0.86
Capacity Adjustment Factor due to Impeding Movements	0.86	0.84
Movement Capacity: (pcph)	491	475

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	69	475		8.9	0.5	B	
EB T	75	603		6.8	0.4	B	7.3
EB R	18	1103		3.3	0.0	A	
WB L	46	491		8.1	0.2	B	
WB T	87	599		7.0	0.5	B	6.8
WB R	23	1130		3.3	0.0	A	
NB L	23	1329		2.8	0.0	A	0.3
SB L	35	1367		2.7	0.0	A	0.3

Intersection Delay = 2.8 sec/veh

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University of Florida
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Ph: (352) 392-0378

Streets: (N-S) Fairfax Road (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	10	10	10	560	50	285	50	645	310	50	240	65
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	11	53
Potential Capacity: (pcph)	1367	1302
Movement Capacity: (pcph)	1367	1302
Prob. of Queue-Free State:	0.74	0.94

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	22	353
Potential Capacity: (pcph)	1673	1164
Movement Capacity: (pcph)	1673	1164
Prob. of Queue-Free State:	0.61	0.99

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	964	675
Potential Capacity: (pcph)	340	483
Capacity Adjustment Factor due to Impeding Movements	0.61	0.61
Movement Capacity: (pcph)	206	293
Prob. of Queue-Free State:	0.00	0.05

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	824	1166
Potential Capacity: (pcph)	353	224
Major LT, Minor TH Impedance Factor:	0.03	0.00
Adjusted Impedance Factor:	0.12	0.00
Capacity Adjustment Factor due to Impeding Movements	0.11	0.00
Movement Capacity: (pcph)	38	0

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	58	38		494.4	4.5	F	
NB	T	747	206		*	68.7	F	810.6
NB	R	359	1367		3.6	1.2	A	
SB	L	58	0		*	*	F	
SB	T	278	293		74.1	8.3	F	*
SB	R	75	1302		2.9	0.0	A	
EB	L	12	1164		3.1	0.0	A	1.0
WB	L	648	1673		3.5	2.1	A	2.2

Intersection Delay = *

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
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Ph: (352) 392-0378

Streets: (N-S) Alfred Harrell (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	55	260	70	50	365	20	150	25	60	55	50	110
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	274	384
Potential Capacity: (pcph)	1006	885
Movement Capacity: (pcph)	1006	885
Prob. of Queue-Free State:	0.93	0.86

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	348	405
Potential Capacity: (pcph)	1170	1099
Movement Capacity: (pcph)	1170	1099
Prob. of Queue-Free State:	0.95	0.94

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	790	843
Potential Capacity: (pcph)	420	394
Capacity Adjustment Factor due to Impeding Movements	0.90	0.90
Movement Capacity: (pcph)	376	353
Prob. of Queue-Free State:	0.92	0.84

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	854	813
Potential Capacity: (pcph)	339	358
Major LT, Minor TH Impedance Factor:	0.75	0.83
Adjusted Impedance Factor:	0.81	0.87
Capacity Adjustment Factor due to Impeding Movements	0.69	0.81
Movement Capacity: (pcph)	234	289

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	174	234		49.8	4.6	F	
NB T	29	376		10.4	0.2	C	33.8
NB R	69	1006		3.8	0.1	A	
SB L	64	289		16.0	0.8	C	
SB T	58	353		12.2	0.6	C	9.4
SB R	128	885		4.8	0.5	A	
EB L	64	1099		3.5	0.1	A	0.5
WB L	58	1170		3.2	0.0	A	0.4

Intersection Delay = 8.1 sec/veh

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
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Ph: (352) 392-0378

Streets: (N-S) Morning Dr (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/10/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	30	395	90	90	335	30	55	280	60	50	285	50
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	416	353
Potential Capacity: (pcph)	852	917
Movement Capacity: (pcph)	852	917
Prob. of Queue-Free State:	0.92	0.94

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	511	385
Potential Capacity: (pcph)	979	1124
Movement Capacity: (pcph)	979	1124
Prob. of Queue-Free State:	0.89	0.97

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	928	991
Potential Capacity: (pcph)	355	329
Capacity Adjustment Factor due to Impeding Movements	0.86	0.86
Movement Capacity: (pcph)	307	285
Prob. of Queue-Free State:	0.00	0.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	1072	1074
Potential Capacity: (pcph)	254	253
Major LT, Minor TH Impedance Factor:	0.00	0.00
Adjusted Impedance Factor:	0.00	0.00
Capacity Adjustment Factor due to Impeding Movements	0.00	0.00
Movement Capacity: (pcph)	0	0

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	64	0		*	*	F	
NB	T	325	307		100.8	10.8	F	*
NB	R	69	852		4.6	0.2	A	
SB	L	58	0		*	*	F	
SB	T	330	285		136.7	12.6	F	*
SB	R	58	917		4.2	0.1	A	
EB	L	35	1124		3.3	0.0	A	0.2
WB	L	105	979		4.1	0.3	A	0.8

Intersection Delay = *

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512 Weil Hall
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Ph: (352) 392-0378

Streets: (N-S) Morning Dr (E-W) Highland-Knolls
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	30	320	55	60	390	75	105	110	20	65	125	35
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	337	411
Potential Capacity: (pcph)	934	857
Movement Capacity: (pcph)	934	857
Prob. of Queue-Free State:	0.96	0.97

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	395	490
Potential Capacity: (pcph)	1111	1001
Movement Capacity: (pcph)	1111	1001
Prob. of Queue-Free State:	0.94	0.97

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	922	901
Potential Capacity: (pcph)	358	367
Capacity Adjustment Factor due to Impeding Movements	0.91	0.91
Movement Capacity: (pcph)	324	332
Prob. of Queue-Free State:	0.55	0.61

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	912	927
Potential Capacity: (pcph)	314	308
Major LT, Minor TH Impedance Factor:	0.56	0.50
Adjusted Impedance Factor:	0.65	0.61
Capacity Adjustment Factor due to Impeding Movements	0.64	0.58
Movement Capacity: (pcph)	199	179

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB L	122	179		54.8	3.6	F	
EB T	128	332		17.5	1.8	C	33.0
EB R	23	857		4.3	0.0	A	
WB L	75	199		28.6	1.6	D	
WB T	145	324		19.8	2.2	C	19.9
WB R	41	934		4.0	0.0	A	
NB L	35	1001		3.7	0.0	A	0.3
SB L	69	1111		3.5	0.1	A	0.4

Intersection Delay = 9.0 sec/veh

Center For Microcomputers In Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) SR184 (E-W) Chase Ave
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	1	1	1	1	0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes		920	100	50	1000					30		45
PHF		.95	.95	.95	.95					.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10						1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	968	
Potential Capacity: (pcph)	448	
Movement Capacity: (pcph)	448	
Prob. of Queue-Free State:	0.88	

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	1073	
Potential Capacity: (pcph)	528	
Movement Capacity: (pcph)	528	
Prob. of Queue-Free State:	0.89	

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	2074	
Potential Capacity: (pcph)	67	
Major LT, Minor TH Impedance Factor:	0.89	
Adjusted Impedance Factor:	0.89	
Capacity Adjustment Factor due to Impeding Movements	0.89	
Movement Capacity: (pcph)	60	

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
WB L	35	60		122.9	1.8	F	54.6
WB R	52	448		9.1	0.4	B	
SB L	58	528		7.7	0.3	B	0.4

Intersection Delay = 2.1 sec/veh

Center For Microcomputers In Transportation
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512 Weil Hall
Gainesville, FL 32611-6585
Ph: (352) 392-0378

Streets: (N-S) ~~Vineland St~~ Queen St (E-W) Panorama Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	< 0	0	0	0	1	0	1
Stop/Yield			N			N						
Volumes	95	550			460	50				10		50
PHF	.95	.95			.95	.95				.95		.95
Grade		0			0						0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10									1.10		1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)		510
Potential Capacity: (pcph)		764
Movement Capacity: (pcph)		764
Prob. of Queue-Free State:		0.92

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)		537
Potential Capacity: (pcph)		951
Movement Capacity: (pcph)		951
Prob. of Queue-Free State:		0.88
TH Saturation Flow Rate: (pcphpl)		1700
RT Saturation Flow Rate: (pcphpl)		
Major LT Shared Lane Prob. of Queue-Free State:		0.82

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		1190
Potential Capacity: (pcph)		217
Major LT, Minor TH Impedance Factor:		0.82
Adjusted Impedance Factor:		0.82
Capacity Adjustment Factor due to Impeding Movements		0.82
Movement Capacity: (pcph)		179

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
SB	L	12	179		21.6	0.1	D	7.8
SB	R	58	764		5.1	0.2	B	
EB	L	110	951		4.3	0.4	A	0.6

Intersection Delay = 0.7 sec/veh

Center For Microcomputers In Transportation
University of Florida
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Ph: (352) 392-0378

Streets: (N-S) Morning Dr (E-W) Niles-SR184
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	230	395	400	345	850	245	130	430	375	190	515	205
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	416	895
Potential Capacity: (pcph)	852	487
Movement Capacity: (pcph)	852	487
Prob. of Queue-Free State:	0.49	0.51

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	837	1153
Potential Capacity: (pcph)	684	484
Movement Capacity: (pcph)	684	484
Prob. of Queue-Free State:	0.42	0.45

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	2174	2337
Potential Capacity: (pcph)	79	65
Capacity Adjustment Factor due to Impeding Movements	0.19	0.19
Movement Capacity: (pcph)	15	12
Prob. of Queue-Free State:	0.00	0.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	2295	2340
Potential Capacity: (pcph)	50	47
Major LT, Minor TH Impedance Factor:	0.00	0.00
Adjusted Impedance Factor:	0.00	0.00
Capacity Adjustment Factor due to Impeding Movements	0.00	0.00
Movement Capacity: (pcph)	0	0

Intersection Performance Summary

Movement	Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB L	151	0		*	*	F	
NB T	498	15		*	60.5	F	*
NB R	435	852		8.5	3.1	B	
SB L	220	0		*	*	F	
SB T	596	12		*	73.1	F	*
SB R	238	487		14.3	2.7	C	
EB L	266	484		16.1	3.3	C	3.6
WB L	399	684		12.4	3.8	C	3.0

Intersection Delay = *

* The calculated value was greater than 999.9.

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Streets: (N-S) Vineland St (E-W) Knolls
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	0	0	1	1	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	50	240			290	110	155		45			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		305
Potential Capacity: (pcph)		970
Movement Capacity: (pcph)		970
Prob. of Queue-Free State:		0.95

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		421
Potential Capacity: (pcph)		1080
Movement Capacity: (pcph)		1080
Prob. of Queue-Free State:		0.95

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		611
Potential Capacity: (pcph)		469
Major LT, Minor TH Impedance Factor:		0.95
Adjusted Impedance Factor:		0.95
Capacity Adjustment Factor due to Impeding Movements		0.95
Movement Capacity: (pcph)		444

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	179	444		13.5	2.0	C	11.3
EB	R	52	970		3.9	0.0	A	
NB	L	58	1080		3.5	0.0	A	0.6

Intersection Delay = 2.7 sec/veh

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Streets: (N-S) Vineland St (E-W) SR184
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	260	1170	50	150	920	70	75	175	105	50	250	60
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	1232	968
Potential Capacity: (pcph)	329	448
Movement Capacity: (pcph)	329	448
Prob. of Queue-Free State:	0.63	0.85

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	1285	1042
Potential Capacity: (pcph)	419	546
Movement Capacity: (pcph)	419	546
Prob. of Queue-Free State:	0.58	0.45

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	2706	2685
Potential Capacity: (pcph)	41	43
Capacity Adjustment Factor due to Impeding Movements	0.26	0.26
Movement Capacity: (pcph)	11	11
Prob. of Queue-Free State:	0.00	0.00

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	2795	2780
Potential Capacity: (pcph)	25	26
Major LT, Minor TH Impedance Factor:	0.00	0.00
Adjusted Impedance Factor:	0.00	0.00
Capacity Adjustment Factor due to Impeding Movements	0.00	0.00
Movement Capacity: (pcph)	0	0

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	87	0		*	*	F	
NB	T	202	11		*	24.0	F	*
NB	R	122	329		17.3	1.7	C	
SB	L	58	0		*	*	F	
SB	T	289	11		*	34.9	F	*
SB	R	69	448		9.5	0.5	B	
EB	L	301	546		14.4	3.3	C	2.5
WB	L	174	419		14.6	2.1	C	1.9

Intersection Delay = *

* The calculated value was greater than 999.9.

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Streets: (N-S) Morning Dr (E-W) College
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	125	255	85	65	315	40	25	40	20	20	40	25
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)	268	332
Potential Capacity: (pcph)	1013	940
Movement Capacity: (pcph)	1013	940
Prob. of Queue-Free State:	0.97	0.98

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)	357	374
Potential Capacity: (pcph)	1159	1137
Movement Capacity: (pcph)	1159	1137
Prob. of Queue-Free State:	0.94	0.87

Step 3: TH from Minor Street	WB	EB
Conflicting Flows: (vph)	842	889
Potential Capacity: (pcph)	394	373
Capacity Adjustment Factor due to Impeding Movements	0.82	0.82
Movement Capacity: (pcph)	322	304
Prob. of Queue-Free State:	0.86	0.85

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)	831	834
Potential Capacity: (pcph)	350	348
Major LT, Minor TH Impedance Factor:	0.69	0.70
Adjusted Impedance Factor:	0.76	0.77
Capacity Adjustment Factor due to Impeding Movements	0.74	0.75
Movement Capacity: (pcph)	260	259

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	29	259		15.6	0.3	C	
EB	T	46	304		13.9	0.5	C	12.1
EB	R	23	940		3.9	0.0	A	
WB	L	23	260		15.2	0.2	C	
WB	T	46	322		13.0	0.5	C	10.8
WB	R	29	1013		3.7	0.0	A	
NB	L	145	1137		3.6	0.4	A	1.0
SB	L	75	1159		3.3	0.1	A	0.5

Intersection Delay = 2.5 sec/veh

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Streets: (N-S) Vineland (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/10/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	20	330	45	150	275	50	120	100	120	25	185	40
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	347	289
Potential Capacity: (pcph)	924	988
Movement Capacity: (pcph)	924	988
Prob. of Queue-Free State:	0.85	0.95

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	394	342
Potential Capacity: (pcph)	1113	1178
Movement Capacity: (pcph)	1113	1178
Prob. of Queue-Free State:	0.84	0.98

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	868	862
Potential Capacity: (pcph)	382	385
Capacity Adjustment Factor due to Impeding Movements	0.83	0.83
Movement Capacity: (pcph)	316	318
Prob. of Queue-Free State:	0.63	0.32

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	934	930
Potential Capacity: (pcph)	305	306
Major LT, Minor TH Impedance Factor:	0.27	0.52
Adjusted Impedance Factor:	0.40	0.63
Capacity Adjustment Factor due to Impeding Movements	0.38	0.53
Movement Capacity: (pcph)	117	163

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	139	117		208.1	7.2	F	
NB	T	116	316		17.9	1.7	C	80.3
NB	R	139	924		4.6	0.6	A	
SB	L	29	163		26.8	0.6	D	
SB	T	215	318		32.0	4.3	E	27.0
SB	R	46	988		3.8	0.0	A	
EB	L	23	1178		3.1	0.0	A	0.2
WB	L	174	1113		3.8	0.6	A	1.2

Intersection Delay = 23.8 sec/veh

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Streets: (N-S) Masterson St (E-W) Paladino Dr
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/10/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Stop/Yield			N			N						
Volumes	10	290	170	60	225	60	60	110	30	10	150	40
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95
Grade		0			0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10			1.10			1.10	1.10	1.10	1.10	1.10	1.10

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	305	237
Potential Capacity: (pcph)	970	1050
Movement Capacity: (pcph)	970	1050
Prob. of Queue-Free State:	0.96	0.96

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	484	300
Potential Capacity: (pcph)	1008	1233
Movement Capacity: (pcph)	1008	1233
Prob. of Queue-Free State:	0.93	0.99

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	679	795
Potential Capacity: (pcph)	480	417
Capacity Adjustment Factor due to Impeding Movements	0.92	0.92
Movement Capacity: (pcph)	443	385
Prob. of Queue-Free State:	0.71	0.55

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)	716	690
Potential Capacity: (pcph)	408	422
Major LT, Minor TH Impedance Factor:	0.51	0.66
Adjusted Impedance Factor:	0.61	0.73
Capacity Adjustment Factor due to Impeding Movements	0.58	0.71
Movement Capacity: (pcph)	238	298

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	L	69	238		21.2	1.2	D	
NB	T	128	443		11.4	1.3	C	13.2
NB	R	35	970		3.9	0.0	A	
SB	L	12	298		12.6	0.0	C	
SB	T	174	385		16.8	2.3	C	14.0
SB	R	46	1050		3.6	0.0	A	
EB	L	12	1233		2.9	0.0	A	0.1
WB	L	69	1008		3.8	0.1	A	0.7

Intersection Delay = 4.7 sec/veh

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Streets: (N-S) Vineland St (E-W) Highland-Knolls
Major Street Direction.... NS
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137
Date of Analysis..... 3/9/0
Other Information.....AM 2020 Without Project
Two-way Stop-controlled Intersection

	Northbound			Southbound			Eastbound			Westbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	> 1	0	0	1	1	1	0	1	0	0	0
Stop/Yield			N			N						
Volumes	30	120			135	50	85		25			
PHF	.95	.95			.95	.95	.95		.95			
Grade		0			0			0				
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's	1.10						1.10		1.10			

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.00	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.00	3.30
Left Turn Minor Road	6.50	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	WB	EB
Conflicting Flows: (vph)		142
Potential Capacity: (pcph)		1173
Movement Capacity: (pcph)		1173
Prob. of Queue-Free State:		0.98

Step 2: LT from Major Street	SB	NB
Conflicting Flows: (vph)		195
Potential Capacity: (pcph)		1384
Movement Capacity: (pcph)		1384
Prob. of Queue-Free State:		0.97
TH Saturation Flow Rate: (pcphpl)		1700
Major LT Shared Lane Prob. of Queue-Free State:		0.97

Step 4: LT from Minor Street	WB	EB
Conflicting Flows: (vph)		300
Potential Capacity: (pcph)		710
Major LT, Minor TH Impedance Factor:		0.97
Adjusted Impedance Factor:		0.97
Capacity Adjustment Factor due to Impeding Movements		0.97
Movement Capacity: (pcph)		691

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
EB	L	98	691		6.1	0.5	B	
								5.4
EB	R	29	1173		3.1	0.0	A	
NB	L	35	1384		2.7	0.0	A	0.5

Intersection Delay = 1.5 sec/veh

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: Wwc 9-137R File Name: AEBSRO20P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	1	2	0
Volumes	530		550					450	250	100	575	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			0						15			5
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.788	0.400	11.8	B	5.8	B
	R	1583	1583	0.366	1.000	0.1	A		
NB	T	1739	3725	0.286	0.467	4.8	A	4.9	A
	R	739	1583	0.334	0.467	5.0	A		
SB	L	375	703	0.280	0.533	3.8	A	4.9	A
	T	1739	3725	0.365	0.467	5.0	A		

Intersection Delay = 5.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.561

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: Wwc 9-137R File Name: AWBSR20P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				230		50	200	620			385	530
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						25			100			265
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.440	0.311	8.4	B	7.5	B
	R	1583	1583	0.017	1.000	0.0	A		
NB	L	541	974	0.401	0.556	4.0	A	3.7	A
	T	2070	3725	0.331	0.556	3.6	A		
SB	T	2070	3725	0.205	0.556	3.2	A	2.0	A
	R	1583	1583	0.176	1.000	0.0	A		

Intersection Delay = 3.6 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.415

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Streets: (N-S) SR 184-Masterson St (E-W) State Route 178
Major Street Direction.... EW
Length of Time Analyzed... 15 (min)
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....PM 2020 With Project
Two-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	1	1	2	0
Stop/Yield			N			N						
Volumes				150		80		600	100	145	500	
PHF				.95		.95		.95	.95	.95	.95	
Grade					0			0			0	
MC's (%)												
SU/RV's (%)												
CV's (%)												
PCE's				1.10				1.10	1.10	1.10	1.10	

Adjustment Factors

Vehicle Maneuver	Critical Gap (tg)	Follow-up Time (tf)
Left Turn Major Road	5.50	2.10
Right Turn Minor Road	5.50	2.60
Through Traffic Minor Road	6.50	3.30
Left Turn Minor Road	7.00	3.40

Worksheet for TWSC Intersection

Step 1: RT from Minor Street	NB	SB
Conflicting Flows: (vph)	0	
Potential Capacity: (pcph)	1385	
Movement Capacity: (pcph)	1385	
Prob. of Queue-Free State:	0.92	

Step 2: LT from Major Street	WB	EB
Conflicting Flows: (vph)	0	
Potential Capacity: (pcph)	1714	
Movement Capacity: (pcph)	1714	
Prob. of Queue-Free State:	0.90	

Step 3: TH from Minor Street	NB	SB
Conflicting Flows: (vph)	242	158
Potential Capacity: (pcph)	787	882
Capacity Adjustment Factor due to Impeding Movements	0.90	0.90
Movement Capacity: (pcph)	707	792
Prob. of Queue-Free State:	0.02	0.27

Step 4: LT from Minor Street	NB	SB
Conflicting Flows: (vph)		526
Potential Capacity: (pcph)		488
Major LT, Minor TH Impedance Factor:		0.02
Adjusted Impedance Factor:		0.08
Capacity Adjustment Factor due to Impeding Movements		0.07
Movement Capacity: (pcph)		35

Intersection Performance Summary

Movement		Flow Rate (pcph)	Move Cap (pcph)	Shared Cap (pcph)	Avg. Total Delay (sec/veh)	95% Queue Length (veh)	LOS	Approach Delay (sec/veh)
NB	T	695	707		48.9	14.3	F	42.3
NB	R	116	1385		2.8	0.2	A	
SB	L	168	35		*	17.3	F	
SB	T	579	792		15.8	6.4	C	447.1
WB	L	174	1714		2.3	0.3	A	1.5

Intersection Delay = 202.1 sec/veh

* The calculated value was greater than 999.9.

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Streets: (N-S) Morning Drive (E-W) Panorama Dr
Analyst..... WWC 9-137R
Date of Analysis..... 3/8/0
Other Information.....PM 2020 With Project
All-way Stop-controlled Intersection

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	1	1	1	1	1	1	1	1	1	1	1
Volumes	140	105	135	310	100	45	90	160	185	115	190	110
PHF	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95	.95

Volume Summary and Capacity Analysis WorkSheet

	EB	WB	NB	SB
LT Flow Rate	147	326	95	121
RT Flow Rate	142	47	195	116
Approach Flow Rate	400	478	458	437
Proportion LT	0.37	0.68	0.21	0.28
Proportion RT	0.35	0.10	0.43	0.27
Opposing Approach Flow Rate	478	400	437	458
Conflicting Approaches Flow Rate	895	895	878	878
Proportion, Subject Approach Flow Rate	0.23	0.27	0.26	0.25
Proportion, Opposing Approach Flow Rate	0.27	0.23	0.25	0.26
Lanes on Subject Approach	3	3	3	3
Lanes on Opposing Approach	3	3	3	3
LT, Opposing Approach	326	147	121	95
RT, Opposing Approach	47	142	116	195
LT, Conflicting Approaches	216	216	473	473
RT, Conflicting Approaches	311	311	189	189
Proportion LT, Opposing Approach	0.68	0.37	0.28	0.21
Proportion RT, Opposing Approach	0.10	0.35	0.27	0.43
Proportion LT, Conflicting Approaches	0.24	0.24	0.54	0.54
Proportion RT, Conflicting Approaches	0.35	0.35	0.22	0.22
*Range limit(s) exceeded (see below)	*	*	*	*

Range Limit(s) Exceeded

Range limits from HCM Table 10-7 (p. 10-47), implementing HCM Range of Model Validity (p. 10-37).

Eastbound approach:

An intersection volume of 1773 has caused a range check to be made for this approach.
The following range limit(s) have been exceeded:

The number of lanes on the conflicting approach is 6.
This is outside the permitted range of 1 - 5.

The proportion of left turns on the opposing approach is 0.68.
This is outside the permitted range of 0.00 - 0.36.

Westbound approach:

An intersection volume of 1773 has caused a range check to be made for this approach.
The following range limit(s) have been exceeded:

The number of lanes on the conflicting approach is 6.
This is outside the permitted range of 1 - 5.

The proportion of left turns on the opposing approach is 0.37.
This is outside the permitted range of 0.00 - 0.36.

Northbound approach:

An intersection volume of 1773 has caused a range check to be made for this approach.
The following range limit(s) have been exceeded:

The number of lanes on the conflicting approach is 6.
This is outside the permitted range of 1 - 5.

Southbound approach:

An intersection volume of 1773 has caused a range check to be made for this approach.
The following range limit(s) have been exceeded:

The number of lanes on the conflicting approach is 6.
This is outside the permitted range of 1 - 5.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: Wwc 9-137R File Name: AWMN10WP.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2010 Without Project AM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	5	50	90	80	120	5	150	5	55	5	20	5
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			40			2			25			2
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
WB Left	*				SB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	17.0A				Green	20.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	524	1311	0.010	0.400	5.3	B	5.4	B
	TR	1378	3446	0.081	0.400	5.4	B		
WB	L	550	1374	0.153	0.400	5.6	B	5.5	B
	TR	1485	3712	0.091	0.400	5.4	B		
NB	L	760	1628	0.208	0.467	4.6	A	4.5	A
	TR	1513	3242	0.026	0.467	4.2	A		
SB	LTR	761	1631	0.038	0.467	4.2	A	4.2	A

Intersection Delay = 5.1 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.183

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) Auburn Street (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: FA10P.HC9
Area Type: Other 3-7-0 PM Peak
Comment: 2010 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	125	80	250	140	85	45	345	745	195	50	535	130
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			90			10			60			40
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	12.0A			Green		30.0A	32.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 100 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	301	1770	0.439	0.170	24.7	C	28.2	D
	TR	402	3353	0.659	0.120	29.9	D		
WB	L	301	1770	0.489	0.170	25.3	D	25.7	D
	TR	428	3565	0.306	0.120	26.1	D		
NB	L	478	1770	0.760	0.270	26.5	D	24.8	C
	TR	1165	3640	0.835	0.320	24.2	C		
SB	L	478	1770	0.111	0.270	17.7	C	18.9	C
	TR	1166	3645	0.592	0.320	19.0	C		

Intersection Delay = 23.8 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.721

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: PF10P.HC9
Area Type: Other 3-7-0 PM Peak
Comment: 2010 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	45	115	210	250	140	35	255	305	275	30	270	30
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			75			10			80			10
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A	15.0A			Green		15.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 73 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	339	1770	0.138	0.192	15.8	C	16.3	C
	TR	704	3424	0.392	0.205	16.4	C		
WB	L	339	1770	0.775	0.192	25.4	D	21.4	C
	TR	748	3642	0.243	0.205	15.7	C		
NB	L	291	1770	0.921	0.164	42.9	E	24.4	C
	TR	961	3508	0.574	0.274	15.4	C		
SB	L	291	1770	0.110	0.164	16.8	C	14.0	B
	TR	1010	3687	0.317	0.274	13.7	B		

Intersection Delay = 20.5 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.644

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: WWC 9-137R File Name: OES010P.HC9
Area Type: Other 3-7-0 PM Peak
Comment: 2010 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	680		1035					1340	375		1080	40
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			400						200			15
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
WB Left					SB Left				
Thru					Thru	*			
Right					Right	*			
Peds					Peds				
NB Right					EB Right	*			
SB Right	*				WB Right				
Green	17.0A				Green	20.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	1.012	0.400	37.6	D	19.5	C
	R	1583	1583	0.422	1.000	0.1	A		
NB	T	1739	3725	0.852	0.467	10.0	B	9.4	B
	R	739	1583	0.249	0.467	4.7	A		
SB	T	1739	3725	0.687	0.467	6.9	B	6.7	B
	R	1583	1583	0.016	1.000	0.0	A		

Intersection Delay = 11.9 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.926

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) State Route 178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: FSR10P.HC9
Area Type: Other 3-7-0 PM Peak
Comment: 2010 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	< 0	2	2	< 0	1	2	1
Volumes	605	1240	580	70	795	150	300	575	310	100	525	330
Lane W (ft)	12.0	12.0	12.0	12.0	12.0		12.0	12.0		12.0	12.0	12.0
RTOR Vols			225			25			5			150
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*	*			NB	Left	*	*		
	Thru		*	*			Thru		*	*	
	Right		*	*			Right		*	*	
	Peds						Peds				
WB	Left	*				SB	Left	*	*		
	Thru			*			Thru			*	
	Right			*			Right			*	
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		7.0A	22.0A	10.0A		Green		5.0A	17.0A	20.0A	
Yellow/AR		0.0	3.0	3.0		Yellow/AR		0.0	3.0	3.0	

Cycle Length: 93 secs Phase combination order: #1 #2 #3 #5 #6 #7

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	552	1770	1.154	0.312	*	*	*	*
	T	1402	3725	0.977	0.376	32.5	D		
	R	596	1583	0.628	0.376	16.8	C		
WB	L	76	1770	0.972	0.043	98.2	F	*	*
	TR	392	3649	2.592	0.108	*	*		
NB	L	837	3539	0.388	0.237	19.4	C	15.4	C
	TR	1519	3532	0.640	0.430	14.1	B		
SB	L	118	1770	0.890	0.237	59.0	E	28.0	D
	T	801	3725	0.725	0.215	24.2	C		
	R	341	1583	0.555	0.215	22.5	C		

Intersection Delay = * (sec/veh) Intersection LOS = *

(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: Wwc 9-137R File Name: WBSR10P.HC9
Area Type: Other 3-7-0 PM Peak
Comment: 2005 With Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				60		215	495	1620			985	345
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						70			100			150
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.114	0.311	7.2	B	2.1	A
	R	1583	1583	0.096	1.000	0.0	A		
NB	L	833	1499	0.645	0.556	5.7	B	7.8	B
	T	2070	3725	0.865	0.556	8.5	B		
SB	T	2070	3725	0.526	0.556	4.3	A	3.6	A
	R	1583	1583	0.129	1.000	0.0	A		

Intersection Delay = 6.1 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.595

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-07-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: Wwc 9-137R File Name: AWBSR10P.HC9
Area Type: Other 3-7-0 AM Peak
Comment: 2010 With Project AM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				30		85	335	350			345	600
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						35			100			250
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.058	0.311	7.0	B	2.7	A
	R	1583	1583	0.033	1.000	0.0	A		
NB	L	584	1052	0.623	0.556	5.9	B	4.5	A
	T	2070	3725	0.186	0.556	3.2	A		
SB	T	2070	3725	0.184	0.556	3.2	A	1.6	A
	R	1583	1583	0.233	1.000	0.0	A		

Intersection Delay = 3.0 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.420

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Masterson St
Analyst: Wwc 9-137R File Name: AESRMA20P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	420		125					640	30	125	175	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			60						15			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.328	0.392	7.0	B	6.1	B
	R	1583	1583	0.044	1.000	0.0	A		
NB	T	1826	3725	0.388	0.490	5.4	B	5.2	B
	R	1583	1583	0.010	1.000	0.0	A		
SB	L	223	454	0.593	0.490	9.0	B	6.3	B
	T	1826	3725	0.106	0.490	4.5	A		

Intersection Delay = 5.8 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.475

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Masterson Street
Analyst: Wwc 9-137R File Name: AWSRMA20P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	2
Volumes				90		135	300	375			275	395
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						65			100			195
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.173	0.311	7.3	B	4.1	A
	R	1583	1583	0.047	1.000	0.0	A		
NB	L	699	1259	0.465	0.556	4.2	A	3.7	A
	T	2070	3725	0.201	0.556	3.2	A		
SB	T	2070	3725	0.146	0.556	3.1	A	1.8	A
	R	3167	3167	0.075	1.000	0.0	A		

Intersection Delay = 3.0 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.360

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Vineland
Analyst: Wwc 9-137R File Name: AWBSRV20P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				25		30	50	370			230	90
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						15			100			45
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left					NB Left	*			
Thru					Thru	*			
Right					Right				
Peds					Peds				
WB Left	*				SB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
NB Right					EB Right				
SB Right	*				WB Right	*			
Green	14.0A				Green	25.0A			
Yellow/AR	3.0				Yellow/AR	3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.047	0.311	7.0	B	4.3	A
	R	1583	1583	0.010	1.000	0.0	A		
NB	L	587	1057	0.090	0.556	3.0	A	3.2	A
	T	2070	3725	0.197	0.556	3.2	A		
SB	T	2070	3725	0.123	0.556	3.1	A	2.6	A
	R	1583	1583	0.030	1.000	0.0	A		

Intersection Delay = 3.0 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.143

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Vineland
Analyst: Wwc 9-137R File Name: AEBSRV20P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	285		60					185	120	45	210	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			30						50			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.223	0.392	6.7	B	6.1	B
	R	1583	1583	0.020	1.000	0.0	A		
NB	T	1826	3725	0.112	0.490	4.5	A	3.3	A
	R	1583	1583	0.046	1.000	0.0	A		
SB	L	565	1153	0.083	0.490	4.5	A	4.6	A
	T	1826	3725	0.127	0.490	4.6	A		

Intersection Delay = 4.8 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.170

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Morning Drive
Analyst: Wwc 9-137R File Name: AEBSRM20P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	175		80					190	120	110	245	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			40						60			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.137	0.392	6.4	B	5.3	B
	R	1583	1583	0.027	1.000	0.0	A		
NB	T	1826	3725	0.115	0.490	4.5	A	3.5	A
	R	1583	1583	0.040	1.000	0.0	A		
SB	L	560	1143	0.207	0.490	4.8	A	4.7	A
	T	1826	3725	0.148	0.490	4.6	A		

Intersection Delay = 4.5 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.176

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Morning Drive
Analyst: Wwc 9-137R File Name: AWBSRM20P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				125		105	65	300			260	120
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						50			100			60
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.240	0.311	7.5	B	5.2	B
	R	1583	1583	0.037	1.000	0.0	A		
NB	L	555	999	0.122	0.556	3.1	A	3.1	A
	T	2070	3725	0.160	0.556	3.2	A		
SB	T	2070	3725	0.139	0.556	3.1	A	2.6	A
	R	1583	1583	0.040	1.000	0.0	A		

Intersection Delay = 3.3 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.189

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) Auburn Street (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: AFA20P.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	1	1	2	1	1	2	1	1	2	1
Volumes	15	25	110	40	90	185	260	340	70	70	525	100
Lane W (ft)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
RTOR Vols			35			15			35			40
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.047	0.194	20.8	C	23.4	C
	T	570	3725	0.047	0.153	22.9	C		
	R	242	1583	0.326	0.153	24.2	C		
WB	L	343	1770	0.122	0.194	21.1	C	28.6	D
	T	570	3725	0.175	0.153	23.3	C		
	R	242	1583	0.739	0.153	33.2	D		
NB	L	397	1770	0.690	0.224	26.0	D	20.5	C
	T	1140	3725	0.330	0.306	17.0	C		
	R	485	1583	0.076	0.306	15.6	C		
SB	L	397	1770	0.186	0.224	19.9	C	18.3	C
	T	1140	3725	0.509	0.306	18.4	C		
	R	485	1583	0.130	0.306	15.9	C		

Intersection Delay = 21.3 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.510

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: EBSRF20P.HC9
Area Type: Other 3-8-0 PM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	0	1	1
Volumes	620		550					620	125		40	320
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			260						60			150
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.485	0.392	7.7	B	5.3	B
	R	1583	1583	0.193	1.000	0.0	A		
NB	T	1826	3725	0.376	0.490	5.3	B	4.8	A
	R	1583	1583	0.044	1.000	0.0	A		
SB	T	913	1863	0.046	0.490	4.4	A	4.8	A
	R	776	1583	0.231	0.490	4.9	A		

Intersection Delay = 5.1 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.424

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-08-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: WBSRF20P.HC9
Area Type: Other 3-8-0 PM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	1	0	2	1
Volumes				130		50		250	370		390	285
Lane W (ft)				12.0		12.0		12.0	12.0		12.0	12.0
RTOR Vols						25			180			0
Lost Time				3.00		3.00		3.00	3.00		3.00	3.00

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left								
Thru								
Right								
Peds								
WB Left	*							
Thru								
Right	*							
Peds								
NB Right								
SB Right	*							
Green	14.0A							
Yellow/AR	3.0							

NB	Left	
	Thru	*
	Right	*
	Peds	
SB	Left	
	Thru	*
	Right	*
	Peds	
EB	Right	
WB	Right	*
Green		25.0A
Yellow/AR		3.0

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.249	0.311	7.5	B	6.3	B
	R	1583	1583	0.017	1.000	0.0	A		
NB	T	2070	3725	0.133	0.556	3.1	A	3.2	A
	R	880	1583	0.227	0.556	3.3	A		
SB	T	2070	3725	0.209	0.556	3.3	A	1.9	A
	R	1583	1583	0.189	1.000	0.0	A		

Intersection Delay = 2.9 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.235

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) Highland-Knolls (N-S) Morning Dr
Analyst: WWC 9-137R File Name: AMHK20WP.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	60	65	15	40	75	20	20	165	30	30	185	35
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			8			10			15			20
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.184	0.194	21.4	C	22.4	C
	TR	561	3667	0.143	0.153	23.2	C		
WB	L	343	1770	0.122	0.194	21.1	C	22.6	C
	TR	561	3663	0.166	0.153	23.3	C		
NB	L	397	1770	0.053	0.224	19.3	C	16.4	C
	TR	1126	3678	0.177	0.306	16.1	C		
SB	L	397	1770	0.081	0.224	19.4	C	16.6	C
	TR	1127	3683	0.197	0.306	16.2	C		

Intersection Delay = 18.7 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.159

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) College Ave (N-S) Morning Dr
Analyst: WWC 9-137R File Name: AMC20WP.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	10	25	10	10	25	10	70	125	50	40	150	35
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			5			5			25			20
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.032	0.194	20.7	C	22.4	C
	TR	554	3621	0.061	0.153	22.9	C		
WB	L	343	1770	0.032	0.194	20.7	C	22.4	C
	TR	554	3621	0.061	0.153	22.9	C		
NB	L	397	1770	0.186	0.224	19.9	C	17.2	C
	TR	1111	3631	0.150	0.306	16.0	C		
SB	L	397	1770	0.106	0.224	19.5	C	16.7	C
	TR	1125	3674	0.163	0.306	16.0	C		

Intersection Delay = 17.8 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.122

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Masterson St
Analyst: WWC 9-137R File Name: AESRMA20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	285		90					530	30	25	10	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			45						15			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
WB Left					SB Left	*			
Thru					Thru	*			
Right					Right				
Peds					Peds				
NB Right	*				EB Right	*			
SB Right					WB Right				
Green	20.0A				Green	25.0A			
Yellow/AR	3.0				Yellow/AR	3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.223	0.392	6.7	B	5.8	B
	R	1583	1583	0.030	1.000	0.0	A		
NB	T	1826	3725	0.321	0.490	5.1	B	5.0	A
	R	1583	1583	0.010	1.000	0.0	A		
SB	L	294	600	0.088	0.490	4.5	A	4.4	A
	T	1826	3725	0.007	0.490	4.3	A		

Intersection Delay = 5.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.277

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Masterson Street
Analyst: WWC 9-137R File Name: AWSRMA20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	2
Volumes				90		85	75	100			15	70
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						40			100			35
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.173	0.311	7.3	B	4.9	A
	R	1583	1583	0.030	1.000	0.0	A		
NB	L	1740	3132	0.047	0.556	2.9	A	3.0	A
	T	2070	3725	0.053	0.556	3.0	A		
SB	T	2070	3725	0.008	0.556	2.9	A	0.8	A
	R	3167	3167	0.013	1.000	0.0	A		

Intersection Delay = 3.3 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.096

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Vineland
Analyst: WWC 9-137R File Name: AWBSRV20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				25		5	50	370			5	5
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						3			100			3
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left					NB Left	*			
Thru					Thru	*			
Right					Right				
Peds					Peds				
WB Left	*				SB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
NB Right					EB Right				
SB Right	*				WB Right	*			
Green	14.0A				Green	25.0A			
Yellow/AR	3.0				Yellow/AR	3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.047	0.311	7.0	B	6.5	B
	R	1583	1583	0.001	1.000	0.0	A		
NB	L	973	1751	0.054	0.556	3.0	A	3.2	A
	T	2070	3725	0.197	0.556	3.2	A		
SB	T	2070	3725	0.002	0.556	2.9	A	2.1	A
	R	1583	1583	0.001	1.000	0.0	A		

Intersection Delay = 3.4 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.143

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Vineland
Analyst: WWC 9-137R File Name: AEBSRV20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	5		285					5	30	10	5	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			140						15			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.004	0.392	6.1	B	0.2	A
	R	1583	1583	0.097	1.000	0.0	A		
NB	T	1826	3725	0.003	0.490	4.3	A	1.0	A
	R	1583	1583	0.010	1.000	0.0	A		
SB	L	858	1751	0.013	0.490	4.3	A	4.3	A
	T	1826	3725	0.003	0.490	4.3	A		

Intersection Delay = 0.6 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 0.0 sec Critical v/c(x) = 0.097

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Morning Drive
Analyst: WWC 9-137R File Name: AEBSRM20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	145		80					150	110	100	135	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			40						55			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
WB Left					SB Left	*			
Thru					Thru	*			
Right					Right				
Peds					Peds				
NB Right	*				EB Right	*			
SB Right					WB Right				
Green	20.0A				Green	25.0A			
Yellow/AR	3.0				Yellow/AR	3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.114	0.392	6.4	B	5.0	A
	R	1583	1583	0.027	1.000	0.0	A		
NB	T	1826	3725	0.091	0.490	4.5	A	3.3	A
	R	1583	1583	0.037	1.000	0.0	A		
SB	L	606	1236	0.173	0.490	4.7	A	4.6	A
	T	1826	3725	0.082	0.490	4.5	A		

Intersection Delay = 4.3 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.147

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Morning Drive
Analyst: WWC 9-137R File Name: AWBSRM20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				40		80	65	230			225	120
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						40			100			60
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.076	0.311	7.1	B	3.5	A
	R	1583	1583	0.027	1.000	0.0	A		
NB	L	592	1066	0.115	0.556	3.1	A	3.1	A
	T	2070	3725	0.123	0.556	3.1	A		
SB	T	2070	3725	0.120	0.556	3.1	A	2.5	A
	R	1583	1583	0.040	1.000	0.0	A		

Intersection Delay = 2.9 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.106

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: AWBSRF20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				40		40	860	365			390	285
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						20			180			140
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left		*			SB	Left				
	Thru						Thru	*			
	Right		*				Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right		*			WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.076	0.311	7.1	B	4.7	A
	R	1583	1583	0.013	1.000	0.0	A		
NB	L	448	806	2.022	0.556	*	*	*	*
	T	2070	3725	0.195	0.556	3.2	A		
SB	T	2070	3725	0.209	0.556	3.3	A	2.4	A
	R	1583	1583	0.097	1.000	0.0	A		

Intersection Delay = * (sec/veh) Intersection LOS = *
(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: AEBSRF20W.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	1	0
Volumes	610		550					610	85	40	320	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			225						40			150
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.476	0.392	7.7	B	5.1	B
	R	1583	1583	0.216	1.000	0.0	A		
NB	T	1826	3725	0.369	0.490	5.3	B	4.9	A
	R	1583	1583	0.030	1.000	0.0	A		
SB	L	240	490	0.175	0.490	4.7	A	5.3	B
	T	913	1863	0.369	0.490	5.3	B		

Intersection Delay = 5.1 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.417

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: WWC 9-137 File Name: AWBSRO20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				215		40	200	610			385	530
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						20			100			215
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.411	0.311	8.2	B	7.5	B
	R	1583	1583	0.013	1.000	0.0	A		
NB	L	541	974	0.401	0.556	4.0	A	3.6	A
	T	2070	3725	0.326	0.556	3.5	A		
SB	T	2070	3725	0.205	0.556	3.2	A	1.8	A
	R	1583	1583	0.210	1.000	0.0	A		

Intersection Delay = 3.4 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.405

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: WWC 9-137 File Name: AEBSRO20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	525		550					450	240		575	100
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			225						120			50
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.781	0.400	11.5	B	7.1	B
	R	1583	1583	0.216	1.000	0.0	A		
NB	T	1739	3725	0.286	0.467	4.8	A	4.7	A
	R	739	1583	0.172	0.467	4.5	A		
SB	T	1739	3725	0.365	0.467	5.0	A	4.7	A
	R	1583	1583	0.033	1.000	0.0	A		

Intersection Delay = 5.7 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.557

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: Wwc 9-137r File Name: AWMN20WP.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	130	225	240	190	480	140	75	360	195	110	285	115
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			120			120			100			55
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	244	610	0.561	0.400	8.9	B	6.7	B
	TR	1412	3531	0.270	0.400	5.9	B		
WB	L	343	858	0.583	0.400	8.7	B	6.9	B
	TR	1481	3703	0.373	0.400	6.2	B		
NB	L	282	605	0.280	0.467	4.9	A	4.8	A
	TR	1684	3609	0.299	0.467	4.8	A		
SB	LTR	554	1186	0.865	0.467	16.4	C	16.4	C

Intersection Delay = 8.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.735

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: APF20WP.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 Without Project AM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	15	70	120	125	70	25	210	275	20	95	325	65
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			60			12			10			32
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 81 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	371	1770	0.043	0.210	16.5	C	18.0	C
	TR	642	3469	0.224	0.185	18.2	C		
WB	L	371	1770	0.355	0.210	17.9	C	17.9	C
	TR	674	3642	0.135	0.185	17.8	C		
NB	L	371	1770	0.595	0.210	20.5	C	18.0	C
	TR	915	3707	0.343	0.247	16.3	C		
SB	L	371	1770	0.269	0.210	17.4	C	17.0	C
	TR	907	3675	0.435	0.247	16.8	C		

Intersection Delay = 17.6 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.409

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) SR 184 (N-S) Vineland
Analyst: Wwc 9-137R File Name: ASR184V20WP.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	120	690	30	30	410	30	95	75	15	30	90	30
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			15			15			8			15
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	287	717	0.439	0.400	7.1	B	6.9	B
	TR	1485	3713	0.524	0.400	6.9	B		
WB	L	166	414	0.193	0.400	5.7	B	6.0	B
	TR	1482	3706	0.317	0.400	6.0	B		
NB	L	626	1340	0.160	0.467	4.5	A	4.4	A
	TR	1715	3674	0.053	0.467	4.2	A		
SB	LTR	731	1567	0.196	0.467	4.6	A	4.6	A

Intersection Delay = 6.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.347

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Vineland
Analyst: WWC 9-137R File Name: EBSRV20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	20		200					245	200	50	60	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			100						100			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
WB Left					SB Left	*			
Thru					Thru	*			
Right					Right				
Peds					Peds				
NB Right	*				EB Right	*			
SB Right					WB Right				
Green	20.0A				Green	25.0A			
Yellow/AR	3.0				Yellow/AR	3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.016	0.392	6.1	B	1.1	A
	R	1583	1583	0.067	1.000	0.0	A		
NB	T	1826	3725	0.148	0.490	4.6	A	3.3	A
	R	1583	1583	0.067	1.000	0.0	A		
SB	L	504	1027	0.105	0.490	4.5	A	4.4	A
	T	1826	3725	0.036	0.490	4.4	A		

Intersection Delay = 3.1 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.089

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Vineland
Analyst: WWC 9-137R File Name: WBSRV20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				20		50	100	145			50	25
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						25			100			10
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.038	0.311	7.0	B	3.1	A
	R	1583	1583	0.017	1.000	0.0	A		
NB	L	860	1547	0.122	0.556	3.1	A	3.0	A
	T	2070	3725	0.078	0.556	3.0	A		
SB	T	2070	3725	0.027	0.556	2.9	A	2.3	A
	R	1583	1583	0.009	1.000	0.0	A		

Intersection Delay = 2.9 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.092

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Masterson Street
Analyst: WWC 9-137R File Name: WSRMA20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	2
Volumes				150		60	20	430			125	20
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						30			100			10
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.287	0.311	7.7	B	6.4	B
	R	1583	1583	0.020	1.000	0.0	A		
NB	L	1102	1983	0.020	0.556	2.9	A	3.3	A
	T	2070	3725	0.230	0.556	3.3	A		
SB	T	2070	3725	0.067	0.556	3.0	A	2.8	A
	R	3167	3167	0.003	1.000	0.0	A		

Intersection Delay = 3.9 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.250

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Masterson St
Analyst: WWC 9-137R File Name: ESRMA20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	50		160					400	50	200	75	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			80						25			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.040	0.392	6.2	B	2.4	A
	R	1583	1583	0.053	1.000	0.0	A		
NB	T	1826	3725	0.242	0.490	4.9	A	4.6	A
	R	1583	1583	0.017	1.000	0.0	A		
SB	L	379	773	0.557	0.490	7.3	B	6.5	B
	T	1826	3725	0.045	0.490	4.4	A		

Intersection Delay = 4.9 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.327

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: WWC 9-137 File Name: EBSRO20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	600		915					745	270		955	150
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			450						135			75
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.893	0.400	17.9	C	10.1	B
	R	1583	1583	0.309	1.000	0.0	A		
NB	T	1739	3725	0.473	0.467	5.5	B	5.3	B
	R	739	1583	0.192	0.467	4.6	A		
SB	T	1739	3725	0.607	0.467	6.2	B	5.8	B
	R	1583	1583	0.050	1.000	0.0	A		

Intersection Delay = 7.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.739

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: WWC 9-137 File Name: WBSRO20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				165		65	310	1035			610	305
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						30			100			150
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.316	0.311	7.8	B	6.4	B
	R	1583	1583	0.023	1.000	0.0	A		
NB	L	605	1089	0.555	0.556	5.0	A	4.5	A
	T	2070	3725	0.552	0.556	4.4	A		
SB	T	2070	3725	0.326	0.556	3.5	A	2.9	A
	R	1583	1583	0.103	1.000	0.0	A		

Intersection Delay = 4.1 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.469

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) Highland-Knolls (N-S) Morning Dr
Analyst: WWC 9-137R File Name: MHK20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	100	110	20	60	120	30	30	270	50	50	310	55
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			10			15			25			27
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.306	0.194	22.0	C	22.9	C
	TR	563	3681	0.234	0.153	23.6	C		
WB	L	343	1770	0.184	0.194	21.4	C	23.0	C
	TR	561	3663	0.266	0.153	23.7	C		
NB	L	397	1770	0.081	0.224	19.4	C	17.0	C
	TR	1126	3677	0.291	0.306	16.8	C		
SB	L	397	1770	0.133	0.224	19.6	C	17.4	C
	TR	1126	3678	0.332	0.306	17.0	C		

Intersection Delay = 19.3 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.264

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) College Ave (N-S) Morning Dr
Analyst: WWC 9-137R File Name: MC20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	20	40	20	20	40	10	20	210	85	60	245	55
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			10			5			42			27
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.061	0.194	20.8	C	22.4	C
	TR	554	3618	0.099	0.153	23.1	C		
WB	L	343	1770	0.061	0.194	20.8	C	22.4	C
	TR	560	3656	0.089	0.153	23.0	C		
NB	L	397	1770	0.053	0.224	19.3	C	16.7	C
	TR	1112	3631	0.251	0.306	16.5	C		
SB	L	397	1770	0.159	0.224	19.8	C	17.2	C
	TR	1123	3667	0.269	0.306	16.6	C		

Intersection Delay = 18.0 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.165

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) SR 184 (N-S) Vineland
Analyst: Wwc 9-137R File Name: SR184V2.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	200	1150	50	50	810	50	75	125	25	50	150	50
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			25			25			12			25
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	166	414	1.274	0.400	*	*	*	*
	TR	1485	3713	0.875	0.400	12.5	B		
WB	L	166	414	0.320	0.400	6.4	B	7.5	B
	TR	1483	3708	0.623	0.400	7.6	B		
NB	L	489	1048	0.162	0.467	4.5	A	4.4	A
	TR	1715	3675	0.089	0.467	4.3	A		
SB	LTR	702	1504	0.339	0.467	5.0	A	5.0	A

Intersection Delay = * (sec/veh) Intersection LOS = *

(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) Chase Ave (N-S) SR-184
Analyst: Wwc 9-137R File Name: SR184C20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	< 0	1	1	0
Volumes				30		30		720	100	50	750	
Lane W (ft)				12.0		12.0		12.0		12.0	12.0	
RTOR Vols						15			50			15
Lost Time				3.00		3.00		3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left								
Thru								
Right								
Peds								
WB Left	*							
Thru								
Right	*							
Peds								
NB Right								
SB Right								
Green	17.0A							
Yellow/AR	4.0							

	5
NB Left	
Thru	*
Right	*
Peds	
SB Left	*
Thru	*
Right	
Peds	
EB Right	
WB Right	
Green	20.0A
Yellow/AR	4.0

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	708	1770	0.045	0.400	5.3	B	5.3	B
	R	633	1583	0.025	0.400	5.3	B		
NB	TR	1722	3690	0.494	0.467	5.6	B	5.6	B
SB	L	166	355	0.320	0.467	5.3	B	15.9	C
	T	869	1863	0.908	0.467	16.7	C		

Intersection Delay = 10.6 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.510

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: EBSRF20WP.HC9
Area Type: Other 3-8-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	1	0
Volumes	985		920					1020	55	55	405	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			450						25			150
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.769	0.392	10.6	B	7.3	B
	R	1583	1583	0.312	1.000	0.0	A		
NB	T	1826	3725	0.618	0.490	6.6	B	6.4	B
	R	1583	1583	0.020	1.000	0.0	A		
SB	L	146	298	0.397	0.490	6.3	B	5.9	B
	T	913	1863	0.467	0.490	5.8	B		

Intersection Delay = 6.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.685

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: WBSRF20W.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				115		80	300	480			460	640
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						40			180			320
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left		*			SB	Left				
	Thru						Thru	*			
	Right		*				Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right		*			WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.220	0.311	7.4	B	5.5	B
	R	1583	1583	0.027	1.000	0.0	A		
NB	L	397	714	0.796	0.556	12.6	B	6.8	B
	T	2070	3725	0.256	0.556	3.4	A		
SB	T	2070	3725	0.245	0.556	3.3	A	2.0	A
	R	1583	1583	0.213	1.000	0.0	A		

Intersection Delay = 4.5 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.589

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: PF20WP.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 Without Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	20	30	200	240	120	40	350	360	55	130	840	110
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			100			20			27			55
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 81 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	371	1770	0.057	0.210	16.5	C	18.0	C
	TR	610	3296	0.238	0.185	18.2	C		
WB	L	371	1770	0.681	0.210	22.5	C	20.9	C
	TR	675	3646	0.228	0.185	18.2	C		
NB	L	371	1770	0.991	0.210	54.1	E	34.2	D
	TR	910	3685	0.471	0.247	17.1	C		
SB	L	371	1770	0.369	0.210	18.0	C	*	*
	TR	911	3691	1.085	0.247	*	*		

Intersection Delay = * (sec/veh) Intersection LOS = *
(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: APF20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 Without Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	20	30	200	240	120	40	350	360	55	130	840	110
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			100			20			25			55
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	25.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 86 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	350	1770	0.060	0.198	18.1	C	19.6	C
	TR	575	3296	0.252	0.174	19.9	C		
WB	L	350	1770	0.723	0.198	25.8	D	23.5	C
	TR	636	3646	0.242	0.174	19.8	C		
NB	L	350	1770	1.052	0.198	75.4	F	43.3	E
	TR	1070	3682	0.404	0.291	16.0	C		
SB	L	350	1770	0.392	0.198	19.8	C	27.3	D
	TR	1073	3691	0.922	0.291	28.3	D		

Intersection Delay = 31.3 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.770

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Morning Drive
Analyst: WWC 9-137R File Name: EBSRM20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	100		135					250	150	160	280	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			65						75			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.078	0.392	6.3	B	3.7	A
	R	1583	1583	0.047	1.000	0.0	A		
NB	T	1826	3725	0.151	0.490	4.6	A	3.6	A
	R	1583	1583	0.050	1.000	0.0	A		
SB	L	500	1019	0.336	0.490	5.3	B	4.9	A
	T	1826	3725	0.170	0.490	4.7	A		

Intersection Delay = 4.2 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.221

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Morning Drive
Analyst: WWC 9-137R File Name: WBSRM20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 With ~~Project~~ out

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				120		145	175	500			160	285
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						70			100			140
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.229	0.311	7.5	B	4.6	A
	R	1583	1583	0.050	1.000	0.0	A		
NB	L	675	1214	0.273	0.556	3.4	A	3.4	A
	T	2070	3725	0.267	0.556	3.4	A		
SB	T	2070	3725	0.085	0.556	3.0	A	1.6	A
	R	1583	1583	0.097	1.000	0.0	A		

Intersection Delay = 3.1 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.257

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: APF20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project AM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	15	80	120	160	80	30	210	275	20	95	320	65
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			60			15			10			32
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 81 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	371	1770	0.043	0.210	16.5	C	18.0	C
	TR	646	3486	0.239	0.185	18.2	C		
WB	L	371	1770	0.452	0.210	18.7	C	18.4	C
	TR	673	3636	0.156	0.185	17.9	C		
NB	L	371	1770	0.595	0.210	20.5	C	18.0	C
	TR	915	3707	0.343	0.247	16.3	C		
SB	L	371	1770	0.269	0.210	17.4	C	16.9	C
	TR	907	3674	0.430	0.247	16.8	C		

Intersection Delay = 17.7 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.434

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Chase Ave (N-S) SR-184
Analyst: Wwc 9-137R File Name: ASRC20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	< 0	1	1	0
Volumes				20		30		720	60	35	740	
Lane W (ft)				12.0		12.0		12.0		12.0	12.0	
RTOR Vols						15			30			15
Lost Time				3.00		3.00		3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination	1	2	3	4	5	6	7	8
EB Left					NB Left			
Thru					Thru	*		
Right					Right	*		
Peds					Peds			
WB Left	*				SB Left	*		
Thru					Thru	*		
Right	*				Right			
Peds					Peds			
NB Right					EB Right			
SB Right					WB Right			
Green	17.0A				Green	20.0A		
Yellow/AR	4.0				Yellow/AR	4.0		

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	708	1770	0.030	0.400	5.3	B	5.3	B
	R	633	1583	0.025	0.400	5.3	B		
NB	TR	1728	3704	0.479	0.467	5.5	B	5.5	B
SB	L	166	355	0.223	0.467	4.7	A	15.1	C
	T	869	1863	0.896	0.467	15.6	C		

Intersection Delay = 10.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.496

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) SR 184 (N-S) Vineland
Analyst: Wwc 9-137R File Name: ASRV20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	140	760	30	55	650	95	45	85	20	40	100	80
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			15			45			10			40
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	166	414	0.888	0.400	35.6	D	11.4	B
	TR	1486	3715	0.577	0.400	7.2	B		
WB	L	166	414	0.350	0.400	6.6	B	6.9	B
	TR	1474	3685	0.525	0.400	6.9	B		
NB	L	558	1195	0.084	0.467	4.3	A	4.3	A
	TR	1712	3669	0.061	0.467	4.3	A		
SB	LTR	711	1524	0.266	0.467	4.8	A	4.8	A

Intersection Delay = 8.6 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.553

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: WWC 9-137R File Name: AWMN20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	140	245	240	235	670	160	75	410	255	115	195	120
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			120			130			125			60
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	166	414	0.888	0.400	35.6	D	13.8	B
	TR	1416	3541	0.285	0.400	5.9	B		
WB	L	329	822	0.751	0.400	13.8	B	8.6	B
	TR	1481	3702	0.522	0.400	6.9	B		
NB	L	362	776	0.218	0.467	4.7	A	5.0	A
	TR	1676	3592	0.356	0.467	5.0	A		
SB	LTR	481	1031	0.809	0.467	13.5	B	13.5	B

Intersection Delay = 9.5 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.845

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) College Ave (N-S) Morning Dr
Analyst: WWC 9-137R File Name: AMC20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	15	25	10	10	25	15	70	135	50	50	170	45
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			5			7			25			22
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.047	0.194	20.8	C	22.2	C
	TR	554	3621	0.061	0.153	22.9	C		
WB	L	343	1770	0.032	0.194	20.7	C	22.4	C
	TR	548	3582	0.067	0.153	22.9	C		
NB	L	397	1770	0.186	0.224	19.9	C	17.2	C
	TR	1113	3636	0.159	0.306	16.0	C		
SB	L	397	1770	0.133	0.224	19.6	C	16.9	C
	TR	1120	3659	0.190	0.306	16.2	C		

Intersection Delay = 17.9 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.136

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Highland-Knolls (N-S) Morning Dr
Analyst: WWC 9-137R File Name: AMHK20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	70	65	15	40	75	30	20	185	30	40	245	45
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			8			15			15			22
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.216	0.194	21.5	C	22.4	C
	TR	561	3667	0.143	0.153	23.2	C		
WB	L	343	1770	0.122	0.194	21.1	C	22.7	C
	TR	556	3631	0.180	0.153	23.4	C		
NB	L	397	1770	0.053	0.224	19.3	C	16.5	C
	TR	1127	3683	0.197	0.306	16.2	C		
SB	L	397	1770	0.106	0.224	19.5	C	17.0	C
	TR	1126	3678	0.263	0.306	16.6	C		

Intersection Delay = 18.7 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.198

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: AWBSRF2P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				130		50	370	250			390	285
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						25			180			140
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.249	0.311	7.5	B	6.3	B
	R	1583	1583	0.017	1.000	0.0	A		
NB	L	448	806	0.869	0.556	17.1	C	11.3	B
	T	2070	3725	0.133	0.556	3.1	A		
SB	T	2070	3725	0.209	0.556	3.3	A	2.4	A
	R	1583	1583	0.097	1.000	0.0	A		

Intersection Delay = 7.0 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.646

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: WWC 9-137R File Name: AWMN20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	140	245	240	235	670	160	75	410	255	115	295	120
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			120			130			125			60
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	166	414	0.888	0.400	35.6	D	13.8	B
	TR	1416	3541	0.285	0.400	5.9	B		
WB	L	329	822	0.751	0.400	13.8	B	8.6	B
	TR	1481	3702	0.522	0.400	6.9	B		
NB	L	274	586	0.289	0.467	4.9	A	5.0	A
	TR	1676	3592	0.356	0.467	5.0	A		
SB	LTR	521	1116	0.950	0.467	27.5	D	27.5	D

Intersection Delay = 12.2 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.921

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: AEBSRF20P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	1	0
Volumes	620		550					620	125	40	320	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			260						60			150
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.485	0.392	7.7	B	5.3	B
	R	1583	1583	0.193	1.000	0.0	A		
NB	T	1826	3725	0.376	0.490	5.3	B	4.8	A
	R	1583	1583	0.044	1.000	0.0	A		
SB	L	234	477	0.180	0.490	4.7	A	5.3	B
	T	913	1863	0.369	0.490	5.3	B		

Intersection Delay = 5.1 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.424

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: PF20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	30	130	200	270	135	45	350	400	30	155	840	110
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			100			22			15			55
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 81 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	371	1770	0.086	0.210	16.6	C	18.7	C
	TR	645	3482	0.395	0.185	19.0	C		
WB	L	371	1770	0.765	0.210	25.7	D	22.9	C
	TR	675	3645	0.258	0.185	18.3	C		
NB	L	371	1770	0.991	0.210	54.1	E	33.7	D
	TR	915	3705	0.502	0.247	17.3	C		
SB	L	371	1770	0.439	0.210	18.5	C	*	*
	TR	911	3691	1.085	0.247	*	*		

Intersection Delay = * (sec/veh) Intersection LOS = *
(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: WWC 9-137R File Name: WMN20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	230	395	400	345	850	245	130	430	375	190	515	205
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			200			220			185			100
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	166	414	1.462	0.400	*	*	*	*
	TR	1415	3538	0.464	0.400	6.6	B		
WB	L	191	478	1.899	0.400	*	*	*	*
	TR	1484	3710	0.652	0.400	7.8	B		
NB	L	183	392	0.749	0.467	16.8	C	7.1	B
	TR	1659	3554	0.414	0.467	5.2	B		
SB	LTR	411	880	2.078	0.467	*	*	*	*

Intersection Delay = * (sec/veh) Intersection LOS = *
(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) College Ave (N-S) Morning Dr
Analyst: WWC 9-137R File Name: MC20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	25	40	20	20	40	25	125	255	85	65	315	40
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			10			12			42			20
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.076	0.194	20.9	C	22.4	C
	TR	554	3618	0.099	0.153	23.1	C		
WB	L	343	1770	0.061	0.194	20.8	C	22.5	C
	TR	550	3593	0.105	0.153	23.1	C		
NB	L	397	1770	0.332	0.224	20.8	C	17.9	C
	TR	1116	3645	0.295	0.306	16.8	C		
SB	L	397	1770	0.171	0.224	19.8	C	17.4	C
	TR	1130	3692	0.328	0.306	17.0	C		

Intersection Delay = 18.4 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.235

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Highland-Knolls (N-S) Morning Dr
Analyst: WWC 9-137R File Name: MHK20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	105	110	20	65	125	35	30	320	55	60	390	75
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			10			17			27			37
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.324	0.194	22.1	C	22.9	C
	TR	563	3681	0.234	0.153	23.6	C		
WB	L	343	1770	0.198	0.194	21.4	C	23.1	C
	TR	559	3655	0.284	0.153	23.8	C		
NB	L	397	1770	0.081	0.224	19.4	C	17.3	C
	TR	1126	3680	0.342	0.306	17.1	C		
SB	L	397	1770	0.159	0.224	19.8	C	17.9	C
	TR	1125	3676	0.421	0.306	17.7	C		

Intersection Delay = 19.4 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.309

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Chase Ave (N-S) SR-184
Analyst: Wwc 9-137R File Name: SRC20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	< 0	1	1	0
Volumes				30		45		920	100	50	1000	
Lane W (ft)				12.0		12.0		12.0		12.0	12.0	
RTOR Vols						22			50			15
Lost Time				3.00		3.00		3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru						Thru	*			
	Right	*					Right				
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	708	1770	0.045	0.400	5.3	B	5.3	B
	R	633	1583	0.038	0.400	5.3	B		
NB	TR	1725	3697	0.621	0.467	6.3	B	6.3	B
SB	L	166	355	0.320	0.467	5.3	B	*	*
	T	869	1863	1.211	0.467	*	*		

Intersection Delay = * (sec/veh) Intersection LOS = *
(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: APF20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	15	80	120	160	80	30	210	275	20	95	325	65
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			60			15			10			30
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	25.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 86 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	350	1770	0.046	0.198	18.0	C	19.7	C
	TR	608	3486	0.253	0.174	19.9	C		
WB	L	350	1770	0.480	0.198	20.6	C	20.2	C
	TR	634	3636	0.166	0.174	19.5	C		
NB	L	350	1770	0.632	0.198	23.0	C	18.5	C
	TR	1078	3707	0.291	0.291	15.3	C		
SB	L	350	1770	0.286	0.198	19.1	C	16.4	C
	TR	1068	3672	0.372	0.291	15.8	C		

Intersection Delay = 18.2 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.432

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: PF20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	30	130	200	270	135	45	350	400	30	155	840	110
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			100			22			15			55
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	25.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 86 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	350	1770	0.091	0.198	18.2	C	20.4	C
	TR	607	3482	0.420	0.174	20.7	C		
WB	L	350	1770	0.812	0.198	30.6	D	26.5	D
	TR	636	3645	0.274	0.174	19.9	C		
NB	L	350	1770	1.052	0.198	75.4	F	42.5	E
	TR	1077	3705	0.426	0.291	16.1	C		
SB	L	350	1770	0.466	0.198	20.4	C	27.2	D
	TR	1073	3691	0.922	0.291	28.3	D		

Intersection Delay = 31.0 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.825

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Knolls, Morning to Vineland
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 345
ACTUAL FLOW RATE: 345

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... SR184 Morning to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS..... 2
PERCENTAGE OF BUSES..... 0
PERCENTAGE OF RECREATIONAL VEHICLES..... 0
DESIGN SPEED (MPH)..... 60
PEAK HOUR FACTOR..... 1
DIRECTIONAL DISTRIBUTION (UP/DOWN)..... 50 / 50
LANE WIDTH (FT)..... 12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)... 6
PERCENT NO PASSING ZONES..... 20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 2665
ACTUAL FLOW RATE: 2665

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: E

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning Niles to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 905
ACTUAL FLOW RATE: 905

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CODITIONS: c

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning SR178to Auburn
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 840
ACTUAL FLOW RATE: 840

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: c

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning SR178 to Panorama
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 750
ACTUAL FLOW RATE: 750

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: c

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning SR178 to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS..... 2
PERCENTAGE OF BUSES..... 0
PERCENTAGE OF RECREATIONAL VEHICLES..... 0
DESIGN SPEED (MPH)..... 50
PEAK HOUR FACTOR..... 1
DIRECTIONAL DISTRIBUTION (UP/DOWN)..... 60 / 40
LANE WIDTH (FT)..... 12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)... 6
PERCENT NO PASSING ZONES..... 20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	.94	.98
B	2.2	2	2.5	1	.94	.98
C	2.2	2	2.5	1	.94	.98
D	2	1.6	1.6	1	.94	.98
E	2	1.6	1.6	1	.94	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 680
ACTUAL FLOW RATE: 680

LOS	SERVICE FLOW RATE	V/C
A	310	.12
B	617	.24
C	1002	.39
D	1600	.62
E	2580	1

LOS FOR GIVEN CIONDITIONS: c

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Alfred Harrel, SR178 to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	65 / 35
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	.92	.98
B	2.2	2	2.5	1	.92	.98
C	2.2	2	2.5	1	.92	.98
D	2	1.6	1.6	1	.92	.98
E	2	1.6	1.6	1	.92	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 255
ACTUAL FLOW RATE: 255

LOS	SERVICE FLOW RATE	V/C
A	301	.12
B	600	.24
C	976	.39
D	1557	.62
E	2512	1

LOS FOR GIVEN CONDITIONS: A

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Vineland, SR184 to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 615
ACTUAL FLOW RATE: 615

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Masterson SR178 to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 455
ACTUAL FLOW RATE: 455

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... SR184 Morning to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 3145
ACTUAL FLOW RATE: 3145

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: F

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning, Niles to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 1055
ACTUAL FLOW RATE: 1055

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS : C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION... Morning, Panorama to ~~Paladino~~ SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): ~~810~~ 1010
ACTUAL FLOW RATE: ~~810~~

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Vineland, SR184 to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS..... 2
PERCENTAGE OF BUSES..... 0
PERCENTAGE OF RECREATIONAL VEHICLES..... 0
DESIGN SPEED (MPH)..... 60
PEAK HOUR FACTOR..... 1
DIRECTIONAL DISTRIBUTION (UP/DOWN)..... 60 / 40
LANE WIDTH (FT)..... 12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)... 6
PERCENT NO PASSING ZONES..... 20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	.94	.98
B	2.2	2	2.5	1	.94	.98
C	2.2	2	2.5	1	.94	.98
D	2	1.6	1.6	1	.94	.98
E	2	1.6	1.6	1	.94	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 710
ACTUAL FLOW RATE: 710

LOS	SERVICE FLOW RATE	V/C
A	310	.12
B	617	.24
C	1002	.39
D	1600	.62
E	2580	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Vineland, Panorama to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS..... 2
PERCENTAGE OF BUSES..... 0
PERCENTAGE OF RECREATIONAL VEHICLES..... 0
DESIGN SPEED (MPH)..... 60
PEAK HOUR FACTOR..... 1
DIRECTIONAL DISTRIBUTION (UP/DOWN)..... 50 / 50
LANE WIDTH (FT)..... 12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)... 6
PERCENT NO PASSING ZONES..... 20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 495
ACTUAL FLOW RATE: 495

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Knolls, Morning to Vineland
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 405
ACTUAL FLOW RATE: 405

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Alfred Harrell, SR178 to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	65 / 35
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	.92	.98
B	2.2	2	2.5	1	.92	.98
C	2.2	2	2.5	1	.92	.98
D	2	1.6	1.6	1	.92	.98
E	2	1.6	1.6	1	.92	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 315
ACTUAL FLOW RATE: 315

LOS	SERVICE FLOW RATE	V/C
A	301	.12
B	600	.24
C	976	.39
D	1557	.62
E	2512	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Paladino, Fairfax to Morning
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 1085
ACTUAL FLOW RATE: 1085

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: D

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Paladino, Morning to Vineland
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 870
ACTUAL FLOW RATE: 870

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Paladino, Vineland to Masterson
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 875
ACTUAL FLOW RATE: 875

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Panorama, Fairfax to Morning
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 770
ACTUAL FLOW RATE: 770

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Panorama, Morning to Vineland
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 1010
ACTUAL FLOW RATE: 1010

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning, Auburn to Panorama
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS..... 2
PERCENTAGE OF BUSES..... 0
PERCENTAGE OF RECREATIONAL VEHICLES..... 0
DESIGN SPEED (MPH)..... 60
PEAK HOUR FACTOR..... 1
DIRECTIONAL DISTRIBUTION (UP/DOWN)..... 50 / 50
LANE WIDTH (FT)..... 12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)... 6
PERCENT NO PASSING ZONES..... 20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 1095
ACTUAL FLOW RATE: 1095

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: D

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION...Morning, SR178 to Auburn
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 1125
ACTUAL FLOW RATE: 1125

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: D

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... mASTERSON, SR178 to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	70 / 30
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	.89	.98
B	2.2	2	2.5	1	.89	.98
C	2.2	2	2.5	1	.89	.98
D	2	1.6	1.6	1	.89	.98
E	2	1.6	1.6	1	.89	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 995
ACTUAL FLOW RATE: 995

LOS	SERVICE FLOW RATE	V/C
A	293	.12
B	584	.24
C	949	.39
D	1515	.62
E	2443	1

LOS FOR GIVEN CONDITIONS: D

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) College Ave (N-S) Morning Dr
Analyst: WWC 9-137R File Name: AMC20WP.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	10	25	10	10	25	10	70	125	50	40	150	35
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			5			5			25			20
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.032	0.194	20.7	C	22.4	C
	TR	554	3621	0.061	0.153	22.9	C		
WB	L	343	1770	0.032	0.194	20.7	C	22.4	C
	TR	554	3621	0.061	0.153	22.9	C		
NB	L	397	1770	0.186	0.224	19.9	C	17.2	C
	TR	1111	3631	0.150	0.306	16.0	C		
SB	L	397	1770	0.106	0.224	19.5	C	16.7	C
	TR	1125	3674	0.163	0.306	16.0	C		

Intersection Delay = 17.8 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.122

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Masterson St
Analyst: WWC 9-137R File Name: AESRMA20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	285		90					530	30	25	10	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			45						15			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.223	0.392	6.7	B	5.8	B
	R	1583	1583	0.030	1.000	0.0	A		
NB	T	1826	3725	0.321	0.490	5.1	B	5.0	A
	R	1583	1583	0.010	1.000	0.0	A		
SB	L	294	600	0.088	0.490	4.5	A	4.4	A
	T	1826	3725	0.007	0.490	4.3	A		

Intersection Delay = 5.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.277

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Masterson Street
Analyst: WWC 9-137R File Name: AWSRMA20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	2
Volumes				90		85	75	100			15	70
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						40			100			35
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.173	0.311	7.3	B	4.9	A
	R	1583	1583	0.030	1.000	0.0	A		
NB	L	1740	3132	0.047	0.556	2.9	A	3.0	A
	T	2070	3725	0.053	0.556	3.0	A		
SB	T	2070	3725	0.008	0.556	2.9	A	0.8	A
	R	3167	3167	0.013	1.000	0.0	A		

Intersection Delay = 3.3 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.096

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Vineland
Analyst: WWC 9-137R File Name: AWBSRV20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				25		5	50	370			5	5
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						3			100			3
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left					NB Left	*			
Thru					Thru	*			
Right					Right				
Peds					Peds				
WB Left	*				SB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
NB Right					EB Right				
SB Right	*				WB Right	*			
Green	14.0A				Green	25.0A			
Yellow/AR	3.0				Yellow/AR	3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.047	0.311	7.0	B	6.5	B
	R	1583	1583	0.001	1.000	0.0	A		
NB	L	973	1751	0.054	0.556	3.0	A	3.2	A
	T	2070	3725	0.197	0.556	3.2	A		
SB	T	2070	3725	0.002	0.556	2.9	A	2.1	A
	R	1583	1583	0.001	1.000	0.0	A		

Intersection Delay = 3.4 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.143

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Vineland
Analyst: WWC 9-137R File Name: AEBSRV20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	5		285					5	30	10	5	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			140						15			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.004	0.392	6.1	B	0.2	A
	R	1583	1583	0.097	1.000	0.0	A		
NB	T	1826	3725	0.003	0.490	4.3	A	1.0	A
	R	1583	1583	0.010	1.000	0.0	A		
SB	L	858	1751	0.013	0.490	4.3	A	4.3	A
	T	1826	3725	0.003	0.490	4.3	A		

Intersection Delay = 0.6 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 0.0 sec Critical v/c(x) = 0.097

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Morning Drive
Analyst: WWC 9-137R File Name: AEBSRM20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	145		80					150	110	100	135	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			40						55			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.114	0.392	6.4	B	5.0	A
	R	1583	1583	0.027	1.000	0.0	A		
NB	T	1826	3725	0.091	0.490	4.5	A	3.3	A
	R	1583	1583	0.037	1.000	0.0	A		
SB	L	606	1236	0.173	0.490	4.7	A	4.6	A
	T	1826	3725	0.082	0.490	4.5	A		

Intersection Delay = 4.3 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.147

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Morning Drive
Analyst: WWC 9-137R File Name: AWBSRM20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				40		80	65	230			225	120
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						40			100			60
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.076	0.311	7.1	B	3.5	A
	R	1583	1583	0.027	1.000	0.0	A		
NB	L	592	1066	0.115	0.556	3.1	A	3.1	A
	T	2070	3725	0.123	0.556	3.1	A		
SB	T	2070	3725	0.120	0.556	3.1	A	2.5	A
	R	1583	1583	0.040	1.000	0.0	A		

Intersection Delay = 2.9 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.106

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: AWBSRF20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				40		40	860	365			390	285
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						20			180			140
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.076	0.311	7.1	B	4.7	A
	R	1583	1583	0.013	1.000	0.0	A		
NB	L	448	806	2.022	0.556	*	*	*	*
	T	2070	3725	0.195	0.556	3.2	A		
SB	T	2070	3725	0.209	0.556	3.3	A	2.4	A
	R	1583	1583	0.097	1.000	0.0	A		

Intersection Delay = * (sec/veh) Intersection LOS = *

(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: AEBSRF20W.HC9
Area Type: Other 3-8-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	1	0
Volumes	610		550					610	85	40	320	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			225						40			150
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.476	0.392	7.7	B	5.1	B
	R	1583	1583	0.216	1.000	0.0	A		
NB	T	1826	3725	0.369	0.490	5.3	B	4.9	A
	R	1583	1583	0.030	1.000	0.0	A		
SB	L	240	490	0.175	0.490	4.7	A	5.3	B
	T	913	1863	0.369	0.490	5.3	B		

Intersection Delay = 5.1 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.417

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: WWC 9-137 File Name: AWBSRO20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				215		40	200	610			385	530
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						20			100			215
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.411	0.311	8.2	B	7.5	B
	R	1583	1583	0.013	1.000	0.0	A		
NB	L	541	974	0.401	0.556	4.0	A	3.6	A
	T	2070	3725	0.326	0.556	3.5	A		
SB	T	2070	3725	0.205	0.556	3.2	A	1.8	A
	R	1583	1583	0.210	1.000	0.0	A		

Intersection Delay = 3.4 sec/veh Intersection LOS = A

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.405

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: WWC 9-137 File Name: AEBSRO20W.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	525		550					450	240		575	100
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			225						120			50
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.781	0.400	11.5	B	7.1	B
	R	1583	1583	0.216	1.000	0.0	A		
NB	T	1739	3725	0.286	0.467	4.8	A	4.7	A
	R	739	1583	0.172	0.467	4.5	A		
SB	T	1739	3725	0.365	0.467	5.0	A	4.7	A
	R	1583	1583	0.033	1.000	0.0	A		

Intersection Delay = 5.7 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.557

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: Wwc 9-137r File Name: AWMN20WP.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	130	225	240	190	480	140	75	360	195	110	285	115
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			120			120			100			55
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	244	610	0.561	0.400	8.9	B	6.7	B
	TR	1412	3531	0.270	0.400	5.9	B		
WB	L	343	858	0.583	0.400	8.7	B	6.9	B
	TR	1481	3703	0.373	0.400	6.2	B		
NB	L	282	605	0.280	0.467	4.9	A	4.8	A
	TR	1684	3609	0.299	0.467	4.8	A		
SB	LTR	554	1186	0.865	0.467	16.4	C	16.4	C

Intersection Delay = 8.3 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.735

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: APF20WP.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 Without Project AM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	15	70	120	125	70	25	210	275	20	95	325	65
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			60			12			10			32
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 81 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	371	1770	0.043	0.210	16.5	C	18.0	C
	TR	642	3469	0.224	0.185	18.2	C		
WB	L	371	1770	0.355	0.210	17.9	C	17.9	C
	TR	674	3642	0.135	0.185	17.8	C		
NB	L	371	1770	0.595	0.210	20.5	C	18.0	C
	TR	915	3707	0.343	0.247	16.3	C		
SB	L	371	1770	0.269	0.210	17.4	C	17.0	C
	TR	907	3675	0.435	0.247	16.8	C		

Intersection Delay = 17.6 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.409

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) SR 184 (N-S) Vineland
Analyst: Wwc 9-137R File Name: ASR184V20WP.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	120	690	30	30	410	30	95	75	15	30	90	30
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			15			15			8			15
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
WB Left	*				SB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	17.0A				Green	20.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	287	717	0.439	0.400	7.1	B	6.9	B
	TR	1485	3713	0.524	0.400	6.9	B		
WB	L	166	414	0.193	0.400	5.7	B	6.0	B
	TR	1482	3706	0.317	0.400	6.0	B		
NB	L	626	1340	0.160	0.467	4.5	A	4.4	A
	TR	1715	3674	0.053	0.467	4.2	A		
SB	LTR	731	1567	0.196	0.467	4.6	A	4.6	A

Intersection Delay = 6.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.347

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Vineland
Analyst: WWC 9-137R File Name: EBSRV20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	20		200					245	200	50	60	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			100						100			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
WB Left					SB Left	*			
Thru					Thru	*			
Right					Right				
Peds					Peds				
NB Right	*				EB Right	*			
SB Right					WB Right				
Green	20.0A				Green	25.0A			
Yellow/AR	3.0				Yellow/AR	3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.016	0.392	6.1	B	1.1	A
	R	1583	1583	0.067	1.000	0.0	A		
NB	T	1826	3725	0.148	0.490	4.6	A	3.3	A
	R	1583	1583	0.067	1.000	0.0	A		
SB	L	504	1027	0.105	0.490	4.5	A	4.4	A
	T	1826	3725	0.036	0.490	4.4	A		

Intersection Delay = 3.1 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.089

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Vineland
Analyst: WWC 9-137R File Name: WBSRV20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				20		50	100	145			50	25
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						25			100			10
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.038	0.311	7.0	B	3.1	A
	R	1583	1583	0.017	1.000	0.0	A		
NB	L	860	1547	0.122	0.556	3.1	A	3.0	A
	T	2070	3725	0.078	0.556	3.0	A		
SB	T	2070	3725	0.027	0.556	2.9	A	2.3	A
	R	1583	1583	0.009	1.000	0.0	A		

Intersection Delay = 2.9 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.092

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Masterson Street
Analyst: WWC 9-137R File Name: WSRMA20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	2
Volumes				150		60	20	430			125	20
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						30			100			10
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left					NB	Left	*			
Thru						Thru	*			
Right						Right				
Peds						Peds				
WB Left		*			SB	Left				
Thru						Thru	*			
Right		*				Right	*			
Peds						Peds				
NB Right					EB	Right				
SB Right		*			WB	Right	*			
Green	14.0A				Green		25.0A			
Yellow/AR	3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.287	0.311	7.7	B	6.4	B
	R	1583	1583	0.020	1.000	0.0	A		
NB	L	1102	1983	0.020	0.556	2.9	A	3.3	A
	T	2070	3725	0.230	0.556	3.3	A		
SB	T	2070	3725	0.067	0.556	3.0	A	2.8	A
	R	3167	3167	0.003	1.000	0.0	A		

Intersection Delay = 3.9 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.250

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Masterson St
Analyst: WWC 9-137R File Name: ESRMA20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	50		160					400	50	200	75	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			80						25			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.040	0.392	6.2	B	2.4	A
	R	1583	1583	0.053	1.000	0.0	A		
NB	T	1826	3725	0.242	0.490	4.9	A	4.6	A
	R	1583	1583	0.017	1.000	0.0	A		
SB	L	379	773	0.557	0.490	7.3	B	6.5	B
	T	1826	3725	0.045	0.490	4.4	A		

Intersection Delay = 4.9 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.327

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B State Route 178 (N-S) Oswell Street
Analyst: WWC 9-137 File Name: EBSRO20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	0	1	0	0	0	0	2	1	0	2	1
Volumes	600		915					745	270		955	150
Lane W (ft)	12.0		12.0					12.0	12.0		12.0	12.0
RTOR Vols			450						135			75
Lost Time	3.00		3.00					3.00	3.00		3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
NB	Right					EB	Right	*			
SB	Right	*				WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	708	1770	0.893	0.400	17.9	C	10.1	B
	R	1583	1583	0.309	1.000	0.0	A		
NB	T	1739	3725	0.473	0.467	5.5	B	5.3	B
	R	739	1583	0.192	0.467	4.6	A		
SB	T	1739	3725	0.607	0.467	6.2	B	5.8	B
	R	1583	1583	0.050	1.000	0.0	A		

Intersection Delay = 7.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.739

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Oswell Street
Analyst: WWC 9-137 File Name: WBSRO20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	2	2	0	0	2	1
Volumes				165		65	310	1035			610	305
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						30			100			150
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.316	0.311	7.8	B	6.4	B
	R	1583	1583	0.023	1.000	0.0	A		
NB	L	605	1089	0.555	0.556	5.0	A	4.5	A
	T	2070	3725	0.552	0.556	4.4	A		
SB	T	2070	3725	0.326	0.556	3.5	A	2.9	A
	R	1583	1583	0.103	1.000	0.0	A		

Intersection Delay = 4.1 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.469

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) Highland-Knolls (N-S) Morning Dr
Analyst: WWC 9-137R File Name: MHK20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	100	110	20	60	120	30	30	270	50	50	310	55
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			10			15			25			27
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.306	0.194	22.0	C	22.9	C
	TR	563	3681	0.234	0.153	23.6	C		
WB	L	343	1770	0.184	0.194	21.4	C	23.0	C
	TR	561	3663	0.266	0.153	23.7	C		
NB	L	397	1770	0.081	0.224	19.4	C	17.0	C
	TR	1126	3677	0.291	0.306	16.8	C		
SB	L	397	1770	0.133	0.224	19.6	C	17.4	C
	TR	1126	3678	0.332	0.306	17.0	C		

Intersection Delay = 19.3 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.264

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) College Ave (N-S) Morning Dr
Analyst: WWC 9-137R File Name: MC20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	20	40	20	20	40	10	20	210	85	60	245	55
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			10			5			42			27
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.061	0.194	20.8	C	22.4	C
	TR	554	3618	0.099	0.153	23.1	C		
WB	L	343	1770	0.061	0.194	20.8	C	22.4	C
	TR	560	3656	0.089	0.153	23.0	C		
NB	L	397	1770	0.053	0.224	19.3	C	16.7	C
	TR	1112	3631	0.251	0.306	16.5	C		
SB	L	397	1770	0.159	0.224	19.8	C	17.2	C
	TR	1123	3667	0.269	0.306	16.6	C		

Intersection Delay = 18.0 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.165

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) SR 184 (N-S) Vineland
Analyst: Wwc 9-137R File Name: SR184V2.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	200	1150	50	50	810	50	75	125	25	50	150	50
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			25			25			12			25
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	166	414	1.274	0.400	*	*	*	*
	TR	1485	3713	0.875	0.400	12.5	B		
WB	L	166	414	0.320	0.400	6.4	B	7.5	B
	TR	1483	3708	0.623	0.400	7.6	B		
NB	L	489	1048	0.162	0.467	4.5	A	4.4	A
	TR	1715	3675	0.089	0.467	4.3	A		
SB	LTR	702	1504	0.339	0.467	5.0	A	5.0	A

Intersection Delay = * (sec/veh) Intersection LOS = *

(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) Chase Ave (N-S) SR-184
Analyst: Wwc 9-137R File Name: SR184C20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	< 0	1	1	0
Volumes				30		30		720	100	50	750	
Lane W (ft)				12.0		12.0		12.0		12.0	12.0	
RTOR Vols						15			50			15
Lost Time				3.00		3.00		3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru						Thru	*			
	Right	*					Right				
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	708	1770	0.045	0.400	5.3	B	5.3	B
	R	633	1583	0.025	0.400	5.3	B		
NB	TR	1722	3690	0.494	0.467	5.6	B	5.6	B
SB	L	166	355	0.320	0.467	5.3	B	15.9	C
	T	869	1863	0.908	0.467	16.7	C		

Intersection Delay = 10.6 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.510

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: EBSRF20WP.HC9
Area Type: Other 3-8-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	1	0
Volumes	985		920					1020	55	55	405	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			450						25			150
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.769	0.392	10.6	B	7.3	B
	R	1583	1583	0.312	1.000	0.0	A		
NB	T	1826	3725	0.618	0.490	6.6	B	6.4	B
	R	1583	1583	0.020	1.000	0.0	A		
SB	L	146	298	0.397	0.490	6.3	B	5.9	B
	T	913	1863	0.467	0.490	5.8	B		

Intersection Delay = 6.8 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.685

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: WBSRF20W.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				115		80	300	480			460	640
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						40			180			320
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left					NB Left	*			
Thru					Thru	*			
Right					Right				
Peds					Peds				
WB Left	*				SB Left				
Thru					Thru	*			
Right	*				Right	*			
Peds					Peds				
NB Right					EB Right				
SB Right	*				WB Right	*			
Green	14.0A				Green	25.0A			
Yellow/AR	3.0				Yellow/AR	3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.220	0.311	7.4	B	5.5	B
	R	1583	1583	0.027	1.000	0.0	A		
NB	L	397	714	0.796	0.556	12.6	B	6.8	B
	T	2070	3725	0.256	0.556	3.4	A		
SB	T	2070	3725	0.245	0.556	3.3	A	2.0	A
	R	1583	1583	0.213	1.000	0.0	A		

Intersection Delay = 4.5 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.589

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: PF20WP.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 Without Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	20	30	200	240	120	40	350	360	55	130	840	110
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			100			20			27			55
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 81 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	371	1770	0.057	0.210	16.5	C	18.0	C
	TR	610	3296	0.238	0.185	18.2	C		
WB	L	371	1770	0.681	0.210	22.5	C	20.9	C
	TR	675	3646	0.228	0.185	18.2	C		
NB	L	371	1770	0.991	0.210	54.1	E	34.2	D
	TR	910	3685	0.471	0.247	17.1	C		
SB	L	371	1770	0.369	0.210	18.0	C	*	*
	TR	911	3691	1.085	0.247	*	*		

Intersection Delay = * (sec/veh) Intersection LOS = *
(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: APF20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 Without Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	20	30	200	240	120	40	350	360	55	130	840	110
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			100			20			25			55
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	25.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 86 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	350	1770	0.060	0.198	18.1	C	19.6	C
	TR	575	3296	0.252	0.174	19.9	C		
WB	L	350	1770	0.723	0.198	25.8	D	23.5	C
	TR	636	3646	0.242	0.174	19.8	C		
NB	L	350	1770	1.052	0.198	75.4	F	43.3	E
	TR	1070	3682	0.404	0.291	16.0	C		
SB	L	350	1770	0.392	0.198	19.8	C	27.3	D
	TR	1073	3691	0.922	0.291	28.3	D		

Intersection Delay = 31.3 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.770

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Morning Drive
Analyst: WWC 9-137R File Name: EBSRM20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 Without Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	2	0
Volumes	100		135					250	150	160	280	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			65						75			0
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left					SB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
NB	Right	*				EB	Right	*			
SB	Right					WB	Right				
Green		20.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.078	0.392	6.3	B	3.7	A
	R	1583	1583	0.047	1.000	0.0	A		
NB	T	1826	3725	0.151	0.490	4.6	A	3.6	A
	R	1583	1583	0.050	1.000	0.0	A		
SB	L	500	1019	0.336	0.490	5.3	B	4.9	A
	T	1826	3725	0.170	0.490	4.7	A		

Intersection Delay = 4.2 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.221

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Morning Drive
Analyst: WWC 9-137R File Name: WBSRM20WP.HC9
Area Type: Other 3-9-0 PM Peak
Comment: 2020 With ~~out~~ Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				120		145	175	500			160	285
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						70			100			140
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.229	0.311	7.5	B	4.6	A
	R	1583	1583	0.050	1.000	0.0	A		
NB	L	675	1214	0.273	0.556	3.4	A	3.4	A
	T	2070	3725	0.267	0.556	3.4	A		
SB	T	2070	3725	0.085	0.556	3.0	A	1.6	A
	R	1583	1583	0.097	1.000	0.0	A		

Intersection Delay = 3.1 sec/veh Intersection LOS = A
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.257

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: APF20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project AM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	15	80	120	160	80	30	210	275	20	95	320	65
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			60			15			10			32
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 81 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	371	1770	0.043	0.210	16.5	C	18.0	C
	TR	646	3486	0.239	0.185	18.2	C		
WB	L	371	1770	0.452	0.210	18.7	C	18.4	C
	TR	673	3636	0.156	0.185	17.9	C		
NB	L	371	1770	0.595	0.210	20.5	C	18.0	C
	TR	915	3707	0.343	0.247	16.3	C		
SB	L	371	1770	0.269	0.210	17.4	C	16.9	C
	TR	907	3674	0.430	0.247	16.8	C		

Intersection Delay = 17.7 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.434

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Chase Ave (N-S) SR-184
Analyst: Wwc 9-137R File Name: ASRC20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	< 0	1	1	0
Volumes				20		30		720	60	35	740	
Lane W (ft)				12.0		12.0		12.0		12.0	12.0	
RTOR Vols						15			30			15
Lost Time				3.00		3.00		3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru						Thru	*			
	Right	*					Right				
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	708	1770	0.030	0.400	5.3	B	5.3	B
	R	633	1583	0.025	0.400	5.3	B		
NB	TR	1728	3704	0.479	0.467	5.5	B	5.5	B
SB	L	166	355	0.223	0.467	4.7	A	15.1	C
	T	869	1863	0.896	0.467	15.6	C		

Intersection Delay = 10.2 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.496

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) SR 184 (N-S) Vineland
Analyst: Wwc 9-137R File Name: ASRV20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	140	760	30	55	650	95	45	85	20	40	100	80
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			15			45			10			40
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	166	414	0.888	0.400	35.6	D	11.4	B
	TR	1486	3715	0.577	0.400	7.2	B		
WB	L	166	414	0.350	0.400	6.6	B	6.9	B
	TR	1474	3685	0.525	0.400	6.9	B		
NB	L	558	1195	0.084	0.467	4.3	A	4.3	A
	TR	1712	3669	0.061	0.467	4.3	A		
SB	LTR	711	1524	0.266	0.467	4.8	A	4.8	A

Intersection Delay = 8.6 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.553

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: WWC 9-137R File Name: AWMN20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	140	245	240	235	670	160	75	410	255	115	195	120
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			120			130			125			60
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	166	414	0.888	0.400	35.6	D	13.8	B
	TR	1416	3541	0.285	0.400	5.9	B		
WB	L	329	822	0.751	0.400	13.8	B	8.6	B
	TR	1481	3702	0.522	0.400	6.9	B		
NB	L	362	776	0.218	0.467	4.7	A	5.0	A
	TR	1676	3592	0.356	0.467	5.0	A		
SB	LTR	481	1031	0.809	0.467	13.5	B	13.5	B

Intersection Delay = 9.5 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.845

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) College Ave (N-S) Morning Dr
Analyst: WWC 9-137R File Name: AMC20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	15	25	10	10	25	15	70	135	50	50	170	45
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			5			7			25			22
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.047	0.194	20.8	C	22.2	C
	TR	554	3621	0.061	0.153	22.9	C		
WB	L	343	1770	0.032	0.194	20.7	C	22.4	C
	TR	548	3582	0.067	0.153	22.9	C		
NB	L	397	1770	0.186	0.224	19.9	C	17.2	C
	TR	1113	3636	0.159	0.306	16.0	C		
SB	L	397	1770	0.133	0.224	19.6	C	16.9	C
	TR	1120	3659	0.190	0.306	16.2	C		

Intersection Delay = 17.9 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.136

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Highland-Knolls (N-S) Morning Dr
Analyst: WWC 9-137R File Name: AMHK20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	70	65	15	40	75	30	20	185	30	40	245	45
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			8			15			15			22
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left	*			
Thru		*			Thru		*		
Right		*			Right		*		
Peds					Peds				
WB Left	*				SB Left	*			
Thru		*			Thru		*		
Right		*			Right		*		
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	22.0A	15.0A			Green	25.0A	30.0A		
Yellow/AR	0.0	3.0			Yellow/AR	0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.216	0.194	21.5	C	22.4	C
	TR	561	3667	0.143	0.153	23.2	C		
WB	L	343	1770	0.122	0.194	21.1	C	22.7	C
	TR	556	3631	0.180	0.153	23.4	C		
NB	L	397	1770	0.053	0.224	19.3	C	16.5	C
	TR	1127	3683	0.197	0.306	16.2	C		
SB	L	397	1770	0.106	0.224	19.5	C	17.0	C
	TR	1126	3678	0.263	0.306	16.6	C		

Intersection Delay = 18.7 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.198

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) W/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: AWBSRF2P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	1	2	0	0	2	1
Volumes				130		50	370	250			390	285
Lane W (ft)				12.0		12.0	12.0	12.0			12.0	12.0
RTOR Vols						25			180			140
Lost Time				3.00		3.00	3.00	3.00			3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left	*			
	Thru						Thru	*			
	Right						Right				
	Peds						Peds				
WB	Left	*				SB	Left				
	Thru						Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right	*				WB	Right	*			
Green		14.0A				Green		25.0A			
Yellow/AR		3.0				Yellow/AR		3.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	551	1770	0.249	0.311	7.5	B	6.3	B
	R	1583	1583	0.017	1.000	0.0	A		
NB	L	448	806	0.869	0.556	17.1	C	11.3	B
	T	2070	3725	0.133	0.556	3.1	A		
SB	T	2070	3725	0.209	0.556	3.3	A	2.4	A
	R	1583	1583	0.097	1.000	0.0	A		

Intersection Delay = 7.0 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.646

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: WWC 9-137R File Name: AWMN20P.HC9
Area Type: Other 3-10-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	140	245	240	235	670	160	75	410	255	115	295	120
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			120			130			125			60
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru	*					Thru	*			
	Right	*					Right	*			
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	166	414	0.888	0.400	35.6	D	13.8	B
	TR	1416	3541	0.285	0.400	5.9	B		
WB	L	329	822	0.751	0.400	13.8	B	8.6	B
	TR	1481	3702	0.522	0.400	6.9	B		
NB	L	274	586	0.289	0.467	4.9	A	5.0	A
	TR	1676	3592	0.356	0.467	5.0	A		
SB	LTR	521	1116	0.950	0.467	27.5	D	27.5	D

Intersection Delay = 12.2 sec/veh Intersection LOS = B

Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.921

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-09-2000
Center For Microcomputers In Transportation

Streets: (E-W) E/B Ramp SR178 (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: AEBSRF20P.HC9
Area Type: Other 3-9-0 AM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	2	0	1	0	0	0	0	2	1	1	1	0
Volumes	620		550					620	125	40	320	
Lane W (ft)	12.0		12.0					12.0	12.0	12.0	12.0	
RTOR Vols			260						60			150
Lost Time	3.00		3.00					3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination	1	2	3	4			5	6	7	8
EB Left	*				NB	Left				
Thru						Thru	*			
Right	*					Right	*			
Peds						Peds				
WB Left					SB	Left	*			
Thru						Thru	*			
Right						Right				
Peds						Peds				
NB Right	*				EB	Right	*			
SB Right					WB	Right				
Green	20.0A				Green		25.0A			
Yellow/AR	3.0				Yellow/AR		3.0			

Cycle Length: 51 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	1388	3539	0.485	0.392	7.7	B	5.3	B
	R	1583	1583	0.193	1.000	0.0	A		
NB	T	1826	3725	0.376	0.490	5.3	B	4.8	A
	R	1583	1583	0.044	1.000	0.0	A		
SB	L	234	477	0.180	0.490	4.7	A	5.3	B
	T	913	1863	0.369	0.490	5.3	B		

Intersection Delay = 5.1 sec/veh Intersection LOS = B
Lost Time/Cycle, L = 6.0 sec Critical v/c(x) = 0.424

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: PF20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	30	130	200	270	135	45	350	400	30	155	840	110
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			100			22			15			55
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	20.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 81 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	371	1770	0.086	0.210	16.6	C	18.7	C
	TR	645	3482	0.395	0.185	19.0	C		
WB	L	371	1770	0.765	0.210	25.7	D	22.9	C
	TR	675	3645	0.258	0.185	18.3	C		
NB	L	371	1770	0.991	0.210	54.1	E	33.7	D
	TR	915	3705	0.502	0.247	17.3	C		
SB	L	371	1770	0.439	0.210	18.5	C	*	*
	TR	911	3691	1.085	0.247	*	*		

Intersection Delay = * (sec/veh) Intersection LOS = *
(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Niles Street (N-S) Weedpatch-Morning
Analyst: WWC 9-137R File Name: WMN20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	0	> 1	< 0
Volumes	230	395	400	345	850	245	130	430	375	190	515	205
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0			12.0	
RTOR Vols			200			220			185			100
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination	1	2	3	4		5	6	7	8
EB Left	*				NB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
WB Left	*				SB Left	*			
Thru	*				Thru	*			
Right	*				Right	*			
Peds					Peds				
NB Right					EB Right				
SB Right					WB Right				
Green	17.0A				Green	20.0A			
Yellow/AR	4.0				Yellow/AR	4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	166	414	1.462	0.400	*	*	*	*
	TR	1415	3538	0.464	0.400	6.6	B		
WB	L	191	478	1.899	0.400	*	*	*	*
	TR	1484	3710	0.652	0.400	7.8	B		
NB	L	183	392	0.749	0.467	16.8	C	7.1	B
	TR	1659	3554	0.414	0.467	5.2	B		
SB	LTR	411	880	2.078	0.467	*	*	*	*

Intersection Delay = * (sec/veh) Intersection LOS = *
(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) College Ave (N-S) Morning Dr
Analyst: WWC 9-137R File Name: MC20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	25	40	20	20	40	25	125	255	85	65	315	40
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			10			12			42			20
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.076	0.194	20.9	C	22.4	C
	TR	554	3618	0.099	0.153	23.1	C		
WB	L	343	1770	0.061	0.194	20.8	C	22.5	C
	TR	550	3593	0.105	0.153	23.1	C		
NB	L	397	1770	0.332	0.224	20.8	C	17.9	C
	TR	1116	3645	0.295	0.306	16.8	C		
SB	L	397	1770	0.171	0.224	19.8	C	17.4	C
	TR	1130	3692	0.328	0.306	17.0	C		

Intersection Delay = 18.4 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.235

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Highland-Knolls (N-S) Morning Dr
Analyst: WWC 9-137R File Name: MHK20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	105	110	20	65	125	35	30	320	55	60	390	75
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			10			17			27			37
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		22.0A	15.0A			Green		25.0A	30.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 98 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	343	1770	0.324	0.194	22.1	C	22.9	C
	TR	563	3681	0.234	0.153	23.6	C		
WB	L	343	1770	0.198	0.194	21.4	C	23.1	C
	TR	559	3655	0.284	0.153	23.8	C		
NB	L	397	1770	0.081	0.224	19.4	C	17.3	C
	TR	1126	3680	0.342	0.306	17.1	C		
SB	L	397	1770	0.159	0.224	19.8	C	17.9	C
	TR	1125	3676	0.421	0.306	17.7	C		

Intersection Delay = 19.4 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.309

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-10-2000
Center For Microcomputers In Transportation

Streets: (E-W) Chase Ave (N-S) SR-184
Analyst: Wwc 9-137R File Name: SRC20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	0	0	0	1	0	1	0	2	< 0	1	1	0
Volumes				30		45		920	100	50	1000	
Lane W (ft)				12.0		12.0		12.0		12.0	12.0	
RTOR Vols						22			50			15
Lost Time				3.00		3.00		3.00	3.00	3.00	3.00	

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left					NB	Left				
	Thru						Thru	*			
	Right						Right	*			
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru						Thru	*			
	Right	*					Right				
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		17.0A				Green		20.0A			
Yellow/AR		4.0				Yellow/AR		4.0			

Cycle Length: 45 secs Phase combination order: #1 #5

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
WB	L	708	1770	0.045	0.400	5.3	B	5.3	B
	R	633	1583	0.038	0.400	5.3	B		
NB	TR	1725	3697	0.621	0.467	6.3	B	6.3	B
SB	L	166	355	0.320	0.467	5.3	B	*	*
	T	869	1863	1.211	0.467	*	*		

Intersection Delay = * (sec/veh) Intersection LOS = *
(g/C)*(V/c) is greater than one. Calculation of D1 is infeasible.

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: APF20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	15	80	120	160	80	30	210	275	20	95	325	65
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			60			15			10			30
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	25.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 86 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Group: Mvmts	Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	350	1770	0.046	0.198	18.0	C	19.7	C
	TR	608	3486	0.253	0.174	19.9	C		
WB	L	350	1770	0.480	0.198	20.6	C	20.2	C
	TR	634	3636	0.166	0.174	19.5	C		
NB	L	350	1770	0.632	0.198	23.0	C	18.5	C
	TR	1078	3707	0.291	0.291	15.3	C		
SB	L	350	1770	0.286	0.198	19.1	C	16.4	C
	TR	1068	3672	0.372	0.291	15.8	C		

Intersection Delay = 18.2 sec/veh Intersection LOS = C
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.432

HCM: SIGNALIZED INTERSECTION SUMMARY Version 2.4g 03-11-2000
Center For Microcomputers In Transportation

Streets: (E-W) Panorama Drive (N-S) Fairfax Road
Analyst: WWC 9-137R File Name: PF20P.HC9
Area Type: Other 3-10-0 PM Peak
Comment: 2020 With Project PM

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
No. Lanes	1	2	< 0	1	2	< 0	1	2	< 0	1	2	< 0
Volumes	30	130	200	270	135	45	350	400	30	155	840	110
Lane W (ft)	12.0	12.0		12.0	12.0		12.0	12.0		12.0	12.0	
RTOR Vols			100			22			15			55
Lost Time	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00

Signal Operations

Phase Combination		1	2	3	4			5	6	7	8
EB	Left	*				NB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
WB	Left	*				SB	Left	*			
	Thru		*				Thru		*		
	Right		*				Right		*		
	Peds						Peds				
NB	Right					EB	Right				
SB	Right					WB	Right				
Green		20.0A	15.0A			Green		20.0A	25.0A		
Yellow/AR		0.0	3.0			Yellow/AR		0.0	3.0		

Cycle Length: 86 secs Phase combination order: #1 #2 #5 #6

Intersection Performance Summary

	Lane Mvmts	Group: Cap	Adj Sat Flow	v/c Ratio	g/C Ratio	Delay	LOS	Approach: Delay	LOS
EB	L	350	1770	0.091	0.198	18.2	C	20.4	C
	TR	607	3482	0.420	0.174	20.7	C		
WB	L	350	1770	0.812	0.198	30.6	D	26.5	D
	TR	636	3645	0.274	0.174	19.9	C		
NB	L	350	1770	1.052	0.198	75.4	F	42.5	E
	TR	1077	3705	0.426	0.291	16.1	C		
SB	L	350	1770	0.466	0.198	20.4	C	27.2	D
	TR	1073	3691	0.922	0.291	28.3	D		

Intersection Delay = 31.0 sec/veh Intersection LOS = D
Lost Time/Cycle, L = 12.0 sec Critical v/c(x) = 0.825

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Knolls, Morning to Vineland
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 345
ACTUAL FLOW RATE: 345

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... SR184 Morning to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 2665
ACTUAL FLOW RATE: 2665

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: E

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning Niles to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 905
ACTUAL FLOW RATE: 905

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CODITIONS: c

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning SR178to Auburn
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 840
ACTUAL FLOW RATE: 840

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: c

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning SR178 to Panorama
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 750
ACTUAL FLOW RATE: 750

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: c

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning SR178 to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	60 / 40
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	.94	.98
B	2.2	2	2.5	1	.94	.98
C	2.2	2	2.5	1	.94	.98
D	2	1.6	1.6	1	.94	.98
E	2	1.6	1.6	1	.94	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 680
ACTUAL FLOW RATE: 680

LOS	SERVICE FLOW RATE	V/C
A	310	.12
B	617	.24
C	1002	.39
D	1600	.62
E	2580	1

LOS FOR GIVEN CIONDITIONS: c

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Alfred Harrel, SR178 to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	65 / 35
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	.92	.98
B	2.2	2	2.5	1	.92	.98
C	2.2	2	2.5	1	.92	.98
D	2	1.6	1.6	1	.92	.98
E	2	1.6	1.6	1	.92	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 255
ACTUAL FLOW RATE: 255

LOS	SERVICE FLOW RATE	V/C
A	301	.12
B	600	.24
C	976	.39
D	1557	.62
E	2512	1

LOS FOR GIVEN CONDITIONS: A

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Vineland, SR184 to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 615
ACTUAL FLOW RATE: 615

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Masterson SR178 to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... peak hour
DATE OF ANALYSIS..... 03-10-2000
OTHER INFORMATION.... 2020 Without Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 455
ACTUAL FLOW RATE: 455

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... SR184 Morning to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 3145
ACTUAL FLOW RATE: 3145

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: F

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning, Niles to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 1055
ACTUAL FLOW RATE: 1055

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS : C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION... Morning, Panorama to ~~Paladino~~ SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): ~~810~~ 1010
ACTUAL FLOW RATE: ~~810~~

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Vineland, SR184 to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS..... 2
PERCENTAGE OF BUSES..... 0
PERCENTAGE OF RECREATIONAL VEHICLES..... 0
DESIGN SPEED (MPH)..... 60
PEAK HOUR FACTOR..... 1
DIRECTIONAL DISTRIBUTION (UP/DOWN)..... 60 / 40
LANE WIDTH (FT)..... 12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)... 6
PERCENT NO PASSING ZONES..... 20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	.94	.98
B	2.2	2	2.5	1	.94	.98
C	2.2	2	2.5	1	.94	.98
D	2	1.6	1.6	1	.94	.98
E	2	1.6	1.6	1	.94	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 710
ACTUAL FLOW RATE: 710

LOS	SERVICE FLOW RATE	V/C
A	310	.12
B	617	.24
C	1002	.39
D	1600	.62
E	2580	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Vineland, Panorama to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 495
ACTUAL FLOW RATE: 495

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Knolls, Morning to Vineland
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS..... 2
PERCENTAGE OF BUSES..... 0
PERCENTAGE OF RECREATIONAL VEHICLES..... 0
DESIGN SPEED (MPH)..... 60
PEAK HOUR FACTOR..... 1
DIRECTIONAL DISTRIBUTION (UP/DOWN)..... 50 / 50
LANE WIDTH (FT)..... 12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)... 6
PERCENT NO PASSING ZONES..... 20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 405
ACTUAL FLOW RATE: 405

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Alfred Harrell, SR178 to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	65 / 35
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	.92	.98
B	2.2	2	2.5	1	.92	.98
C	2.2	2	2.5	1	.92	.98
D	2	1.6	1.6	1	.92	.98
E	2	1.6	1.6	1	.92	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 315
ACTUAL FLOW RATE: 315

LOS	SERVICE FLOW RATE	V/C
A	301	.12
B	600	.24
C	976	.39
D	1557	.62
E	2512	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Paladino, Fairfax to Morning
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 1085
ACTUAL FLOW RATE: 1085

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

C

LOS FOR GIVEN CONDITIONS: D

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Paladino, Morning to Vineland
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 870
ACTUAL FLOW RATE: 870

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Paladino, Vineland to Masterson
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 875
ACTUAL FLOW RATE: 875

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Panorama, Fairfax to Morning
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 770
ACTUAL FLOW RATE: 770

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Panorama, Morning to Vineland
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 1010
ACTUAL FLOW RATE: 1010

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning, Auburn to Panorama
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 1095
ACTUAL FLOW RATE: 1095

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: D

M:TWO-LANE HIGHWAYS
****

LITY LOCATION... Morning, SR178 to Auburn
YST..... 9-137
OF ANALYSIS..... Peak Hour
OF ANALYSIS..... 03-11-2000
R INFORMATION.... 2020 WITH Project

STMENT FACTORS

ENTAGE OF TRUCKS.....	2
ENTAGE OF BUSES.....	0
ENTAGE OF RECREATIONAL VEHICLES.....	0
GN SPEED (MPH).....	60
HOUR FACTOR.....	1
CTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
WIDTH (FT).....	12
LE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
ENT NO PASSING ZONES.....	20

ECTION FACTORS

L TERRAIN

E T	E B	E R	f w	f d	f HV
2	1.8	2.2	1	1	.98
2.2	2	2.5	1	1	.98
2.2	2	2.5	1	1	.98
2	1.6	1.6	1	1	.98
2	1.6	1.6	1	1	.98

EL OF SERVICE RESULTS

JT VOLUME(vph): 1125
JAL FLOW RATE: 1125

SERVICE FLOW RATE	V/C
329	.12
656	.24
1066	.39
1702	.62
2745	1

LOS FOR GIVEN CONDITIONS: D

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Auburn, Fairfax to Morning
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-11-2000
OTHER INFORMATION.... 2020 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	60
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	65 / 35
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	.92	.98
B	2.2	2	2.5	1	.92	.98
C	2.2	2	2.5	1	.92	.98
D	2	1.6	1.6	1	.92	.98
E	2	1.6	1.6	1	.92	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 670
ACTUAL FLOW RATE: 670

LOS	SERVICE FLOW RATE	V/C
A	301	.12
B	600	.24
C	976	.39
D	1557	.62
E	2512	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... SR184, Niles to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITHOUT Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 485
ACTUAL FLOW RATE: 485

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Alfred Harrell, SR178 to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITHOUT Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 225
ACTUAL FLOW RATE: 225

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: A

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Masterson, SR178 to Paladino
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITHOUT Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 50
ACTUAL FLOW RATE: 50

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: A

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning, Paladino to Panorama
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITHOUT Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 20
ACTUAL FLOW RATE: 20

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: A

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Fairfax, Paladino to Panorama
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITHOUT Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 485
ACTUAL FLOW RATE: 485

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Fairfax, Panorama to Auburn
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITHOUT Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 1450
ACTUAL FLOW RATE: 1450

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: D

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Faifax, Auburn to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITHOUT Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS..... 2
PERCENTAGE OF BUSES..... 0
PERCENTAGE OF RECREATIONAL VEHICLES..... 0
DESIGN SPEED (MPH)..... 50
PEAK HOUR FACTOR..... 1
DIRECTIONAL DISTRIBUTION (UP/DOWN)..... 50 / 50
LANE WIDTH (FT)..... 12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)... 6
PERCENT NO PASSING ZONES..... 20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 2100
ACTUAL FLOW RATE: 2100

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: E

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Panorama, Fairfax to Morning
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITHOUT Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 460
ACTUAL FLOW RATE: 460

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Auburn, Fairfax to Morning
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITHOUT Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 330
ACTUAL FLOW RATE: 330

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Fiarfax, Paladino to Panorama
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 500
ACTUAL FLOW RATE: 500

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Panorama, Fairfax to Morning
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 590
ACTUAL FLOW RATE: 590

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Panorama, Morning to Vineland
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 560
ACTUAL FLOW RATE: 560

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning, Paladino to Panorama
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS..... 2
PERCENTAGE OF BUSES..... 0
PERCENTAGE OF RECREATIONAL VEHICLES..... 0
DESIGN SPEED (MPH)..... 50
PEAK HOUR FACTOR..... 1
DIRECTIONAL DISTRIBUTION (UP/DOWN)..... 50 / 50
LANE WIDTH (FT)..... 12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)... 6
PERCENT NO PASSING ZONES..... 20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 65
ACTUAL FLOW RATE: 65

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: A

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning, Panorama to Auburn
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	60 / 40
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	.94	.98
B	2.2	2	2.5	1	.94	.98
C	2.2	2	2.5	1	.94	.98
D	2	1.6	1.6	1	.94	.98
E	2	1.6	1.6	1	.94	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 750
ACTUAL FLOW RATE: 750

LOS	SERVICE FLOW RATE	V/C
A	310	.12
B	617	.24
C	1002	.39
D	1600	.62
E	2580	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Morning, Auburn to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	60 / 40
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	.94	.98
B	2.2	2	2.5	1	.94	.98
C	2.2	2	2.5	1	.94	.98
D	2	1.6	1.6	1	.94	.98
E	2	1.6	1.6	1	.94	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 825
ACTUAL FLOW RATE: 825

LOS	SERVICE FLOW RATE	V/C
A	310	.12
B	617	.24
C	1002	.39
D	1600	.62
E	2580	1

LOS FOR GIVEN CONDITIONS: C

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... ~~Vineland~~ Queen St, Paladino to Panorama
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 165
ACTUAL FLOW RATE: 165

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: A

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Masterson, Paladino to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	50 / 50
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E T	E B	E R	f w	f d	f HV
A	2	1.8	2.2	1	1	.98
B	2.2	2	2.5	1	1	.98
C	2.2	2	2.5	1	1	.98
D	2	1.6	1.6	1	1	.98
E	2	1.6	1.6	1	1	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 530
ACTUAL FLOW RATE: 530

LOS	SERVICE FLOW RATE	V/C
A	329	.12
B	656	.24
C	1066	.39
D	1702	.62
E	2745	1

LOS FOR GIVEN CONDITIONS: B

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... Alfred Harrell, Paladino to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS.....	2
PERCENTAGE OF BUSES.....	0
PERCENTAGE OF RECREATIONAL VEHICLES.....	0
DESIGN SPEED (MPH).....	50
PEAK HOUR FACTOR.....	1
DIRECTIONAL DISTRIBUTION (UP/DOWN).....	60 / 40
LANE WIDTH (FT).....	12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)...	6
PERCENT NO PASSING ZONES.....	20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	.94	.98
B	2.2	2	2.5	1	.94	.98
C	2.2	2	2.5	1	.94	.98
D	2	1.6	1.6	1	.94	.98
E	2	1.6	1.6	1	.94	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 195
ACTUAL FLOW RATE: 195

LOS	SERVICE FLOW RATE	V/C
A	310	.12
B	617	.24
C	1002	.39
D	1600	.62
E	2580	1

LOS FOR GIVEN CONDITIONS: A

1985 HCM:TWO-LANE HIGHWAYS
****

FACILITY LOCATION.... SR184, Niles to SR178
ANALYST..... 9-137
TIME OF ANALYSIS..... Peak Hour
DATE OF ANALYSIS..... 03-12-2000
OTHER INFORMATION.... 2010 WITH Project

A) ADJUSTMENT FACTORS

PERCENTAGE OF TRUCKS..... 2
PERCENTAGE OF BUSES..... 0
PERCENTAGE OF RECREATIONAL VEHICLES..... 0
DESIGN SPEED (MPH)..... 50
PEAK HOUR FACTOR..... 1
DIRECTIONAL DISTRIBUTION (UP/DOWN)..... 60 / 40
LANE WIDTH (FT)..... 12
USABLE SHOULDER WIDTH (AVG. WIDTH IN FT.)... 6
PERCENT NO PASSING ZONES..... 20

B) CORRECTION FACTORS

LEVEL TERRAIN

LOS	E_T	E_B	E_R	f_w	f_d	f_{HV}
A	2	1.8	2.2	1	.94	.98
B	2.2	2	2.5	1	.94	.98
C	2.2	2	2.5	1	.94	.98
D	2	1.6	1.6	1	.94	.98
E	2	1.6	1.6	1	.94	.98

C) LEVEL OF SERVICE RESULTS

INPUT VOLUME(vph): 630
ACTUAL FLOW RATE: 630

LOS	SERVICE FLOW RATE	V/C
A	310	.12
B	617	.24
C	1002	.39
D	1600	.62
E	2580	1

LOS FOR GIVEN CONDITIONS: C

ENVIRONMENTAL TRANSMITTAL FORM — Appendix F

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0615

Project Title: City in the Hills
Lead Agency: City of Bakersfield — Contact Person: Marc Gauthier
Street Address: 1715 Chester Avenue — Phone: 616-326-3733
City: Bakersfield — Zip: 93301 — County: Kern

Project Location

County: Kern — City/Nearest Community: Bakersfield
Cross Streets: Highway 178, Masterson Lane, Paladino Drive, and the undeveloped portion of Vineland Road
Assessor's Parcel No.: — Section: 17, 18, 19, 20 — Twp: 29S — Range: 29E — Base: USGS

Within 2 Miles: State Hwy #: 178 — Waterways: Kern River
Airports: Rio Bravo — Railways: — Schools: 2 Elementary, 2 Middle Schools, 2 High Schools

Document Type

CEQA: ___ NOP; ___ Early Cons; ___ Neg Dec; X Draft EIR; ___ Supplement/Subsequent EIR (Prior SCH No.); ___ NOE; ___ NOC; ___ NOD
NEPA: ___ NOI; ___ PONSI; ___ Draft EIS; ___ EA
Other: ___ Joint Document; ___ Final Document; ___ Other

Local Action Type

___ General Plan Update; X General Plan Amendment; ___ General Plan Element; ___ Community Plan; ___ Plan Drainage Area Amendment
___ Specific Plan; ___ Master Plan; ___ Planned Unit Development; ___ Site Plan
X Rezone; ___ Prezone; ___ Use Permit; ___ Land Division (Subdivision Parcel Map, Tract Map, etc.)
___ Annexation; ___ Redevelopment; ___ Coastal Permit; X Other: SR 178 Specfic Plan Line Amendment

Development Type

Residential: Units 4050 Acres 565.5
Offices: Sq. ft. ___ Acres ___ Employees ___
Commercial: Sq. ft. 1,048,706 Acres 96.9 Employees ___
Industrial: Sq. ft. ___ Acres ___ Employees ___
Educational ___
Recreational ___

Water Facilities: Type ___
Transportation: Type Arterial and collector Roads/31.5 acres
Mining: Mineral ___
Power: Type ___ Watts ___
Waste Treatment Type ___
Hazardous Waste: Type ___
Other: ___

Project Issues Discussed in Document

X Aesthetic/Visual; ___ Agricultural Land; X Air Quality; X Archaeological/Historical; ___ Coastal Zone; X Drainage/Absorption; ___ Economics/Jobs; ___ Fiscal
X Flood Plain/Flooding; ___ Forest Land/Fire Hazard; ___ Geologic/Seismic; ___ Minerals; X Noise; ___ Population/Housing Balance; X Public Services/Facilities; X Recreation/Parks
X Schools/Universities; ___ Septic Systems; X Sewer Capacity; ___ Soil Erosion/Compaction/Grading; X Solid Waste; X Toxic/Hazardous; X Traffic/Circulation; X Vegetation; ___ Other:
___ Water Quality; X Water Supply; X Groundwater; ___ Wetland/Riparian; X Wildlife; X Growth Inducing; X Landuse; X Cumulative Effects

Present Land Use/Zoning/General Plan Use

Present Land Use: Open Space, Present Zoning: Agriculture (A) and One Family Dwelling (R-1), Present General Plan Designation: Mixed Use Commercial (MUC), Low Density Residential (LR), and High Density Residential (HR).

Project Description

The project is an amendment to the Land Use Element and the Circulation Element of the Metropolitan Bakersfield 2010 General Plan and a concurrent zone change. The proposed Land Use and Circulation Element Amendments and the Zone Change will consist of boundary realignments of the Low Density Residential (2750 units), High Density Residential (1,300 units), and Commercial (1,048,706 square feet) land use designations and zoning districts. Proposed Circulation Element amendments include the addition of new arterial and collector street alignments within the development site.

ENVIRONMENTAL TRANSMITTAL FORM Appendix F

Mail to: State Clearinghouse, 1400 Tenth Street, Sacramento, CA 95814 916/445-0615

Signature of Lead Agency Representative: Marc Gauthier Date: 7/24/00

NOTE: Clearinghouse will assign identification numbers for all new projects. If SCH number exists (e.g., from a Notice of Preparation or previous draft document) please fill it in.

Revised October 1989

NOTICE OF COMPLETION

State of California
Office of Planning and Research
1400 Tenth Street
Sacramento, CA 95814

Project Title: City in the Hills

Project Location: The project site is located within Section 17, the SE ¼ of the SE ¼ of Section 18, and the extreme NE portion (8.9 acres) of Section 19, Township 29 South, Range 29 East, in the northeast portion of Bakersfield. The project site encompasses approximately 694 acres and is located in the northeast portion of the City between Highway 178, Masterson Lane, Paladino Drive, and undeveloped portions of Vineland Road and Queen Street (one mile east of Morning Drive).

Project Location (City): Bakersfield **Project Location (County):** Kern

Description of Nature, Purpose, and Beneficiaries of Project: The project is an amendment to the Land Use Element and the Circulation Element of the Metropolitan Bakersfield 2010 General Plan and a concurrent zone change. The proposed Land Use and Circulation Element Amendments and the Zone Change will consist of boundary realignments of the Low Density Residential (2750 units), High Density Residential (1,300 units), and Commercial (1,048,706 square feet) land use designations and zoning districts. Proposed Circulation Element amendments include the addition of new arterial and collector street alignments within the development site.

The project applicants are Mountain View Bravo, LLC and S & J Alfalfa, Inc., Phillippe Laik, C/O Robert McMurray, Nossaman, Gunther, & Knox, LLP, 18101 Von Karmen Avenue, Suite 1800, Irvine, California, 92612.

The purpose of the project is to meet the following development objectives.

- Provide a residential and commercial use community that includes similar uses and quantity of uses as currently identified in the Metropolitan Bakersfield 2010 General Plan Land Use Element for the project site.
- Provide a mixed use residential community that includes at least 4,000 units with an average density of less than 7.26 units per acre.
- Provide a range of housing types on the project site.
- Provide right-of-way for the future construction of the approved SR 178 Freeway and the Vineland Road interchange.
- Provide right-of-way for the future construction of the SR 178 and Masterson Street interchange.
- Provide general commercial uses adjacent to the proposed SR 178 interchanges at Vineland Road and Masterson Street.

Lead Agency: City of Bakersfield **Division:** Planning Department

Address Where a Copy of the EIR is Available: City of Bakersfield Planning Department, 1715 Chester Avenue, Bakersfield, California, Beal Library at 701 Truxtun Avenue, Bakersfield, California, and Law Library at 1415 Truxtun Avenue, Bakersfield, California.

Review Period: July 25, 2000 to September 8, 2000

Contact Person: Marc Gauthier **Phone Number:** (661) 326-3733

B A K E R S F I E L D
Development Services Department
Jack Hardisty, Director

Dennis C. Fidler
Building Director
(661) 326-3720 Fax (661) 325-0266

Stanley C. Grady
Planning Director
(661) 326-3733 Fax (661) 327-0646

NOTICE OF AVAILABLITY
AND
NOTICE OF PUBLIC HEARING
FOR DRAFT ENVIRONMENTAL IMPACT REPORT
FOR
CITY IN THE HILLS

PUBLIC NOTICE OF AVAILABILITY: The City of Bakersfield has completed the Draft Environmental Impact Report (DEIR) for the City in the Hills project. The DEIR discusses the potential environmental affects attributable to the subject project. Following are the description of the project, project location, and name/address of the project applicant.

Project Description: The project is an amendment to the Land Use Element and the Circulation Element of the Metropolitan Bakersfield 2010 General Plan and a concurrent zone change. The proposed Land Use and Circulation Element Amendments and the Zone Change will consist of boundary realignments of the Low Density Residential (2750 units), High Density Residential (1,300 units), and Commercial (1,048,706 square feet) land use designations and zoning districts. Proposed Circulation Element amendments include the addition of new arterial and collector street alignments within the development site.

Project Location: The project site is located within Section 17, the SE ¼ of the SE ¼ of Section 18, and the extreme NE portion (8.9 acres) of Section 19, Township 29 South, Range 29 East, in the northeast portion of Bakersfield. The project site encompasses approximately 694 acres and is located in the northeast portion of the City between Highway 178, Masterson Lane, Paladino Drive, and undeveloped portions of Vineland Road and Queen Street (one mile east of Morning Drive). The project site is currently undeveloped.

Name and Address of Project Applicant: S & J Alfalfa, Inc., Mountain View Bravo, LLC, Phillippe Laik, C/O Robert McMurray, Nossaman, Gunther, & Knox, LLP, 18101 Von Karmen Avenue, Suite 1800, Irvine, California, 92612.

The DEIR found effects that would remain significant and unavoidable after the implementation of mitigation measures. These effects include land use, noise, air quality, and aesthetics. All other environmental issues were found to be less than significant after the implementation of mitigation measures. No hazardous materials sites enumerated under Section 65962.5 of the Government Code are present on the project site.

This DEIR is hereby made available for public review and comment. The public review period for the DEIR has a duration of 45 days beginning on July 25, 2000 and ending on September 8, 2000. You are invited to submit written comments on the DEIR to Marc Gauthier, Principal Planner, City of Bakersfield Planning Department, 1715 Chester Avenue, Bakersfield, California, 93301 by September 8, 2000. Copies of the DEIR are on file for public review at the City of Bakersfield Planning Department at the above address, Beale Library at 701 Truxtun Avenue in Bakersfield, and Law Library at 1415 Truxtun Avenue in Bakersfield. Copies of the DEIR are also available for purchase at the City of Bakersfield Planning Department (contact Marc Gauthier) at the above address.

NOTICE OF PUBLIC HEARING: It is further noted that a hearing accepting public testimony on the DEIR will be held before the Planning Commission of the City of Bakersfield during the public review period. The public hearing will be focused on the objectivity and adequacy of the DEIR in discussing potential impacts upon the environment, ways in

which adverse effects might be mitigated, and alternatives to the project consistent with the California Environmental Quality Act. The hearing will begin at 12:15 p.m., or soon thereafter, as the matter may be hear on Monday September 18, 2000, in the Council Chambers in City Hall. The Monday portion will be for presentation of staff testimony only. No action to approve or deny this project will be taken on Monday. The hearing will be continued to take testimony from others at 5:30 p.m., or as soon thereafter as the matter may be heard on Thursday, September 21, 2000, in the Council Chambers of City Hall, 1501 Truxtun Avenue, Bakersfield, California, 93301. Final certification of the EIR and consideration of the project will require a separate public hearing at a later date, which will be renoticed.

If you challenge the action taken on this proposal in court, you may be limited to raising only those issues raised at the public hearing, or in written correspondence delivered to the City of Bakersfield prior to the close of the hearing. Copies of the DEIR are available for review or purchase at the Development Services Department at the address below. Copies of the DEIR are also available for public review at the Beale Library, 701 Truxtun Avenue, Bakersfield, California and the Kern County Law Library, 1415 Truxtun Avenue, Bakersfield, California. If you have questions, please contact Marc Gauthier or Richard Dole at (805) 326-3733.

PUBLIC COMMENT regarding the scope, content, objectivity and adequacy of the DEIR will be accepted in writing by the Planning Department no later than September 7, 2000. Final certification of the EIR and consideration of the project will require a separate public hearing at a later date, which will be renoticed.

DATED: July 25, 2000 POSTED: July 25, 2000

STANLEY C. GRADY
Planning Director

H:/Client/0216/02160011/NOA.doc

VI

Addendum: Response to Comments on the Draft Environmental Impact Report

State Clearinghouse Number 2000011101

for

City in the Hills

Michael Brandman Associates

September 19, 2000

02160011

ADDENDUM:

RESPONSES TO COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT REPORT FOR CITY IN THE HILLS PROJECT

State Clearinghouse No. 2000011101

Prepared for:

City of Bakersfield
Planning Department
1715 Chester Avenue
Bakersfield, California 93301

Contact: Marc Gauthier, Principal Planner

Prepared by:

Michael Brandman Associates
15901 Red Hill Avenue, Suite 200
Tustin, California 92780
(714) 250-5555

Contact: Michael E. Houlihan, AICP, Manager of Environmental Services

September 19, 2000

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SECTION 1
PURPOSE

The Draft Environmental Impact Report for the City in the Hills project was circulated for public review and comment beginning on July 25, 2000 and ending on September 8, 2000. As required by the California Environmental Quality Act (CEQA), this addendum responds to comments received on the Draft EIR.

As required by Section 15132 of the State CEQA Guidelines, the final EIR must respond to comments regarding significant environmental points raised in the review and consultation process. This addendum provides responses to comments on significant environmental points describing the disposition of the issue, explaining the EIR analysis, supporting EIR conclusions, or providing new information or corrections, as appropriate. This addendum, however, need not, and should not, attempt to respond to comments about the merits of the project; nor should it attempt to resolve citywide planning issues that require full community input and City consideration on their own.

This addendum is organized as follows:

Section 1. This section provides a discussion of the relationship of this document with the Draft EIR. It also discusses the structure of this document.

Section 2 This section lists the agencies/individuals that commented on the contents of the Draft EIR.

Section 3 This section includes the comments and the responses to the comments that were received on the Draft EIR. This section is divided into two subsections: (1) responses to comments received from the public and public agencies and (2) responses to comments received during the City of Bakersfield Planning Commission public hearing held on August 17, 2000.

Section 4 This section includes minor modifications and clarifications to the Draft EIR. The revisions do not change the significance of any of the environmental issue findings within the Draft EIR.

This addendum (Responses to Comments Document) is part of the Final EIR, which includes the Draft EIR and the technical appendices. These documents, and other information contained in the environmental record, constitute the Final EIR for the City in the Hills project.

SECTION 2
LIST OF COMMENTORS

A list of public agencies, organizations, and individuals that provided comments on the Draft EIR is presented below. Each comment letter has been assigned an alphabetical designation (A through Y). Each comment within each letter has been assigned a numerical designation so that each comment could be crossed-referenced with an individual response. Responses follow each comment letter. A list of individuals that provided comments on the Draft EIR during the City of Bakersfield Planning Commission public hearing held on August 17, 2000 is also provided below (AA through KK).

COMMENT LETTERS RECEIVED ON DRAFT EIR

A. State of California, Governor's Office of Planning and Research
B. Joanne Striebich, California Department of Transportation, District 6
C. Jo Anne Kipps, California Regional Water Quality Control Board, Central Valley Region
D. Steve Strait, County of Kern Planning Department
E Raymond Bishop, County of Kern Department of Airports
F. Barry Hayslett, County of Kern Roads Department
G. Ira A. Marshall, Jr., Resident
H. Lloyd Wren, Resident
I. James R. Rummell, Resident
J. Gordon Nipp, Sierra Club
K. Jack and Elizabeth Saba, Residents
L. Don Williams, Resident
M. Suzan Cox, Resident
N. Bob Moses, Resident
O. Michelle Beck, Resident
P. Curtis Sparks, Resident
Q. A Concerned Citizen (No name)
R. Jennie Haberlander, Resident
S. Carolyn Belli, Kern Equestrian for Preservation of Trails
T. Michael Farber, MD., Resident
U. Kathy Gallego, Resident
V. Carl Williams, Resident
W. Peggy Lewis, Assistance League of Bakersfield
X. Mr. And Mrs. Clifford Johnson, Residents
Y. Gene Albitre, Resident

COMMENTS RECEIVED DURING THE CITY OF BAKERSFIELD PLANNING COMMISSION HELD ON AUGUST 17, 2000

AA. Jim Rummell, Resident
BB. Carline Farber, Resident
CC. Danny Russell, Resident
DD. Michael Farber, Resident
EE. Commissioner Sprague
FF. Commissioner Boyle
GG. Commissioner Brady

HH. Commissioner McGinnis
II. Commissioner Sprague
JJ. Commissioner Brady
KK. Commissioner Dhamens

SECTION 3
RESPONSES TO COMMENTS

Following are the responses to the written comments that were received during the public review period on the Draft EIR and the comments received during the public hearing held on August 17, 2000 at the City of Bakersfield Planning Commission meeting. Where a comment results in a change to the Draft EIR, the response provides specific page, paragraph, and sentence reference, along with the new EIR text.

8

STATE OF CALIFORNIA

Governor's Office of Planning and Research

State Clearinghouse

Gray Davis
GOVERNOR

Steve Nissen
ACTING DIRECTOR

ACKNOWLEDGEMENT OF RECEIPT

RECEIVED
AUG - 7 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

DATE: August 2, 2000

TO: Marc Gauthier
City of Bakersfield
1715 Chester Ave.
Bakersfield, CA 93301

RE: City in the Hills
SCH#: 2000011101

This is to acknowledge that the State Clearinghouse has received your environmental document for state review. The review period assigned by the State Clearinghouse is:

Review Start Date: July 25, 2000
Review End Date: September 7, 2000

We have distributed your document to the following agencies and departments:

California Highway Patrol
Caltrans, District 4
Department of Conservation
Department of Fish and Game, Region 3
Department of Food and Agriculture
Department of Forestry and Fire Protection
Department of Housing and Community Development
Department of Parks and Recreation
Department of Water Resources
Native American Heritage Commission
Office of Historic Preservation
Regional Water Quality Control Bd., Region 5 (Sacramento)
Resources Agency
State Lands Commission

The State Clearinghouse will provide a closing letter with any state agency comments to your attention on the date following the close of the review period.

Thank you for your participation in the State Clearinghouse review process.

A1

5

1400 TENTH STREET P.O. BOX 3044 SACRAMENTO, CALIFORNIA 95812-3044
916-445-0613 FAX 916-323-3018 WWW.OPR.CA.GOV/CLEARINGHOUSE.HTML

WRITTEN RESPONSES TO COMMENTS

A. State of California, Governor's Office of Planning and Research

A1. This comment is noted and acknowledges the closing of the public review period for the Draft EIR. No specific comments on the Draft EIR were provided, therefore, no further response is necessary.

STATE OF CALIFORNIA - BUSINESS, TRANSPORTATION AND HOUSING AGENCY GRAY DAVIS, Governor

DEPARTMENT OF TRANSPORTATION
1352 WEST OLIVE AVENUE
P. O. BOX 12616
FRESNO, CA 93778-2616
TDD (559) 488-4066
OFFICE (559) 488-4347
FAX (559) 488-4088

Post-it® Fax Note 7671	Date 9/8/00	# of pages ▶ 2
To Richard Dole	From Joanne Striebich	
Co./Dept. Dev. Serv.	Co.	
Phone #	Phone # (559) 488-4347	
Fax # (661) 327-0646	Fax #	

September 8, 2000

2180-IGR/CEQA
6-KER-178-09614
GPA/ZCC P99-0647
CITY IN THE HILLS

Mr. Richard Dole
Bakersfield Development Services Department
1715 Chester Avenue
Bakersfield, CA 93301

Dear Mr. Dole:

Thank you for providing Caltrans with the opportunity to comment on the above-named project. Caltrans has reviewed the project and offers the following comments:

- The DEIR indicates that traffic signals shall be installed at Vineland Road and State Route 184 in the year 2020 (pages 2-10 and 5.3-15). These signals are to be funded by the Metropolitan Bakersfield Transportation Impact Fee Program (MBTIFP). However, our data does not indicate that this intersection is in the MBTIFP. If it is not in the MBTIFP, then perhaps this intersection should be re-categorized under Mitigation Measure TR-2. B1

- We recommend that the DEIR indicate on Page 3-5 that proposed local road intersections should be located a minimum of 160 meters from ramp intersections and driveways a minimum of 125 meters from ramp intersections. It should further be indicated that local road intersections and proposed driveways will require an operational analysis to determine if the minimum distances are sufficient. B2

- We recommend that it should be indicated on Page 3-6 that a permit from the Department of Transportation would be required for work or encroachment onto State right-of-way. Commercial signs along State Highways must comply with State regulations. B3

- The traffic analysis adjusted the generated trips by 15% for captured trips. This percentage seems a little high. However, if this adjustment is acceptable to the City of Bakersfield, it will be acceptable to Caltrans. B4

- No additional storm run-offs will be allowed due to these developments into the State Storm Drain System. B5

- The EIR should include an analysis of any work to be conducted by the developer within the State right-of-way. B6
- Are both Vineland and Masterson proposed interchanges on State Route 178? They are just over one mile apart. B7
- If State Route 178 is not improved in the year 2010 and 2020, would the capacity of the existing State Route 178 be adequate for this development? B8
- The existing State Route 178 alignment is planned as a four-lane conventional highway requiring 110 feet of total right-of-way. Therefore, an irrevocable offer of dedication is recommended for the additional 5 feet of right-of-way needed to achieve the ultimate plan. Future State Route 178 through the project area is planned as a 210-foot right-of-way. Geometrics for the intersections at Masterson Street and the proposed collector should be developed to determine the needed right-of-way for these interchanges. B9

If you have any questions, please call me at (559) 488-4347.

Sincerely,

Joanne Striebich

JOANNE STRIEBICH
Office of Transportation Planning

B. Joanne Striebich, California Department of Transportation, District 6

B1. Traffic signals at SR 184 (Kern Canyon Road) and Vineland Road are listed on the Metropolitan Bakersfield Traffic Impact Fee Program.

B2. This comment regarding minimum setbacks of intersections and driveways from interchange ramps is noted. The City of Bakersfield requires minimum setbacks of 600 feet for intersections and driveways from interchange ramps that have traffic signals.

B3. This comment is noted. The following is added at the end of Section 3.4 on page 3-7 of the Draft EIR.

Add: "**California Department of Transportation** – The proposed project will require an encroachment permit along SR 178 during the implementation of improvements along SR 178."

B4. This comment is noted. The assumption of a 15 percent reduction of trips for capture trips has been approved by the City for the traffic analysis.

B5. This comment regarding no additional storm water runoff into the State Storm Drain System is noted.

B6. As discussed in Section 5.3.4 of the Draft EIR in mitigation measure TR-2, two additional lanes of pavement on old SR 178 from Fairfax Road to Alfred Harrell Highway/Comanche Drive would be required to reduce impacts on the circulation system. Specific impacts resulting from the implementation of this improvement would be evaluated within subsequent environmental documentation. The EIR prepared for the City in the Hills project is a Program EIR. According to the CEQA Guidelines, a program EIR can be prepared for a series of related action and subsequent environmental documentation can be prepared when specific detailed information is provided for each component (i.e., widening of SR 178).

B7. Vineland Road and Masterson Street are both proposed to be interchanges with the future alignment of SR 178. The project applicant is providing right-of-way for the Masterson Street interchange.

B8. SR 178 is recommended to be widened to four lanes to accommodate one-half project buildout and year 2010 projected traffic volumes. This roadway widening would reduce traffic impacts to less than significant. Please see response to comment FF.1 regarding the future capacity of SR 178 with the proposed improvements.

B9. This comment regarding right-of-way required for SR 178 is noted. Mitigation measure TR-2 on page 5.3-16 of the Draft EIR identifies the need to install additional lanes along SR 178. Right-of-way requirements would need to be evaluated prior to the installation of the additional lanes.

California Regional Water Quality Control Board

Central Valley Region

Steven T. Butler, Chair

Winston H. Hickox
Secretary for Environmental Protection

Gray Davis
Governor

Fresno Branch Office
Internet Address: http://www.swrcb.ca.gov/~rwqcb5
3614 East Ashlan Avenue, Fresno, California 93726
Phone (559) 445-5116 • FAX (559) 445-5910

29 August 2000

RECE...
AUG ... 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Stanley C. Grady, Planning Director
City of Bakersfield
1715 Chester Avenue
Bakersfield, CA 93301

DRAFT ENVIRONMENTAL IMPACT REPORT FOR PROPOSED CITY IN THE HILLS DEVELOPMENT PROJECT (SCH 2000011101), KERN COUNTY

We have reviewed a copy of the draft Environmental Impact Report for the proposed development, dated 25 July 2000, and concur with the City's finding that its wastewater treatment facility has enough capacity to serve the proposed development.

C1

Jo Anne Kipps

JO ANNE KIPPS
Senior Engineer
RCE No. 49278

cc: State Clearinghouse, Sacramento

C. Jo Anne Kipps, California Regional Water Quality Control Board, Central Valley Region

C1. This comment regarding concurrence of the City's finding that its wastewater treatment facility has adequate capacity to serve the project is noted.

PLANNING DEPARTMENT
TED JAMES, 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
Web Address: www.co.kern.ca.us/planning/info.htm

RESOURCE MANAGEMENT AGENCY
DAVID PRICE III, RMA DIRECTOR
Community Development Program Department
Engineering & Survey Services Department
Environmental Health Services Department
Planning Department
Roads Department

RECEIVED
SEP - - 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

August 31, 2000

Marc Gauthier, Principal Planner
City of Bakersfield Planning Department
1715 Chester Avenue
Bakersfield CA 93301

Re: Comments on Notice of Availability for Draft Environmental Impact Report for the City in the Hills (GPA/ZC P99-0647)

Dear Marc:

Thank you for the opportunity to comment on the Draft Environmental Impact Report (DEIR) for this project. In the course of evaluating the Alternative Design in Section 7.3, was consideration given to the seemingly more reasonable alternative of compensating for the loss of dwelling units by increasing residential density outside of the noise impact area? Such consideration could make that alternative more attractive and possibly make its rejection less likely. Also, it would be helpful to reviewers and decision makers if the City would provide an exhibit in the DEIR showing the configuration of land use designations that correspond to the Alternative Design. D1 D2

If you have any questions, please call Steve Strait at (661) 862-8611.

Very truly yours,

TED JAMES, AICP, Director
Kern County Planning Department

by Steve Strait, Associate Planner

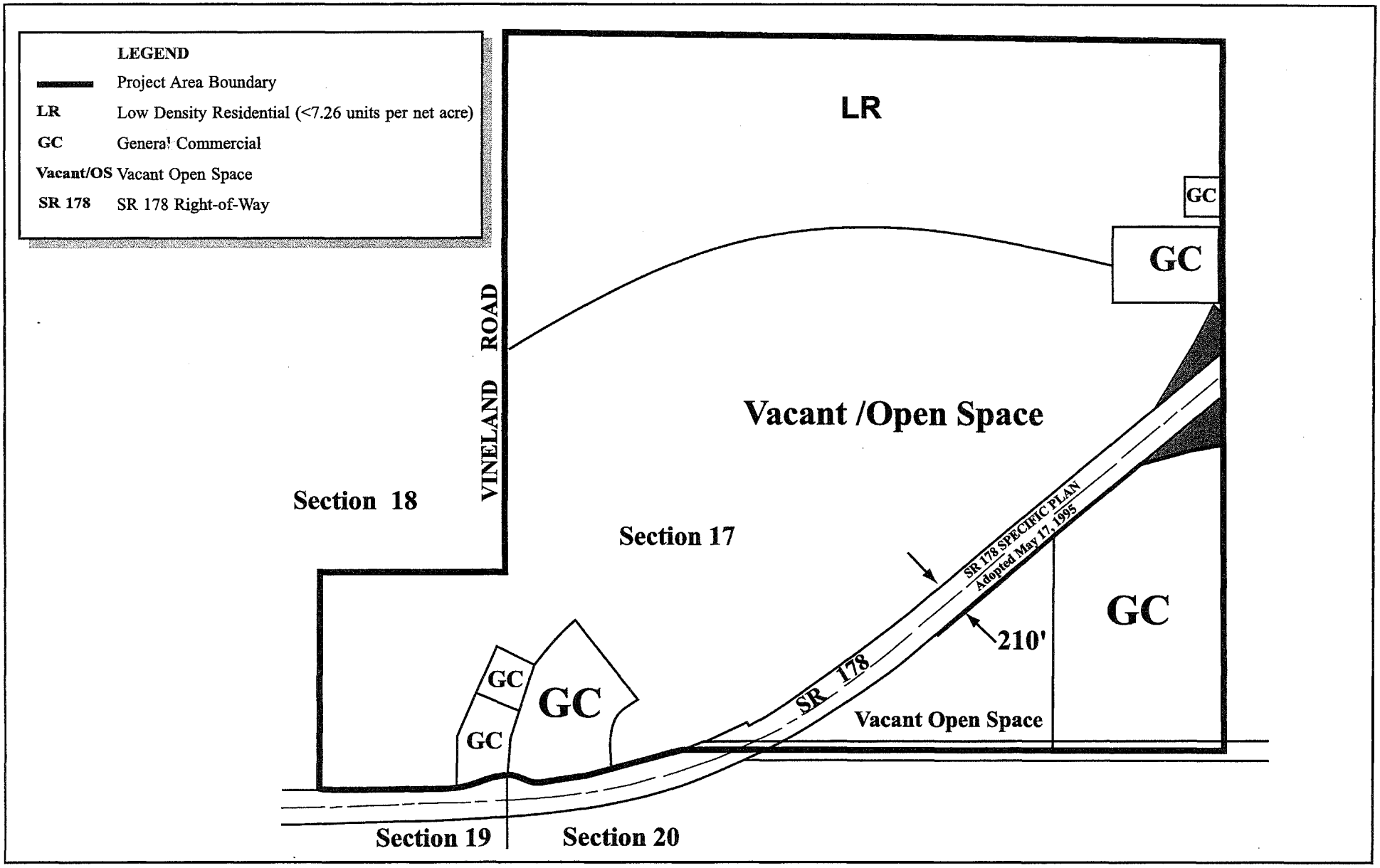
D. Steve Strait, County of Kern Planning Department

D1. There was no consideration of increasing the residential density of the General Plan land use designations in the project area because the primary objectives were to include land use designations that were consistent with those identified in the General Plan for the project site. Furthermore, an objective of the project was to provide an average residential density of less than 7.26 units per acre. Increasing the residential density in this alternative could achieve the total dwelling units under the proposed project, but would not achieve the objectives of the project.

D2. There was concern that the configuration of the proposed land uses under the Alternative Design was not depicted. As a result, the following is added after the first sentence on page 7-8 of the Draft EIR.

Add: "(see Exhibit 7-1)".

Exhibit 7-1 is hereby incorporated into the EIR following page 7-8.



NORTH

1000 500 0 1000
SCALE IN FEET

Michael Brandman Associates

Exhibit 7-1
Alternative Design

COUNTY OF KERN
DEPARTMENT OF AIRPORTS

RAYMOND C. BISHOP
Director

Meadows Field Airport
1401 Skyway Drive, Suite 200 • Bakersfield, CA 93308
Telephone 661-393-7990 • FAX 661-861-3322 • email: airports@lightspeed.net

System Airports
Elk Hills - Buttonwillow
Poso • Kern Valley • Wasco
Lost Hills • Taft • Meadows Field

RECEIVED
AUG - 2 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

31 July, 2000

Mr. Stanley C. Grady
Planning Director
City of Bakersfield
Development Services Department
1715 Chester Avenue
Bakersfield, CA 93301

Dear Mr. Grady:

SUBJECT: Notice of Availability and Notice of Public Hearing for Draft Environmental Impact Report for City in the Hills

The Kern County Department of Airports has reviewed the document referenced above and has no further comment.

E1

We appreciate this referral and the opportunity to review this matter.

Respectfully,

Raymond C. Bishop, C.A.E.
Director of Airports

F:\DATA\SHARED\WORD\DAY\LANDUCTY.doc
GEN AD 23000

E. Raymond Bishop, County of Kern Department of Airports

E1. This comment is noted. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no response is required.

ROADS DEPARTMENT
CRAIG M. POPE, P.E., Director
2700 "M" STREET, SUITE 400
BAKERSFIELD, CA 93301-2370
Phone: 661-862-8850
FAX: 661-862-8851
Toll Free: 800-552-5376 Option 5
TTY Relay: 800-735-2929
E-Mail: *roads@co.kern.ca.us*

RESOURCE MANAGEMENT AGENCY
DAVID PRICE III, RMA DIRECTOR
Community Development Program Department
Engineering & Survey Services Department
Environmental Health Services Department
Planning Department
Roads Department

RECEIVED
AUG 24 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

August 23, 2000

Ref: 7-8.1 Draft EIR for City in the Hills

Marc Gauthier
City of Bakersfield Planning Department
1715 Chester Avenue
Bakersfield, CA 93301

Dear Mr. Gauthier:

This Department has reviewed the traffic and Circulation Section of the Draft EIR as well as the Traffic Impact Study for the City in the Hills project and has the following comments:

1. Mitigation Measures TR-1 & TR-2 are somewhat convoluted. These measures could be simplified by calculating the total amount that the project applicant will be required to pay prior to issuance of building permits. Dollar amounts could be assigned to the percentages on pages 41, 42, and 43 of the traffic study to calculate a total which could be added to the total on page 45. The mitigation measure could then state the dollar amount to be paid and reference the appropriate pages in the traffic study. F1

2. It should be made clear that payment of the amount above is in lieu of payment of the standard fee in the Metropolitan Transportation Impact Fee Program of $2197 per residence. The total amount to be paid should be distributed over the proposed development to determine a dollar amount per residence and per square foot or acre of commercial development. This calculation does not need to be done at this time. F2

3. It should be made clear that payment of the dollar amount will be to the City of Bakersfield for construction of the listed improvements. These improvements will be constructed when warranted and funding allocated. The improvements will not necessarily be constructed in the years 2010 and 2020 as stated. F3

4. In Mitigation Measure TR-1, it is stated that lanes of pavement shall be installed on Paladino Drive "and" Fairfax Road. This should state "from" Fairfax Road. F4

Printed on Recycled Paper

Marc Gauthier
City of Bakersfield Planning Department
August 23, 2000
Page 2

5. In Mitigation Measure TR-2, it is stated that the project applicant shall pay its fair share toward a signal at the intersection of Alfred Harrell Highway/Comanche Drive and SR 178. This project is scheduled to be constructed within the next two years in conjunction with the realignment of Comanche Drive and is being funded by the City of Bakersfield and County of Kern. The project applicant should not be responsible for any funding of this project. F5

6. Also in Mitigation Measure TR-2, it is stated that the project applicant shall pay its fair share toward additional lanes and retiming of the traffic signal at the intersection of Fairfax Road and SR 178. These improvements are listed as being needed in the year 2010. The City of Bakersfield is working toward construction of a full interchange at this location. It is believed that this interchange will be constructed by 2010. Perhaps the project applicant should pay its fair share toward this interchange project. F6

If you have any questions, please contact Barry Nienke of this office.

Very truly yours,

Barry Hayslett

Barry Hayslett
Traffic Entgineer

BH:BN:ab
I:\ann\L2101

18

Post-it® Fax Note 7671	Date 8/23	# of pages ▶ 2
To Marc Gauthier	From B. Nienke	
Co./Dept. COB Planning	Co. KC Roads	
Phone #	Phone # 862-8874	
Fax # 327-0646	Fax #	

F. Barry Hayslett, County of Kern Roads Department

F1. Mitigation measures TR-1 and TR-2 were separated because TR-1 includes those improvements within the fee program and TR-2 includes those improvements that are not in the fee program. A funding amount was not included in the mitigation measure because the improvements would be completed over a 20-year period and cost to complete the improvements are expected to change during the 20-year project buildout.

F2. The Metropolitan Bakersfield Transportation Impact Fee covers the improvements listed in mitigation measure TR-1, but not those improvements identified in TR-2. The fee amount would be determined as individual tract and parcel maps are submitted to the City.

F3. As described on page 3-2 in the Draft EIR, buildout of the City in the Hills project is proposed over 20 years. The project will generally be developed in phases with half of the project built out by the year 2010 and full buildout occurring in the year 2020. Section 5.3.4 of the Draft EIR identified mitigation measures that need to be completed with completion of half of the project (projected for year 2010) and completion of the entire project (projected for year 2020). The implementation of the improvements will need to occur at the time that they are warranted. For clarification, all funds received as part of the Metropolitan Bakersfield Transportation Impact Fee will be to the City of Bakersfield for construction of the program improvements.

F4. This comment is noted. The third line in the fourth paragraph on page 5.3-15 of the Draft EIR is revised to read as follows:

Delete: "Install lanes of pavement on Paladino Drive and Fairfax Road to Masterson Street."

Add: "Install two lanes of pavement on Paladino Drive from Fairfax Road to Masterson Street."

F5. This comment is noted. The project applicant will be responsible to pay its fair share of all improvements listed in mitigation measure TR-2 even though some of the improvements may be constructed prior to full buildout of the proposed project. The applicant would require City approval of the funding calculations for all improvements.

F6. Based on the traffic report prepared for the project, the installation of a traffic signal at the intersection of Fairfax Road and SR 178 could be implemented to adequately accommodate a 3 percent growth over 10 years as well as development of one-half of the proposed project. The eighth paragraph on page 5.3-6 of the Draft EIR includes an assumption of the traffic

analysis which is that by year 2020, SR 178 will be constructed to full freeway status and will have an interchange at Fairfax Road as well as at other locations. Mitigation measure TR-3 refers to the project applicant's funding obligation related to the future realignment of SR-178 and the proposed interchanges. If the proposed Fairfax Road interchange is implemented prior to the project contributing a significant impact at the intersection, the City would determine the project applicant's funding obligation toward the individual interchange.

IRA A. MARSHALL, JR.

RECEIVED
AUG 2 1 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Richard Dole, Planner
CITY OF BAKERSFIELD
1715 Chester Avenue
Bakersfield, CA
93301

August 16,2000

Re: Zone change Case No. P99-0647

Dear Mr. Dole:

I own property adjoining the proposed project but will be unable to attend the September 18th meeting.

Please be advised that I am in favor of the proposed zone change and development.

Yours very truly,

Ira A. Marshall

G1

12 FINCHER WAY • RANCHO MIRAGE, CALIFORNIA 92270

G. Ira A. Marshall, Jr., Resident

G1. This comment regarding the commentor being in favor of the proposed project is noted.

RECEIVED
AUG - 9 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Marc Gauthier
Principal Planner
City of Bakersfield Planning Department
1715 Chester Ave.
Bakersfield, Calif. 93301

Dear Marc

I live at 10812 Pitts Ave. Just north of the City In The Hills project. My phone # is 823-0517. I am very upset with the rezoning of are area, we are R-1-2.5Ac. now, you wish to change us to LR. We have animals and ride out the back of our property, we ride motor-cyles out here to, We moved out here for these reasons. Now you wish to rezone us to 7.26 houses per acre, this will destroy are way of living out here. I can't believe I wasn't sent plans on this by the City of Bakersfield, A friend gave me these papers he found in his mail box put there by a unknown person, not even in a envelope, We provide are own water (not drinkable), sewage, gas, cable, and have repetedly asked to get are street paved, and have recieved no reply from anyone, But yet are taxes are the same as those who have all these things. Also in the City In The Hills project there is a kit fox den and a project this size will cause a big traffic problem on 178. Please look at this project very close for impact out here H1 H2 H3

23

Lloyd Wren

H. Lloyd Wren, Resident

H1. The project site as well as the area north of Paladino Drive has been designated Low Density Residential (7.26 dwelling units per net acre) for over 10 years. The project applicant is proposing a reconfiguration of the existing General Plan land use designations on the project site. The proposed reconfiguration also includes the addition of high density residential and general commercial designations in the immediate vicinity of the future interchange at new SR 178 and Vineland Road. The reconfiguration also includes the addition of general commercial in the immediate vicinity of the applicant's proposed interchange at new SR 178 and Masterson Road. The project applicant is providing right-of-way to allow the construction of an interchange at Masterson Road.

H2. Based on biological surveys conducted in January 2000 on the project site, there are 5 known San Joaquin kit fox dens on the project site. The project site is included in the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP). The MBHCP has provisions to provide funding to the City for future acquisition of habitat areas if a project will affect habitat for species covered in the MBHCP. One of these species is the San Joaquin kit fox. This funding provision is included in mitigation measure BR-1 on page 5.2-11 of the Draft EIR. Since the project site has habitat and kit fox dens, additional measures are required to be implemented prior to construction activities occurring on the project site. These additional measures are listed in mitigation measure BR-2 on pages 5.2-11 and 5.2-12.

H3. In analyzing the project traffic's impact on the existing SR 178 as well as existing and future roads on and in the vicinity of the project site, many intersections and roadway segments would operate at unacceptable levels prior to implementing intersection and roadway improvements. The improvements that are required to be implemented with the proposed project are listed in Section 5.3.4 of the Draft EIR. These improvements are required to reduce traffic impacts so that all study intersections and roadway segments would operate at an acceptable level of service (level of service C) and no significant unavoidable impacts would occur.

Mr. Stanley Grady
Bakersfield Planning Director,

Dear Sir,

I am writing to you with a few concerns regarding the Draft E.I.R. on the City in the Hills Project located north of Hwy. 178 and west of Masterson St. I am very much in favor of development in the east Bakersfield area. However, I am very concerned with issues not addressed in the E.I.R.

The first issue is the widening of Hwy. 178 to at least four lanes[two lanes each direction]. With this many new homes and apartments going in, we certainly need to widen the highway at least as far east as Comanche Rd. It is my opinion that three lanes each way should start at Fairfax Rd. heading west. If you allow this type of development with out laying the freeway system NOW, you will create another Rosedale Hwy. MESS. PLEASE do not allow that to happen again. I1

The second item that I'm concerned with is parks. I believe that in a development of this size there should be set aside a minimum of 30 acres of park. Is that being done? If so, what type of park. What type of recreation will be available at those parks. I2

East Bakersfield is the crown jewel of this city, lets develop it correctly. Thank you.

Sincerely,

James K. Rummell
5909 Meadow Oaks Ct.
Bakersfield Ca. 93306-7005
872-5821

I. James R. Rummell, Resident

I1. Please see response to comment H3 regarding the timing of improvements to existing SR 178 and the assumed construction of the future alignment of SR 178. The improvements to all study intersections and roadway segments would result in the circulation system operating at an acceptable level of service (level of service C) and no significant unavoidable impacts would occur. Please note that the addition of two lanes of pavement on the existing SR 178 is expected to be required approximately at the time that one-half of the project is constructed. The two additional lanes will be required prior to street segments and intersections operating at unacceptable levels (i.e., level of service C).

I2. The City of Bakersfield has established a park standard of providing 2.5 acres of new parks per 1,000 population. As stated on page 1-3 in the Draft EIR, the project is expected to result in a residential population of 11,503 people. Based on the City's park standard, the project would create a demand for approximately 28.8 acres of parks. The park requirement will be required to be met at the time of tract and parcel maps. A park master plan in the form of an amendment to the Land Use Element of the Metropolitan Bakersfield 2010 General Plan will be required prior to approval of any tract or parcel map on the project site.

SIERRA CLUB
FOUNDED 1892

KERN KAWEAH CHAPTER

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Monte Harper, *Vice Chair*
Bonnie East, *Secretary*
Gordon Nipp, *Treasurer*
Arthur Unger
Paul Gipe, *Public Relations*
Richard Garcia, *Fund Raising*
Ara Mardarosian, *Conservation*
Mary Ann Lockhart

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Arthur Unger, *S.C. Council Rep.*
Teresa Stump, *Outings*

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Carol Hewer, *At large*

CONDOR GROUP
Chester Arthur, *Chair*
Kevin Royle, *Conservation*
Ed and Jean Rustvold, *Treasurer*
Mary Ann Lockhart, *Newsletter*
Debra Sheets, *Webmaster*
Harry & Gita Nelson, *Outings*
Marta Bigler

SEQUOIA TASK FORCE
Carla Cloer, *Chair*

P.O. Box 3357
Bakersfield, CA 93385

RECEIVED
SEP 5 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Marc Gauthier, Principal Planner
Bakersfield Planning Department
1715 Chester Avenue
Bakersfield, CA 93301

Dear Mr. Gauthier:

We have the following comments on the DEIR for the City in the Hills project in northeast Bakersfield:

1. We see no open space provision in the DEIR. We feel strongly that, as a condition of approval of this project (and of other projects in the area), the developer should be required to set aside significant open space and parklands. From a recreation standpoint, the most important potential parklands in the area are the Kern River bluffs just to the north of theproposed project, already heavily used by runners, cyclists, hikers, hanggliders, etc. Since the region is only beginning to be developed, the City has a wonderful opportunity to preserve significant portions of these bluffs so that recreation, wildlife habitat, and aesthetics might be enhanced. We recommend that city planners coordinate efforts to preserve the bluffs, incorporate parklands projects in the bluffs into the General Plan, and require that present and future developers contribute funding for parklands and open space purchases in the area. Specifically for this DEIR, we do not see that the project's impact on recreation has been addressed, and we find no discussion in the DEIR of the project's consistency with the Open Space element of the 2010 General Plan. J1
2. The project is proposed to be built on kit fox and blunt-nosed leopard lizard habitat. This is all the more reason to require that open space be set aside. Perhaps HCP considerations could be coordinated with preservation of the Kern River bluffs from point 1 above. J2
3. We find no geology study in the DEIR. The surrounding area has expansive soils and earthquake faults. We feel that it would be very much in the public interest if setbacks from faults were required and if it were required of the developer to replace expansive soils with non-expansive soils before building. A geology report should be required. J3
4. There is significant existing light pollution from the ball field just south of Highway 178. This has not been discussed in the DEIR. Residents of "City in the Hills" should not be subjected almost every evening to this glare. J4

5. The proposed project is not consistent with the Noise Element of the General Plan. What are the long-term consequences to residents within the L-55dBA noise contour? Will potential buyers be advised of this problem? Would increased wall thickness and more insulation cut down on the noise within the houses? J5
6. The developers propose a 6000 square foot minimum lot size. The combination of very small lot size, noise pollution from the racetrack, and light pollution from the ball fields could make these houses rather undesirable. We are concerned that the neighborhood might rapidly become blighted and unkempt. Has the developer considered well-built cluster housing or condominium development in place of ticky-tacky houses? J6
7. There is no mitigation measure to reduce cumulative air-quality impacts. Will there be any viable public transportation in place for the people who live here? J7

In conclusion:

While we feel that it is much better to develop in the northeast rather than in the prime agricultural lands surrounding Bakersfield, we also think that any development should be done with long-term cumulative planning in mind. The area is just beginning to be developed; so now is the time to incorporate sensible guidelines into the General Plan. Preserving open space and recreational opportunities will make the area much more livable, will provide habitat for plants and animals, and it may even help clean the air. The Kern River bluffs are deserving of protection, and the developer should be required to help.

Thank you for the opportunity to comment.

Sincerely,

Gordon L. Nipp, 9/5/00

Gordon L. Nipp
3655 View Street
Bakersfield, CA 93306
(661) 872-2432

Reviewed and concur:

Glenn Shellcross

Glenn Shellcross, Chair

J. Gordon Nipp, Sierra Club

J1. This comment is noted. Please see response to comment I2 regarding the project's park requirement of approximately 28.8 acres of parks. The development of approximately 28.8 acres of parks would occur within the project site or at a City-approved offsite location.

Please note that the City has designated much of the rolling hills north and northwest of the project site as open space. According to the City of Bakersfield Zoning Ordinance, the permitted uses in the open space zoning areas include: agriculture, parks for passive recreational use, wildlife preserves, riding and hiking trails, and permanent unlighted recreational facilities.

J2. This comment is noted. The project applicant will be required to pay a development fee in accordance with the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP). Future sites evaluated for purchase as part of the MBHCP is not part of this project. The City determines appropriate site to purchase for preservation.

J3. The northeast Bakersfield area is known to contain clay soils. Based on a review of the California Soils Conservation Service, the project site includes Delano sandy loam top soil classification. Even though the top soils are not considered clay soils, clay could be located in the subsurface soils. The City of Bakersfield Building currently requires soils reports on all new development that contain structures. Therefore, prior to issuance of a building permit, the project applicant will be required to provide a soils report. The City has identified a few typical solutions in resolving potential clay expansion issues. These solutions include oversize footings, post tension slabs, and saturation of the clay soil.

J4. This comment regarding existing lights associated with the ball fields south of SR 178 is noted. Since the proposed project has a significant amount of commercial uses located in the southern portion of the project site, these uses and the night lighting associated with these uses would mask the lighting that would occur at the ball field. As discussed on page 6-1 of the Draft EIR, substantial night lighting would occur from development of the proposed project and this would be considered a significant unavoidable adverse impact.

J5. With the development of the proposed project and the continuance of the racing events at the Mesa Marin Raceway, project residents would be exposed to noise levels that are greater than L50-55 dBA. This exposure would only occur during racing events that typically occur for a few evening hours on Thursdays through Saturdays during the fall season.

J6. This comment is noted. The proposed project includes a reconfiguration of existing General Plan land use designations on the project site. The existing General Plan land use designations include 582 acres of low density residential (<7.26 dwelling units per acre) on the project site. This is approximately 84 percent of the entire project site. The low density residential land use designation would allow a minimum of 6,000 square foot lots. This reconfiguration includes the addition of high density residential and general commercial designations in the immediate vicinity of the currently planned interchange at Vineland Road along SR 178. This reconfiguration also includes the addition of general commercial in the immediate vicinity of the applicant's proposed interchange at Masterson Street along the future alignment of SR 178. The project applicant is proposing to provide adequate right-of-way for a future interchange at Masterson Street.

The type of housing that would be provided within the low density residential and high density residential areas is currently unknown. The type of housing would be determined at the time that the project applicant submits tract and parcel maps for project development.

J7. The mitigation measures listed in Section 5.5.4 of the Draft EIR would reduce the project's contribution to cumulative effects. As stated in Section 5.5.5 of the Draft EIR, the air quality measures that are recommended would reduce air emissions; however, significant air emissions are expected to remain. Golden Empire Transit is the company that would provide public transportation in the project area in the future. Currently, Golden Empire Transit reviews all site plans and subdivisions and informs City staff of their need for bus stops and turnout.

RECEIVED
SEP - 6 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

3512 Pinehurst Drive
Bakersfield, Calif.
September 2, 2000

Mr. Marc Gauthier
City of Bakersfield Planning Dept.
1715 Chester Ave.
Bakersfield, Calif.

Dear Mr. Gauthier:

This is the honest-to-goodness truth, what I am about to say: This morning I started out on one of my familiar runs and immediately saw a dirt biker off to my left climbing a steep hill. Next in line were three hikers far ahead on the trail but close enough that I could see they had on too many clothes to be runners. A three wheeler dashed by on my right side. Next, I spotted a mountain biker in his road bike jersey and helmet followed presently by a young female runner (too fast to catch).

All of these athletics were taking place in what many of us call, "our back yard", the hilly area north of Paladino Drive before it drops down to Alfred Harrell Highway, between Hart Park and Lake Ming here in the northeast. It is a favorite area for many who want the rough outdoors and close at hand.

In considering this area for development it will be perfect for a distinctive community park of wide open spaces. I was out there long enough to come up with some name suggestions.

1. Wild West Community Park (but that might be confusing being it is located in the northeast).
2. Down & Dirty Community Park (but that might put off cleaner types).
3. Back Yard Community Park (this will suit the many people who already use this term plus welcome others). This land is sacred to runners.

Please consider using it for a multi use recreational area, which will further the quality of life for many.

Sincerely,

Jack Saba, & Elizabeth Saba

K1

K. Jack and Elizabeth Saba, Residents

K1 This comment is noted. Please see response to comment I2 regarding the project applicant's park requirement and response to comment J1 regarding the currently designated open space areas north and northwest of the project site.

9/5/2000

RECEIVED
SEP - 5 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Mr. Marc Gauthier
City of Bakersfield
1715 Chester Ave.
Bakersfield, CA 93301

RE: City in the Hills DEIR

Dear Mr. Gauthier:

Thank you for the opportunity to comment on the DEIR for the "City in the Hills" project. Due to the anticipated growth in the Northeast area of the city, I think it would be best for the community and for future development in the area if the required parklands are located immediately adjacent to Hart Park, the cactus preserve, the BLM holdings and Hanglider Hill in order to create a community park/ multi-use recreational area which would showcase Bakersfield's natural beauty and provide a corridor for kitfox and other species to travel to the river.

Preserving the open spaces in the hills south of Hart Park, most of which are unsuitable to be built upon, and maintaining access to Hart Park and the Kern River would also increase the value of the proposed housing developments. The multi-use recreational area will be a unique feature in the Bakersfield area and can be used to market the homes. I believe that both the city and the developers will benefit from such an arrangement.

L1

Sincerely,
Don Williams

Don Williams
3901 Reno Ave
Bakersfield, Ca 93309

L. Don Williams, Resident

L1. This comment is noted. Please see response to comment J1 regarding the currently designated open space areas north and northwest of the project site. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no additional response is required.

Suzan L. Cox
6816 Shelby Loop
Bakersfield, CA 93309

5 September, 2000

RECEIVED
SEP - 6 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Mr. Marc Gauthier
City of Bakersfield
1715 Chester Ave.
Bakersfield, CA 93301

RE: City in the Hills DEIR

Dear Mr. Gauthier:

Thank you for the opportunity to comment on the DEIR for the "City in the Hills" project. Due to the anticipated growth in the Northeast area of the city, I think it will be best for the community and for future development in the area if the required parklands are located immediately adjacent to Hart Park, the cactus preserve, the BLM holdings and Hanglider Hill. This will allow creation of a community park/multi-use recreational area. Such an area will showcase Bakersfield's natural beauty, while providing a corridor for kitfox and other species to travel to the river.

Preserving the open spaces in the hills south of Hart Park, most of which are unsuitable to be built upon, and maintaining access to Hart Park and the Kern River will also increase the value of the proposed housing developments. The multi-use recreational area will be a unique feature in the Bakersfield area, and can be used to market the homes. I believe that both the city and the developers will benefit from such an arrangement.

I look forward to meeting you at future City Planning Department meetings on this subject.

M1

Sincerely,

Suzan L. Cox

M. Suzan Cox, Resident

M1 Please see response to comment L1 regarding open space north and northwest of the project site. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no additional response is required.

RECEIVED
SEP - 5 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

August 29, 2000

Mr. Marc Gauthier
City of Bakersfield
1715 Chester Ave.
Bakersfield, CA 93301

RE: City in the Hills DEIR

Dear Mr. Gauthier:

Thank you for the opportunity to comment on the DEIR for the City in the Hills project. I am concerned about the parkland allocation. Considering the anticipated growth in the Northeast, I think the parkland should be located immediately adjacent to the cactus preserve, Hart Park, the BLM holdings and Hanglider Hill with the idea of creating a multi-use community park. Such a park would benefit the entire city by preserving habitat and open space as well as providing a recreational area with access to Hart Park, CALM, the Kern River, the Soccer Complex and the new Paladino bike path. Developers would benefit as well, because they could use the new park as a marketing feature.

N1

Sincerely,

Bob Moses

Bob Moses

Cc: Mike Maggard
Kern Wheelmen
Bakersfield Track Club
Sierra Club
Audubon Society
Smart Growth Coalition
Equestrians for the Preservation of Trails
Kern River Bikepath Committee

N Bob Moses, Resident

N1. Please see response to comment L1 regarding open space north and northwest of the project site. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no additional response is required.

RECEIVED
SEP 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

August 31, 2000

Mr. Marc Gauthier
City of Bakersfield
1715 Chester Ave.
Bakersfield, CA 93301

RE: City in the Hills DEIR

Dear Mr. Gauthier:

Thank you for the opportunity to comment on the DEIR for the "City in the Hills" project. Due to the anticipated growth in the Northeast area of the city, I think it would be best for the community and for future development in the area if the required parklands are located immediately adjacent to Hart Park, the cactus preserve, the BLM holdings and Hanglider Hill in order to create a community park/ multi-use recreational area which would showcase Bakersfield's natural beauty and provide a corridor for kitfox and other species to travel to the river. 01

Preserving the open spaces in the hills south of Hart Park, most of which are unsuitable to be built upon, and maintaining access to Hart Park and the Kern River would also increase the value of the proposed housing developments. The multi-use recreational area will be a unique feature in the Bakersfield area and can be used to market the homes. I believe that both the city and the developers will benefit from such an arrangement.

Sincerely,

Michelle Beck

Michelle Beck

Cc:
Mike Maggard
Kern Wheelmen
Bakersfield Track Club
Sierra Club
Audubon Society
Smart Growth Coalition
Equestrians for the Preservation of Trails
Kern River Bikepath Commitee

O. Michelle Beck, Resident

O1. Please see response to comment L1 regarding open space north and northwest of the project site. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no additional response is required.

Curtis & Judy Sparks
11200 Pitts Avenue
Bakersfield, CA 93306

Dear Marc Gauthier,

We would like to express our opposition to the current planned development for the Masterson & Paladino area. We purchased our land and home with the understanding that it was to remain a rural area. The planned development would ruin the area that we live. This area was developed as 2.5 to 5 acre parcels and anything that derivates from that original plan would not be compatible.

P1

Thank you for your consideration,

Curtis Sparks

Curtis Sparks

P. Curtis Sparks, Resident

P1. Please see response to comment H1 regarding the current residential land use designations identified in the City's General Plan for the project site and surrounding area.

Marc Gauthier
City of Bakersfield Planning Dept
1715 Chester Ave
Bakersfield CA 93301

RECEIVED
SEP 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Dear Mr Gauthier,

Concerns about the "city on hill" project are (1) Highway 178 & traffic impact + funding thereof Q1

(2) With Construction, Comes winds with the dust in air and susceptibility to valley fever in that area. Has this been addressed Q2

Sincerely,
A Concerned Citizen

Q. A Concerned Citizen (No name)

Q1. Traffic impacts associated with the proposed project are addressed in Section 5.3 of the Draft EIR. Improvements have been identified to reduce potential impacts on intersections and roadway segment in the project vicinity.

Q2. Section 5.5.4 of the Draft EIR includes a discussion of fugitive dust suppression measures that would be implemented with the proposed project. The implementation of these dust suppression measures would reduce potential Valley Fever impacts to construction workers as well as residents in the vicinity of the proposed project to a less than significant level.

September 8, 2000

ATTEN: MARC GAUTHIER

RE: City of the Hills

Last night a small group of neighbors had a meeting with John Cicerone. We voiced our concerns involving the new development, between Paladino and Hwy 178.

Even after the meeting, my concerns are many.

We would strongly urge the city to recommend to the builderthat the larger lots be put closer to Paladino. We feel it would be a better transition if the larger lots were closer to the North side of Paladino, which are at least 2 1/2 acres. R1

We would also like the builder to adjust the access street coming out onto Paladino as far to the West as possible or maybe an additional access street coming out onto Masterson. We understand that there will be a meandering sidewalk along Paladino (which is very eye pleasing) with a block wall, walkways and bikepath openings in the block wall would also be nice for the residents. We also brought up to John our concerns about the homeowners already here who have horses, motorcycles and quads (basicly our country lifestyle). He was going to take back to the builder the idea of a horse trail. Which he told us was up to us to get before the city and purpose the idea. But now would be a good time to plant the seed for thought. I plan on contacting Mike Maggard and see if we can get his approval and help. My understanding is that the parks and recreation would maintain this trail but the money would come from an assessmnet on each new home built. Which they will be paying for their internal parks to be maintained also. R2

I truly hope that my concerns will be given ample thought and discussion. If you don't know already, we who live in this area truly do love it. And we wish to preserve as much as possible. We know that development must come our way for Bakersfield to grow. But please help us try to maintain some of what we have now.

Sincerely,

Jennie Haberlander
10720 Paladino Drive
Bakersfield, Ca. 93306
(661)872-2436

R. Jennie Haberlander, Resident

R1. This comment regarding the desire for larger lots to be constructed adjacent to Paladino Drive is noted. Please see response to comment CC1 regarding the compatibility of the proposed residential uses with the existing residential uses north of Paladino Drive.

R2. This comment regarding the desire to adjust the intersection of the proposed collector street (Valley Lane) and Paladino Drive to the west is noted. Furthermore, the desire for a horse trail is noted. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no further response is required.

Planning Commission
City of Bakersfield
1715 Chester Avenue
Bakersfield, CA 93301

September 7, 2000

RE: CITY IN THE HILLS, DRAFT ENVIRONMENTAL IMPACT REPORT

Dear Commissioners:

I am writing on behalf of the Kern Equestrians for Preservation of Trails to express our concern regarding the proposed project *City in the Hills* as described in the Draft Environmental Impact Report of July 25, 2000.

Our concerns include, 1) The lack of mention in the draft EIR about the equestrian population, activity and currently used trail system in that area, 2) The density of the proposed project and the impact it will have on air quality and traffic, 3) The high density encroachment on the rural integrity of the Rio Bravo area and, 4) The noise impacts from Mesa Marin that will inevitably be an issue for the residents of the proposed development.

The draft EIR repeatedly refers to the area surrounding the project as "primarily characterized as undeveloped open space with non-native grassland.....a few large-lot residences...rolling hills...Mesa Marin ...some oil facilities and the Rio Bravo Airport located approximately one mile southeast of the site." It makes no mention that many of the area residents within a mile of the site are equestrians who currently utilize a trail through the proposed project site that provides access to the Kern River Corridor.

51

At the request of the city and in meetings with City Planning Department approximately eight years ago, Kern Equestrians identified this trail, among a network of other trails in the area as current connecters to the Kern River Corridor. We discussed trail alterations that would allow access to the Corridor and reduce impact on the development but nothing came of fruition from these meetings.

that would allow access to the Corridor and reduce impact on the development but nothing came of fruition from these meetings.

S1

On March 6, 1996 the Bakersfield City Counsel approved a Specific Trails Plan that would allow trails to and along the Kern River Corridor within the city limits to provide contiguous trails from rural areas to the Corridor. This has yet to be addressed.

S2

This area is unique in that it has long been a rural area of Bakersfield, made so by the geography of the area. It is essentially a little valley area surrounded by hills with limited growth potential. The goals for development set forth in the Land Use Element states the need "to be sensitive and compatible with existing land uses...to be compatible with and

enhance the Planning Area's natural setting including the Kern River and the foothills, exhibit sensitivity toward the natural environment and account for environmental hazards and to establish distinct entries to the Planning Area". This natural setting is not conducive to a project with the population density proposed in this draft nor is the project compatible with the existing natural setting. S2

The mere geographic location does not lend itself to being populace as high density population increases vehicular, noise and light emissions which would settle in the valley contrary to the Air Quality Resources goals of the City of Bakersfield which are to "Promote air quality that is compatible with health, well being and enjoyment of life by controlling point sources and minimizing vehicular trips to reduce air pollutants...reduce the amount of vehicular emissions in the planning area." S3

The onsite residential uses would not be compatible with the existing Mesa Marin Raceway. People don't tend to consider existing conditions when moving into a new area until they have invested in and lived in their new homes. This will be a continuous issue between the City, Mesa Marin and the residents who will be disturbed by the noise and light caused by Mesa Marin on a regular basis. S4

Additionally, please consider the development of a greenbelt along the top of the bluffs north of this project similar to Panorama Park with perhaps some if not all park fees required by future developers in the area going toward a common greenbelt. Consideration might also be taken to realign Panorama Drive to continue along the edge of the greenbelt for continuity. S5

Due to our ongoing concerns regarding this project, we would appreciate being included on your notification list for any further meetings regarding this proposed project.

Thank you for your consideration.

Sincerely,

(Signed Original to Follow)

Carolyn Belli, President
Kern Equestrians for Preservation of Trails

Carolyn Belli, President
Kern Equestrians for Preservation of Trails
5025 Panorama Drive
Bakersfield, CA 93306
(661) 868-6606

S. Carolyn Belli, Kern Equestrian for Preservation of Trails

S1. This comment is noted. Equestrians use public street rights-of-way as trails in the project vicinity. These trails are not City-approved equestrian trails in the project vicinity. As noted, a trails plan along the Kern River Corridor has been approved by the Bakersfield City Council; however, a trail has not been approved that extends south of the Kern River to the project site. The development of the proposed project would not affect the equestrian trail as long the Kern River Corridor because the project site is located approximately 1.5 miles to the south.

S2. As discussed in Section 5.9 of the Draft EIR, the development of the proposed project would result in a substantial alteration of existing views in the project vicinity as well as a substantial increase in night lighting. The City acknowledges that the project would significantly affect the existing rural setting in the project area.

S3. The proposed project is considered consistent with the Air Quality Resources goals outlined in the City's General Plan. Even though the proposed project would exceed the San Joaquin Valley Unified Air Pollution Control District's significance thresholds for reactive organic gases and oxides of nitrogen, the project minimizes vehicular trips through the integration of commercial uses and residential uses. Approximately 15 percent of the project trips are expected to remain on the project site through the interaction of the project residential and commercial uses.

S4. The comment regarding the project's incompatibility with the existing events at the Mesa Marin Raceway is noted. This finding is identified in Section 5.1.5 of the Draft EIR.

S5. This comment regarding a future greenbelt outside of the project site is noted. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no further response is required.

Michael B. Farber, MD
10100 Pitts Avenue
Bakersfield, California 93306
Home Phone (661) 873-8162

September 08, 2000

Marc Gauthier
City of Bakersfield
1715 Chester Avenue
Bakersfield, Ca. 93301

Dear Mr. Gauthier:

This letter is to voice concerns regarding the DEIR and the entire City in the Hills project. My move to Pitts Avenue approximately six years ago was my sixth move after arriving in Bakersfield in 1982. The area is quiet, full of wildlife, and absolutely beautiful. The view of the hills and mountains to the north and the east are breathtaking. The lack of city lights affords a gorgeous view of the stars night after night. The hills and trails provide endless opportunities for recreation. Horseback riding, long walks with family and dogs, dirt bike and quad riding, jogging and bicycle riding are common activities for the neighbors as well as outsiders. Crime is very minimal and involves the occasional theft. I don't believe there has ever been an incidence of violent crime in the area. It has been a wonderful place to raise children.

Surely, all of this will change by dropping 11,500 people in the 694 acres in our front yard! We knew that development was on the horizon, but none of us imagined density of this magnitude. With 2750 single family homes on 500 acres resulting in 8305 people, and 1300 apartments on 65.5 acres resulting in 3198 people, I would question whether this would be the most dense area of population anywhere in Bakersfield, let alone in newer developments. Why would the city allow a planned project of this density when there is so much open land left in Bakersfield, including in the Northeast? T1

I have read the DEIR and disagree with the traffic analysis. At this point in time, during "rush hour" a single car can wait up to 5 minutes or more to make a right turn onto 178 from Masterson. This doesn't include the short wait that may occur behind other cars with our current 30 or so houses. Providing 2 new intersections and even traffic lights are not going to provide reasonable traffic flow onto existing 178, let alone maintain the flow on 178 with a projected 60,000 trips from this planned community. I assure you that the addition of another 50 houses trying to access 178 from Masterson would result in long traffic delays and unnecessary risk by some drivers. Additionally, on the winter weekends and during the summer there are numerous motorcycles, quads, and bicycles with riders of all ages crossing 178 at or near the Masterson intersection which greatly intensifies the traffic problem. T2

Along with several neighbors, I met with Mr. John Cicerone, on September 5, 2000. He stated that at this time they were planning on lot sizes of 7200-9600 square feet. This of course, is no where near the current minimum lot size of 2.5 acres. Additionally, he had no information on the projected square footage of the homes to be built. I questioned the need and reason for including 1300 apartment units with a population of 3198 people in the project. 3198 people represent a full 28% of the total projected population which appears excessive. We were reminded that the 2020 plan included apartments and that providing water and expanding the roads was going to cost millions. I have no doubt that this would be a very costly project. But again, does the city wish to allow this dense building to occur to allow out-of-town investors make more money than with a more moderate approach at the expense of our local taxpaying citizens?

The DEIR reports four "significant unavoidable adverse impacts" on page 6-1. I wish to add crime as one more "significant unavoidable adverse impact" that is sure to follow with this population density. Our area is to be burdened with the re-routing of 178 in the 2010 Plan. This in itself will certainly shatter the serenity of the present landscape. Do not add insult to injury by allowing a project of this magnitude in our front yard. T3

Sincerely,

Michael B. Farber, MD

T. Michael Farber, MD., Resident

T1. This comment is noted. Please note that the proposed project is less dense than currently allowed under the existing City General Plan as discussed in Section 7.2 of the Draft EIR.

T2. With the development of approximately one-half of the proposed project as well as approximately 10 years of 3 percent annual growth in the project vicinity, two additional lanes are required along existing SR 178. Furthermore, a traffic signal will be required at the existing SR 178 and Masterson Street intersection. Prior to full buildout of the proposed project, the new realignment of SR 178 is assumed to be constructed. The specific plan line for the realignment of SR 178 was approved by the City in 1995. This new highway will include 6 lanes and right-of-way for an interchange at Masterson Street is proposed to be provided by the project applicant. The existing alignment of SR 178 will remain as a 4-lane roadway at full project buildout. The provision of these facilities as well as the improvements listed in Section 5.3.4 would reduce potential impacts on traffic to a less than significant level. Please also see response to comment FF.1 regarding SR 178.

T3. The sixth paragraph on page 5.8-4 of the Draft EIR concurs that with the introduction of the proposed residential and commercial uses there is a likelihood that criminal activity would increase. To reduce these potential impacts, additional police protection personnel and equipment would be provided to serve the increased demand from project development.

September 8, 2000

City of Bakersfield
1715 Chester Ave
Bakersfield, CA 93301
Attn: Marc Gauthier

RE: City In The Hills/Zone change P99-0647

Dear Mr. Gauthier,

When I first heard about the City In The Hills project-I was not too happy but I know I must keep an open mind because development WILL be in the northeast someday. I went to the public meeting that was held downtown and a few neighbors & I met with John Cicerone. Now I'm more unhappy then ever.

My reasons for this are as follows:

1. The traffic flow on 178 will be a nightmare. They said that the relocation of Highway 178 was approved in 1995. We have never heard of that. No one I know wants to live by a 6 lane freeway. They say there is no money in the budget for this project. Leave the freeway where it is-add 2 lanes-it would be much cheaper & it could happen sooner. This would help the traffic flow. U1

2. We have 2 ½ acre lots. They want very small lots. People come from all around to ride horses & motorcycles in our area. People move to the Northeast for the view, the openness & the hills. All this beauty will go away with 18 homes per acre & 6 foot block walls all around. U2

3. They say 11,500 people will live in this area. 8000 in small houses & 3200 in apartments. Don't we have enough apartments in Bakersfield? Look at all the apartments in the 178/Fairfax area. If the builder would start with acre lots by Paladino and gradually get smaller-we could live with that. U3

This is a prime location-please preserve it and don't turn it into an eyesore.

Your time and consideration is greatly appreciated regarding this matter.

Sincerely,

Kathy Gallego

Kathy Gallego
10920 Pitts Avenue
Bakersfield, CA 93306

U. Kathy Gallego, Resident

U1. Please see response to comment T2 regarding the existing and future realignment of SR 178.

U2. The proposed project includes a single family residential density of 5.5 dwelling units per acre on approximately 500 acres and a high density residential density of 19.8 dwelling units per acre on approximately 65.5 acres. The average residential density proposed on the project site is approximately 7.2 units per acre. The Draft EIR acknowledges that the proposed project would result in a substantial alteration of existing views in the project area. This alteration would represent a significant and unavoidable adverse impact.

U3. This comment regarding the number of people that would be generated from project development and lot size is noted. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no further response is required.

To Marc Gauthier FAX NO. 327-0646
or whom it may Concern

I am writing in protest to the land use change on the General Plan NO T99-0647.
It would appear you would consider the long time Bakersfield Tax Payers when making the changes. We with property and homes along Panorama Dr. have large Estate size lots (2½ Acres) with large homes.
To change the zoning to allow small lots and low cost homes will devalue our property.
I know Bakersfield wants to jam as many homes on an acre as possible to maximize tax revenue.
We have been in the City out here for many years. Nothing that was promised at the LAFC hearing at the time of annexing was ever performed.
We have got nothing from being in City in the Past. Please Don't Stick it to Us Now.

VI

Thanks for your Consideration
Carl W. Williams

Carl Williams
10991 Pitt Ave
Bakersfield Ca 93306 Ph. (661) 871-0554

V. Carl Williams, Resident

V1. This comment regarding property values and the project being too dense is noted. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no further response is required.

RECEIVED
SEP - 8 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Assistance League® of Bakersfield

1216 "O" STREET
BAKERSFIELD, CALIFORNIA 93301
TELEPHONE (661) 323-0838
FAX (661) 323-2753

September 6, 2000

Mr. Marc Gauthier, Principal Planner
City of Bakersfield Planning Department
1715 Chester Avenue
Bakersfield, CA 93301

Subject: Notice of Preparation of Draft Environmental Impact Report - City Center Project - August 24, 2000

Dear Mr. Gauthier:

The Assistance League® of Bakersfield has received the subject notice. Since the League will be an "impacted property owner," we request that all pertinent information relative to the Draft Environmental Report for the Bakersfield City Center Project be sent to our office as follows:

W1

Mrs. Peggy Lewis, President
Assistance League® of Bakersfield
1216 "O" Street
Bakersfield, CA 93301

This procedure will enable our membership to be kept informed on this important matter.

Thank you.

Yours truly,

Peggy Lewis

Peggy Lewis, President

Cc: Marleen Ray, Chairman, Building Planning Committee
Linda Hartenberger, Secretary, Building Planning Committee

W. Peggy Lewis, Assistance League of Bakersfield

W1. This comment regarding a request to receive notices associated with the project is noted. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no further response is required.

RECEIVED
SEP - 8 2000
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

Mr. and Mrs. Clifford Johnson
5311 East Cove Court
Bakersfield, California 93306
871-3708
September 6, 2000

City of Bakersfield
Planning Department
1715 Chester Avenue
Bakersfield, CA 93301

Regarding City on the Hills Project
Bakersfield Californian, Monday September 4, Section A-1, A-3

- City in the Hills says Panorama Drive and Paladino Road are planned to be major E-W roadways.
- "Planning Commission says developers c[illegible]prove traff[illegible]

Panorama is a residential road. Homes front the street, it's a curved and hilly, attractive city street that should be retained as a valued ribbon of beauty in Bakersfield. It should not be marred by heavy traffic, noise, increased danger for school children, and destroyed property values, (to become a major E-W roadway).

Developers can provide adquate arteries to and from I78 to prevent destruction of Panorama Drive; which the City should retain as Panoramic.

X1

Morning Drive is of prime non-motorized recreational use, used by bikers and walkers of ALL ages.

The environmental impact report should include provision for coyote and kit fox trails, and vegetation for hawks and OUR EAGLE.

The plan could develop a green belt along Morning Drive and Paladino to retain such activities and aid our animals.

X2

Mr. Cicerone says the project will be pedestrian friendly, with shade trees. Will the Commission work with residents to incorporate walking and biking trails with adquate tree cover for people and animal habitat?

X3

- Retain view of hills along all roads and major arteries by:

Require all commerical signs to be ground level
Restrict building heights.
Plenty of trees in parking areas.

X4

- Engineering Services Manager Jacques LaRochelle states..."it will be some time before roads are critical" and "development spurs road projects."

X4

Like Rosedale Highway's years of mess? I believe the Commission and the City of Bakersfield can Anticipate and Prevent destruction to properties and wildlife.

Sincerely,

Laura Johnson, Clifford Johnson

Mrs. Clifford Johnson

X. Mr. and Mrs. Clifford Johnson, Residents

X1. This comment is noted. No additional lanes of traffic are proposed to be placed on the existing portion of Panorama Drive between Fairfax Road and Morning Drive. Consistent with the City's Circulation Element, Panorama Drive is proposed to extend from Morning Drive to Masterson Street. This roadway segment has been part of the Circulation Element for more than 10 years. Based on the traffic analysis prepared for the project, the existing portion of Panorama Drive (between Fairfax Road and Morning Drive) would operate at level of service C which is considered acceptable based on the standards set in the existing City General Plan.

X2. This comment regarding Morning Drive being of prime non-motorized recreational use and the recommendation of developing a greenbelt along Morning Drive and Fairfax Drive is noted. Section 5.2 of the Draft EIR states that potential impacts to wildlife would occur and includes a provision to provide funding in accordance with the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP). The goal of the MBHCP is to acquire, preserve, and enhance native habitats which support endangered and sensitive species.

X3. This comment regarding whether walking and biking trails with adequate tree cover will be implemented in the project is noted. Currently, no walking or biking trails are proposed as part of project development; however, these types of facilities are normally proposed as part of a tract or parcel map.

X4. This comment regarding the retention of views of hillsides and prevention of the destruction to properties and wildlife is noted. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no further response is required.

September 7, 2000

RECEIVED
SEP 11 '00
CITY OF BAKERSFIELD
PLANNING DEPARTMENT

City of Bakersfield Planning Department
1715 Chester Avenue
Bakersfield, California 93301

RE: Environmental Impact Report for City in the Hills

Contact: Marc Gauthier, Principal Planner

I am writing this letter to challenge the E.I.R. as it relates to Cultural Resources.

ARCHAELOGICAL INVESTIGATION FOR KERN RIVER RANCH
Robert A Schiffman
6101 Ridgetop Terrace
Bakersfield, California 93306
(661) 872-9430

I do not believe that the project site was evaluated fair or objectively.

(Pruett 1998) The survey for the proposed bike path route was never intended to disturb sub-surface ground. Recreational users have been using this area for many years and would have probably picked up any significant artifacts. Pruett's report should not be used objectively with a plan that is this large of a project.

SCHIFFMAN: "impacts to the land are minimal".

SCHIFFMAN'S HYPOTHESIS: "That any cultural resources present in the area would be limited to small lithic scatters and isolated artifacts"

Y1

His hypothesis has no supporting evidence, merely speculation. It is a historically known fact that the Yokuts buried items to preserve them for later use.

This project site, though undeveloped, has had extensive surface ground disturbance. People have been using this area for the past 50 years for all kinds of recreational activities, also putting in roads, trails, utility lines, pipelines and grading to level for weed control.

To state that there are no known villages reported within or adjacent to the project area simply means the Schiffman does not recognize that native aboriginal people have been in and around the Kern River area for approximately 9000 years.

(Latta) "Villages were generally in close proximity to reliable sources of fresh water.".

How can you evaluate this project area if there were no archaeological test pits or other sub-surface testing?

I find that the on-site field survey is inadequate. Schiffman's report was misleading in the project site description. The historical use by native aboriginal people was down played. His hypothesis does not give a fair or objective view of the project area.

OPTIONS:

1. A complete archaeological survey by another archaeologist who can give a fair and objective [illegible] oject area a[illegible] tion with lo[illegible] American Peo[illegible] State University of Bakersfield has a number of good archaeologists.

2. Use of Native American monitors during ground excavation and consultation with local Native American People.

I believe that this area has the potential to have a significant amount of cultural resources and that this project's implementation could have results in potentially significant impacts related to cultural resources.

The Native American Heritage Preservation Council of Kern County has been working in and around Bakersfield for approximately 12 years. We are a non-profit, intertribal organization working closely with the Tule River Indian Reservation.

If you have any questions, please contact, Gene Albitre, 3401 Aslin Street, Bakersfield, Ca. 93312. Telephone number 661-589-3181.

Respectfully,

Gene Albitre

Gene Albitre

Y1

Y. Gene Albitre, Resident

Y1. Based on a record search conducted at the Southern San Joaquin Valley Archaeological Information Center and a field survey conducted by an archaeologist, no significant archaeological artifacts were found on the project site. Furthermore, page 5.6-4 of the Draft EIR states that while it is possible that archaeological remains may be present within the project area; it is unlikely that there are significant remains on the site. No subsurface test pits were recommended because the findings of the record search and the field survey did not warrant further investigation at this time. Even though no significant impacts to archaeological resources are expected, mitigation measure CR-1 is recommended to be implemented if cultural resources are unearthed during construction activities.

RESPONSES TO COMMENTS
RECEIVED DURING
CITY OF BAKERSFIELD PLANNING COMMISSION
HELD ON AUGUST 17, 2000

Testimony was received from the City of Bakersfield Planning Commission and the public at the public hearing held on August 17, 2000 on the Draft EIR for the City in the Hills project. Provided below are the comments on the information presented in the Draft EIR at the public hearing. A response follows each comment.

AA. Jim Rummell, Resident

AA.1 Comment: Mr. Rummell suggested that the number of lanes on existing SR 178 (currently a two-lane road) may need to be increased to accommodate traffic from the proposed project.

Response: Please see response to comment I1 regarding SR 178.

AA.2 Comment: Mr. Rummell asked about the amount of park acreage that would be developed in conjunction with the project.

Response: Please see response to comment I2 regarding park acreage associated with the proposed project.

BB. Carline Farber, Resident

BB.1 Comment: Ms. Farber was concerned about the proposed project affecting existing wildlife on the project site.

Response: Section 5.3 of the Draft EIR states that the project will affect existing wildlife. Mitigation measures in Section 5.3.4 of the Draft EIR are included to reduce impacts on wildlife to a less than significant level.

BB.2 Comment: Ms. Farber expressed concern that the Cogeneration Plant may pose a hazard to development on the project site.

Response: The project site is approximately 1.5 miles southeast of the existing cogeneration plant. No hazards have been identified by the City that would impact residents and employees of the project site.

CC. Danny Russell, Resident

CC.1 Comment: Mr. Russell expressed concern regarding the project's compatibility with the existing low density residential area (2.5 acre lots) along the north side of Paladino Drive. Mr. Russell stated that the area north of Paladino Drive is zoned for animals. He suggested that lots larger than 6,000 square feet be placed along the south side of Paladino Drive to provide a buffer between the existing 2.5 acre lots and the proposed 6,000 square foot lots.

Response: The project site is currently vacant of urban development and the area immediately north of Paladino Drive includes a few large lot residences. The area immediately north of Paladino Drive has a low density residential (LR) General Plan designation which allows up to 7.26 dwelling units per acre. This area also is zoned residential suburban with a 2.5-acre minimum lot size (R-S-2.5). This zoning allows one adult animal (cattle, sheep, goats, horses, mules, and burros) for each one-quarter acre of lot area.

The proposed project includes a (LR) General Plan designation and a one-family dwelling zone (R-1) zoning designation immediately south of Paladino Drive. As stated above, the LR designation allows up to 7.26 dwelling units per acre and the proposed R-1 zone would allow minimum 6,000 square foot lots. Paladino Road is currently designated as an arterial on the City of Bakersfield Circulation Element Map. Based on the roadway geometrics identified in the City of Bakersfield Circulation Element, arterials include a right-of-way width of 110 feet. Therefore, with the development of the proposed residences south of Paladino Drive, Paladino Drive would have a right-of-way width of 110 feet. Furthermore, as identified in mitigation measure N-2 on pages 5.4-13 and 5.4-14, future residences along the south side of Paladino Drive would be required to be setback 86 feet from the roadway (Paladino Drive) right-of-way or include an approximately 6-foot high soundwall along the south side of Paladino Drive. Future development of the onsite residences along Paladino Drive would include a minimum of a 196-foot setback from the property owners on the north side of Paladino Drive or a minimum of 110 feet plus a soundwall. These two optional setbacks would be considered adequate to separate residences with 2.5-acre and larger lots from future residences developed on the project site. Based on discussions between the project applicant and the City, the project applicant expects to include a soundwall along Paladino Drive.

Animals that are located on the residences north of Paladino Drive need to be setback 100 feet from the front lot line (i.e., Paladino Drive). Therefore, depending on the

design of the future residences south of Paladino Drive, animals north of Paladino Drive would be setback either a minimum of 296 feet or 210 feet plus a 6-foot high soundwall. These setbacks would be considered adequate to separate animals from future residences developed on the project site.

In conclusion, the proximity of the proposed residences would not result in a land use compatibility impact with the residences north of Paladino Drive.

DD. Michael Farber, Resident

DD.1 Comment: Mr. Farber expressed concern as well about the minimum lot size allowed under R-1 zoning. He requested that the project include lots along the south side of Paladino Drive that are larger than the permitted minimum of 6,000 square feet. He suggested that lots could be scaled down in size as they approach the future alignment of SR 178.

Response: This comment regarding minimum lot size is noted. Please see response to comment CC.1 regarding the project's compatibility with the existing residences north of Paladino Drive.

DD.2 Comment: Mr. Farber also stated that, in his opinion, the project includes too much C-2 zoning, and recommended that the areas proposed for C-2 zoning be reduced in size.

Response: This comment regarding the amount of C-2 zoning proposed on the project site is noted. Since there were no specific comments on the environmental issues that were analyzed in the EIR, no further response is required.

EE. Commissioner Sprague

EE.1 Comment: Mr. Sprague asked if the Parks Department had discussed or planned for a 20-acre regional park for the project vicinity.

Response: Please see response to comment I2 regarding parks.

FF. Commissioner Boyle

FF.1 Comment: Mr. Boyle was concerned about the funding to build the future alignment of SR 178. He stated that if funding is not guaranteed, an alternative to

widen and build more City streets to accommodate future traffic volumes should be evaluated.

Response: The traffic report prepared for the proposed project used the Kern Council of Governments traffic model which forecast traffic volumes to a horizon year 2020. The traffic model assumes that SR 178 will be constructed as a freeway by the horizon year 2020. No other future traffic projections beyond year 2020 were evaluated by the Kern Council of Governments.

Based on a review by the City of Bakersfield Traffic Engineering Division, the ultimate buildout of the existing SR 178 will be four lanes. Based on a 3 percent annual growth and buildout of the project, the future four lane highway would not operate at a level of service (LOS) D or worse until after the year 2030. Traffic volumes along SR 178 would need to exceed 32,000 average daily trips prior to operating at LOS D or worse.

FF.2 Comment: Mr. Boyle asked what the provisions are if a project results in effects on endangered species.

Response: If a proposed project results in an impact on an endangered species and the project is within the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP) area, development impact fees are required. In addition to impact fees, a project applicant may be required to implement additional mitigation measures. As discussed in Section 5.3.4 in the Draft EIR, the mitigation measures that are required for the proposed project includes payment of a developer impact fee as well as additional measures that need to be implemented during construction activities. These additional masers are also outlined within the MBHCP.

FF.3 Comment: Mr. Boyle asked how much park land would be developed with the proposed project.

Response: Please see response to comment I2 regarding parks.

GG. Commissioner Brady

GG.1 Comment: Mr. Brady asked if there was a scoping session held for the proposed project.

Response: No scoping meeting was held as part of the environmental process; however, issues raised during the public review of the Notice of Preparation as well as issues raised during the August 17, 2000 Planning Commission meeting have been addressed, in accordance with the CEQA statutes.

GG.2 Comment: Mr. Brady requested that soils and geology on the project site be addressed.

Response: Based on discussions with City staff, soils reports are required for all proposed developments. The City Building Department understands the soil expansion of clay is an issue in the northeast Bakersfield area. If clay soils are present in the area proposed for structures, the City Building Department requires the applicant to provide adequate solutions to remediate potential soil expansion under foundations. Potential measures to reduce soil expansion within clay soils include oversize footings, post tension slabs, and saturation of the clay soil.

GG.3 Comment: Mr. Brady requested that a mitigation measure be included in the EIR that states that if any artifacts are found during construction activities associated with the project, the artifacts shall be deposited in a local depository.

Response: This comment is noted. Mitigation measure CR-5 on page 5.6-6 of the Draft EIR is revised to read as follows:

Delete: "The paleontologist shall submit the report to the City of Bakersfield, designated depository, and any other appropriate agency, and transfer fossil collection to an appropriate depository."

Add: "The paleontologist shall submit the report to the City of Bakersfield, designated depository, and any other appropriate agency, and transfer fossil collection to a depository within the City of Bakersfield or County of Kern."

GG.4 Comment: Mr. Brady asked for clarification related to the timing of the traffic and circulation improvements under the 2010 and 2020 phasing scenarios.

Response: Please see response to comment F3 regarding timing of traffic improvements.

HH. Commissioner McGinnis

HH.1 Comment: Mr. McGinnis requested that the noise studies for Mesa Marin Raceway be updated. The original noise study was conducted in September 1995, and facilities and vehicle types have changed since that time.

Response: The noise study that has been completed for the Mesa Marin Raceway can be considered an analysis of worst-case noise levels. The analysis in Section 5.4 in the Draft EIR discloses the potential worst-case noise levels. The use of this analysis can be considered adequate for use in an environmental document according to the California Environmental Quality Act.

II. Commissioner Sprague

II.1 Comment: Mr. Sprague asked if the Building Department had established specific requirements for the construction of buildings in the northeast Bakersfield area, due to the expansive nature of soils in this location.

Response: Please see response to comment GG.2 regarding soil expansion impacts.

II.2 Comment: Mr. Sprague stated that, in terms of noise, existing residences to the south have voiced little concern about the Mesa Marin Raceway. The Raceway operator has been a good neighbor to surrounding residences, constructing buffers to minimize noise from the raceway. Mr. Sprague also stated that the project applicant also intends to provide a buffer between Mesa Marin Raceway and the residences to the north.

Response: This comment regarding a noise buffer is noted.

JJ. Commissioner Brady

JJ.1 Comment: Mr. Brady requested that the EIR address the consistency of the project with the City's Bikeway Element.

Response: Within the City's Bikeway Element, one Class II Bike Lane is designated along Paladino Drive adjacent to the project site. Implementation of the proposed project would not affect the implementation of this proposed bike lane.

Therefore, the proposed project would be consistent with the City's Bikeway Master Plan.

JJ.2 Comment: Mr. Brady asked that the use of horses along pathways in the project area be addressed. Mr. Brady stated that the subject property is not zoned for horses, but that the adjacent property's historic use of the site for horse trails needs to be considered. Development of the project site would remove this property from use for horse trails, and needs to be discussed in the EIR.

Response: Please see response to comment S1 regarding City-approved equestrian trails in the project vicinity.

JJ.3 Comment: Mr. Brady requested that the safety concerns related to separating the bikeways and streets be addressed.

Response: As addressed in response to comment JJ.1, one Class II Bike Lane is designated along Paladino Drive adjacent to the project site within the City's Bikeway Master Plan. A Class II Bike Lane is defined as an on-street bike lane. At the current stage of the project, bike lanes have not been proposed by the project applicant. This type of detail is normally provided during the preparation of tract and parcel maps. Please note that the currently designated Class II Bike Lane along Paladino Drive would be located within the future right-of-way of Paladino Drive. This future right-of-way is 110-feet wide.

JJ.4 Comment: Mr. Brady stated that the traffic and circulation improvements outlined in the EIR are tied to the Regional Transportation Plan, implementation of which is dependent on Federal funding of freeways.

Response: This comment regarding the funding is correct related to improvements to SR 178. Local roadway improvements are funded by the City and/or developers.

KK. Commissioner Dhamens

KK.1 Comment: Mr. Dhamens asked that the land use compatibility of the proposed project (with 6000 square foot minimum lot size) and the residences north of Paladino Drive (with 2.5 acre lots) be addressed.

Response: Please see response to comment CC.1 regarding the land use compatibility of the proposed project with the residences immediately north of Paladino Drive.

SECTION 4
ERRATA

The following are revisions to the Draft EIR for the City in the Hills project. These revisions are not based on written comments received during the public review period; however, they are minor modifications and clarifications to the Draft EIR. The following revisions do not change the significance of any of the environmental issue findings within the Draft EIR.

1. The references to the page numbers for Sections 3.3 and 3.4 of the Table of Contents are revised as follows:

   Delete: "3-7"

   Add" "3-4"

2. The Level of Significance After Mitigation for Paleontological Resources on page 2-19 of the Executive Summary was inadvertently missing and the following is added:

   Add: "Not Significant"

   The revision to this finding in the Executive Summary is to insure consistency with the finding on page 5.6-6 of the Draft EIR.

3. The two findings of The Level of Significance After Mitigation for Aesthetics on page 2-23 of the Executive Summary is revised as follows:

   Delete: "Not Significant"

   Add: "Significant and unavoidable"

   The revisions to these two findings in the Executive Summary are to insure consistency with the findings in Section 5.9.5 on page 5.9-6 of the Draft EIR.

4. Exhibit 5.3-1 in the Draft EIR is hereby revised to include an existing intersection designation at existing SR 178 and SR 184 intersection.

5. Development of the proposed City in the Hills project is projected to occur over 20 years. The project will generally be developed in phases with half of the project built out by approximately the year 2010 and full buildout occurring approximately in the year 2020. Based on these assumptions, the mitigation measures in Section 5.3.4 and in Table 2-1(Executive Summary) in Section 2.5 of the Draft EIR are revised to clarify the intent of the mitigation measures. Following are the revisions to portions of the mitigation measures.

The following are revisions to mitigation measure TR-1.

Delete: "The following traffic signals shall be installed in the year 2020.

Add: "The following traffic signals shall be installed prior to full buildout of the project which is expected to occur in the year 2020.

Delete: "The following roadway segments shall be installed in the year 2020."

Add: "The following roadway segment shall be installed prior to full buildout of the project which is expected to occur in the year 2020."

The following are revisions to mitigation measure TR-2.

Delete: Traffic signals shall be installed at the following locations in the years 2010 and 2020.

Add: "Traffic signals shall be installed at the following locations prior to one-half buildout of the project which is expected to occur in the year 2010 and full buildout of the project which is expected to occur in the year 2020."

Delete: "The following intersection improvement shall be installed at the following location."

Add: "The following intersection improvement shall be installed at the following location prior to one-half buildout of the project which is expected to occur in the year 2010."

Delete: "The following roadway segments shall be installed in the year 2010."

Add: "The following roadway segments shall be installed prior to one-half buildout of the project which is expected to occur in the year 2010."

6. In addition to the above revisions to TR-2, the following revision to TR-2 is to insure the intent of how to implement TR-2 is clarified.

Delete: "Prior to the issuance of building permits, the project applicant shall provide its fair share funding toward the following improvements. At the time of issuing building permits, the applicant's funding calculations for all improvements associated with the fee program shall be submitted to the City for review and approval."

Add: "Prior to the issuance of building permits, the project applicant shall provide its fair share funding toward the following improvements. The funding for the following improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit."

7. Mitigation measure TR-3 on page 5.3-16 4 and in Table 2-1(Executive Summary) in Section 2.5 of the Draft EIR is revised as follows to clarify the intent of the measure.

   Delete: "Prior to the issuance of a building permit, the project applicant shall provide funding for the future realigned SR 178 between Fairfax Road and Alfred Harrell Highway/Comanche Drive. The funding will be for that portion of the future realigned SR 178 which is determined to be the obligation of local development. The project's share of traffic on SR 178 is 7.5 percent."

   Add: "Prior to the issuance of a building permit, the project applicant shall provide funding for the future realigned SR 178 between Fairfax Road and Alfred Harrell Highway/Comanche Drive. The project applicant shall provide a fair share amount of that portion of the future realigned SR 178 that is determined to be the obligation of local development. The project's share of traffic on SR 178 is 7.5 percent. Local funding for the future realignment of SR 178 shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. Local fees shall be paid prior to the issuance of each building permit."

8. The following is added to mitigation measure TR-4 to clarify the intent of how to implement this measure.

   Add: "The project applicant shall provide full funding for all improvements on the project site and provide its fair share funding toward the portion of the improvements that are outside of the project site (i.e., the westerly half-width of Queen Street between Panorama Drive and Paladino Drive). The shared funding for the above improvements shall be distributed equitably between future land uses through the development of a fee per unit for residential or per square foot for non-residential. The development fees shall be paid prior to the issuance of each building permit."

9. Mitigation measure FPS-1 on page 5.8-34 and in Table 2-1(Executive Summary) in Section 2.5 of the Draft EIR is revised to clarify the intent of the mitigation measure.

   Delete: "Prior to the issuance of building permits, the project applicant shall pay its fair share toward the construction of a new fire station and provision of fire department personnel that will serve the project vicinity."

   Add: "Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Fire Department so that fire department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project."

10. Mitigation measure PPS-1 on page 5.8-5 and in Table 2-1(Executive Summary) in Section 2.5 of the Draft EIR is revised to clarify the intent of the mitigation measure.

    Delete: "Prior to the issuance of building permits, the project applicant shall pay its fair share toward the provision of additional police protection personnel and equipment that will serve the project vicinity."

    Add: "Prior to the issuance of building permits, the project applicant shall submit building plans to and obtain approval from the Bakersfield Police Department so that police department personnel and equipment can be reviewed and evaluated to determine the need to increase personnel and equipment to serve each individual project."

11. The following is added at the end of mitigation measure SS-1 on page 5.8-7and in Table 2-1(Executive Summary) in Section 2.5 of the Draft EIR.

    Add: "In lieu of the above, the project applicant may comply with alternative mitigation acceptable to the District."

12. The last sentence in the third paragraph on page 5.8-19 of the Draft EIR is revised to read as follows to clarify the intent of the environmental review for the modifications to the conceptual drainage facilities.

    Delete: "Modifications to the conceptual facilities will need to be reviewed and approved by the City of Bakersfield."

    Add: "The specific modifications to the conceptual facilities will need to be evaluated in accordance with CEQA and be reviewed and approved by the City of Bakersfield."

VIIA

PG&E ELECTRICAL FACILITIES

ADDENDUM
TO
FINAL ENVIRONMENTAL IMPACT REPORT
CITY IN THE HILLS PROJECT
State Clearinghouse No. 2000011101

Prepared for:

City of Bakersfield
Planning Department
1715 Chester Avenue
Bakersfield, California 93301

Contact: Marc Gauthier
Principal Planner

Prepared by:

Michael Brandman Associates
621 E. Carnegie Drive, Suite 260
San Bernardino, California 92408
(909) 884-2255

Contact: Michael E. Houlihan, AICP
Manager of Environmental Services
(714) 258-8100

February 2002

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SECTION 1
INTRODUCTION

1.1 PURPOSE/LEGAL AUTHORITY FOR PREPARATION OF AN ADDENDUM

This Addendum has been prepared subsequent to the City in the Hills Final Environmental Impact Report (EIR) in accordance with Section 15164 of the California Environmental Quality Act (CEQA) Guidelines. Section 15164 states, "the lead agency, or a responsible agency, shall prepare an addendum to a previously certified EIR if some changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR has occurred." Section 15162 illustrates that a subsequent EIR is not required unless "substantial changes" in the project or circumstances will require major revisions to the original EIR.

The City of Bakersfield (City) has the ultimate approval authority over the City in the Hills EIR, and as the lead agency has decided to prepare this addendum. The City in the Hills EIR has been previously certified by the City of Bakersfield. The EIR stated the potential need for additional electrical facilities to support the City in the Hills planning area, but the EIR did not adjust the project definition or environmental analysis to account for the actual development of additional electrical facilities because actual implementation of such facilities was too speculative at the time the EIR was prepared. Now, development and design of the electrical facilities has matured to a point where implementation is proposed to occur before or concurrent with the initial developments in the City in the Hills planning area. Therefore, in order to be consistent with the provisions of CEQA, it is necessary to make minor changes to City in the Hills EIR to account for the addition of these electrical facilities. This addendum addresses the minimal changes that would occur as a result of including a power transmission line, substation, and distribution line in the City in the Hills project description. The resulting changes have been found not to be substantial. Therefore, CEQA Section 15164 provides legal authority supporting use of an addendum for this situation.

1.2 BACKGROUND AND DOCUMENTS INCORPORATED BY REFERENCE

In November 2001, Michael Brandman Associates (MBA) was retained to create an addendum to address the ramifications that would result if a Pacific Gas & Electric (PG&E) transmission line, substation and distribution line were added to the scope of the City in the Hills project. These electrical facilities are being proposed to provide public service support to the City in the Hills development, and thereby are an integral part of the City in the Hills project. The proposed transmission line, substation, and distribution line are proposed in the northeast portion of the City of Bakersfield in relative proximity to the City in the Hills planning area. The PG&E facilities would provide a source of power for initial City in the Hills developments, as well as provide electrical service support to a proposed California Water Company (CWC) water treatment plant. The PG&E electrical facilities are to be constructed adjacent to the proposed CWC water treatment plant that

would also provide service to the initial City in the Hills developments. Environmental impacts associated with the CWC water treatment plant project are addressed in a separate EIR (Northeast Bakersfield Bike Path and Water Facilities EIR).

In November 2000, the City of Bakersfield certified the Final EIR for the City in the Hills development project (State Clearinghouse No. 2000011101). This project is a 694-acre mixed-use, commercial and residential development. The City in the Hills EIR is the main environmental document for this project and is complemented by the information in this addendum. It follows that the City in the Hills EIR will be incorporated herein where necessary to provide a deeper level of analysis and explanation of the environmental issues and impacts associated with the project.

In November 1998, the City of Bakersfield certified the Final EIR for the Northeast Bakersfield Bike Path and Water Facilities Project (State Clearinghouse No. 98061019). This project includes the construction of a bike path and CWC water facilities including a water treatment plant, pipeline, reservoir pond, pump stations and intake channel. The water treatment plant portion of the project will be immediately adjacent to the proposed PG&E substation. Due to the close proximity of these two projects, the environmental issue analysis and research that was conducted for the Northeast Bakersfield Bike Path and Water Facilities Project are relevant to the PG&E portion of the City in the Hills project. Therefore, the Northeast Bakersfield Bike Path and Water Facilities Project EIR is also incorporated by reference in this addendum.

1.3 LEAD AND RESPONSIBLE AGENCIES

The agencies listed herein are those agencies that have authority over the PG&E transmission line, substation, and distribution line portion of the City in the Hills project. However, other agencies and their respective duties relative to the entire City in the Hills project are discussed in Section 3.4 of the City in the Hills EIR, and are hereby incorporated by reference.

Agencies with approval authority over the transmission line and substation portion of the project are:

- **City of Bakersfield**—The City is required to provide grading approval for the transmission line route, substation site, and distribution line.

- **Public Utilities Commission (PUC)**—The PUC is required to approve the implementation of the transmission line and substation portion of the City in the Hills project.

1.4 ORGANIZATION OF THE ADDENDUM

The Addendum is organized into the following sections:

- **Section 1—Introduction.** This section briefly identifies the legal authority for this environmental document, introduces the proposed transmission line, substation, and distribution line, discusses the documents to be incorporated by reference, provides a summary of the transmission line, substation, and distribution line impacts and mitigation measures, and lists the agencies involved.

- **Section 2—Project Description.** This section provides a working description of the transmission line, substation, and distribution line in relation to the City in the Hills project. It includes the following elements: project location, project history, project objectives, project dimensions and characteristics, and intended uses for the Addendum.

- **Section 3—Effects Found Not to be Significantly Different than those in the City in the Hills Draft EIR.** This section contains a brief analysis of the City in the Hills environmental issues that will not be significantly altered by implementation of the PG&E transmission line, substation, and distribution line. Those environmental issues include aesthetics, agricultural resources, air quality, geology/soils, hydrology/water quality, land use and planning, mineral resources, noise, population and housing, public services, recreation, transportation/traffic, and utilities.

- **Section 4—Issues that Require Further Evaluation to Determine if Effects are Significantly Different than those Found in the City in the Hills EIR.** This section contains a summary of the reports and survey that were prepared for the Addendum. The appendix reports contain a thorough analysis of environmental issues that required further analysis due to the inclusion of the transmission line, substation, and distribution line. Impacts and mitigation measures that were significantly different than the findings presented in the City in the Hills EIR will be discussed in the reports. These issues include, biological resources, cultural resources, and hazardous materials.

- **Section 5—Legal Explanation of Decision Not to Prepare a Subsequent EIR.** This section contains a legal discussion that substantiates the City's decision to prepare this specific piece of environmental documentation to cover the addition of the PG&E transmission line, substation, distribution line to the City in the Hills project scope. CEQA Section 15162, on when to prepare a subsequent EIR versus an addendum, will be applied to the facts of this project.

SECTION 2
PROJECT DESCRIPTION

2.1 PROJECT DESCRIPTION

PROJECT LOCATION

The main portion of the City in the Hills project site is located in the northeastern portion of the City of Bakersfield in Kern County, approximately 8.5 miles east of State Route (SR) 99 and 3 miles north of SR 58. The project site consists of approximately 694 acres and the majority of the site is generally located north of SR 178, west of Masterson Lane, south of Paladino Drive, and east of the future extension of Vineland Road that is located approximately one mile east of Morning Drive. The project site is located on the United States Geologic Services (USGS) topographic map in Sections 17 (640.1 acres), the Southeast ¼ of the Southeast ¼ of Section 18 (40 acres), the extreme northeast portion of Section 19 (9 acres), and the extreme northwest portion of Section 20 (4.9 acres) in Township 29 South (S) and Range 29 East (E) Mount Diablo Base and Meridian (MDB&M). (See Exhibit 1)

The focus of this addendum is a linear portion of the project site, which is 10,810 linear feet in total, and located to the northeast of the main 694-acre proposed development site. The linear portion of the project site will parallel future Bella Road, which is just north of existing Paladino Drive. The linear footprint transects Section 12 and Section 7 of township 29S and Range 29E in an east-west direction. (See Exhibit 2)

More specifically, an electricity transmission line and a substation are proposed within the linear footprint. The electrical facilities are proposed to serve the City in the Hills project as well as the water treatment plant located east of the proposed substation site. The transmission line will start in Section 12 at Bear Mountain cogeneration plant and end in Section 7 at an approximately 19,600 square foot proposed substation site. The Bear Mountain cogeneration plant is located in the west half of Section 12, Township 29S, Range 29E MDB&M. From the cogeneration plant, the proposed transmission line travels approximately 900 feet east, then approximately 1,300 feet south until intersecting with future Bella Road. The transmission line will parallel future Bella Road for approximately 6,400 feet east until intersecting existing Morning Drive. From this point, the transmission line continues approximately 2,050 feet north along the Morning Drive right of way and ends at the proposed substation that is 160 feet east of Morning Drive. From the substation site, a distribution line will extend to the previously approved and currently under construction water treatment plant. (See Exhibit 3)

PROJECT HISTORY

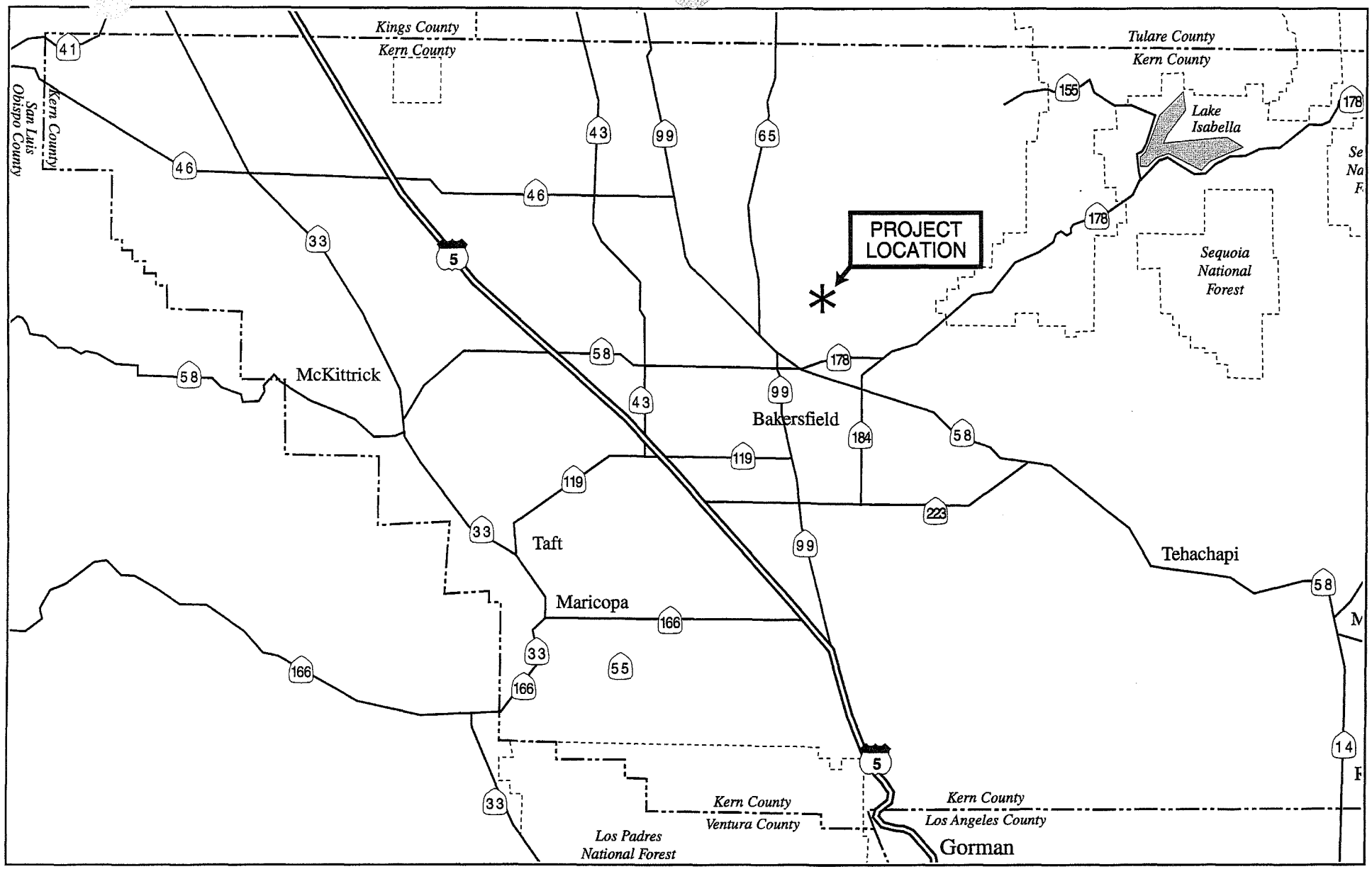
The project site is located within the Pacific Gas and Electric (PG&E) service area, and therefore PG&E will implement the transmission line and substation portion of the project. As mentioned in Section 5.8.5 of the City in the Hills EIR, electricity facilities do exist in the project vicinity and are adequate for current electricity demands.

The City in the Hills development project includes the development of 2,750 single-family lots, 1,300 multi-family lots and 1,048,706 square feet of gross leasable commercial floor space over the next 15 to 20 years. This development is projected to increase population by approximately 11,500 people and provide approximately 2,060 employment opportunities. Accordingly, as illustrated by Table 5.8-3 in the City in the Hills EIR, electrical consumption needs for the proposed development would be approximately 66.3 million kilowatt hours per year, and existing electrical facilities would not be adequate to meet such a demand.

At the time of the City in the Hills EIR, it was foreseeable that implementation of the City in the Hills project would require expansion or improvement of the electricity system. Now, at the time of this addendum, it is certain that the City in the Hills project will require an electricity system upgrade or expansion. Therefore, as a technical addition to the City in the Hills electricity design, inclusion of the PG&E transmission line and substation are proposed herein to accommodate the project's projected electricity demands.

Furthermore, the proposed City in the Hills project is within the service area of the California Water Company (CWC), however there are currently no water facilities on or in the immediate vicinity of the project site. The nearest pipeline to the project site is a 16-inch diameter pipeline that extends east along Panorama Drive to Morning Drive. As fully discussed in Section 5.8.8 of the City in the Hills EIR, this pipeline alone will not be adequate to meet the projected water demands of the proposed project. Thus, the CWC will be constructing a water treatment plant and pipeline northwest of the project site to serve new and existing customers. The proposed CWC water treatment plant project is analyzed in a completely separate Draft EIR.

The CWC water treatment plant requires a source of electricity before it can serve the proposed City in the Hills development. The water treatment plant project site is adjacent to the proposed PG&E substation site. Thus, the PG&E transmission line and substation are proposed to concurrently provide electricity directly to the City in the Hills development, as well as to provide electricity to the CWC water treatment plant, which will thereby ensure adequate water service for the 694-acre portion of the City in the Hills project site. Therefore, based on the nexus between the City in the Hills project's need for electricity and water service, the PG&E transmission line and substation have been added to the scope of the City in the Hills project description via this addendum.



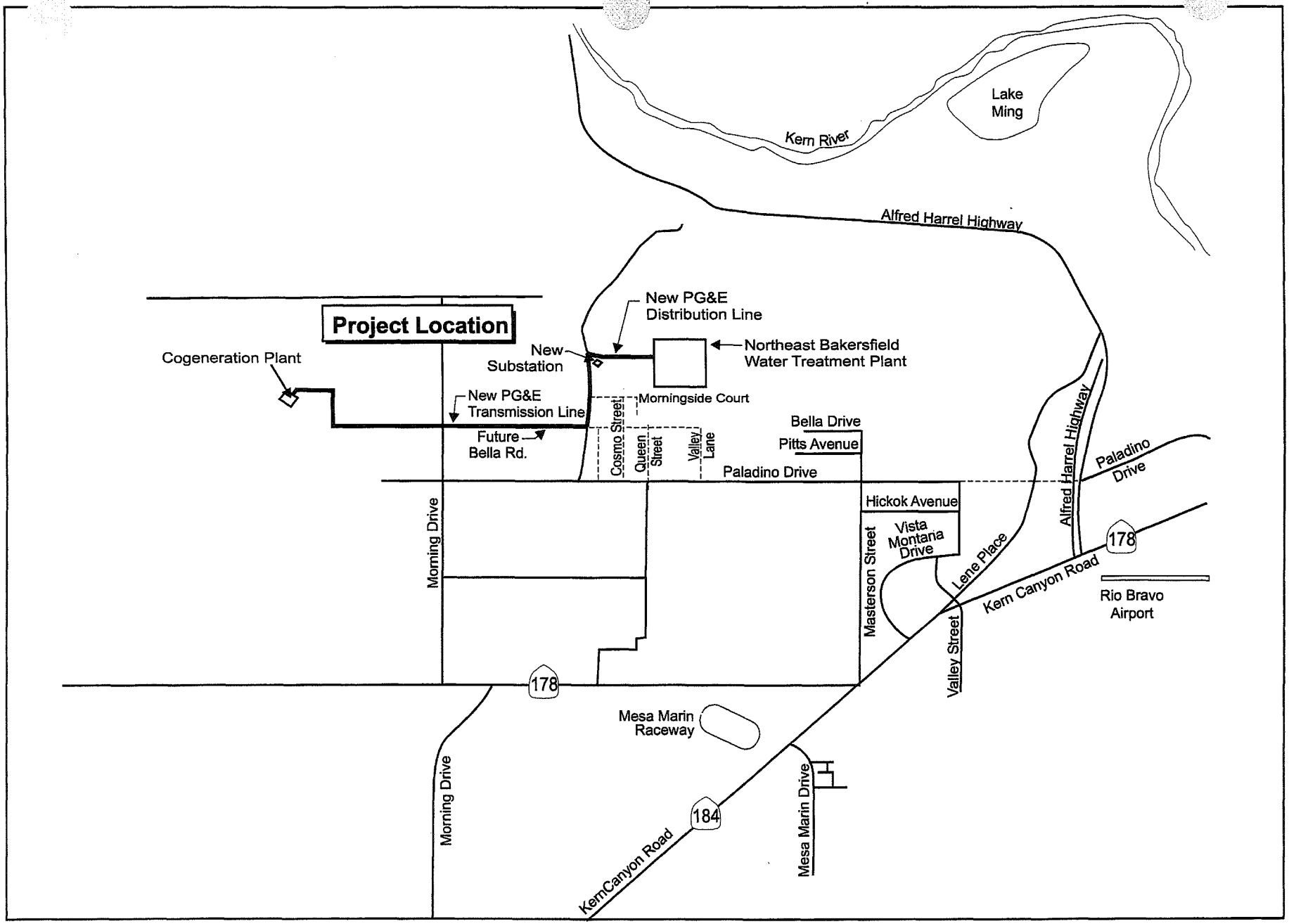
Michael Brandman Associates

Exhibit 1

Regional Location Map

02160020 • 1/2002

CITY OF BAKERSFIELD • PG&E ELECTRICAL FACILITIES



NORTH

0.5 0.25 0 0.5

SCALE IN MILES

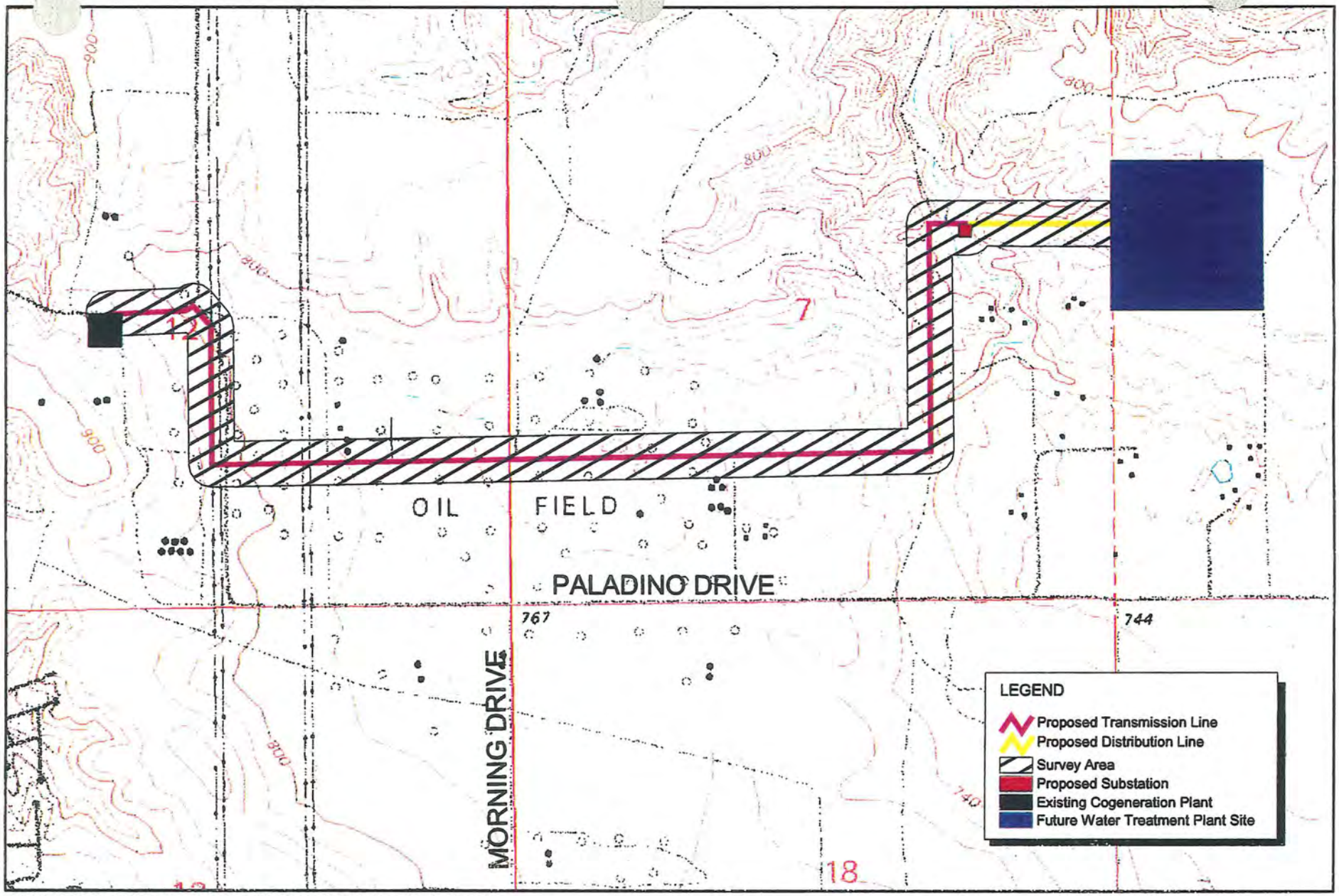
Michael Brandman Associates

Exhibit **2**

Local Vicinity Map

02160020 • 1/2002

CITY OF BAKERSFIELD • PG & E ELECTRICAL FACILITIES



SOURCE: Oil Center USGS 7.5 Topographic Maps. 1995 Horizons Technology, Inc.

NORTH

500 0 500 1000 Feet

Michael Brandman Associates

Exhibit 3
Study Area

PROJECT OBJECTIVES

The City of Bakersfield is the Lead Agency on the project and has expressed the following objectives with regards to the transmission line and substation portion of the City in the Hills project. These objectives are supplemental to the main project objectives, which are incorporated by reference herein, and can be found in Section 3.3 of the City in the Hills EIR. Realization of the following objectives facilitates the eventual achievement of the main project objectives expressed in the City in the Hills EIR.

- Provide the proposed City in the Hills development with a reliable and local source of electricity.
- Provide the proposed City in the Hills development with a reliable and local source of water by providing electricity to the proposed CWC water treatment plant.
- Expand the existing electricity distribution and transmission line system to accommodate the projected increase in demand that may be created by the proposed City in the Hills development.

PROJECT CHARACTERISTICS AND FEATURES

As discussed, the proposed City in the Hills project involves a mixed-use development. The proposed uses include 2,750 single-family lots, 1,300 multi-family lots, and 1,048,706 square feet of gross leasable commercial floor area. For a full description of the characteristics of the 694-acre portion of the project, please refer to Section 3.2 of the City in the Hills EIR. For purposes of this addendum, included herein are the characteristics of the transmission line and substation portion of the City in the Hills project that were not discussed in the EIR.

Transmission Line

The transmission line is 115kV and will extend a total of 10,810 liner feet. The line will be suspended on between 30-50 power transmission line poles that are 60-65 feet high and will be spaced between 40 and 60 feet apart along the route from Section 12 to Section 7 of Township 29S and Range 29E. The line will go under four sets of Southern California Edison transmission lines that will be raised to accommodate PG&E ground clearance requirements. Intersection of these lines will occur at the western portion of Bella Road.

Substation

PG&E Facilities

The substation will be approximately 19,600 square feet and facility heights will range from 6 feet to 35.5 feet. A 6-foot high chain link fence with barbed wire will surround the sub-station. As required by PG&E, the graded site area will extend 2 feet beyond the fence line. A 20-foot wide swing gate will be used for site entrance. The PG&E equipment on the site includes overhead power lines, a 30 MVA transformer containing 6450 gallons of mineral oil with no PCB's, a 25x25-foot retention basin designed to hold 110 percent capacity of the transformer oil, 115Kv to 12Kv switchgear, ceramic insulators, concrete foundations and a 12x17-foot prefabricated metal building that will house switchgear, relays, and telecommunications equipment.

Due to the site location near the intersection of two drainage channels, the elevation grade of the substation pad will be 663 feet. The slope of the site will be limited to 1 percent, sloping from the southeast to the northwest corner of the site. All site drainage will flow to the retention basin in the northwest corner of the pad. However, riprap will be installed in the existing drainage channel to the south of the site to prevent streambed migration toward the substation. A drainage ditch will be constructed to the east of the site to divert hillside runoff from entering the site.

Distribution Line

A 15Kv distribution line is proposed to be installed in six 6-inch conduits that will be buried in a previously approved and currently under construction 16-foot-wide, 80-foot-long aggregate road. This road was approved as part of the Northeast Bakersfield Bike Path and Water Facilities Project.

INTENDED USES OF ADDENDUM

Beyond satisfaction of the CEQA requirements discussed in Section 1.1, this addendum is intended to provide a basis for environmental clearance from agencies with jurisdiction over this project. Moreover, this addendum is intended to provide additional information regarding the City in the Hills project, including the need to make minor corrections regarding the scope of electricity and water services associated with the City in the Hills project. Additionally, the addendum is intended to establish that the majority of environmental issues and impacts associated with the transmission line and substation portion of the project are not significantly different than those issues and impacts fully identified and analyzed in the City in the Hills EIR.

The City of Bakersfield is the lead agency for the 694-acre portion of the City in the Hills project and has discretionary authority over primary approvals. A comprehensive list of those approvals is in Section 3.4 of the City in the Hills EIR. The City of Bakersfield also has approval authority over the

transmission line and substation elements of the project that are the focus of this addendum. Thus, the addendum will be specifically utilized by the following agencies for their particular purpose.

- **City of Bakersfield**—The City is required to provide grading approval before construction can begin on the transmission line, substation, and distribution line, and thus will use this addendum as requisite environmental documentation.

- **Public Utilities Commission (PUC)**—The PUC is responsible for approval of the proposed transmission line and substation and will thus use this addendum as part of the record upon which it basis its decision.

SECTION 3
EFFECTS FOUND NOT TO BE SIGNIFICANTLY DIFFERENT THAN THOSE IN THE CITY IN THE HILLS EIR

The following discussion provides evidence that the proposed PG&E transmission line, substation, and distribution line portion of the City in the Hills project does not create effects found to be significantly different than those identified in the City in the Hills EIR.

The City in the Hills project site is located in the northeastern portion of the City of Bakersfield in Kern County, approximately 8.5 miles east of State Route 99 and 3 miles north of State Route 58. The main project site is approximately 694 acres that are proposed for mixed-use development. In comparison, the proposed PG&E portion of the project includes a 19,600 sq. ft. substation, and 10,810 linear-feet of transmission lines and 1,160 linear feet of distribution line that are located several miles north of the main project site. The potential environmental impacts associated with each portion of the project do vary considerably on certain environmental issues since each portion of the project proposes considerably different land uses and levels of development. However, the environmental issues below remain not significantly different than those fully discussed in the City in the Hills EIR.

3.1 AESTHETICS

Aesthetics, as defined by CEQA, can be impacted by adverse effects on a scenic vista, substantial damage to scenic resources within a state scenic highway, degradation of the existing visual character of the surroundings or creation of a new source of substantial light or glare.

The proposed substation would be approximately 19,600 square feet in area with height ranges from 6-feet to 35-feet 5-inches and will have security lighting on the site. The proposed transmission and distribution lines will be secured on 60-65-foot high support poles that will be spaced between 40-60 feet apart along flat grassland from the Bear Mountain co-generation plant to the proposed substation location. There are no scenic vistas, as defined by CEQA, either at the substation site or along the path of the transmission line. Thus implementation of this project will not have a substantial effect on a scenic vista.

The transmission and distribution lines are proposed to be constructed alongside certain existing rural roads and roads that will be graded during construction of the project. Yet, none of the aforementioned roads have been designated as State Scenic Highways. Therefore, this project will not substantially damage any scenic highway resources.

The existing visual character of the surrounding area, as shown in Exhibit 5.9-4 of the City in the Hills EIR, is flat rural open space accompanied by intermittent low-use roads that are typically

accompanied by electrical lines. Therefore, the addition of another rural road and electrical lines, as a result of project implementation, will not substantially alter the current aesthetic character of the surrounding area.

Section 5.9.4 of the City in the Hills EIR proposes several mitigation measures that are equally applicable to the PG&E portion of the project, and are designed to reduce significant adverse visual and lighting impacts. Those mitigation measures include, but are not limited to, stipulations that the applicant shall prepare and implement landscape and lighting plans before the City will issue grading and building permits necessary to begin construction. Based upon the applicability of, and adherence to, the aesthetic mitigation measures contained in the City in the Hills EIR, the aesthetic impacts of the PG&E portion of the project will not be significantly different than the aesthetic impacts discussed in the City in the Hills EIR.

3.2 AGRICULTURAL RESOURCES

According to CEQA, conversion of prime/unique farmland, conflict with existing agricultural zoning boundaries and changes in the existing environment from farmland to non-agricultural use are impacts on agricultural resources that must be analyzed for proper environmental review.

The PG&E portion of the project is located on, and immediately surrounded by land designated as un-irrigated grazing land that is not considered Prime or Unique Farmland. The City in the Hills project includes in Table 3-3 of the City in the Hills EIR, a zoning change from agricultural to regional commercial and residential land use. However, as indicated in Section 5.1.2 of the City in the Hills EIR, these proposed changes are consistent with the City's General Plan and regional planning policies. Implementation of the PG&E transmission line, substation, and distribution line would not require any zoning changes or convert Prime Farmland. Thus, neither potion of the City in the Hills project would result in a conversion of agricultural land beyond those contemplated in the City's General Plan. Therefore, implementation of the PG&E portion of the project would not create effects, relative to agricultural resources, found to be significantly different than those addressed in the City in the Hills EIR.

3.3 AIR QUALITY

Air quality criteria applicable to the project, as dictated by CEQA, are to be established by the air quality management district with jurisdiction over the project site. Both portions of the City in the Hills project are subject to the jurisdiction of the San Joaquin Valley Unified Air Pollution Control District (SJVUAPCD), as well as State and National air quality standard, which are fully addressed in Section 5.5 of the City in the Hills EIR.

Short-term air pollution from the PG&E portion of the project would include fugitive dust, heavy equipment exhaust and vehicle emissions during construction of the substation, transmission line and distribution line. The City in the Hills mixed-use development portion of the project would create similar construction related short-term air pollution during construction of the purposed residential and commercial units. The short-term air pollution levels associated with the PG&E portion of the project would not exceed the levels associated with the main mixed-use development portion of the project. Neither of the short-term pollution scenarios associated with each portion of the project would violate regional, State or National ambient air quality standards. Mitigation measures proposed in Section 5.5.4 of the City in the Hills EIR ensure that both portions of the project discussed herein submit SJVUAPCD-compliant dust suppression plans and implement equipment and vehicle policies to reduce and control air emissions prior to issuance of necessary grading permits. Therefore, implementation of the PG&E portion of the project would not create effects, relative to short-term air pollution, found to be significantly different than those addressed in the City in the Hills EIR.

Long-term air pollution associated with the PG&E portion of the project site would be limited to increased maintenance vehicle trips to the substation, transmission line, and distribution line. Operation of the proposed PG&E electrical facilities would not produce long-term airborne pollutants. Long-term air pollution associated with the mixed-use development portion of City in the Hills project would include motor vehicle exhaust from vehicles traveling to and from the area, and the combustion of natural gas for space and water heating. Due to the scope of development proposed for the mixed use development portion of the project, the long-term air quality impacts associated with the 694-acre portion of the project are anticipated to be greater than those associated with the PG&E portion of the project. Accordingly, a full range of air quality impacts was addressed in Section 5.5 of the City in the Hills EIR. Therefore, after full compliance with the applicable jurisdictional regulations, and implementation of the mitigation measures discussed in the EIR, implementation of the PG&E portion of the project would not create effects, relative to long-term air pollution, found to be significantly different than those addressed in the City in the Hills EIR.

3.4 GEOLOGY/SOILS

CEQA defines geology and soil impacts as including exposure of people or structures to substantial adverse effects involving seismic shaking or ground failure, as well as the loss of topsoil and resulting unstable soils due to project implementation.

Located in the northeastern portion of the City of Bakersfield, the project site is in an active seismic area. However, the site does not contain any geological constraints that would make it particularly susceptible to the active faults in the region. The proposed PG&E facilities would be constructed in accordance with the Uniform Building Code, thus all foreseeable seismic hazards would remain less than significant and unstable soils will not result from implementation of the PG&E facilities.

Therefore, implementation of the PG&E facilities would not increase the risk of seismically related adverse impacts, beyond those generally associated with the area, to persons or structures.

Construction of the PG&E facilities would involve minimal soil disturbance relative to development of the main 694-acre portion of the mixed-used development site to the south. Mitigation measures designed to reduce erosion of soils and the loss of topsoils would be implemented for both portions of the project. Therefore, implementation of the PG&E portion of the project would not create effects, relative to geology and soils, found to be significantly different than those addressed in the City in the Hills EIR.

3.5 HYDROLOGY AND WATER QUALITY

CEQA water quality criteria applicable to this project, include but are not limited to, whether the PG&E portion of the project would substantially alter drainage patterns of the site or area, interfere with groundwater recharge, alter the course of a stream, increase stormwater runoff or degrade water quality.

As discussed in Section 2, the transmission line would be secured on 60-65-foot high transmission line poles that would be placed parallel to existing and future constructed roadways. The placement of the electrical line support poles would not obstruct drainage patterns, alter the course of a stream or contribute to degradation of water quality. Thus the electrical lines element of the PG&E facilities would not impact hydrology or water quality.

The proposed substation site would introduce approximately 19,600 square feet of graded area that is currently sparsely vegetated, thus runoff from the site may increase due to the lack of surface vegetation. However, the substation is relatively flat with a slope of 1 percent sloping from the southeast to the northwest corner of the site and the substation is designed to include a retention basin in the northwest corner of the site that will retain all foreseeable site drainage. The facilities on the site would not discharge wastewater, interfere with groundwater supplies or substantially alter existing drainage patterns in the area. The climate in the project region is dry and the character of the land is rural, thus implementation of the PG&E portion of the project will not result in significantly increased run-off rates or flooding.

The City in the Hills mixed-use development portion of the project presents more hydrology and water quality issues based upon the nature and extent of the development proposed for the 694-acre main project site. Accordingly, the nature, extent and mitigation of such hydrology impacts are fully discussed in Section 5.8.8 of the City in the Hills EIR. Specifically, the stormwater and drainage mitigation measures proposed in the EIR sufficiently address any potential PG&E electrical facilities run-off issues by including the need to submit drainage plans and identify all necessary drainage facilities to accommodate the project prior to issuance of necessary grading permits. Therefore,

implementation of the PG&E portion of the project would not create effects, relative to hydrology and water quality, found to be significantly different than those addressed in the City in the Hills EIR.

3.6 LAND USE AND PLANNING

According to CEQA, criteria used to determine impacts to land use and planning include whether the project would result in the division of established communities, conflict with applicable land use plans, or conflict with applicable habitat conservation plans in and around the project site.

The PG&E transmission line would be placed parallel to existing and soon to be constructed roads that would not divide an established community or conflict with any applicable land use policies. There are no existing residences along the proposed transmission line route. The PG&E substation is to be constructed in a primarily undeveloped area on the northeastern outskirts of the City of Bakersfield, and no established communities exist on the project site. There is a small rural community consisting of approximately 9 residences south of the proposed substation, yet the substation would not physically impact such residences. Therefore, implementation of the PG&E portion of the project does not run the risk of dividing an established community.

Since neither the City in the Hills mixed-use development portion of the project nor the PG&E portion of the project present surrounding or onsite land use incompatibilities with the Metropolitan Bakersfield 2010 General Plan, the City of Bakersfield Zoning Ordinance, or regional planning programs, no planning mitigation measures are proposed. Furthermore, the PG&E portion of the project would not conflict with any habitat conservation plans in the area. Therefore, implementation of the PG&E portion of the project would not create effects, relative to land use and planning, found to be significantly different than those addressed in the City in the Hills EIR.

3.7 MINERAL RESOURCES

CEQA dictates that mineral resource issues must be addressed by determining if the project would result in the loss of availability of a known mineral resource that would be of value to either the region or residents of the state, and if the availability of a locally important mineral resources site, as delineated by applicable land use plans, would be impacted.

The region surrounding PG&E portion of the project is known to contain oil reserves. Immediately southeast of the proposed PG&E portion of the project is the Kern Bluff Oil Field. There are two active oil facilities in the immediate vicinity, as well as several other inactive oil wells. Mineral ownership rights to this oil field were addressed in the City in the Hills EIR, resulting in certain surface extraction rights being waived, which thereby facilitated the City in the Hills development process.

The PG&E electrical facilities site may overlie similar oil deposits, yet the narrow linear construction of the electrical lines, coupled with the relatively small surface area of the substation would not result in the substantial loss of availability or access to a known valuable mineral resource. Current drilling and extraction techniques could access any mineral reserved in the PG&E project area despite full project implementation. Therefore, implementation of the PG&E portion of the project would not create effects, relative to mineral resources, found to be significantly different than those addressed in the City in the Hills EIR.

3.8 NOISE

CEQA criteria for noise impacts analyze whether the project would expose persons to, or generate noise levels in excess of standards established by an applicable noise ordinance, and whether there would be a substantial increase in the level of ambient noise in the project vicinity.

Short-term construction noise would be associated with the PG&E portion of the project in the form of site grading, heavy machinery operation, and facility construction noise. Similarly, the implementation of the mixed-used development portion of the project would create short-term noise impacts associated with earthmoving, materials handling, equipment operation, and structure/infrastructure construction. Construction noise for both portions of the project would be temporary and restricted to 7:00 a.m. to 7:00 p.m. Monday through Friday, and 9:00 a.m. to 6:00 p.m. on Saturday and Sunday. Noise levels for the equipment that would be used for implementation of both portions of the project can be found in Table 5.4-5 of the City in the Hills EIR. Short-term construction related noise levels associated with the PG&E portion of the project would not exceed applicable noise ordinances and, therefore, would not require mitigation as established in Section 5.4.2 of the City in the Hills EIR.

Long-term noise impacts associated with the PG&E portion of the project would come from two sources. One source of noise would be from auxiliary cooling equipment such as fans, blowers, coolers and pumps, which is typically characterized as "white noise." White noise levels would be minimal and not impact the nearest sensitive receptors located in the small residential community south of the proposed PG&E facility. The nearest residence is approximately 800 feet south of the substation. Secondly, a range of harmonic tones would be emitted by the transformers and is characterizes as "transformer core noise." The transformer core noise would also result in minimal noise and would not impact the nearest sensitive receptor. Since long-term noise associated with the PG&E facilities will be minimal, no mitigation measures will be required for the PG&E facilities.

Therefore, implementation of the PG&E portion of the project would not create effects, relative to noise, found to be significantly different than those addressed in the City in the Hills EIR.

3.9 POPULATION AND HOUSING

According to CEQA, directly or indirectly inducing growth, as well as displacing existing housing or people is the main criteria relative to population and housing impacts created by project implementation.

The PG&E portion of the project is limited to the implementation of electrical lines and a substation. The PG&E facilities do not include additional housing or directly encourage population growth. In contrast, the mixed-use development portion of the City in the Hills project would potentially result in the construction of approximately 4,050 residential units and 1,048,706 square feet of commercial space, which would directly induce growth and population. A full analysis of these impacts is addressed in the City in the Hills EIR; however, such impacts would not be created by the implementation of the PG&E portion of the project. The PG&E portion of the project will not displace people or existing homes since the site is in an undeveloped area of the City of Bakersfield. Therefore, implementation of the PG&E portion of the project would not create effects, relative to population and housing, found to be significantly different than those addressed in the City in the Hills EIR.

3.10 PUBLIC SERVICES

According to CEQA, the creation of substantial adverse physical impacts on government services including increased response time of service providers or the need for new service provider facilities as a result of project implementation are the key criteria used to determine whether the proposed project impacts public services. Public services include police and fire protection, school and parks, and other public facilities.

The mixed-use development portion of the City in the Hills project will result in a greater need for fire and police facilities and an increased level of service in the area due to a resulting increase in population, housing, and commercial facilities anticipated to develop within the project area. Schools and parks would also need to be expanded to accommodate the new mixed-used development. Sections 5.8.1-5.8.9 of the City in the Hills EIR include mitigation measures for public service impacts associated with the City in the Hills development thereby mitigating such impacts to less than significant. Construction of the proposed PG&E electrical lines and substation would not result in the demand for additional service facilities or increases in service levels beyond those fully addressed in the City in the Hills EIR due to the relatively low public service demand associated with electrical facilities.

Therefore, implementation of the PG&E portion of the project would not create effects, relative to public services, found to be significantly different than those addressed in the City in the Hills EIR.

3.11 RECREATION

According to CEQA, recreation is impacted if the project would increase the use of existing neighborhood parks or other recreational facilities in a way that would cause substantial deterioration, or would include construction or expansion of such facilities.

There are no recreational facilities on or within the vicinity of the PG&E portion of the project site. Implementation of the project is limited to the construction and operation of the PG&E electrical facilities, and would, therefore, not increase use of existing recreational facilities, because there are no such facilities in the vicinity. The PG&E portion of the project would not directly or indirectly induce growth or population, nor is the PG&E portion of the project proposed to be constructed on a site that would remove recreational facilities. The PG&E portion of the project presents no impacts on recreational facilities. Therefore, implementation of the PG&E portion of the project would not create effects, relative to recreation, found to be significantly different than those addressed in the City in the Hills EIR.

3.12 TRANSPORTATION/TRAFFIC

According to CEQA, transportation/traffic would be impacted if the project causes an increase in traffic that is substantial in relation to the existing traffic load, exceeds service level standards or conflicts with adopted plans, or substantially increases hazards due to design feature of the project.

The PG&E facilities would be implemented parallel to existing and soon to be built rural roads, while the substation site would be serviced by access roads. Along sections of the proposed electrical transmission line routes, there are no existing roads, and thus there is no traffic. Traffic loads are light on the existing rural roads in the project area. The construction of new roads as a result of project implementation would have the potential to increase traffic beyond the existing conditions. Short-term construction related traffic and long-term operation traffic directly associated with the PG&E portion of the project would be limited to temporary construction vehicles, and machinery, maintenance vehicles, and work crew vehicles. Given the anticipated increase in traffic from the above activities, transportation and traffic circulation in the surrounding region would be virtually unaffected by the PG&E portion of the project due to its isolation from urban areas of the City of Bakersfield.

The City in the Hills mixed-use portion of the project would have more significant impacts on traffic and transportation due to the current scope of development, which includes the development of over 4,000 residential units, substantial commercial space, and accompanying roadway infrastructure. Traffic and transportation impacts are fully discussed in the City in the Hills EIR. Section 5.3.4 addresses traffic mitigation measures including, but not limited to, compliance with Metropolitan Bakersfield Transportation Impact Fee Program, and applicant funding of intersection improvements.

The PG&E portion of the City in the Hills project would create a nominal amount of additional traffic beyond those discussed in the EIR. This nominal increase, as a result of period maintenance, would not change the conclusions in the City in the Hills EIR. Therefore, implementation of the PG&E portion of the project would not create effects, relative to traffic/transportation, found to be significantly different than those addressed in the City in the Hills EIR

3.13 UTILITIES AND SERVICE SYSTEMS

According to CEQA, utilities and service systems impact criteria include whether the project would exceed wastewater treatment requirements, require the construction of new water or stormwater facilities, have sufficient water supply, be served by a landfill with sufficient capacity, and comply with federal, state and local statutes related to solid waste.

The PG&E portion of the project would not produce wastewater or require water service for long-term operation. Nor would short-term construction of the PG&E portion of the project produce solid waste that would exceed the regional landfill capacity, and the project would be compliant with all federal, state and local statutes during construction phases and during operational phases since the operation of the PG&E facilities would not regularly produce solid waste. The mixed-use development portion of the project would produce more substantial utilities and service systems impacts, which are fully addressed in the EIR. The PG&E portion of the project would not create impacts upon beyond those discussed in the City in the Hills EIR. Therefore, implementation of the PG&E portion of the project would not create effects, relative to utilities and service systems, found to be significantly different than those addressed in the City in the Hills EIR

SECTION 4
ISSUES THAT REQUIRE FURTHER EVALUATION TO DETERMINE IF EFFECTS ARE SIGNIFICANTLY DIFFERENT THAN THOSE IN THE CITY IN THE HILLS EIR

The following is a summary of technical studies prepared for three environmental issues. These issues were analyzed in detail to determine if the effects associated with the PG&E Electrical Facilities were significantly different than those in the City in the Hills EIR. The Biological Resources Assessment, Cultural Resources Assessment, and Hazardous Materials study prepared for the PG&E Electrical Facilities can be found in Appendices A, B, and C, respectively.

4.1 BIOLOGICAL RESOURCES

The following discussion examines the potential impacts to biological resources that may occur as a result of implementation of the proposed project. The determination of impacts in this analysis is based upon development maps of the project illustrating the proposed development. This description was applied to maps of natural communities, sensitive species, and habitat distribution. Whereas this assessment is comprehensive, the focus is on listed or otherwise sensitive biological resources. Pursuant to thresholds of significance used in this analysis, impacts to the following biological resources were evaluated to determine the level of significance.

The majority of impacts associated with the project were found to be less than significant or not significant under CEQA. Installation of the proposed PG&E electrical facilities would impact nonnative grassland and disturbed areas. Common plant and wildlife species on or using habitats on the site occur in large numbers throughout the region and although adverse, impacts to such are not considered significant since the common plant species are disturbance-tolerant and the common animal species would likely utilize adjacent habitats. Therefore, impacts to natural communities and common flora and fauna are considered less than significant.

The proposed project could result in potential impacts associated with two small remnant patches of Bakersfield cactus (federal and state listed endangered species) that were observed within the eastern portion of the project study area. In addition, due to the removal of nonnative grassland, there is a potential for impacts to the San Joaquin kit fox (federal-listed endangered and state-listed threatened species) and blunt-nosed leopard lizard (federal and state-listed endangered species). Due to the nature of the project, the proposed overhead transmission lines, the potential to impact these plant and animal species is low. Furthermore, the proposed substation site and underground distribution line areas have been previously disturbed due to the development associated with the installation of the Northeast Bakersfield Bike Path and Water Facilities project. A total of approximately 0.4 to 0.6 acre of suitable San Joaquin kit fox and blunt-nosed leopard lizard habitat is proposed to be impacted during installation of the proposed PG&E facilities. This impact is considered significant.

However, the most current sighting of the blunt-nosed leopard lizard, within the project vicinity, was thirty years ago in 1972. Accordingly, the agencies with jurisdiction over the proposed project site, including the USFWS and CDFG, have recognized that the lizard is no longer located in within the project vicinity. Therefore, project specific mitigation measures, in association with blunt-nosed leopard lizard, are not required in either the 694-acre site or the PG&E Electrical Facility site of the project.

The site is not considered to be a wildlife corridor. Neither the proposed transmission line, substation footprint or distribution line will infringe or impact a jurisdictional water of the United States. Installation of the project may potentially impact nesting or perching raptors, and impacts to nesting birds are considered to be a significant impacts under CEQA.

Mitigation measures are recommended for those impacts that are determined to be significant to sensitive biological resources as summarized above and as identified in the biological resources assessment contained in Appendix A. Mitigation measures for impacts considered to be "significant" were developed to reduce such impacts to a less than significant.

The project study area is within the area covered by the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP). The goal of the MBHCP is to acquire, preserve, and enhance native habitats which support endangered and sensitive species, while allowing urban development to proceed as set forth in the Metropolitan Bakersfield 2010 General Plan. The plan generally takes a broad ecosystem approach on conservation of endangered species and requires development fees to be paid as mitigation for impacts. These fees are used for the acquisition and management of lands for conservation which are held in perpetuity. The Plan also requires impact avoidance measures. The MBHCP does not eliminate the need to consider endangered species under CEQA, but it does establish programmatic mitigation for project impacts on endangered species.

Mitigations for impacts to special-status species on the site are covered by meeting the compensation and avoidance requirements of the MBHCP and associated Implementing Agreement. These are described below.

Special-Status Species

- Prior to the issuance of a grading permit, the project applicant shall pay a development fee in accordance with the MBHCP.

- Prior to the issuance of a grading permit for the PG&E electrical facilities, the project proponent shall comply with all appropriate terms and conditions of the MBHCP. The MBHCP requires certain take avoidance measures for the San Joaquin kit fox. MBHCP guidelines regarding tracking and excavation shall be followed to prevent entrapment of

kit fox in dens. Specific measures during the construction phase of the project shall be implemented and include the following:

- A preconstruction survey shall be conducted prior to site grading to search for active kit fox dens. The survey shall be conducted not more than 30 days prior to the onset of construction activities in areas subject to development to determine the necessity of den excavation.

- Monitoring and excavation of each known San Joaquin kit fox den which cannot be avoided by construction activities shall occur.

- Notification of wildlife agencies of relocation opportunity prior to ground disturbance in areas of known kit fox dens shall be provided.

- Excavations shall either be constructed with escape ramps or covered to prevent kit fox entrapment. All trenches or steep-walled excavations greater than three feet deep shall include escape ramps to allow wildlife to escape. Each excavation shall contain at least one ramp, with long trenches containing at least one ramp every 1/4 mile. Slope of ramps shall be no steeper than 1:1.

- All pipes, culverts or similar structures with a diameter of four inches or greater shall be kept capped to prevent entry of kit fox. If they are not capped or otherwise covered, they will be inspected prior to burial or closure to ensure no kit foxes, or other protected species, become entrapped.

- All employees, contractors, or other persons involved in the construction of the project shall attend a "tailgate" session informing them of the biological resource protection measures that will be implemented for the project. The orientation shall be conducted by a qualified biologist and shall include information regarding the life history of the protected species, reasons for special status, a summary of applicable environmental law, and measures intended to reduce impacts.

- All food, garbage, and plastic shall be disposed of in closed containers and regularly removed from the site to minimize attracting kit fox or other animals.

- The location of the support poles for the transmission line adjacent to Morning Drive will be designed to avoid the removal of Bakersfield Cactus species.

Mitigations for impacts to special-status species on the site are covered under the terms and conditions of the MBHCP and associated Implementing Agreement. The compensation and avoidance requirements of the MBHCP are consistent and follow an ecosystem management approach for endangered species, and provide adequate compensation for covered species and all other potentially occurring special-status species.

Impacts to special status species that are not included in the MBHCP would be mitigated by the actions taken to meet the requirements of the MBHCP. No additional mitigations are recommended for special status species that are not included in the MBHCP.

Other potentially significant impacts will be reduced to less than significant with the implementation of the following measures.

- Prior to the issuance of a grading permit for the approximately 694-acre site, the project applicant shall comply with the following raptor nest mitigation:
  - If site grading is proposed during the raptor nesting season (February-September), a focused survey for raptor nests shall be conducted by a qualified raptor biologist prior to grading activities in order to identify active nests in areas potentially impacted by project implementation.
  - If construction is proposed to take place during the raptor nesting/breeding season (February - September), no construction activity shall take place within 500 feet of an active nest until the young have fledged (as determined by a qualified raptor biologist). Any nests that must be removed as a result of project implementation shall be removed during the non-breeding season (October-January).
  - Preconstruction surveys shall include a survey for burrowing owl. If active burrowing owl burrows are detected outside of breeding season (September 1 through January 31), passive and/or active relocation efforts may be undertaken if approved by CDFG and USFWS. If active burrowing owl burrows are detected during breeding season (February 1 through August 31), no disturbance to these burrows shall occur without obtaining appropriate permitting through the Migratory Bird Treaty Act.
- During construction, site boundaries shall be clearly marked with flagging, fencing, or other suitable material to prevent construction equipment and vehicles from impacting adjacent habitat areas potentially occupied by special status species.

4.2 CULTURAL RESOURCES

A Cultural Resources Assessment was prepared to determine what impacts project implementation would have on existing cultural resources in the vicinity of the proposed PG&E electrical facilities site. Excavations are proposed at the substation site as well as at the support poles for the transmission and distribution lines, and therefore to be in compliance with CEQA, and the National Historic Preservation Act, the assessment included formulation of a geological and cultural setting, a comprehensive records search, and a field survey.

The geologic setting indicates the project area consists of Quaternary terrace deposits, characterized by poorly consolidated, coarse sediments deposited by the Kern River in the upper Pleistocene-

Holocene. The Kern River Formation, and the Round Mountain Silt Member of the Temblor Formation, are exposed to the north and it is likely that these older units are in the subsurface of the project site. The cultural setting is represented by a prehistoric period in which evidence of human habitation in the southern San Joaquin Valley dates to 12,000 years before present; as well as a historic period that is characterized by the first recorded contact between the native inhabitants of the southern San Joaquin Valley and European explorers in 1772, California being annexed to the United States in 1847, and the exploration, extraction and eventual decline of an oil industry from 1863 to the present.

The records searches performed in conjunction with cultural assessment included a Paleontology search of the vertebrate paleontologic localties database at the Los Angeles County Museum of Natural History (LACM), and an Archaeology archival records search at Southern San Joaquin Information Center (SSJIC) in Bakersfield. The Paleontology search recognized the Quaternary Terraces, the Kern River Formation and the Round Mountain Silt Member of the Temblor Formation and concluded that the later of these formations presents extremely high paleontological sensitivity. The Archaeology search results indicate that no prehistoric or historic archaeological resources have been recorded on or within a mile radius of the property.

The field assessment was performed on November 28, 2000 by MBA Paleontologist Kenneth L. Finger, Ph.D., and MBA Archaeologist Wayne H. Bonner, M.A., and consisted of an examination of a 400-foot wide study area along the entire length of the proposed PG&E electrical facilities site, beginning in the eastern sector. No paleontologic or archaeologic resources were observed during this field assessment.

The assessment concludes that implementation of the PG&E electrical facilities would not likely encounter paleontologic resources along most of its length, not cause a substantial adverse change in the significance of any recorded or know historical resources or archaeological resource, and would not disturb previously recorded human remains. Therefore, mitigation measures to reduce potential significant potential impacts to cultural resources would be limited to the following:

Paleontology

- Prior to grading, a paleontologist shall be retained, attend a pre-grading meeting, and set forth the procedures to be followed during the monitoring program.

- One paleontological monitor that is trained and equipped to allow rapid removal of fossils with minimal construction delay is expected to be sufficient. Full-time monitoring of the portions of the project site that have earth-disturbing activities at elevations between 600 feet and 700 feet shall be provided.

- If fossils are found within an area being cleared or graded, earth-disturbing activities shall be diverted elsewhere until the monitor has completed salvaging of the fossils. If construction personnel make the discovery, the grading contractor shall immediately divert construction and call the monitor to the site.

- The project paleontologist shall prepare, identify, and curate all recovered fossils. Upon completion of grading, the project paleontologist shall prepare a summary report documenting mitigation and results, with itemized inventory of collected specimens. The paleontologist shall submit the report to the City of Bakersfield, designated depository, and any other appropriate agency, and transfer fossil collection to an appropriate depository. The summary report shall be submitted to the City. This submittal will signify completion of the program to mitigate impacts on paleontologic resources.

Archaeology

- If cultural resources are unearthed during construction activities, all work shall be halted in the area of the find. A qualified archaeologist shall be called in to evaluate the findings and recommend any necessary mitigation measures. Proof of compliance with any recommendations resulting from such evaluation, if required, shall be submitted to the southern San Joaquin valley archaeological information center (AIC) at California state university, Bakersfield, and to the city of Bakersfield development services department.

After the implementation of the above measures, potential impacts to Paleontological and archaeological resources would be reduced to less than significant.

4.3 HAZARDS AND HAZARDOUS MATERIAL

A Hazardous Materials Study was prepared to determine the presence of hazardous materials within the site boundaries for the proposed transmission line, substation, and distribution line. The study included a database review of known hazards within the project vicinity, a field inspection, and a review of relevant maps of the project area.

The database review resulted in the production of a Site Assessment Report (SAR) that was prepared by Vista Information Solutions, Inc. on January 18, 2002 in accordance with American Society for Testing and Materials (ASTM) standards. According to the Vista report, several items were identified within ½ mile of the study area for the PG&E electrical facilities. Those items include; (1) a previously contaminated Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) site that has been properly mitigated and poses no further potential issues relative to hazardous materials, (2) a monitored State-registered underground storage tank, and (3) a State registered solid waste transformation facility. The aforementioned items pose no potential issues relative to hazardous materials.

The field inspection of the PG&E electrical facilities study area occurred on November 28, 2001 and was performed by Michael Brandman Associates. The site was surveyed via four-wheel drive vehicle and by foot from western side of the CWC water treatment plant property to the western terminus at the Bear Mountain Cogeneration plant. The western portion of the main section of the site leads through an old oil field that contains approximately fifty oil wells and their associated equipment of pumps, oil transfer piping, and storage tanks. The only potentially hazardous materials identified during the field survey were small areas of staining around a few of the oil wells and some staining from lubrication of the oil pumping machinery. A photograph representation of the field survey can be found in Appendix C.

A significant impact relative to hazards and hazardous materials is considered to exist if the project would result in the exposure of people to risks beyond acceptable levels as defined by local, state and federal law. Implementation of the PG&E electrical facilities would not result in impacts associated with known and/or suspected hazardous materials. However, there is a potential that previously unknown hazardous materials contamination, from historical use of the proposed site, may be encountered or disturbed during construction or implementation of the PG&E electrical facilities. Implementation of the project would introduce new material uses in the project area and would result in the additional use and generation of hazardous material. However, planned periodic maintenance activities for the PG&E electrical facilities ensure that no substantial release of hazardous substances or risk of explosion would occur in association with the development or operation of such facilities.

No significant hazardous materials impacts would occur in association with the project implementation, however to further reduce potential hazardous materials risks associated with implementation of the PG&E electrical facilities, the following mitigation measure are recommended:

- Prior to the issuance of grading permits, the grading plans shall specify that in the event that hazardous waste is discovered during site preparation or construction, the property owner/developer shall ensure that the identified ground staining, hazardous waste and/or hazardous material is handled and disposed of in the manner specified by the State of California Hazardous Substances Control Law (Health and Safety Code, Division 20, Chapter 6.5) and according to the California Administrative Code, Title 30, Chapter 22.

- The applicant shall handle and dispose of all hazardous materials and wastes during the operation and maintenance of facilities in accordance with the state codes.

- Prior to the issuance of grading permits, the grading plans shall specify that in the event that any abandoned or unrecovered oil wells are uncovered or damaged during excavation or grading, remedial plugging operations will be required.

- No structures are to be located over a previously plugged or abandoned well.

SECTION 5
EXPLANATION OF DECISION NOT TO PREPARE A SUBSEQUENT EIR

CEQA Section 15162 controls when a subsequent EIR must be produced, and such section states that when an EIR has been certified for a project, no subsequent EIR shall be prepared for that project unless the lead agency determines, on the basis of substantial evidence in light of the whole record, one or more of the following: (1) substantial changes are proposed in the project which will require major revisions of the previous EIR or (2) new information shows there would be a substantial increase in the severity of significant environmental effects that were not discussed in the previous EIR.

In this Addendum, there were 13 environmental issues that were determined to have effects that were not significantly different than those in the City in the Hills EIR. These issues included aesthetics, agricultural resources, air quality, geology/soils, hydrology/water quality, land use and planning, noise, population and housing, public services, recreation, transportation/traffic, and utilities.

There were 3 environmental issues that required further evaluation to determine if effects were significantly different that those found in the City in the Hills EIR. These issues included biological resources, cultural resources, and hazardous materials. The analysis for each of these three environmental issues found the effects were not significantly different than those found in the City in the Hills EIR.

The proposed PG&E Electrical Facilities is a new component associated with the 694-acre City on the Hills project. These facilities are located northwest of the main City in the Hills site. These new facilities could result in the disturbance of 0.4 to 0.6 acre. The addition of these facilities (i.e., new information) as part of the City in the Hills project would not substantially increase the severity of significant environmental effects that were previously discussed in the City in the Hills EIR.

In light of the evidence presented in the City in the Hills EIR, as well as this Addendum, the City of Bakersfield concludes that the PG&E Electrical Facilities do not create substantial changes in the City in the Hills project or the analysis in the EIR. Therefore, according to CEQA section 15164, the preparation of a subsequent EIR is not required for this project.

BIOLOGICAL RESOURCES ASSESSMENT OF PG&E ELECTRICAL FACILITIES NORTHEAST BAKERSFIELD, KERN COUNTY, CALIFORNIA

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SECTION 1
INTRODUCTION

1.1 BACKGROUND AND PURPOSE

This Biological Resources Assessment was prepared to determine the potential effects of implementing a transmission line, substation, and distribution line on existing biological resources. The project site is located within the Pacific Gas and Electric (PG&E) service area in northeast Bakersfield. The proposed electrical facilities will facilitate the development of the City in the Hills project.

At the time of certification of the City in the Hills EIR, it was foreseeable that implementation of the City in the Hills project would require expansion or improvement of the electricity system. Now, at the time of this Addendum, it is certain that the City in the Hills project will require an electricity system upgrade or expansion. Therefore, as a technical addition to the City in the Hills electricity design, inclusion of the PG&E transmission line, substation and distribution line are proposed herein to accommodate the City in the Hill's projected electricity demands.

1.2 SCOPE OF STUDY

The scope of this assessment encompasses the documentation of existing biological resources on the PG&E transmission line, substation and distribution line site. A literature review initialized the study. The literature review results provided information on species occurrences within the vicinity, laws, regulations, and additional background information. A field reconnaissance investigation followed. During the investigation, the biologist made note of plant and animal species present on the PG&E electrical facilities site. The biologist also assessed the potential of the property to host sensitive resources, as well as jurisdictional wetlands and other potential drainage features.

In the conclusion of this document, project-related impacts associated with the proposed land use plan are analyzed and recommendations regarding measures to alleviate any resulting significant impacts are made. This documentation is consistent with accepted scientific, technical, and professional standards, pursuant to the California Environmental Quality Act (CEQA), United States Fish and Wildlife Service (USFWS), United States Army Corps of Engineers (USACE), and California Department of Fish and Game (CDFG), where appropriate. While general biological resources are discussed in a comprehensive manner, the focus of this assessment is on those resources considered significant and/or sensitive.

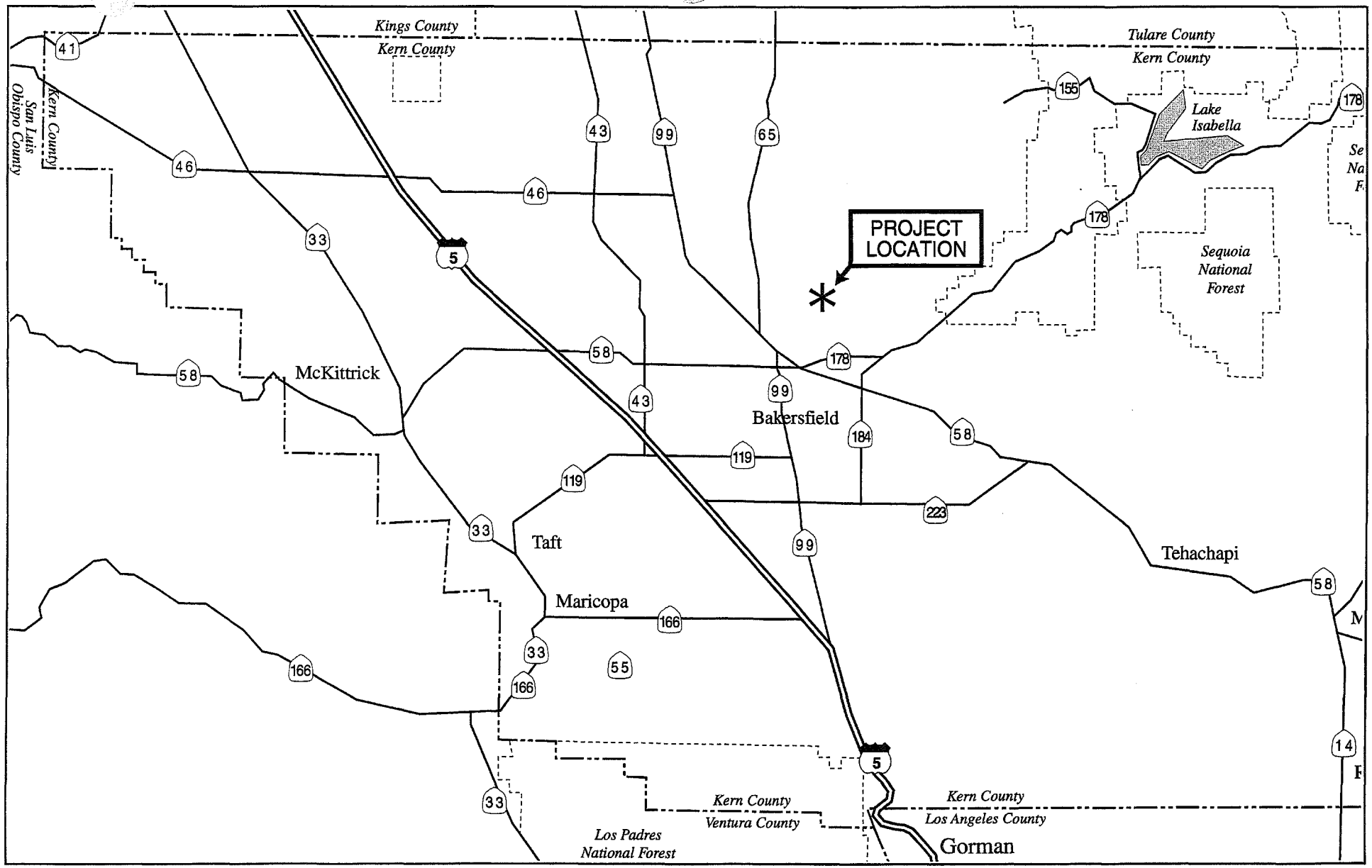
1.3 PROJECT DESCRIPTION

Regionally, the proposed PG&E electrical facilities site is located in the easterly portion of Kern County, approximately 2 miles northeast of the City of Bakersfield's contiguous urbanized area. State Route (SR) 99, SR58, and SR178 provide regional access to the project area (see Exhibit 1).

More specifically, the project site is a linear footprint that starts at Bear Mountain cogeneration plant and ends at the property line of the California Water Service Company (Cal Water) water treatment plant. The Bear Mountain Cogeneration Plant is located in the west half of Section 12, Township 29S, Range 29E. From the Cogeneration Plant, the transmission line travels approximately 900 feet west along the existing paved access road to the Cogeneration Plant, which is the east-west section-line of Section 12. Then approximately 1,300 feet south along the existing paved access road, which is the north-south ½ section-line of Section 12. Continuing approximately 6,400 feet west along the future Bella Road right-of-way which is the east-west ¼ line of Section 12, to the existing Morning Drive right-of way. Bella Road is currently a dirt road used by oilfield employees, and it is not currently property of the City, but its acquisition is planned for the near future. From this point, the transmission line continues approximately 2,050 feet north in the existing Morning Drive right-of-way. The line concludes by traveling approximately 160 feet east across Cal Water's to the proposed substation site. The substation will be located on Cal Water's property approximately 160 feet east of Morning Drive. The proposed distribution line would extend 1,160 feet from the substation site to the property line of Cal Water's water treatment plant. The total length of the PG&E electrical facilities site is approximately 11,970 feet (see Exhibits 2 and 3).

1.4 SITE DESCRIPTION (SETTING)

The site is situated in an area containing primarily disturbed nonnative grasslands with oil facilities and baren areas throughout the site. Rolling hills occur at the western and eastern ends of the project site. The area between the Bear Mountain Cogeneration Plant and the proposed substation is generally topographically flat. Development in the vicinity includes roads, oils wells, existing power lines and associated structures. The project site is continuously grazed and vegetation is characteristically disturbed. The eastern portion of the project site has been recently developed and includes a newly graded road atop a large underground culvert. The existing culvert is located within an existing drainage course.



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SCALE IN MILES

Michael Brandman Associates

Exhibit 1

Regional Location Map

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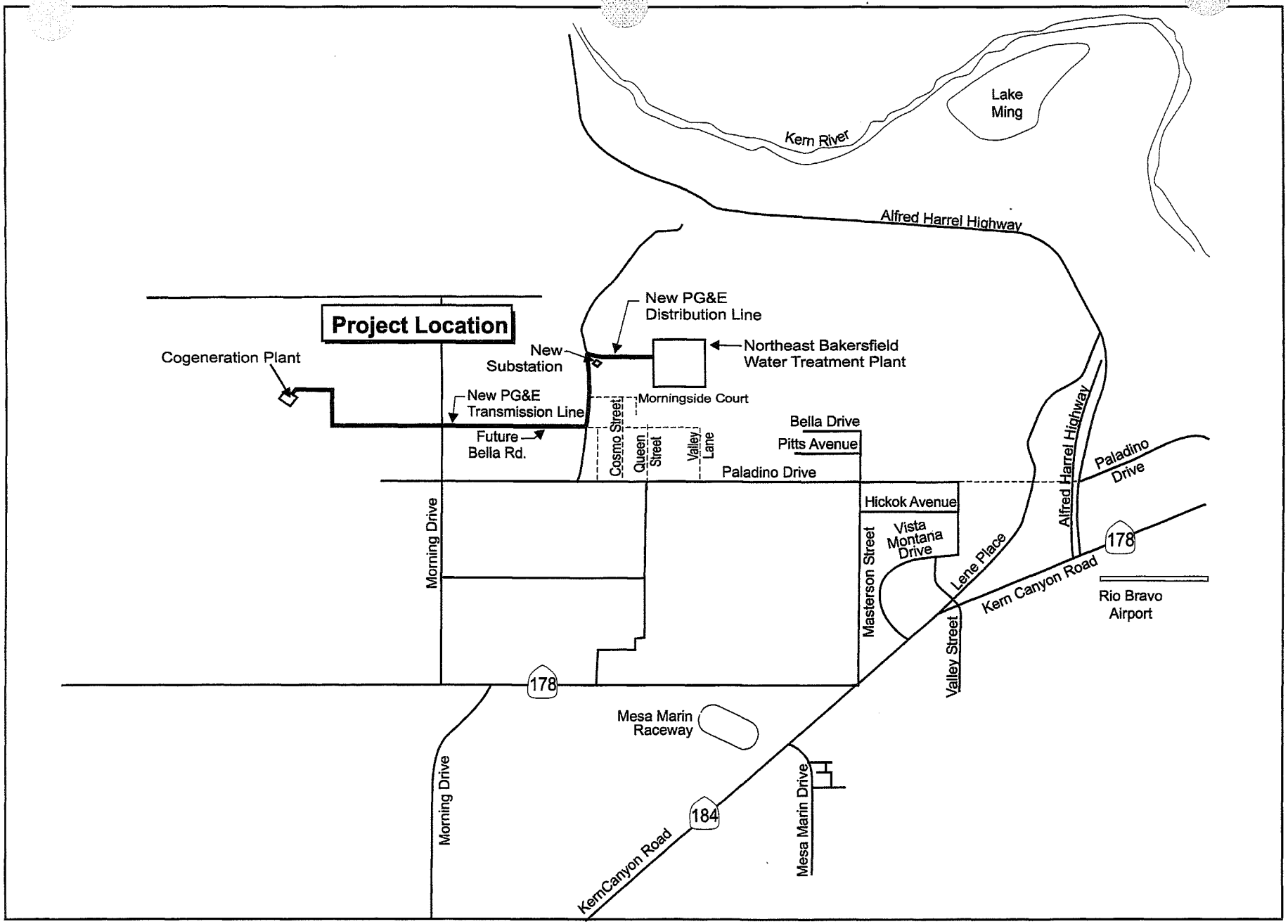
CITY OF BAKERSFIELD • PG&E ELECTRICAL FACILITIES



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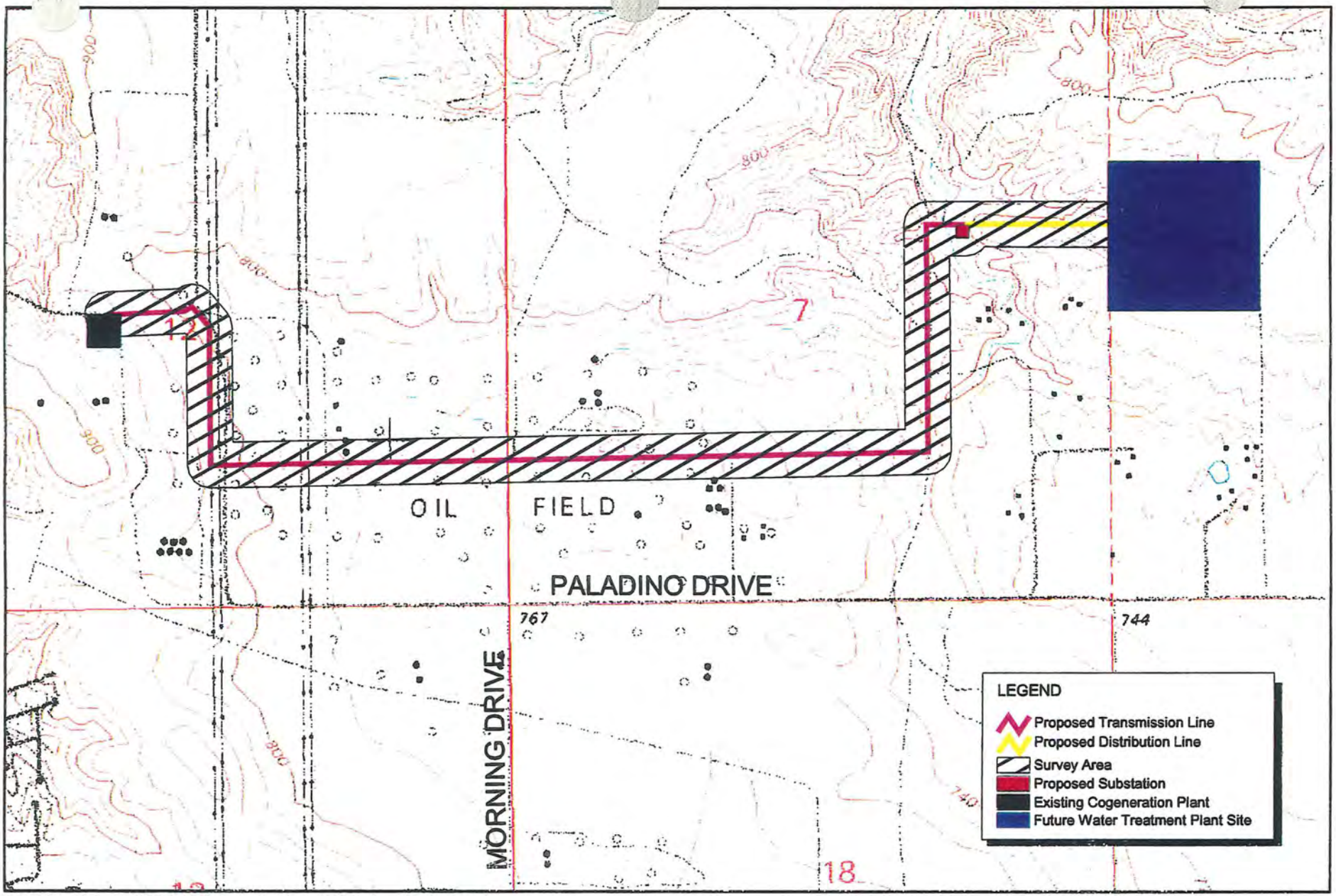
SCALE IN MILES

Michael Brandman Associates

Exhibit **2**

Local Vicinity Map



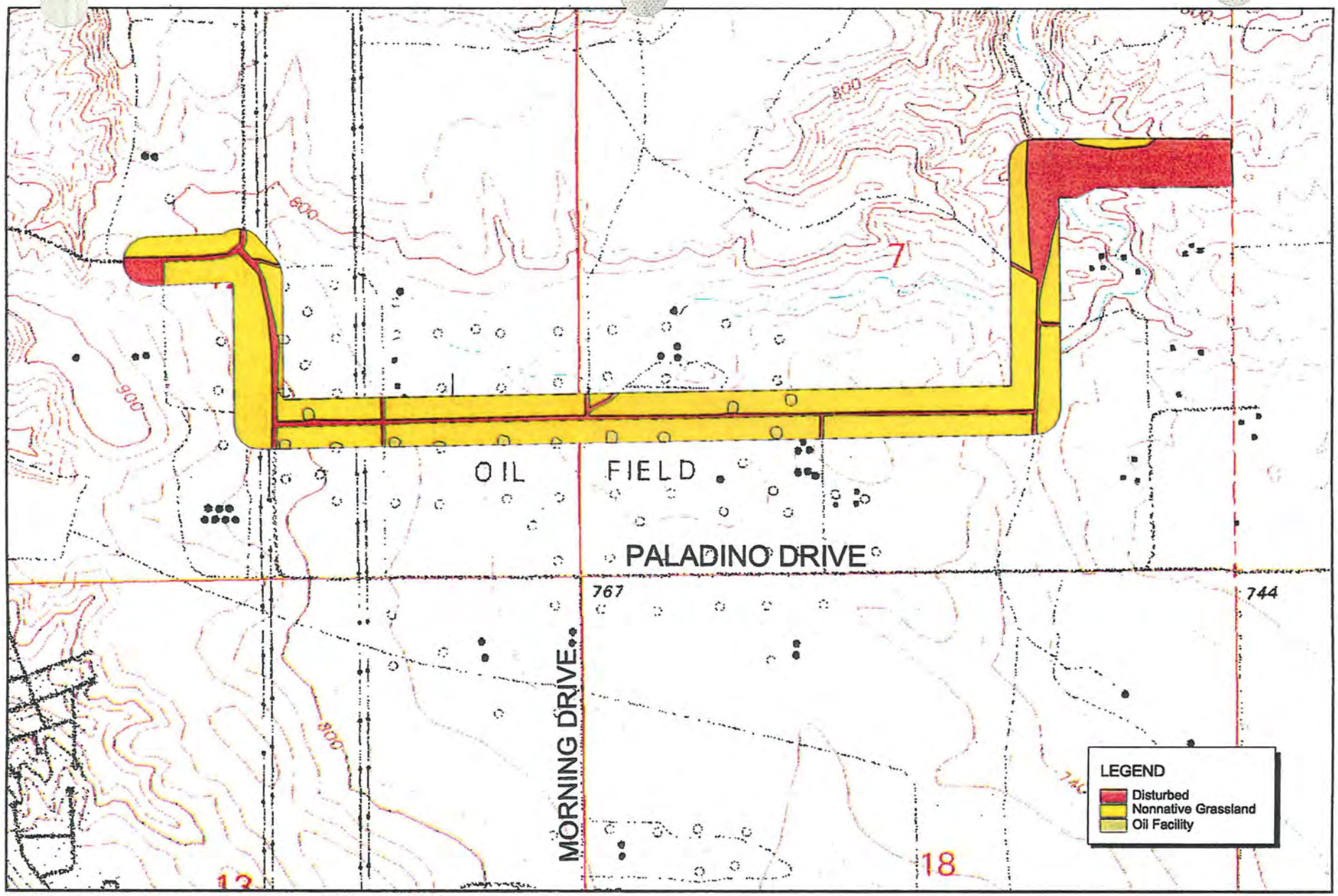
SOURCE: Oil Center USGS 7.5 Topographic Maps. 1995 Horizons Technology, Inc.

NORTH

500 0 500 1000 Feet

Michael Brandman Associates

Exhibit 3
Study Area



SOURCE: Oil Center USGS 7.5 Topographic Maps. 1995 Horizons Technology, Inc.

Michael Brandman Associates

NORTH

500 0 500 1000 Feet

Exhibit 4

Vegetation Communities

02160011 • 1/2002

CITY OF BAKERSFIELD • PG & E ELECTRICAL FACILITIES

SECTION 2
METHODOLOGY

2.1 APPROACH

A preliminary literature review followed by a field visit provided data regarding biological resources on the property. MBA biologist Scott Crawford conducted a reconnaissance-level survey on November 28, 2001. The primary objective of this survey was to document the existing conditions on the property. The biologist recorded all plant and wildlife species observed during the site visit.

The biologist recorded existing conditions within the site, paying specific attention to habitats that may potentially contain special status plant species. Sensitive plants include those listed by the United States Fish and Wildlife Service (USFWS), the California Department of Fish and Game (CDFG), and California Native Plant Society's (CNPS). Surveyors focused on those sensitive plant species potentially occurring within the project site. All suitable habitat areas were recorded in the data sheets.

2.2 LITERATURE REVIEW

A compilation of plant and animal species recorded in the vicinity of the property was derived from the Natural Diversity Database (NDDB), a CDFG species account database. Additional plant species found on or near the property was derived from the CNPS Electronic Inventory of Rare and Endangered Vascular Plants of California database. Federal register listings, protocols, and species data provided by the USFWS and CDFG were reviewed in conjunction with anticipated federally and state listed species potentially occurring within the vicinity. A special status species was considered a potential inhabitant of the project area if its known geographical distribution encompassed all or part of the project area or if its distribution was near the site and its general habitat requirements were present. Furthermore, the potential for each species to occur in the project area was also assessed. The "Potential For Occurrence" ranking is based on the following criteria:

- **Not likely to Occur**—There is no historical record of the species within the vicinity of the project site and no existing suitable habitat within the project site.

- **Low Potential for Occurrence**—There is a historical record of the species within the vicinity of the project site, but no existing suitable habitat.

- **Moderate Potential for Occurrence**—The diagnostic habitats associated with the species occur on or in the immediate vicinity of the project area, but there is not a recorded occurrence of the species within the immediate vicinity of the project site.

- **High Potential for Occurrence**—There is both a historical record of the species on or in the immediate vicinity of the project area and the diagnostic habitats strongly associated with the species occur on or in the immediate vicinity of the project area.

- **Species Present**—The species was observed in the project area at the time of the survey.

All resources utilized during the literature review and other references are listed in Section 6, References. The literature review provided a baseline from which to inventory the biological resources potentially occurring on the electrical facilities site, as well as the surrounding area.

2.3 FIELD RECONNAISSANCE METHODOLOGY

A field survey was conducted within a 400-foot wide study area by a qualified MBA biologist. Special attention was paid to sensitive habitats or those areas potentially supporting sensitive flora and fauna. During the survey effort, a compendium of species identified on the property was created. The reconnaissance-level survey focused on three primary objectives: vegetation mapping, special status species assessment, and habitat assessment. During the field surveys, all observed or detected plant and wildlife species were recorded on standardized data sheets. Typical habitats found throughout the project site were photographed for reference.

2.3.1 HABITAT CLASSIFICATION AND NATURAL COMMUNITY MAPPING

Natural communities were mapped with the aid of a 7.5-minute USGS topographic map. Natural community boundaries were delineated directly onto the map while in the field. Sensitive or unusual biological resources observed in the field were denoted on the map as well. Natural community designations were supported by descriptions contained in Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986 and 1992 update) and Sawyer and Keeler-Wolfe's *A Manual of California Vegetation* (1995). Scientific names are employed upon initial mention of each species; common names are employed thereafter.

2.3.2 GENERAL FLORA

General plant species were identified in the field. Questionable plants were keyed in the laboratory using taxonomical guides. Appendix A, Floral and Faunal Compendia lists all plants observed on the property. Plant taxonomy follows Hickman (1993). Common plant names, when not available from Hickman were taken from Munz (1974). Because common names vary significantly between references, scientific names are included during the first mention of a species; thereafter, common names consistent within the report are used.

2.3.3 GENERAL FAUNA

General fauna surveys were conducted within the study area. The identification of wildlife relied on sight, call, tracks, nests, scat, remains, or other signs. Binoculars and taxonomic keys provided additional support for the identification of wildlife, as necessary. Appendix A, Floral and Faunal Compendia provide a list of observed wildlife species.

Wildlife taxonomy followed Hogue (1992) for invertebrates, Stebbins (1996) for amphibians and reptiles, Petterson (1990) for birds, and Ingles (1965) for mammals. Because common names vary significantly between references, scientific names are included during the first mention of a species; thereafter, common names consistent within the report are used in the remainder of the text. A discussion of the survey methods used follows.

General wildlife surveys were conducted in appropriate habitats only during diurnal activity periods. The intent of these surveys was not to extensively search for every species occurring within the site, but to ascertain the general conditions within the site with respect to habitats and locations of potentially sensitive areas. The discussions in this document of common species potentially present within the property rely on the habitats used by the species and their geographic ranges. The biologist examined habitats for diagnostic wildlife sign such as nests, burrows, tracks, vocalizations, and direct observations. All areas containing potentially suitable habitat were surveyed. While searching for wildlife species, surface litter, stones, fallen bark, and tree branches were examined. Many mammals are nocturnal and secretive, making daytime observations difficult. Therefore, the majority of the information on mammals within the property comes from diagnostic signs.

2.3.4 SPECIAL STATUS SPECIES

The biologist recorded existing conditions within the site, paying specific attention to habitats that may potentially contain special status plant species. Sensitive plants include those listed by the USFWS, the CDFG, and CNPS (particularly lists 1A, 1B, and 2). Surveyors focused on those sensitive species potentially occurring within the project site. All suitable habitat areas were recorded on data sheets.

A biologist searched for sensitive plant and wildlife species concurrently with all other surveys performed on the property. Methods used included slowly walking over all portions of the property. These methods intensified within suitable habitat areas. These surveys were not intended to be protocol surveys for special status wildlife species, but to specifically document any potential habitat for species that are known to occur within the vicinity of the project site.

2.3.5 REGIONAL CONNECTIVITY/WILDLIFE MOVEMENT CORRIDOR ASSESSMENT

The literature review provides a foundation on which to conduct the analysis of wildlife movement corridors associated with the property. Information compiled from the literature review, input from wildlife agency personnel, analysis of aerial photographs and topographic maps, and direct observations made in the field during survey work provide the basis of the assessment.

2.3.6 JURISDICTIONAL WATERS OF THE UNITED STATES

United States Geological Service provides 7.5 minutes topographic quadrangles that provide information regarding potential drainage features within the project site. The United States Department of Agriculture provide soil maps that provide information regarding suitable wetland soils or alluvial soils that may also indicate a drainage feature. During the reconnaissance-level field survey, all potential drainage features were surveyed and a determination was made regarding its jurisdictional potential. All potential drainage features were mapped. This report does not include a formal wetland delineation and does not provide a quantitative analysis regarding the length and size of each drainage feature. The report provides a general account of any drainage features found within the project site and provides additional recommendations if appropriate.

SECTION 3
EXISTING CONDITIONS

3.1 PROPERTY DESCRIPTION

The site contains mostly disturbed nonnative grasslands with oil facilities and baren areas throughout the site. The project site is currently an active oil field that is also used as a grazing area for sheep. There are several utility line poles throughout the area. The eastern portion of the site is currently disturbed due to construction activity associated with the installation of Morning Drive.

3.2 LITERATURE REVIEW RESULTS AND ENVIRONMENTAL POLICY

Prior to initial field investigations, MBA biologist reviewed the results of an extensive literature review to determine the potential resources that may be encountered on the project study area. The literature review began with a review of relevant literature on the biological resources of the property and the surrounding vicinity. The CDFG's Natural Diversity Database and California Native Plant Society's Electronic Inventory of Rare and Endangered Vascular Plants of California were reviewed for all pertinent information regarding the localities of known observations of sensitive resources in the vicinity of the study area.

Sensitive biological resources are habitats or individual species that have special recognition by federal, state, or local conservation agencies and organizations as endangered, threatened, or rare. The CDFG, the USFWS, and special groups like the CNPS maintain watch lists of such resources. A CNDDB search was ran for the following USGS 7.5' series topographic quadrangle maps: Oil Center, North of Oildale, Knob Hill, Pine Mountain, Oildale, Rio Bravo Ranch, Gosford, Lamont, and Edison. A total of thirteen special status plant and nine special status wildlife species were determined to potentially occur within the project vicinity. All resources utilized in this study are listed in Section 6, References.

3.2.1 FEDERAL PROTECTION AND CLASSIFICATIONS

Federal Endangered Species Act (FESA)

The Federal Endangered Species Act of 1973 defines an endangered species as "any species which is in danger of extinction throughout all or a significant portion of its range...". Threatened species are defined as "any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Under provisions of Section 9(a)(1)(B) of the FESA it is unlawful to "take" any listed species. "Take" is defined as follows in Section 3(18) of the Act: "... harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Further, the USFWS, through regulation, has interpreted the terms

"harm" and "harass" to include certain types of habitat modification as forms of "take". These interpretations, however, are generally considered and applied on a case-by-case basis and often vary from species to species. In a case where a property owner seeks permission from a federal agency for an action that could affect a federally listed plant and animal species, the property owner and agency are required to consult with USFWS. Section 9(a)(2)(b) of the federal Endangered Species Act addresses the protections afforded to listed plants. Four federally listed endangered and two federally listed threatened species potentially occur within the .

Clean Water Act (CWA)

Pursuant to Section 404 of the Clean Water Act, the United States Army Corps of Engineers (USACE) regulates the discharge of dredged and/or fill material into waters of the United States. The term "waters of the United States" is defined at 33 CFR Part 328 as: (1) all navigable waters (including all waters subject to the ebb and flow of the tide); (2) all interstate waters and wetlands; (3) all other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce; (4) all impoundments of waters mentioned above; (5) all tributaries to waters mentioned above; (6) the territorial seas; and (7) all wetlands adjacent to waters mentioned above.

In the absence of wetlands, the limits of USACE jurisdiction in non-tidal waters, such as rivers, lakes and intermittent streams, extend to the ordinary high water mark (OHWM). Typically in Southern California, the OHWM is indicated by the presence of an incised streambed with defined bank shelving.

The definition of wetlands has increasingly been interpreted by the USACE to extend beyond the original concept of wetlands as swamps, marshes, and bogs to encompass much drier areas, including some hardwood forests, fields, and cultivated farmland, that may be saturated with rain water for short periods of time during the course of a year. Based on the USGS topographic quadrangle a blue line drainage feature runs parallel to the northern portion of the study area and crosses the site along the eastern portion of the project site before it enters the substation. Currently the blue-line drainage feature has been recently disturbed during the installation of Morning Drive and associated culverts.

Migratory Bird Treaty Act (MBTA)

The Migratory Bird Treaty Act protects all common wild birds found in the United States except the house sparrow, starling, feral pigeon, and resident game birds such as pheasant, grouse, quail, and wild turkeys. Resident game birds are managed separately by each State. A reference list of migratory game birds is found in Title 50, Code of Federal Regulations, Part 10. The Bald Eagle Protection Act

provides further protection to all Bald and Golden eagles. The Endangered Species Act further protects endangered species like the Peregrine falcon, the Northern spotted owl, and the Bald Eagle.

The Migratory Bird Treaty Act makes it unlawful for anyone to kill, capture, collect, possess, buy, sell, trade, ship, import, or export any migratory bird, including feathers, parts, nests, or eggs. The Bald Eagle Protection Act prohibits all commercial activities and some non-commercial activities involving Bald or Golden eagles, including their feathers or parts. A golden eagle (*Aquila chrysaetos*), was observed on the project site during the survey. The Endangered Species Act makes it illegal to sell, harm, harass, possess or remove protected animals from the wild. One bird nest, located within an inactive oil-pumping unit was observed within the vicinity of the project site. There were four raptor species observed foraging within the central and western portions of the study area.

3.2.2 STATE OF CALIFORNIA PROTECTION AND CLASSIFICATIONS

California Endangered Species Act (CESA)

California's Endangered Species Act defines an endangered species as "...a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant which is in serious danger of becoming extinct throughout all, or a significant portion, of its range due to one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, or disease." The State defines a threatened species as "... a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that, although not presently threatened with extinction, is likely to become an endangered species in the foreseeable future in the absence of the special protection and management efforts required by this chapter. Any animal determined by the commission as rare on or before January 1, 1985 is a threatened species." Candidate species are defined as "... a native species or subspecies of a bird, mammal, fish, amphibian, reptile, or plant that the commission has formally noticed as being under review by the department for addition to either the list of endangered species or the list of threatened species, or a species for which the commission has published a notice of proposed regulation to add the species to either list." Candidate species may be afforded temporary protection as though they were already listed as threatened or endangered at the discretion of the Fish and Game Commission. Unlike the federal ESA, CESA does not include listing provisions for invertebrate species.

Under the California Endangered Species Act, "take" is defined as " ...hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Exceptions authorized by the state to allow "take" require "... permits or memorandums of understanding..." and can be authorized for "... endangered species, threatened species, or candidate species for Scientific, educational, or management purposes." Sections 1901 and 1913 of the California Fish and Game Code provide that notification is required prior to disturbance. Four state-listed endangered and two state-listed threatened species potentially occur within the study area. There are also four California Species of

Concern potentially occurring within the study area. These species do not have any legal protection under the state endangered species act, but are taken into consideration during the CEQA environmental review.

3.2.3 SPECIAL INTEREST GROUPS PROTECTION AND CLASSIFICATIONS

California Native Plant Society (CNPS)

The California Native Plant Society is a California resource conservation organization that has developed an inventory of California's sensitive plant species (Skinner and Pavlik 1994). This inventory is the summary of information on the distribution, rarity, and endangerment of California's vascular plants. No special status plant species were observed on the project site. There are thirteen special status plant species that potentially occur within the project site.

3.3 FIELD RECONNAISSANCE RESULTS

3.3.1 HABITAT CLASSIFICATION AND NATURAL COMMUNITY MAPPING

Natural community names and hierarchical structure follows the Holland's *Preliminary Descriptions of the Terrestrial Natural Communities of California* (1986 and 1992 update). A brief summary of each natural community is discussed below. A map of natural communities within the project study area is included in Exhibit 4.

Nonnative Grassland (42200)

Nonnative grassland typically occurs in upland areas and with deep soils of relatively flat terrain or gradual slopes below 3,000 feet in elevation. It is represented by a dense-to-sparse cover of annual and/or perennial grasses often associated with numerous species of showy flowered, native annual forbs. Dominant genera in nonnative grassland include brome and chess (*Bromus* sp.), wild oat *(Avena sp.),* and barley (*Hordeum* sp.). Many species of native forbs and bulbs, as well as naturalized annual forbs, are also found in nonnative grassland. Floristic richness is affected to a high degree by land use activity, such as intensity and duration of grazing, fires, or other disturbances. The nonnative grassland habitat also contains elements of sage scrub habitats such as slender tarweed, western ragweed, saw-toothed golden bush and four-wing salt bush.

Development

Developed areas include any form of human disturbances, especially in cases of permanent impacts to natural communities. Developed areas would include dirt roads, pavement, concrete, buildings and structures, bridges, active agricultural activities, and permanent flood control measures. The area surrounding the existing Bear Mountain Congeneration Plant contains a variety of native and

nonnative artificially irrigated landscape vegetation. The vegetation in this area does not contain local floral species.

There are two areas within the vicinity of the Bear Mountain Congeneration Plant that contain two rows of four-wing salt bush. Atriplex scrub is considered to be suitable habitat for several special status plant species. However due to the linear nature of the vegetation (two shrubs wide) and lack of habitat linkage or adjacent habitat, it was not considered to be a separate vegetation community.

3.3.2 GENERAL FLORAL RESULTS

Plant species found within the project study area, were those typically associated with disturbed nonnative grassland habitats. Vegetation was dominated by Russian thistle (*Salsola traugus*) and long-stemmed storks bill (*Erodium botyrs*). Due to the time of year and heavy grazing activity in the area, the majority of the vegetation was extremely small and difficult to identify. The majority of the shrub species observed within the project site are also typically associated with disturbed areas such as turkey mullein (*Eremocarpus setigerus*) and saw-toothed golden bush (*Hazardia squarrosus*). Floral species observed within the project footprint are indicated in Appendix A, Floral and Fauna Compendia.

3.3.3 GENERAL FAUNAL RESULTS

Plant communities form the basis of the wildlife habitats. They provide the primary plant productivity upon which wildlife depends, along with nesting and denning sites, escape cover and protection from adverse weather. Many of the wildlife species that occur in the area use plant communities to obtain all their life history needs. In general, more complex plant communities (with more layers of vegetation and more species) have more niches for wildlife and so provide higher value wildlife habitat than less complex vegetation communities. More complex plant communities usually support more animal species than less complex communities. Although simple plant communities may support few wildlife species, they may provide habitat for large numbers of those few species. Following are discussions of wildlife populations on the property, segregated by taxonomic group. Representative examples of each taxonomic group either observed or expected within the study area are provided. Wildlife species actually observed within the study area and immediate vicinity are indicated in Appendix A, Floral and Faunal Compendia.

Invertebrates

All invertebrate species observed and identified were recorded and are included in Appendix A, Floral and Faunal Compendia. Insect species observed during the site survey included painted lady (*Vanessa cardui*) and trap door spider (*Bothriocyrtum* sp).

Reptiles

Reptilian diversity and abundance typically varies with habitat type and character. Some species prefer only one or two natural communities; however, most will forage in a variety of communities. A number of reptile species prefer open habitats that allow free movement and high visibility. Most species occurring in open habitats rely on the presence of small mammal burrows for cover and escape from predators and extreme weather.

The property has many essential reptilian habitat characteristics, such as rodent burrows, basking sites, and low ground cover. It also possesses the potential to support a wide variety of reptilian species. Reptile species expected to occur on the project site include western fence lizard (*Sceloporus occidentalis*), side-blotched lizard (*Uta stansburiana*), and gopher snake (*Pituophis melanoleucus*).

Avian

The study area provides low quality foraging and cover habitat for year-round residents, seasonal residents, and migrating songbirds. However, the area proposed for installation of the overhead utility line contains good quality foraging habitat raptor species. All avian species observed and identified on the property are included in Appendix A, Floral and Faunal Compendia. The project site contains avian species that are typically associated with nonnative grassland habitats including red-tailed hawk (*Buteo jamaicensis*), western meadowlark (*Sturnella neglecta*), mourning dove (Zenaida macroura), and common raven (*Corvus corax*).

Mammals

The diversity of habitats on the property is anticipated to support a variety of mammals. Mammal presence was deduced by diagnostic signs (track, scat, burrows, etc.). All mammals observed on the property and identified are listed in Appendix A, Floral and Faunal Compendia. Mammals that would be expected to occur within the project study area are those species typically found nonnative grassland habitats such as deer mouse (*Peromyscus maniculatus*), desert cottontail (*Sylvilagus audubonii*), and coyotes (*Canis latrans*).

3.3.4 SENSITIVE STATUS SPECIES RESULTS

Sensitive Floral Results

Sensitive plants include those listed, or candidates for listing by USFWS, CDFG, and CNPS (particularly list 1A, 1B, and 2). Thirteen sensitive plant species were reported in the CNDDB. A discussion of each sensitive species recognized by the CNDDB and MBA as potentially present within the study area is presented in Table 1. A total of six species identified by the CNDDB have low potential to occur onsite while six species have moderate potential to occur on site. One special

status species was observed on the project site and is considered to be present. The Bakersfield cactus was observed in two locations in the eastern portion of the project site. Six of the special status species occur within atriplex scrub. It was determined that atriplex scrub does not occur within the project study area, however, there are two areas within the vicinity of the Bear Mountain Cogeneration Plant that may provide some low quality habitat for these six species. These areas were thoroughly surveyed and no sensitive plant species were observed.

Sensitive Faunal Results

Sensitive wildlife includes those listed, or candidates for listing by USFWS and CDFG. Nine sensitive wildlife species were reported in the CNDDB. A discussion of each sensitive species recognized by the CNDDB and MBA as potentially present on the property is presented in Table 2. A total of seven species identified by the CNDDB have low potential to occur with the study area while one species identified has moderate potential to occur within the study area. The San Joaquin kit fox was determined to have a high potential to occur within the project site. There is suitable habitat within the study area for this species as well as several potential den sites located within the study area. A small kit-fox size carcass was observed within the southeastern corner of the project site, but no skull was present which made identification difficult. Based on the general carcass size and kit-fox size tracks and scat within the vicinity, it is likely that the carcass was a kit fox.

In addition, several raptor species were observed within the project study area immediate vicinity including red-tailed hawk, northern harrier, American kestrel, and golden eagle.

TABLE 1
SENSITIVE FLORAL RESULTS

Species		Status			Life Form	Blooming Period	Required Habitat	Occurrence
Scientific Name	Common Name	USFWS	CDFG	CNPS				
Atriplex tularensis	Bakersfield smallscale	none	SE	1B	annual herb	June-October	chenopod scrub	No suitable habitat present. Low potential to occur.
Caulanthus californicus	California jewel-flower	FE	SE	1B	annual herb	February-May	chenopod scrub, valley and foothill grassland, pinyon and juniper woodland	Marginal quality nonnative grassland and components of chenopod scrub present but no recorded occurrence in vicinity. Moderate potential to occur.
Clarkia tembloriensis ssp. *calientensis*	Vasek's clarkia	none	none	1B	annual herb	April	valley and foothill grassland	Marginal quality nonnative grassland present but no recorded occurrence in vicinity. Moderate potential to occur.
Fritillaria striata	striped adobe-lily	none	ST	1B	perennial herb (bulb)	February-April	cismontane woodland forest, valley and foothill grassland (adobe)	Marginal quality nonnative grassland present but no recorded occurrence in vicinity. Moderate potential to occur.
Heterotheca shevockii	Shevock's golden-aster	none	none	1B	perennial herb	August-November	chaparral, cismontane woodland (sandy)	No suitable habitat present. Low potential to occur.
Layia leucopappa	Comanche point layia	none	none	1B	annual herb	May-April	chenopod scrub, valley and foothill woodland	No suitable habitat present. Low potential to occur.
Mimulus pictus	calico monkey-flower	none	none	1B	annual herb	April-May	Broadleafed upland forest, cismontane woodland (granitic)	No suitable habitat present. Low potential to occur.
Lembertia congdonii	San Joaquin woollythreads	FE	none	1B	annual herb	March-May	Chenopod scrub, valley and foothill grassland (sandy)	Marginal quality nonnative grassland and components of chenopod scrub present but no recorded occurrence in vicinity. Moderate potential to occur.

TABLE 1 (Cont.)
SENSITIVE FLORAL RESULTS

Species		Status			Life Form	Blooming Period	Required Habitat	Occurrence
Scientific Name	Common Name	USFWS	CDFG	CNPS				
Navarretia setiloba	Piute mountains navarretia	none	none	1B	annual herb	April-June	Cismontane woodland, pinyon and juniper woodland, valley and foothill grasslands (clay or gravelly loam)	Marginal quality nonnative grassland present but no recorded occurrence in vicinity. Moderate potential to occur.
Opuntia basilaris var *treleasei*	Bakersfield cactus	FE	SE	1B	shrub (stem succulent)	May	Chenopod scrub, valley and foothill grassland (sandy)	Species observed at east end of site.
Pseudobahia peirsonii	San Joaquin adobe sunburst	FT	SE	1B	annual herb	March-April	Cismontane woodland, valley and foothill grassland (adobe)	Marginal quality nonnative grassland present but no recorded occurrence. Moderate potential to occur.
Stylocline citroleum	oil neststraw	none	none	1B	annual herb	March-April	Chenopod scrub, coastal scrub (clay)	No suitable habitat present. Low potential to occur.
Stylocline masonii	Mason's neststraw	none	none	1B	annual herb	March-April	Chenopod scrub, pinyon and juniper woodland (sandy)	No suitable habitat present. Low potential to occur.

Federal Endangered Species Act (FESA) Listing Codes
- FE Federally listed as Endangered
- FT Federally listed as Threatened
- FPE Federally proposed for listing as Endangered
- FPT Federally proposed for listing as Threatened
- FPD Federally proposed for delisting
- FSC Federal Species of Concern

California Endangered Species Act (CESA) Listing Codes
- SE State listed as Endangered
- ST State listed as Threatened
- SCE State candidate for listing as Endangered
- SCT State candidate for listing as Threatened

California Native Plant Society
- 1A Presumed extinct in California
- 1B Rare or Endangered in California and elsewhere
- Rare or Endangered California, more common elsewhere
- Plants for which we need more information—Review list
- Plants of limited distribution—Watch list

TABLE 2
SENSITIVE FAUNAL RESULTS

Species		Status			Distribution	Required Habitat	Occurrence
Scientific Name	**Common Name**	**USFWS**	**CDFG**	**OTHER**			
Agelaius tricolor	tricolored blackbird	none	CSC	none	s. Oregon to nw Baja California	Cattail, or tule marshes, fields	No suitable habitat present. Low potential to occur.
Antrozous pallidus	pallid bat	none	CSC	none	w. U.S. to Mexico	caves, tunnels, mines, crevices in rock used for roosts	No suitable habitat present. Low potential to occur.
Athene cunicularia	burrowing owl	none	CSC	none	sw Canada, w. U.S. Florida to s. Argentina	grassland, prairies, farmland	Suitable habitat present but no recorded occurrence. Moderate potential for species to occur.
Clemmys marmorata pallida	southwestern pond turtle	FSC	CSC	none	west of Sierra-Cascade crest, Mojave desert to 6000 ft.	permanent, or nearly permanent fresh water areas	No suitable habitat present. Low potential to occur.
Danaus plexippus	monarch butterfly	none	none	none	coast of California from Mendicino county to Baj California	eucalyptus, Monterey pine, cypress groves	No suitable habitat present. Low potential to occur.
Desmocerus californicus dimorphus	valley elderberry longhorn beetle	FT	none	none	central valley of California	Areas containing elderberry, soft friable soils	No suitable habitat present. Low potential to occur.
Helminthoglypta callistoderma	Kern shoulderband	none	none	none	Tulare and Kern Counties, Along Kern River	river and stream edges	No suitable habitat present. Low potential to occur.
Onychomys torridus tularensis	Tulare grasshopper mouse	none	none	none	scrub deserts of San Joaquin Valley	desert scrub	No suitable habitat present. Low potential to occur.

TABLE 2 (Cont.)
SENSITIVE FAUNAL RESULTS

Species		Status			Distribution	Required Habitat	Occurrence
Scientific Name	**Common Name**	**USFWS**	**CDFG**	**OTHER**			
Vulpes macrotis mutica	San Joaquin kit fox	FE	ST	none	western extent of San Joaquin Valley	sagebrush scrub, valley grassland, creosote bush scrub	Suitable habitat present. During survey potential carcass, tracks, and scat observed. High potential for species to occur.

Federal Endangered Species Act (FESA) Listing Codes
- FE Federally listed as Endangered
- FT Federally listed as Threatened
- FPE Federally proposed for listing as Endangered
- FPT Federally proposed for listing as Threatened
- FPD Federally proposed for delisting
- FSC Federal Species of Concern

California Endangered Species Act (CESA) Listing Codes
- SE State listed as Endangered
- ST State listed as Threatened
- SCE State candidate for listing as Endangered
- SCT State candidate for listing as Threatened
- CSC California Special Concern Species
- FP Fully Protected
- P Protected

3.3.5 REGIONAL CONNECTIVITY/WILDLIFE MOVEMENT CORRIDOR ASSESSEMENT

One aspect of this study is to determine if the alteration of current land use within the study area will have significant impacts on the regional movement of wildlife. This study did not include the use of track plates, camera stations, scent stations, or snares. Instead, notation was made during all site visits of road kill, general locations of animal sign, and inspection of resource maps for the vicinity. These conclusions are based on the knowledge of desired topography and resource requirements for wildlife potentially utilizing the area surrounding the PG&E electrical facilities portion of the City in the Hills project.

Currently, wildlife have nearly uninhibited movement across the study area. Coyote and kit-fox size tracks were observed along the dirt access roads throughout the project site. The project site is better described as foraging habitat and not as a wildlife movement corridor on a regional basis. Installation of the proposed electrical facilities may limit wildlife trail systems temporarily during installation, but wildlife movement is not likely to be affected on a permanent basis.

3.3.6 JURISDICTIONAL WATERS OF THE UNITED STATES

The project site contains a single drainage feature located within the northeastern portion of the project site, southwest of the proposed substation. This drainage feature flows from the north and is contained within a drainage feature with a defined bed and bank. Currently, the recently constructed road improvements have contained the drainage underneath a road crossing with a large culvert. There is a small roadside drainage feature within the western portion of the drainage, but is limited to a small stretch or road before it sheet flows. There is no other definable bed and bank and it did not flow into any adjacent drainage features. It was determined that this roadside drainage feature did not qualify as a Water of the United States.

SECTION 4
PROJECT RELATED IMPACTS

4.1 APPROACH TO THE ANALYSIS

The following discussion examines the potential impacts to biological resources that may occur as a result of implementation of the proposed electrical facilities. The determination of impacts in this analysis is based upon development maps of the project illustrating the proposed development. This description was applied to maps of natural communities, sensitive species, and habitat distribution. Whereas this assessment is comprehensive, the focus is on listed or otherwise sensitive biological resources. Pursuant to thresholds of significance used in this analysis, impacts to the following biological resources were evaluated to determine the level of significance.

4.2 IMPACTS ON NATURAL COMMUNITIES

Installation of the proposed PG&E electrical facilities would impact nonnative grassland and disturbed areas. Therefore, impacts to natural communities associated with installation of the proposed facilities are considered less than significant.

4.3 IMPACTS ON GENERAL FLORA

Project implementation would result in the direct removal of common plant species on the project site. Common plant species present on the site occur in large numbers throughout the region and although adverse, impacts are not considered significant. In addition, common plant species existing within disturbed areas on the site are typically disturbance-tolerant, and are found off-site on suitable habitat in remaining open space throughout the region. Impacts to general plant species are considered to be less than significant.

4.4 IMPACTS ON GENERAL FAUNA

Project implementation may potentially result in direct removal of existing wildlife habitat and disturbance of numerous common wildlife species existing within the study area. Common wildlife species using habitats on the site would likely utilize adjacent habitats. Elimination or disruption of habitat for these species would not represent a regionally significant impact, and no significant impacts on common wildlife resources would result from implementation of the PG&E electrical facilities.

4.5 IMPACTS ON SPECIAL STATUS SPECIES

4.5.1 IMPACTS ON SENSITIVE FLORA

During the project surveys, two small remnant patches of Bakersfield cactus were observed within the vicinity of the proposed transmission line. The Bakersfield cactus patches are located approximately 20 to 50 feet from the existing graded area associated with Morning Drive. The Bakersfield cactus is a federal- and state-listed endangered species, therefore, impacts to this species are considered significant. Due to the nature of the project, overhead transmission lines, the potential for impacting this species is low.

4.5.2 IMPACTS ON SENSITIVE FAUNA

During the site survey, a potential San Joaquin kit fox carcass was observed on the property. In addition, potential San Joaquin kit fox tracks, scat, and den sites was identified on the property. The San Joaquin kit fox is federally endangered and, therefore, impacts to this species are considered significant. In addition, the study area provides suitable habitat for the blunt-nosed leopard lizard. Impacts to this species is also considered significant. Due to the nature of the project, overhead transmission lines, the potential for impacting these species is low. Also the proposed substation site and underground distribution line areas have been previously disturbed due to the development associated with the installation of the Northeast Bakersfield Bike Path and Water Facilities project. A total of approximately 0.4 to 0.6 acre of suitable San Joaquin kit fox and blunt-nosed leopard lizard habitat is proposed to be impacted during installation of the proposed PG&E facilities.

Trap door spider, a species of invertebrates that some local agencies consider sensitive, was observed during the survey. Impacts to trap door spider could be considered significant by some local agencies but are not considered significant with respect to USFWS and CDFG.

In the event that a raptor is nesting or perching on existing equipment, installation of the project may potentially impact nesting or perching raptors. Impacts to nesting birds are considered to be a significant impact under CEQA.

4.6 IMPACTS ON WILDLIFE MOVEMENT CORRIDORS

The site is not considered to be a wildlife corridor and exhibits characteristics more fitting of general wildlife foraging habitat. Because potential movement will not be restricted by project implementation, no significant impacts are anticipated.

4.7 IMPACTS TO JURISDICTIONAL WATERS OF THE UNITED STATES

The proposed transmission line will likely follow the existing dirt access road across the existing drainage feature with no impacts to jurisdictional waters. The proposed substation footprint is not located within any jurisdictional areas.

SECTION 5
MITIGATION MEASURES

5.1 APPROACH

Mitigation measures are recommended for those impacts that are determined to be significant to sensitive biological resources. The following mitigation measures address significant impacts related to the development of the PG&E electrical facilities portion of the City in the Hills project.

5.2 MITIGATION MEASURES FOR SIGNIFICANT IMPACTS

The project study area is within the area covered by the Metropolitan Bakersfield Habitat Conservation Plan (MBHCP). The goal of the MBHCP is to acquire, preserve, and enhance native habitats which support endangered and sensitive species, while allowing urban development to proceed as set forth in the Metropolitan Bakersfield 2010 General Plan. The plan generally takes a broad ecosystem approach on conservation of endangered species and requires development fees to be paid as mitigation for impacts. These fees are used for the acquisition and management of lands for conservation which are held in perpetuity. The Plan also requires impact avoidance measures. The MBHCP does not eliminate the need to consider endangered species under CEQA, but it does establish programmatic mitigation for project impacts on endangered species.

Mitigations for impacts to special-status species on the site are covered by meeting the compensation and avoidance requirements of the MBHCP and associated Implementing Agreement. These are described below.

Special-Status Species

1. Prior to the issuance of a grading permit, the project applicant shall pay a development fee in accordance with the MBHCP.

2. Prior to the issuance of a grading permit for the PG&E electrical facilities, the project proponent shall comply with all appropriate terms and conditions of the MBHCP. The MBHCP requires certain take avoidance measures for the San Joaquin kit fox. MBHCP guidelines regarding tracking and excavation shall be followed to prevent entrapment of kit fox in dens. Specific measures during the construction phase of the project shall be implemented and include the following:

    a. A preconstruction survey shall be conducted prior to site grading to search for active kit fox dens. The survey shall be conducted not more than 30 days prior to the onset of construction activities in areas subject to development to determine the necessity of den excavation.

b. Monitoring and excavation of each known San Joaquin kit fox den which cannot be avoided by construction activities shall occur.

c. Notification of wildlife agencies of relocation opportunity prior to ground disturbance in areas of known kit fox dens shall be provided.

d. Excavations shall either be constructed with escape ramps or covered to prevent kit fox entrapment. All trenches or steep-walled excavations greater than three feet deep shall include escape ramps to allow wildlife to escape. Each excavation shall contain at least one ramp, with long trenches containing at least one ramp every 1/4 mile. Slope of ramps shall be no steeper than 1:1.

e. All pipes, culverts or similar structures with a diameter of four inches or greater shall be kept capped to prevent entry of kit fox. If they are not capped or otherwise covered, they will be inspected prior to burial or closure to ensure no kit foxes, or other protected species, become entrapped.

f. All employees, contractors, or other persons involved in the construction of the project shall attend a "tailgate" session informing them of the biological resource protection measures that will be implemented for the project. The orientation shall be conducted by a qualified biologist and shall include information regarding the life history of the protected species, reasons for special status, a summary of applicable environmental law, and measures intended to reduce impacts.

g. All food, garbage, and plastic shall be disposed of in closed containers and regularly removed from the site to minimize attracting kit fox or other animals.

3. The location of the support poles for the transmission line adjacent to Morning Drive will be designed to avoid the removal of Bakersfield Cactus species.

Mitigations for impacts to special-status species on the site are covered under the terms and conditions of the MBHCP and associated Implementing Agreement. The compensation and avoidance requirements of the MBHCP are consistent and follow an ecosystem management approach for endangered species, and provide adequate compensation for covered species and all other potentially occurring special-status species.

Impacts to special status species that are not included in the MBHCP would be mitigated by the actions taken to meet the requirements of the MBHCP. No additional mitigations are recommended for special status species that are not included in the MBHCP.

Raptor Nest Disturbance

5. Prior to the issuance of a grading permit for the approximately 694-acre site, the project applicant shall comply with the following raptor nest mitigation:

a. If site grading is proposed during the raptor nesting season (February-September), a focused survey for raptor nests shall be conducted by a qualified raptor biologist prior to grading activities in order to identify active nests in areas potentially impacted by project implementation.

b. If construction is proposed to take place during the raptor nesting/breeding season (February - September), no construction activity shall take place within 500 feet of an active nest until the young have fledged (as determined by a qualified raptor biologist). Any nests that must be removed as a result of project implementation shall be removed during the non-breeding season (October-January).

c. Preconstruction surveys shall include a survey for burrowing owl. If active burrowing owl burrows are detected outside of breeding season (September 1 through January 31), passive and/or active relocation efforts may be undertaken if approved by CDFG and USFWS. If active burrowing owl burrows are detected during breeding season (February 1 through August 31), no disturbance to these burrows shall occur without obtaining appropriate permitting through the Migratory Bird Treaty Act.

Indirect Impacts

6. During construction, site boundaries shall be clearly marked with flagging, fencing, or other suitable material to prevent construction equipment and vehicles from impacting adjacent habitat areas potentially occupied by special status species.

5.3 LEVEL OF SIGNIFICANCE AFTER MITIGATION

After implementation of the above mitigation measures, project impacts on biological resources would be less than significant.

SECTION 6
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ATTACHMENT A
FLORAL AND FAUNAL COMPENDIUM

FLORAL COMPENDIA

Asteraceae	**Sunflower Family**
Ambrosia psilostachya	western ragweed
Centaurea melitensis	yellow-star thistle
Hazardia squarrosa	sawtooth goldenbush
Hemizonia fasciculata	slender tarweed
Brassicaceae	**Mustard Family**
Brassica sp.	mustard
Chenopodiaceae	**Goosefoot Family**
Atriplex canescnes	four-winged saltbush
Salsola tragus	Russian thistle
Euphorbiaceae	**Spurge Family**
Eremocarpus setigerus	turkey mullein
Geraniaceae	**Geranium Family**
Erodium brachycarpum	filaree
Poaceae	**Grass Family**
Bromus rigidus	ripgut brome
Salicaceae	**Willow Family**
Populus fremontii	Fremont cottonwood
Tamaricaceae	**Tamarisk Family**
Tamarix ramosissima	salt cedar

FAUNAL COMPENDIA

INVERTEBRATES	
Nymphalidae	**Brush-Footed Butterflies**
Vanessa cardui	painted lady
Ctenizidae	**Trap Door Spiders**
Bothriocyrtum sp.	trap door spider
REPTILES	
Iguanidae	**Iguanid Lizards**
Sceloporus occidentalis	western fence lizard
BIRDS	
Falconidae	**Caracaras and Falcons**
Falco sparverius	American kestrel
Buteos	**Buzzard Hawks**
Circus cyaneus	northern harrier
Aquila chrysaetos	golden eagle
Buteo jamaicensis	red-tailed hawk
Charadriidae	**Plovers**
Charadrius vociferus	killdeer
Columbidae	**Pigeons and Doves**
Zenaida macroura	mourning dove
Corvidae	**Crows, Jays**
Corvus corax	common raven
Emberizidae	**Blackbirds, Orioles, etc**
Melospiza melodia	song sparrow
Sturnella neglecta	western meadowlark
Fingillidae	**Finches**
Carpodacus mexicanus	house finch
Laniidae	**Shrikes**
Lanius ludovicianus	loggerhead shrike
Sturnidae	**Starlings**
Sturnus vulgaris	European starling
Tyrannidae	**Tyrant Flycatchers**
Sayornis saya	Say's phoebe
MAMMALS	
Bovidae	**Cattle, Sheep, and Goats**
Ovis sp.	sheep
Canidae	**Foxes, Wolves, and Coyotes**

Canis latrans	coyote
Equidae	**Horses, Burros, Zebras**
Equus sp.	horse
Leporidae	**Hares and Rabbits**
Sylvilagus auduboni	audubon cottontail
Sciuridae	**Squirrel Family**
Spermophilus beecheyi	Beechey ground squirrel

CULTURAL RESOURCES ASSESSMENT OF PG&E ELECTRICAL FACILITIES NORTHEAST BAKERSFIELD, KERN COUNTY, CALIFORNIA

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1 Regional Location Map 2

2 Local Vicinity Map 2

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CULTURAL RESOURCES ASSESSMENT

1 INTRODUCTION

This Cultural Resources Assessment was prepared to determine the potential effects of implementing a transmission line, substation, and distribution line on existing cultural resources. Excavations are proposed at the substation site as well as at the support poles for the transmission and distribution lines. The project site is located within the Pacific Gas and Electric (PG&E) service area in northeast Bakersfield. The proposed electrical facilities will facilitate the development of the City in the Hills project.

This assessment document cultural resources (paleontologic and archaeologic) assessments conducted by Michael Brandman Associates (MBA) for the PG&E Electrical Facilities Project. Completion of these tasks complies with the California Environmental Quality Act (CEQA), the National Environmental Policy Act (NEPA), and the National Historic Preservation Act as Amended, and Executive Order 11593.

2 PROJECT LOCATION

The project site is located in the northeastern portion of the City of Bakersfield in Kern County, approximately 8.5 miles east of State Route 99 and 3 miles north of SR 58. The project site consists of approximately 694 acres and the majority of the site is generally located north of SR 178, west of Masterson Lane, south of Paladino Drive, and east of the future extension of Vineland Road that is located approximately one mile east of Morning Drive. The project site is located on the United States Geologic Services (USGS) topographic map in Sections 17 (640.1 acres), the Southeast ¼ of the Southeast ¼ of Section 18 (40 acres), the extreme northeast portion of Section 19 (9 acres), and the extreme northwest portion of Section 20 (4.9 acres) in Township 29 South (S) and Range 29 East (E) (See Exhibit 1—regional location map).

The focus of this addendum is a linear portion of the project site, which is 11,970 linear feet in total, and located to the northeast of the main 694-acre proposed development site. The linear portion of the project site will parallel future Bella Road, which is just north of existing Paladino Drive See Exhibit 2—local vicinity map).

More specifically, an electricity transmission line, substation, and distribution line are proposed with the linear footprint. The electrical facilities are proposed to serve the City in the Hills project as well as the water treatment plant located east of the proposed substation site. The transmission line will start in Section 12 at Bear Mountain cogeneration plant and end in Section 7 at an approximately 19,600 square foot proposed substation site. The Bear Mountain cogeneration plant is located in the

west half of Section 12, Township 29S, Range 29E. From the cogeneration plant, the electrical facilities site travels approximately 900 feet west, then approximately 1,300 feet south until intersecting with future Bella Road. The site parallels future Bella Road for approximately 6,400 feet west until intersecting existing Morning Drive. From this point, the site continues approximately 2,050 feet north along the Morning Drive right-of-way and ends at the proposed substation that is 160 feet east of Morning Drive. From the substation site, a distribution line will extend to the previously approved and currently under construction water treatment plant. (See Exhibit 3—study area).

3 GEOLOGIC SETTING

The project area consists of Quaternary terrace deposits, characterized by poorly consolidated, coarse sediments deposited by the Kern River in the upper Pleistocene-Holocene. The Kern River Formation (nonmarine; upper Miocene, Pliocene, and early Pleistocene) and the Round Mountain Silt Member of the Temblor Formation (marine; upper Miocene) are exposed to the north, particularly in the bluffs along the Kern River, and it is likely that these older units are in the subsurface of the project site.

4 CULTURAL SETTING

4.1 PREHISTORIC PERIOD

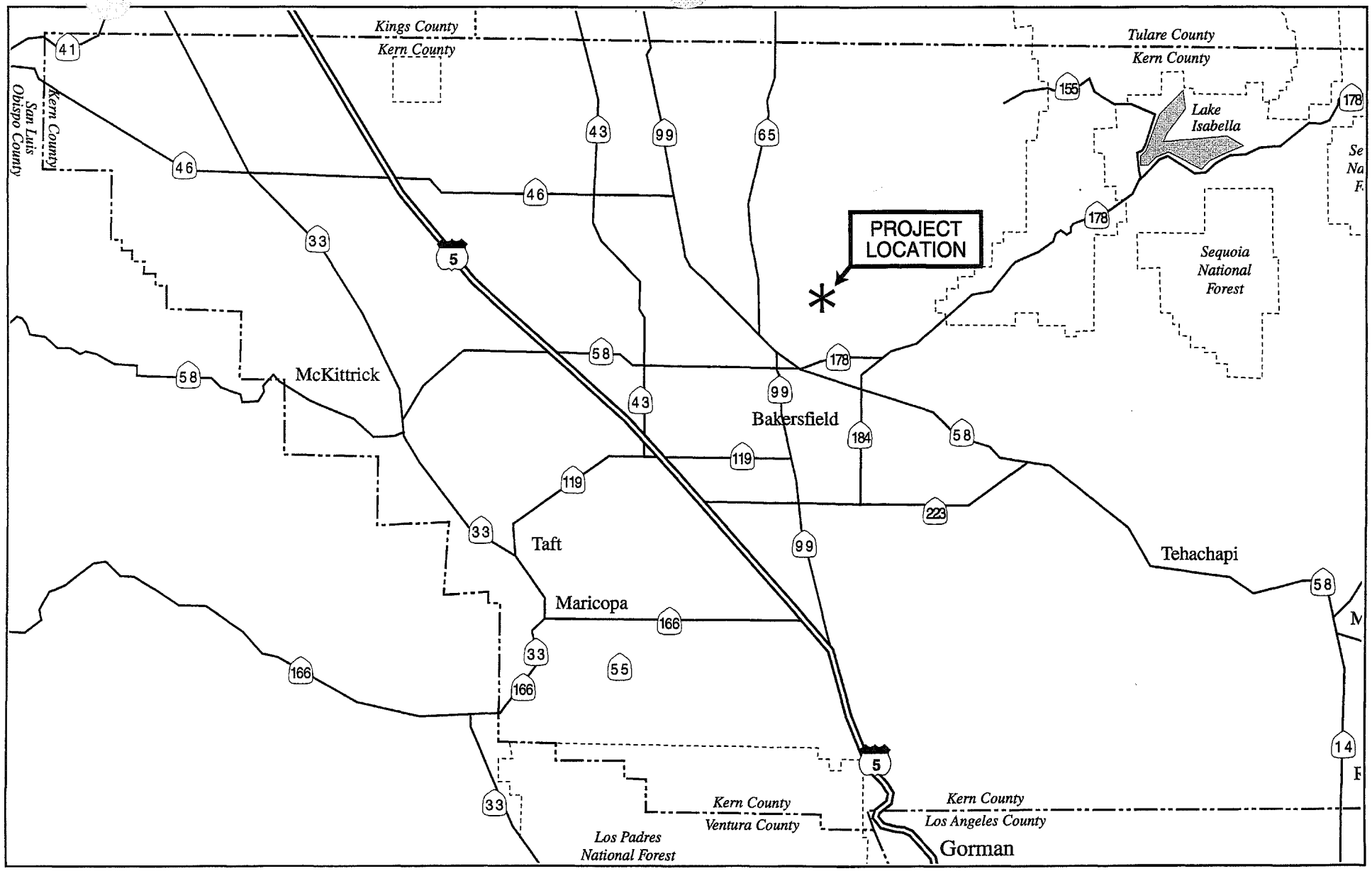
According to Moratto (1984), four main horizons can be defined in the southern San Joaquin Valley prehistoric cultural chronology:

PaleoIndian (10,000 - 6,000 B.C.)

Evidence of human habitation in the southern San Joaquin Valley dates to 12,000 years before present. Only a few sites dating to this early period have been identified. The most notable is the Witt Site on the ancient shoreline of Tulare Lake. Archaeological evidence consists of large, fluted projectile points and other stone artifacts best suited for killing and butchering big game animals (Wallace, 1978:449).

Early Horizon (6,000 - 2,000 B.C.)

During the Early Horizon, the occupants generally were nomadic, subsisting on large game and fish. A rarity of mortars, pestles, and millingstones suggests a general lack of seed gathering and processing. Artifacts dating to this period include hand-molded clay net weights, shell beads and ornaments, stone charmstones, and heavy stemmed projectile points.



NORTH

12 6 0 12

SCALE IN MILES

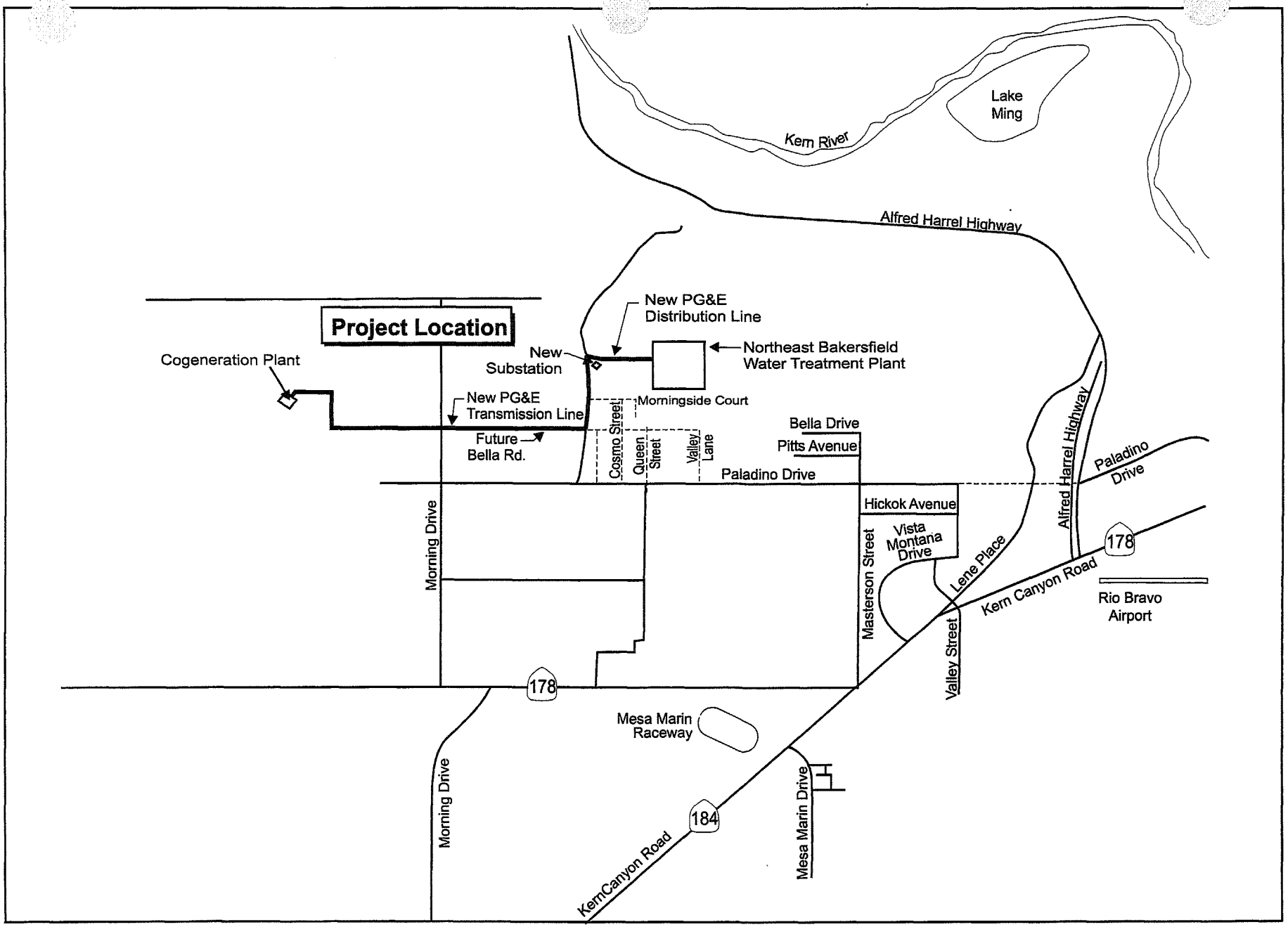
Michael Brandman Associates

Exhibit 1

Regional Location Map

02160020 • 1/2002

CITY OF BAKERSFIELD • PG&E ELECTRICAL FACILITIES



NORTH

Michael Brandman Associates

0.5 0.25 0 0.5

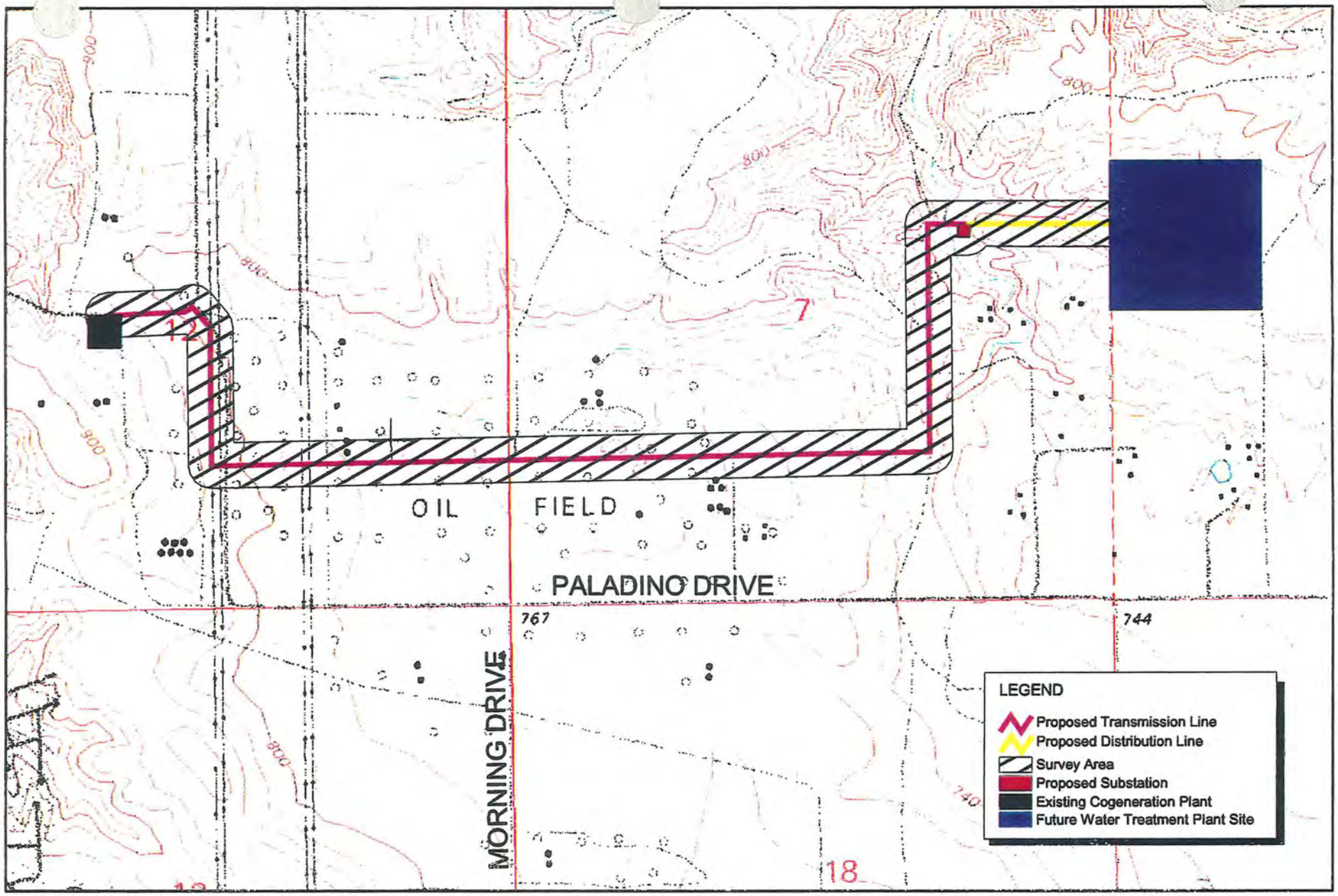
SCALE IN MILES

Exhibit **2**

Local Vicinity Map

02160020 • 1/2002

CITY OF BAKERSFIELD • PG & E ELECTRICAL FACILITIES



SOURCE: Oil Center USGS 7.5 Topographic Maps. 1995 Horizons Technology, Inc.

NORTH

500 0 500 1000 Feet

Michael Brandman Associates

Exhibit 3
Study Area

02160011 • 1/2002

CITY OF BAKERSFIELD • PG & E ELECTRICAL FACILITIES

Middle Horizon (4200 B.C. - 500 A.D.)

The Middle Horizon is characterized by a more diversified subsistence with increased emphasis on seed processing along with fishing and hunting. Artifacts associated with this period include shell ornaments in various geometric shapes, shell beads, distinctive spindle-shaped charmstones, mortars, chisel ended pestles, and large, heavy projectile points. Artifacts manufactured from animal bone (e.g., awls, fishing spears tips, and flakers) make their first appearance.

Late Horizon (500 A.D. - Historic Contact (1772 A.D.)

The Late Horizon occupants of the San Joaquin Valley focused more of their subsistence strategy toward acorn processing and other plants, with less emphasis on hunting and fishing. The shift may have been the decline in animal populations due to a changing environment. Shell beads and other ornaments are still common. Tubular smoking pipes manufactured from stone appear. Arrow shaft straighteners and small, side-notched projectile points infer the introduction of the bow and arrow. Mortars are flat-bottomed while pestles are cylindrical in form.

4.2 HISTORIC PERIOD

The first recorded contact between the native inhabitants of the southern San Joaquin Valley and European explorers was in 1772, when a band of soldiers lead by Pedro Fages entered the San Joaquin Valley through the Tejon Pass. He visited a village on the shores of Buena Vista Lake before continuing westward to San Luis Obispo. Four years later, Francisco Garces lead a band of settlers bound for San Francisco through the southern end of the valley. During the next three decades, the Spaniards seem to have seldom ventured into the valley and existing reports of expeditions in search of deserting soldiers and runaway mission Indians are vague. In the late 18th Century, the Native Americans inhabiting the Southern San Joaquin Valley were known as the Yokuts. Published literature on the Southern Valley Yokuts is not very voluminous due to the early decimation of their population and the rapid destruction of their native culture. Ethnographies by Kroeber (1925), Latta (1949), and Wallace (1978) describe these people as they were in the Twentieth Century, long after their assimilation by European cultures.

About 40 distinct Yokut tribes have been recorded, each with a distinct name, dialect, and territory. Ethnographers roughly divided them into three geographical divisions: Northern, Foothill, and Southern Valley. The Southern Valley Yokuts inhabited the Taft/Maricopa area (Kroeber, 1925; Latta, 1949). Cook (1955) estimates the aboriginal population as totalling more than 15,000 individuals.

The Southern Valley Yokuts were organized either into single village settlements or in several smaller villages grouped together. Each group consisted of approximately 300 to 400 persons. Year-

round availability of fish, birds, shells fish, roots, and seeds permitted the Southern Valley Yokuts to remain in permanent villages (Wallace, 1978). Two forms of dwellings were constructed by these people: the oval shaped single family hut made of tule mats and built in a single row within the village, and a larger communal structure that housed as many as ten related families (Wallace, 1978).

During the first decades of the 19th Century, Spanish priests futiley attempted to establish missions in the San Joaquin Valley. Few Southern Valley Yokuts seem to have been taken into the mission system, and it remains uncertain how much influence the Spanish had during their brief contacts with Native American groups in the Valley. No Spanish or Mexican ranchos were established in the region, but an 1833 epidemic killed off an estimated 75 percent of the Native population (Cook, 1955).

After California was annexed to the United States in 1847, the San Joaquin Valley experienced an influx of Anglo settlers. In 1851, the tribes agreed to relinquish their lands for reservations and payments in goods, but the treaty was never ratified by the U.S. Senate (Wallace, 1978:460).

Exploration for oil in the southern San Joaquin Valley began in 1863, when John Hambleton formed the Buena Vista Petroleum Company near what today is McKittrick. At that time there were no American settlements within 50 miles. Hambleton earlier had seen the oil seeps and realized their potential (Smith, 2000:43). The company planned to purify the petroleum into kerosene which was then used in lamps. Their success spurred others to form additional petroleum companies, such as Pacific Petroleum, Occidental Petroleum, and San Joaquin Petroleum (Smith, 2000:45). The major obstacle to their financial success was getting the finished product to market, as there were no railroads extending into the area in the 1860s and transportation by wagon was slow and cumbersome. As a result, by 1867, the Buena Vista Petroleum Company folded (Smith, 2000:45). In the ensuing four decades, other petroleum ventures in the area came and went. By the 1890s, Solomon Jewett and Hugh Blodget owned most of the oil lands along the Westside. In 1893 they successfully negotiated with the Southern Pacific Railroad to extend a rail line into the area. By 1899, a new oil boom was developing and Maricopa soon became the center for oil activity (Smith, 2000:55). On June 1 of that same year, oil was discovered on Round Mountain Road, about seven miles northeast of Bakersfield. The first commercial well was drilled several weeks after the discovery and the towns of Oildale and Oil Center soon sprang to life. The discovery well site is designated SHL 290 (Hoover et al, 1990:130).

The oil field through which the PG&E pipeline will traverse is relatively recent in date. The 1940 edition of the Oil Center 7.5 minute USGS quadrangle shows the electric power transmission lines passing through the property, but does not display any structures indicative of a producing field (e.g., tanks and pumps.). The Kern Bluff Oil Field is depicted on the 1954 Oil Center 7.5 minute quadrangle. Unpaved roads have been graded through the area and oil tanks are shown throughout Sections 7 and 12. The current (1968) edition of the Oil Center map suggests that some of the oil

tanks had been removed, but new tanks had been installed. The cogenerator plant had not been constructed.

By the 1990s, the oil field seems to have played out and many of the pumps and oil storage tanks were removed. The cogeneration facility may have been constructed as early as 1982 (Macko and Weil, 1982). A Pacific Bell telecommunications facility was constructed near the cogeneration plant in 1999 (LSA, 1999).

5 RECORDS SEARCHES

5.1 PALEONTOLOGY

The paleontologic assessment of this site included a records search of the vertebrate paleontologic localties database at the Los Angeles County Museum of Natural History (LACM). Their extensive database incorporates collections data from the University of California, Los Angeles, the California Institute of Technology, and the University of California Museum of Paleontology (Berkeley). In addition, pertinent geologic and paleontologic literature was searched for and reviewed.

Quaternary Terraces (Upper Pleistocene-Holocene)

These uplifted stream deposits characterize the mostly flat terrain through which the lineation runs. This sedimentary facies consists of pebbly to cobbly sands not known to be fossiliferous here. Such deposits occasionally yield vertebrate fossils that are usually poorly preserved, isolated elements. This unit is considered to have a low to moderate paleontologic sensitivity.

Kern River Formation (upper Miocene, Pliocene, and Early Pleistocene)

Fluvio-lacustrine gravels, sands, and clays of the Kern River Formation crop out in the slopes just north of the lineation. This unit has yielded significant terrestrial and freshwater fossils, mostly isolated and incomplete elements of mammals. There are numerous LACM localities in the region but none are on or adjacent to the land included in the present assessment. The Kern River Formation has a high paleontologic sensitivity, as its fauna includes tortoise, birds, rodents, rabbit, pronghorn, deer, camel, dogs, fox, peccary, cat, raccoon, horses, and ground sloth.

Round Mountain Silt Member, Temblor Formation (Middle Miocene)

The Round Mountain Silt is the youngest member of the Temblor Formation. Microfossil and strontium isotope data indicate that the Round Mountain Silt ranges from approximately 15.9 to 14 Ma in this area (Olson, 1990). It is of particular paleontologic importance because its upper part includes the famous Sharktooth Hill Bonebed. The bonebed ranges from four inches to nearly three

feet in thickness, and is generally about a foot thick. One cubic foot of sediment may contain over 100 individual bones and teeth! It's vertebrate fauna of more than 100 species includes boney fish, cartilaginous fish (especially shark teeth), turtles, crocodiles, birds, sea lions, whales, and desmostylians (an extinct hippo-like aquatic mammal), and terrestrial mammals such as tapir, horses, camel, "giraffe", mastodon, and rhinoceros. At Sharktooth Hill, six miles northwest of the project area, the bonebed crops out at elevation 643 feet. It is known as probably the most significant Miocene marine vertebrate locality in the world, and it is listed in the United States Landmark Registry. The nearly horizontal bonebed extends over ten square miles from north of Poso Creek to south of the Kern River. In the vicinity of the project site, the unit is well exposed in the bluffs facing the Kern County Soccer Park, where it has been extensively quarried for fossils. In addition to vertebrates, important invertebrate fossils have been recovered from the Round Mountain Silt in this region. The "Barker's Ranch fauna", the largest Miocene molluscan fauna of the Pacific Coast, extends from near the base of the Olcese Sand Member to the top of the Round Mountain Silt, and is the standard for the Temblor Macrofossil Stage. All considered, the paleontologic sensitivity of the Round Mountain Silt in this area is extremely high.

5.2 ARCHAEOLOGY

The archaeologic assesment of this site involved an archival records search at Southern San Joaquin Information Center (SSJIC) in Bakersfield conducted an archaeologic records search for this project. The records check reveals any archaeologic or historic resources that have been recorded within a mile radius of the project location. It also reveals if any previous surveys have been performed on or within a one mile radius of the project site. In addition, it involves a review of archaeological resources maps, historic topographic maps, and historic register lists.

The results of the archaeologic records check indicates that no prehistoric or historic archaeological resources have been recorded on or within a mile radius of the property. Three archaeological isolates (P-15-009775, P-15-009776, and P-15-009777) have been recorded within this area, but none are plotted on or adjacent to the proposed route of the PG&E facilities site. Seven surveys and/or excavation reports (KE-253, KE-514, KE-626, KE-641, KE-842, KE-2148, and KE-2266) on file at the SSJIC cover portions of the PG&E site. The proposed route is not within any of the areas covered by six other surveys (KE-387, KE-965, KE-1744, KE-2315, KE-2316, and KE-2367) that were performed within a half-mile radius. None of these 13 investigations recorded any archaeological sites or resources, and none recommended further cultural resources assessment. The 2001 National Register of Historic Place (NRHP), the 2001 California State Historic Resources Inventory (HRI), the 2001 California Points of Historical Interest (CPHI), and the 1996 California Historical Landmarks (CHL) do not list any historic properties on or within a mile radius of the proposed route.

6 FIELD ASSESSMENT

On November 28, 2000, MBA Paleontologist Kenneth L. Finger, Ph.D., and MBA Archaeologist Wayne H. Bonner, M.A., performed an onsite examination of a 400-foot wide study area along the entire length of the proposed PG&E electrical facilities site, beginning in the eastern sector. This was necessary to determine the current status of previously recorded cultural resources and to document any paleontologic, archaeologic, or historic features not previously noted. In addition, prior archaeologic surveys in the area excluded some of the land traversed by the lineation. The survey was performed by walking parallel tracts spaced ten meters (30 feet) apart across the 1,000 foot wide swath.

The southern end of the north-trending canyon floor has been heavily disturbed by recent construction-related activities and drainage, whereas the adjacent hillsides to the west consist of gravelly sand with abundant burrows. The PG&E facilities site crosses terrain ranging in elevation from 700 feet to approximately 660 feet in this area, but we did not observe any paleontologic resources there during this survey. Ground visibility was generally good, with the undisturbed slopes supporting a moderate covering of low-growing shrubs. Skeletal remains of modern ground squirrels and possibly a kit fox were encountered in this area. The lineation then trends west for more than a mile across the relatively flat and heavily disturbed terrain of an abandoned oil field, before turning north and finally west to the future water treatment plant.

No paleontologic or archaeologic resources were observed during this field assessment.

7 PROJECT IMPACTS ANALYSIS

1. Construction of the PG&E facilities are not likely to encounter paleontologic resources along most of its length due to the low paleontologic potential of the Quaternary terrace deposits. Earth-disturbing activities in the eastern sector, however, could impact the Kern River Formation and the Round Mountain Silt, geologic units of high paleontologic sensitivities.

2. Construction of the PG&E facilities will not cause a substantial adverse change in the significance of any recorded historical resource as defined in section 15064.5 of CEQA.

3. Construction of the PG&E facilities will not cause a substantial adverse change in the significance of any known archaeological resource pursuant to section 15064.5 of CEQA.

4. Construction of the PG&E facilities will not disturb previously recorded human remains, including those interred outside of formal cemeteries.

8 RECOMMENDATIONS

8.1 PALEONTOLOGY

The records search results indicate that paleontologically sensitive units underlie the project site. Whereas the likelihood of encountering significant paleontologic resources is low over most of the project area, excavations in the eastern sector could impact geologic units of high paleontologic sensitivities. Thus, we recommend paleontologic monitoring of all earth-disturbing construction activities in the canyon area.

1. Prior to grading, a paleontologist shall be retained, attend a pre-grading meeting, and set forth the procedures to be followed during the monitoring program.

2. One paleontological monitor that is trained and equipped to allow rapid removal of fossils with minimal construction delay is expected to be sufficient. Full-time monitoring of the portions of the project site that have earth-disturbing activities at elevations between 600 feet and 700 feet shall be provided.

3. If fossils are found within an area being cleared or graded, earth-disturbing activities shall be diverted elsewhere until the monitor has completed salvaging of the fossils. If construction personnel make the discovery, the grading contractor shall immediately divert construction and call the monitor to the site. Major salvage time may be shortened by grading contractor's assistance (e.g., removal of overburden, lifting and removing large and heavy fossils).

4. The project paleontologist shall prepare, identify, and curate all recovered fossils. Upon completion of grading, the project paleontologist shall prepare a summary report documenting mitigation and results, with itemized inventory of collected specimens. The paleontologist shall submit the report to the City of Bakersfield, designated depository, and any other appropriate agency, and transfer fossil collection to an appropriate depository. The summary report shall be submitted to the City. This submittal will signify completion of the program to mitigate impacts on paleontologic resources.

8.2 ARCHAEOLOGY

The negative results of the records check and onsite survey negate further archaeologic mitigation measures prior to construction. Based on these findings, we do not recommend monitoring of construction activities for archaeologic resources. Should archaeologic materials be encountered during construction, appropriate mitigation measures must be enacted immediately.

5. If cultural resources are unearthed during construction activities, all work shall be halted in the area of the find. A qualified archaeologist shall be called in to evaluate the findings and recommend any necessary mitigation measures. Proof of compliance with any recommendations resulting from such evaluation, if required, shall be submitted to the southern San Joaquin valley archaeological information center (AIC) at California state university, Bakersfield, and to the city of Bakersfield development services department

9 SUMMARY

After implementing the above recommendations, potential impacts to paleontological and archaeological resources will be reduced to less than significant.

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HAZARDOUS MATERIAL STUDY OF PG&E ELECTRICAL FACILITIES
NORTHEAST BAKERSFIELD, KERN COUNTY, CALIFORNIA

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(714) 258-8100

January 2002

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3 Project Impacts **3**

4 Mitigation Measures **4**

5 Level of Significance After Mitigation **5**

LIST OF EXHIBITS

Exhibit **Follows Page**

1 Regional Location Map 2

2 Local Vicinity Map 2

3 Study Area 2

4 Photographic Index 2

Attachment A—Initial Site Assessment Checklist

Attachment B—Vista Site Assessment Report

HAZARDOUS MATERIALS STUDY

1 INTRODUCTION

This Hazardous Materials Study was prepared to determine the potential presence of hazardous materials within the area planned for the proposed transmission line, substation, and distribution line. Excavations are proposed at the substation site as well as at the support poles for the transmission and distribution lines. The project site is located within the Pacific Gas and Electric (PG&E) service area in northeast Bakersfield. The proposed electrical facilities will facilitate the development of the City in the Hills project.

Following is a summary of the conclusions contained within the Initial Site Assessment (ISA) Checklist regarding the proposed transmission line, substation and distribution line within the City of Bakersfield (see Attachment A). These conclusions were based on a field inspection, a database review of known hazards within the vicinity of the project area, review of relevant maps of the project area, and a general knowledge of the project parameters.

2 PROJECT LOCATION

The project site is located in the northeastern portion of the City of Bakersfield in Kern County, approximately 8.5 miles east of State Route 99 and 3 miles north of SR 58. The project site consists of approximately 694 acres and the majority of the site is generally located north of SR 178, west of Masterson Lane, south of Paladino Drive, and east of the future extension of Vineland Road that is located approximately one mile east of Morning Drive. The project site is located on the United States Geologic Services (USGS) topographic map in Sections 17 (640.1 acres), the Southeast ¼ of the Southeast ¼ of Section 18 (40 acres), the extreme northeast portion of Section 19 (9 acres), and the extreme northwest portion of Section 20 (4.9 acres) in Township 29 South (S) and Range 29 East (E) (see Exhibit 1—regional location map).

The focus of this addendum is a linear portion of the project site, which is 11,970 linear feet in total, and located to the northeast of the main 694-acre proposed development site. The linear portion of the project site will parallel future Bella Road, which is just north of existing Paladino Drive (see Exhibit 2—local vicinity map).

More specifically, an electricity transmission line, substation, and distribution line are proposed with the linear footprint. The electrical facilities are proposed to serve the City in the Hills project as well as the water treatment plant located east of the proposed substation site. The transmission line will start in Section 12 at Bear Mountain cogeneration plant and end in Section 7 at an approximately

19,600 square foot proposed substation site. The Bear Mountain cogeneration plant is located in the west half of Section 12, Township 29S, Range 29E. From the cogeneration plant, the electrical facilities site travels approximately 900 feet west, then approximately 1,300 feet south until intersecting with future Bella Road. The site parallels future Bella Road for approximately 6,400 feet west until intersecting existing Morning Drive. From this point, the site continues approximately 2,050 feet north along the Morning Drive right-of-way and ends at the proposed substation that is 160 feet east of Morning Drive. From the substation site, a distribution line will extend to the previously approved and currently under construction water treatment plant (see Exhibit 3—study area).

DATABASE REVIEW

A Site Assessment Report (SAR) was prepared by Vista Information Solutions, Inc. on January 18, 2002 in accordance with American Society for Testing and Materials (ASTM) standards (see Attachment B). The SAR includes a review of environmental databases at the federal, state, regional, and county levels and includes records that fall within a defined radius of the project site. The results of the SAR show three sites located within ½ mile of the PG&E electrical facilities project site. These three sites are not identified in the City in the Hills document. Of the sites identified, the following items were identified within ½ mile and can be found on the site identification map of the VISTA:

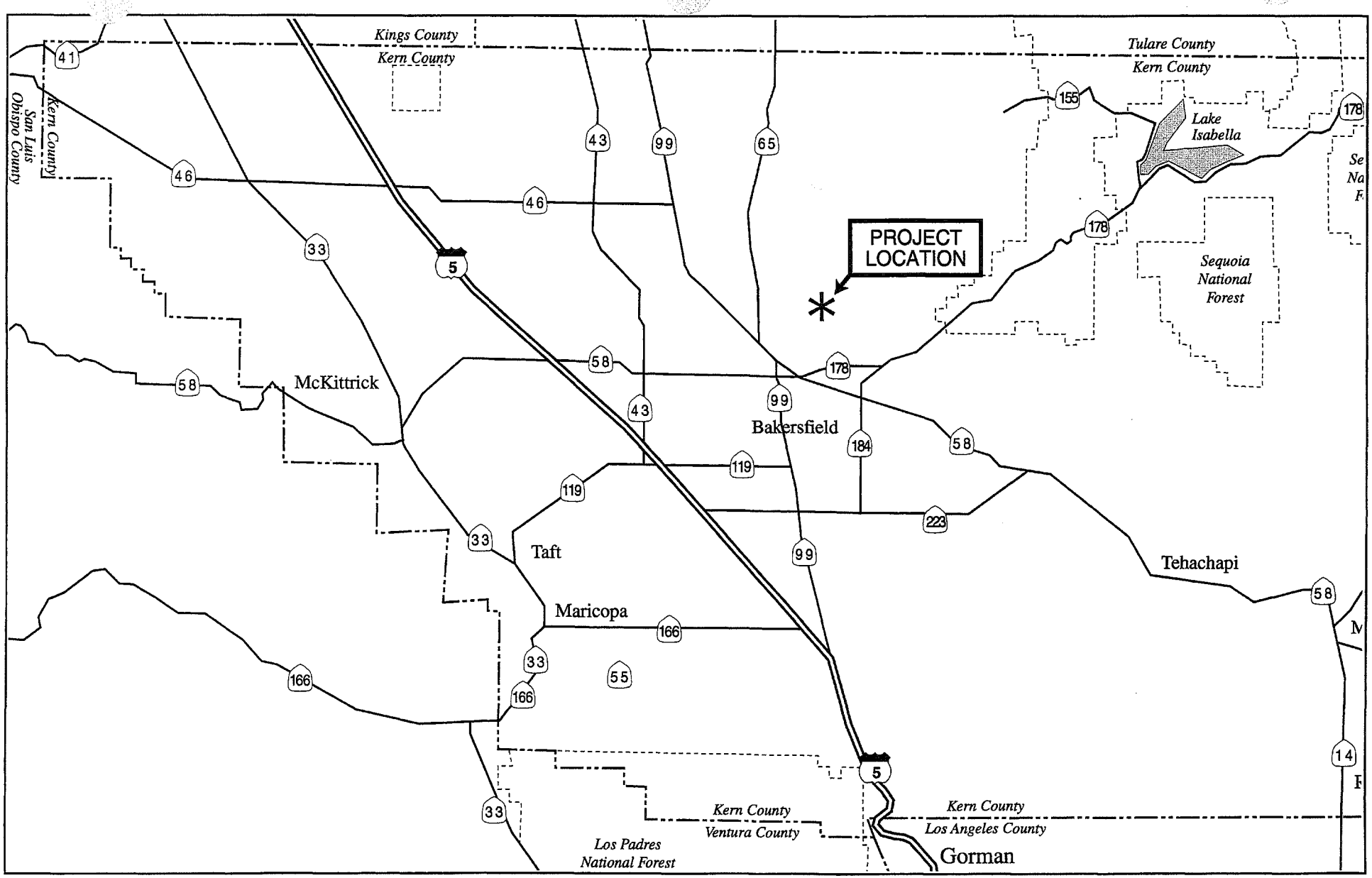
- A Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) site, with the status of "No Further Remedial Action Planned" or NFRAP, which identifies that the site has been mitigated for in the proper manner and poses no potential issues to hazardous materials. This is shown at Map ID 1 in Attachment B.

- A state registered underground storage tank, with leak monitors present. This is a new tank and poses no potential issues relating to hazardous materials. This site can be seen at Map ID 2 in Attachment B.

- A State registered solid waste facility (transformation facility) is identified at Map ID 3 in Attachment B. There are no hazardous materials an issue with this site, which have to be identified for state purposes and has no issues in relation to hazardous materials.

FIELD INSPECTION

On November 28, 2001, staff from Michael Brandman Associates performed a field inspection of the electrical facilities site. The site was surveyed via four-wheel drive vehicle and by foot from western side of the water treatment plant property to the western terminus at the Cogeneration plant. Findings regarding the existing condition of the site as well as representative photographs are included below. A photographic index is provided in Exhibit 4.



NORTH

12 6 0 12

SCALE IN MILES

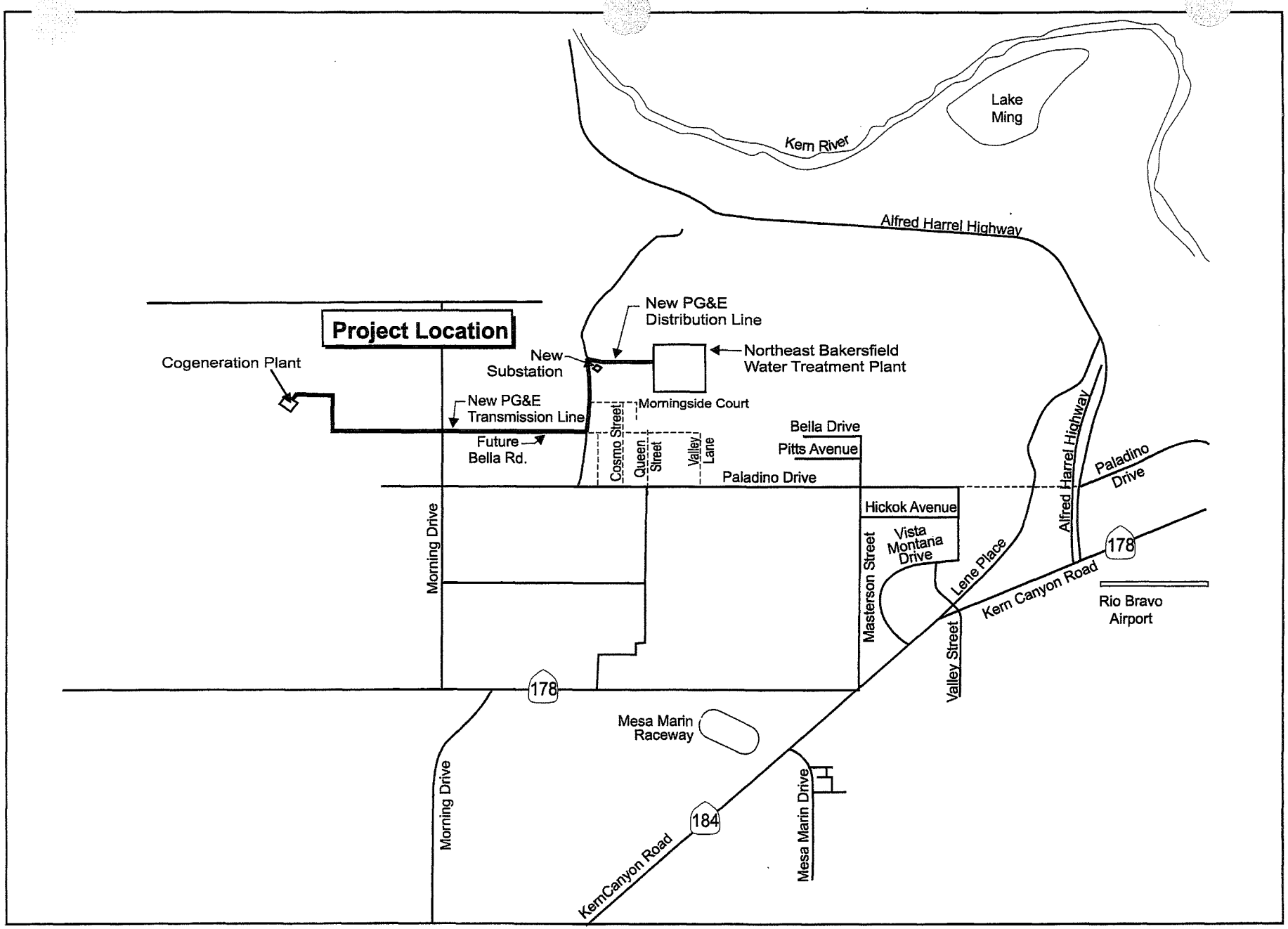
Michael Brandman Associates

Exhibit 1

Regional Location Map

02160020 • 1/2002

CITY OF BAKERSFIELD • PG&E ELECTRICAL FACILITIES



NORTH

0.5 0.25 0 0.5

SCALE IN MILES

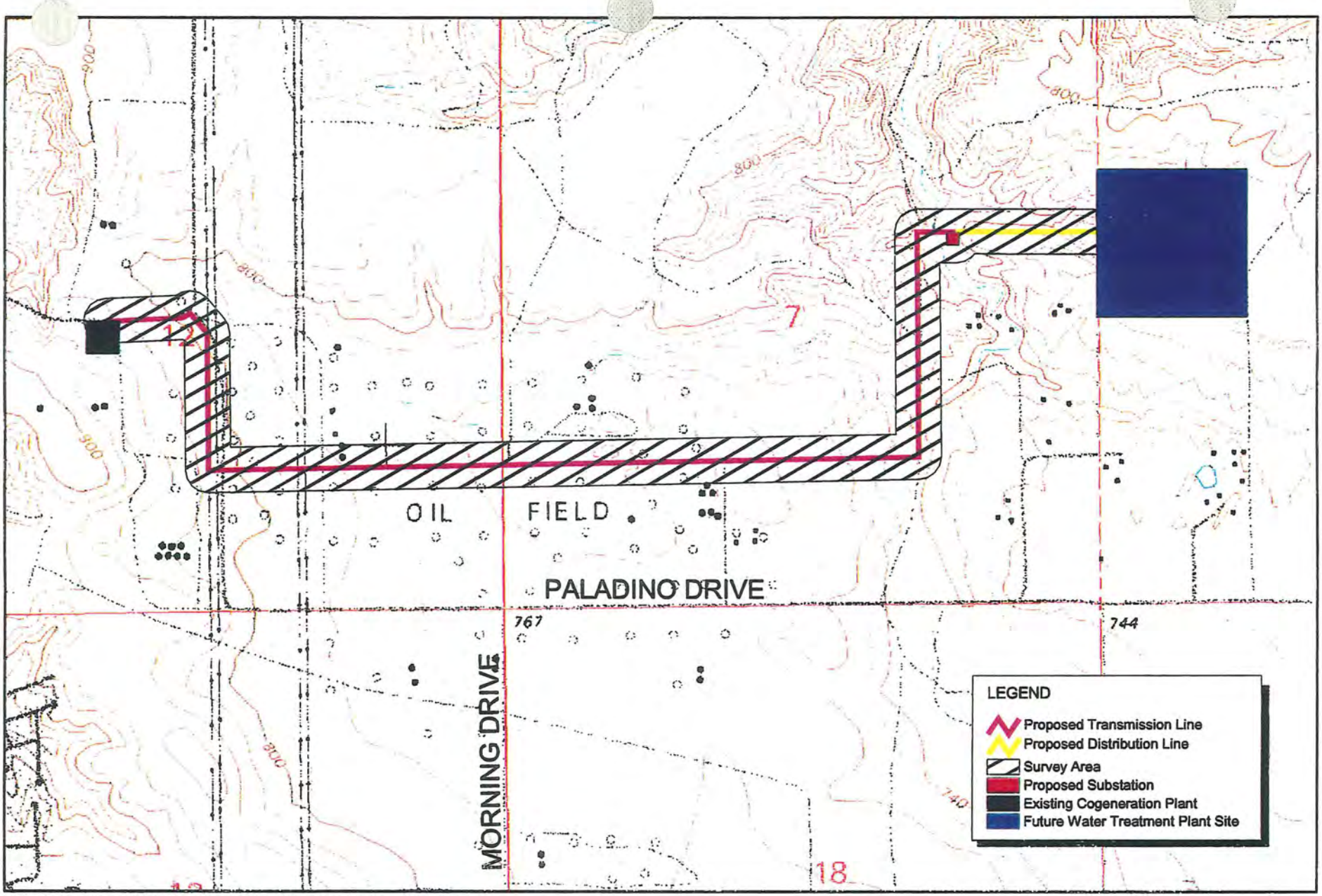
Michael Brandman Associates

Exhibit **2**

Local Vicinity Map

02160020 • 1/2002

CITY OF BAKERSFIELD • PG & E ELECTRICAL FACILITIES



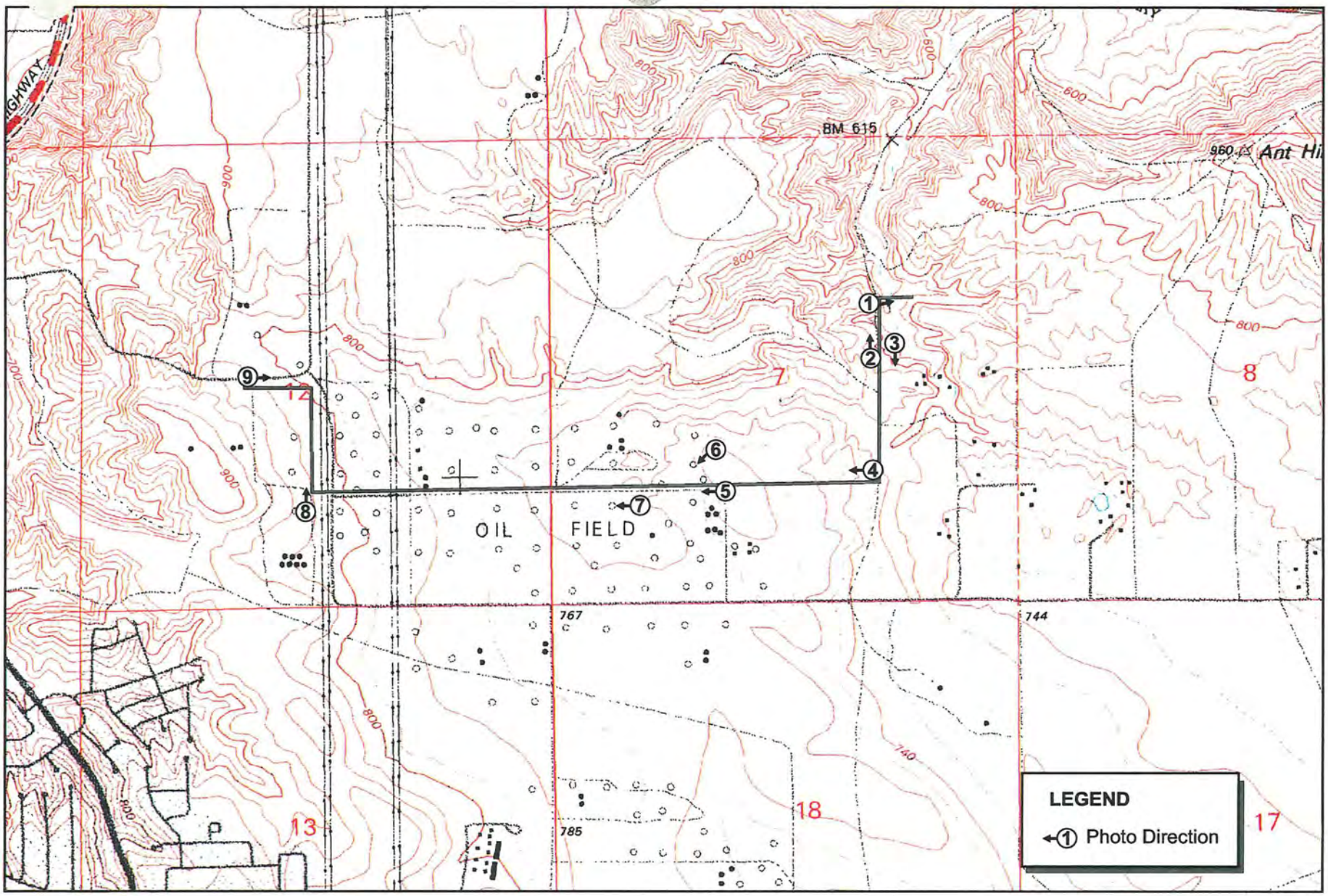
SOURCE: Oil Center USGS 7.5 Topographic Maps. 1995 Horizons Technology, Inc.

NORTH

500 0 500 1000 Feet

Michael Brandman Associates

Exhibit 3
Study Area



NORTH

Michael Brandman Associates

02160020 · 1/2002

Exhibit **4**

Photographic Index Map

CITY OF BAKERSFIELD • PG&E ELECTRICAL FACILITIES

Photo 1

Photo 2

Michael Brandman Associates

Photographs 1 and 2

Photo 3

Photo 4

Photo 5

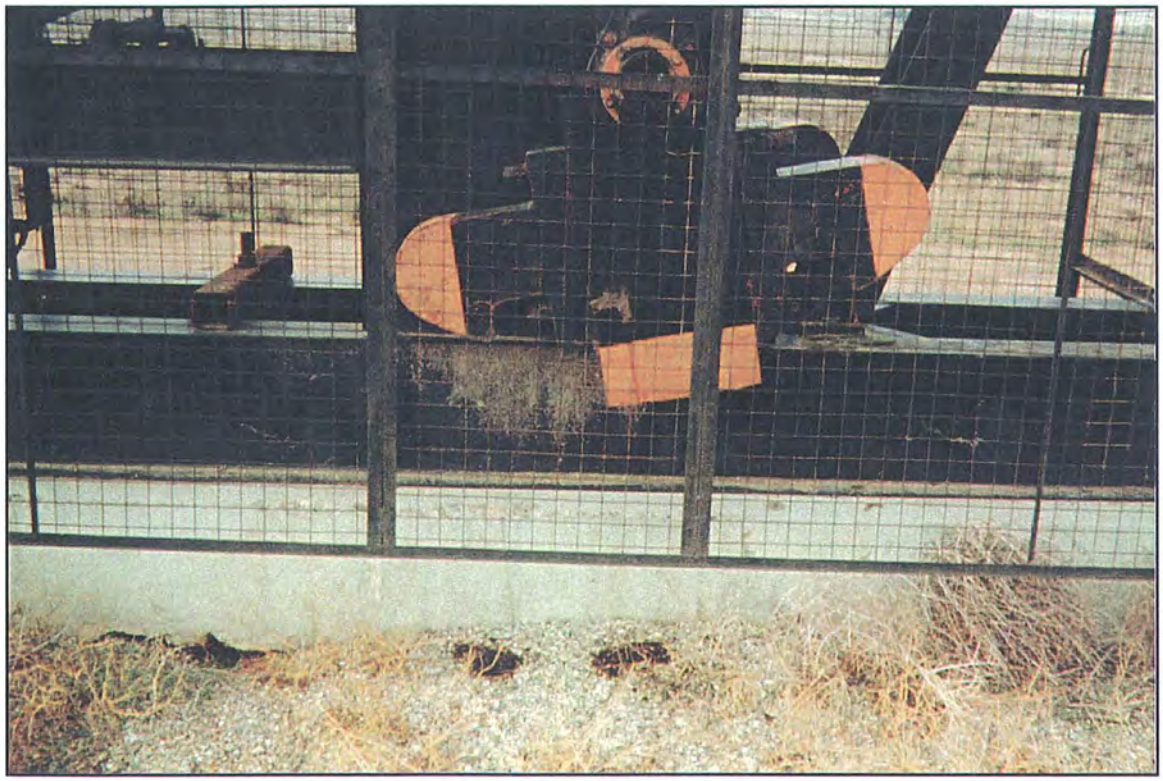


Photo 6

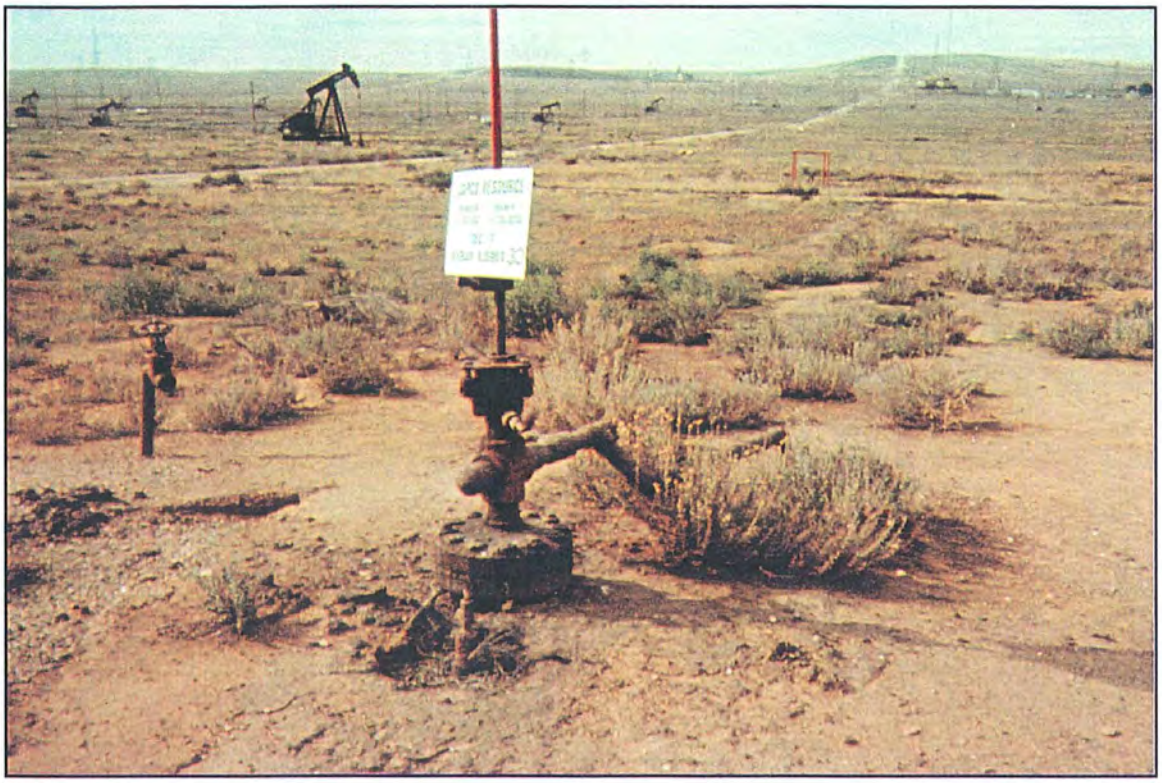


Photo 7

Photo 8

Photo 9

The eastern terminus of the electrical facilities site is at the water treatment plant property. From this terminus the site extends west across an existing culvert to recently graded Morning Drive alignment, (see Photo 1). The project site continues along the graded roadway located in a valley (see Photograph 2). The project vicinity in this area is predominantly undeveloped, including the open space within the valley. Potential hazards or hazardous materials were not observed in these areas.

Continuing south, the site parallels the graded roadway for approximately 1/3 of a mile (see Photograph 3). The project vicinity in this area is mainly undeveloped, with a few residences at the south eastern end of this section of the proposed project. These residences are approximately 1/8 mile away from the project site. Potential hazards or hazardous materials were not observed along this section of the proposed project.

The main section of the site transverses in an east to west direction from the graded roadway for one mile. In the vicinity of the graded roadway the area is undeveloped and contains rolling hills with vegetation (see Photograph 4). The western portion of the main section of the site leads thru an old oil field (see Photograph 5). Approximately fifty oil wells and their associated equipment of pumps, oil transfer piping, and storage tanks were observed. None of the oil pumps were operating in the immediate vicinity, with a few operating about ½ mile away from the project site. Most of the pumps were still intact and properly shut down, while a few appeared to have been disassembled. The only hazardous materials found in this area were small areas of staining around a few of the oil wells and some staining from lubrication of the oil pumping machinery (see Photographs 6 and 7).

At the western end of this main section, the site turns north along an existing paved road for approximately ¼ mile (see Photograph 8) and then west again for 1/5 of a mile up to the existing Cogeneration plant (see Photograph 9). Along the north facing dirt road, the only potential hazards found were some trash that appeared to have been burnt. Upon further examination, it was found that the burnt objects were an old tire and the remnants of a burned surfboard (see Photograph 8).

3 PROJECT IMPACTS

THRESHOLDS OF SIGNIFICANCE

A significant impact relative to hazards and hazardous materials is considered to exist if the project would result in the exposure of people to risks beyond acceptable levels. Applicable laws and regulations (i.e. hazardous waste action levels) define such levels and relevant planning documents.

Historical Use of Hazardous Materials and Waste

Implementation of the proposed project would not result in impacts associated with known and/or suspect hazardous materials. However, there is a potential that previously unknown hazardous materials contamination from historical use of this property onsite may be encountered or disturbance of abandoned or unrecovered oil wells during the project development activities. However, it should be noted that should such contamination be found or disturbance occur existing federal, state, and local policies and procedures would require the delineation and remediation of sites containing hazardous substances to the satisfaction of the designated local enforcement agency. Moreover, it is unlikely that any such contamination or disturbance would be extensive beyond the capacities of typical remediation measures. Therefore, no significant impacts from former uses of the property are anticipated.

Future Use of Hazardous Materials and Waste

Implementation of the project would introduce new uses in the project area and would result in the additional use of hazardous materials and an increase in hazardous waste generated onsite. For instance, transformers will be located within the substation site. These transformers contain oil within carbon steel, or other approved containment. Minimal leaks could occur over time; however, maintenance activities for the entire substation, including the transformers would occur periodically. No substantial release of hazardous substances or risk of explosion would occur with the development and operation of the transmission line, substation, or distribution line. Therefore, the proposed project would not result in a risk of an explosion or the release of a hazardous substance in the event of an accident.

4 MITIGATION MEASURES

Although no significant hazardous materials compliance impacts are anticipated, the following mitigation measures are included to reduce any potential impacts associated with the project.

1. Prior to the issuance of grading permits, the grading plans shall specify that in the event that hazardous waste is discovered during site preparation or construction, the property owner/developer shall ensure that the identified ground staining, hazardous waste and/or hazardous material is handled and disposed of in the manner specified by the State of California Hazardous Substances Control Law (Health and Safety Code, Division 20, Chapter 6.5) and according to the California Administrative Code, Title 30, Chapter 22.

2. The applicant shall handle and dispose of all hazardous materials and wastes during the operation and maintenance of facilities in accordance with the state codes.

3. Prior to the issuance of grading permits, the grading plans shall specify that in the event that any abandoned or unrecovered oil wells are uncovered or damaged during excavation or grading, remedial plugging operations will be required.

4. No structures are to be located over a previously plugged or abandoned well.

5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

Implementation of the recommended mitigation measures would reduce potential hazardous material impacts associated with the proposed project. No significant hazardous materials impacts would occur with the project implementation.

ATTACHMENT A
INITIAL SITE ASSESSMENT CHECKLIST

Initial Site Assessment (ISA) Checklist

Project Information

District _____ County Kern Route - Kilometer Post (Post Mile) - EA -

Description Construction of a Electrical Transmission line along an approximately 2-mile alignment located south of the Kern River between Fairfax Drive and Cosmo Street in the central portion of the Oil Center Quadrangle (USGS Topo Map, 1992) in the City of Bakersfield.

Is the project on the HW Study Minimal-Risk Projects List (HW1)? NA

Project Manager _____ phone # _____

Project Engineer _____ phone # _____

Project Screening

Attach the project location map to this checklist to show location of all know and/or potential HW sites identified.

1. Project Features: New R/W? ✓ Excavation? ✓ Railroad Involvement? _____

Structure demolition/modification? _____ Subsurface utility relocation? _____

2. Project Setting Open space.

Rural or Urban Undeveloped areas.

Current land uses None

Adjacent land uses Oilfield, Residences in the distance (1/2 mile or more).

(industrial, light industry, commercial, agricultural, residential, etc.)

3. Check federal, State, and local environmental and health regulatory agency records as necessary, to see if any known hazardous waste site is in or near the project area. If a known site is identified, show its location on the attached map and attach additional sheets, as needed, to provide pertinent information for the proposed project.

4. Conduct Field Inspection. Date 11/28/01 Use the attached map to locate potential or known HW sites.

STORAGE STRUCTURES / PIPELINES:

Underground tanks	No	Surface tanks	Yes
Sumps	No	Ponds	No
Drums	No	Basins	No
Transformers	No	Landfill	No
Other			

Initial Site Assessment (ISA) Checklist
(continued)

CONTAMINATION: (spills, leaks, illegal dumping, etc.)

Surface staining	Yes	Oil sheen	No
Odor	No	Vegetation damage	No
Other			

HAZARDOUS MATERIALS: (asbestos, lead, etc.)

Buildings	No	Spray-on fireproofing	No
Pipe wrap	No	Friable tile	No
Acoustical plaster	No	Serpentine	No
Paint	No	Other	

5. Additional record search, as necessary, of subsequent land uses that could have resulted in a hazardous waste site. Use the attached map to show the location of potential hazardous waste sites.

6. Other comments and/or observations: See attached memorandum describing findings during the field inspection.

ISA Determination

Does the project have potential hazardous waste involvement? No

If there is known or potential hazardous waste involvement, is additional ISA work needed before task orders can be prepared for the Investigation? No

If "YES," explain; then give an estimate of additional time required:

A brief memo should be prepared to transmit the ISA conclusions to the Project Manager and Project Engineer.

ISA Conducted by [signature] **Date** 02-13-2002

Ethan D. Yotter
Michael Brandman Associates

ATTACHMENT B
VISTA SITE ASSESSMENT REPORT

SITE ASSESSMENT - SPECIAL PROJECT
(ALL DATABASES SEARCHED TO 1/2 MILE)

PROPERTY INFORMATION	CLIENT INFORMATION
Project Name/Ref #: BOUNSRCH PG and E Project PG and E Project Bakersfield, CA 93306 Latitude/Longitude: (35.417650, 118.912883)	Ethan Yotter Michael Brandman and Assoc-tu 15901 Redhill Ave Tustin, CA 92780

Site Distribution Summary Agency / Database - Type of Records	*within 1/2 mile*
NOTES	

Site Distribution Summary

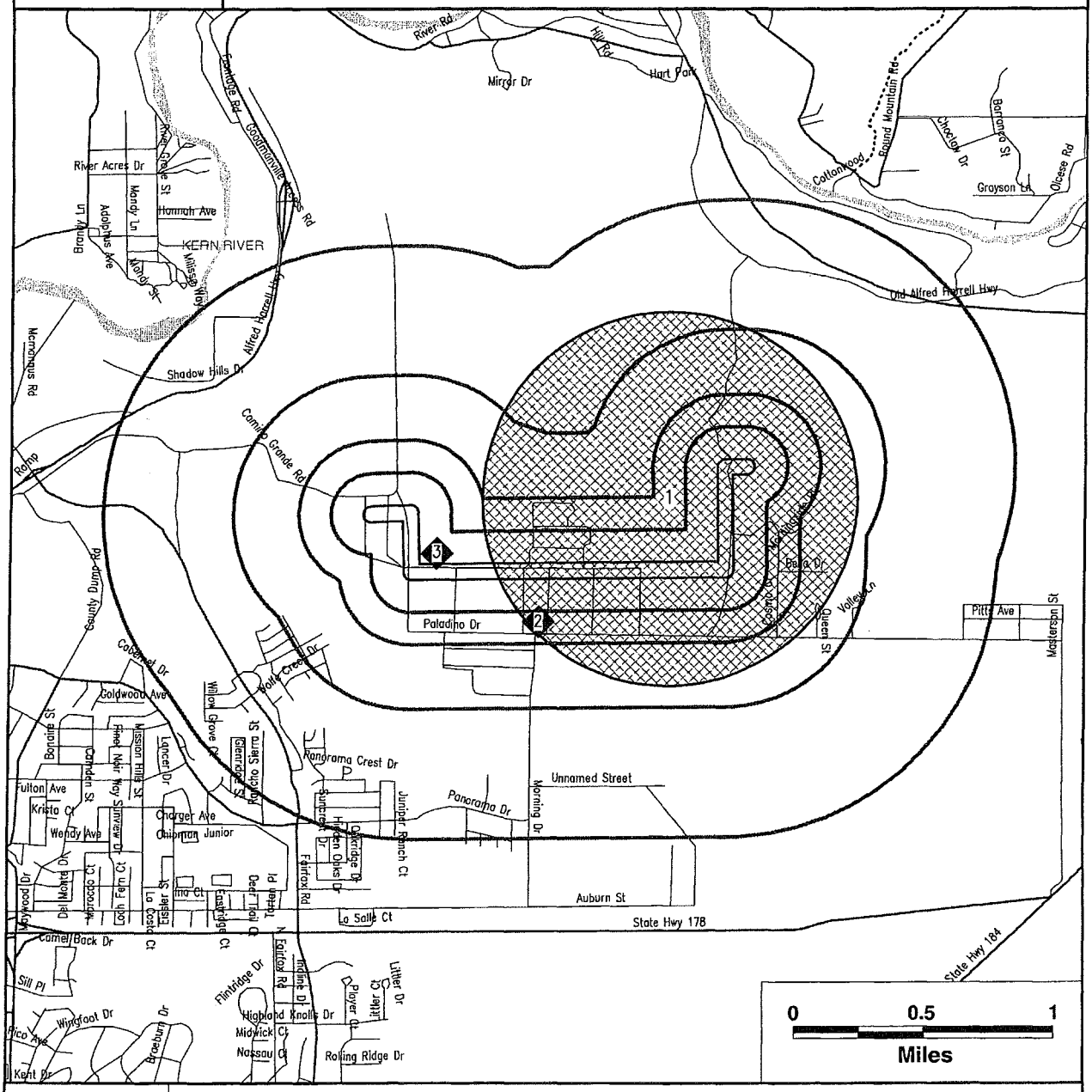
Agency / Database - Type of Records			within 1/2 mile
A) Databases searched to 1/2 mile:			
US EPA	NPL	National Priority List	0
US EPA	CORRACTS	RCRA Corrective Actions (w/o TSD)	0
US EPA	TSD CORRACTS	RCRA Corrective Actions and associated TSD	0
STATE	SPL	State equivalent priority list	0
US EPA	RCRA-TSD	RCRA permitted treatment, storage, disposal facilities	0
STATE	SCL	State equivalent CERCLIS list	0
US EPA	CERCLIS/ NFRAP	Sites under review by US EPA	1
STATE/ REG/CO	LUST	Leaking Underground Storage Tanks	0
STATE/ REG/CO	SWLF	Solid waste landfills, incinerators, or transfer stations	1
STATE	DEED RSTR/ BORDER ZONE	Sites with deed restrictions	0
STATE	CORTESE	State index of properties with hazardous waste	0
STATE	TOXIC PITS	Toxic Pits cleanup facilities	0
US EPA	FINDS	Facility Index System	1
USGS/STATE	WATER WELLS	Federal and State Drinking Water Sources	0
US EPA	TRIS	Toxic Release Inventory database	0
STATE	UST	Registered underground storage tanks	1
STATE/ CO	AST	Registered aboveground storage tanks	0
STATE	CALFID	California Facility Inventory	2
US EPA	LG GEN	RCRA registered large generators of hazardous waste	0
US EPA	SM GEN	RCRA registered small generators of hazardous waste	0
US EPA	RCRA Viol	RCRA violations/enforcement actions	0
US EPA	ERNS	Emergency Response Notification System of spills	0
STATE	SPILLS	State spills list	0

LIMITATION OF LIABILITY
Customer proceeds at its own risk in choosing to rely on VISTA services, in whole or in part, prior to proceeding with any transaction. VISTA cannot be an insurer of the accuracy of the information, errors occurring in conversion of data, or for customer's use of data. VISTA and its affiliated companies, officers, agents, employees and independent contractors cannot be held liable for accuracy, storage, delivery, loss or expense suffered by customer resulting directly or indirectly from any information provided by VISTA.

NOTES

SITE ASSESSMENT - SPECIAL PROJECT
(ALL DATABASES SEARCHED TO 1/2 MILE)

Overview Map

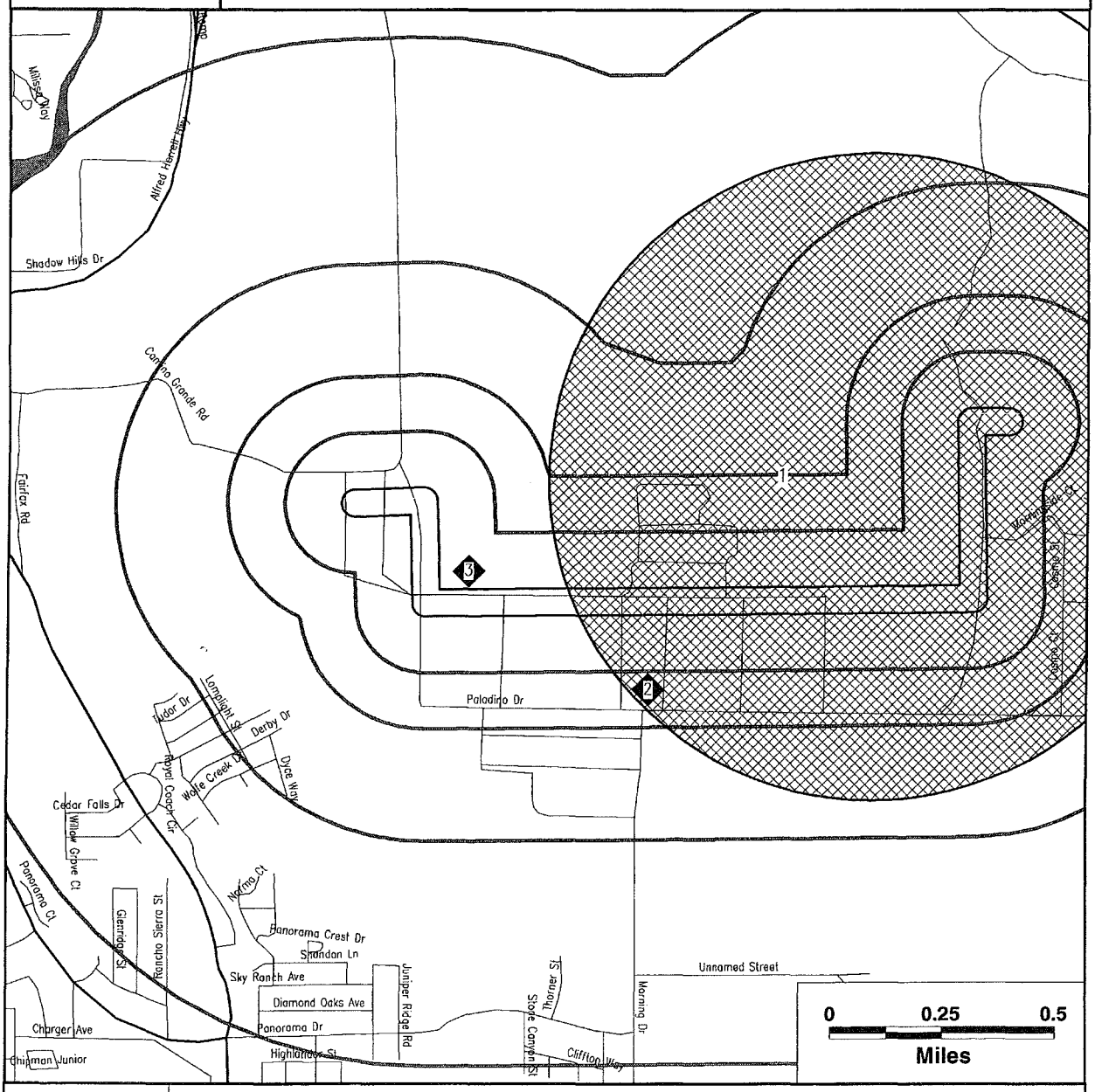


Subject Centerline	Risk Sites ◆
Search Area	Risk Sites Plotted as Polygons
Highways and Major Roads	
Rivers or Water Bodies	

Categories correspond to database searches described in the Site Distribution Summary, beginning on Page #1.

SITE ASSESSMENT - SPECIAL PROJECT
(ALL DATABASES SEARCHED TO 1/2 MILE)

Detail Map 1



Subject Centerline	Category:	A	B	C	D	Risk Sites Plotted as Polygons
Search Area	Single Sites	◆	■	△	○	▨
	Multiple Sites	◆	■	△	○	

Highways and Major Roads
Roads
Railroads
Rivers or Water Bodies
Utilities

Categories correspond to database searches described in the Site Distribution Summary, beginning on Page #1.

For More Information Call VISTA Information Solutions, Inc. at **1 - 800 - 767 - 0403**
Report ID: **458856001**
Date of Report: **January 18, 2002**

SITE ASSESSMENT - SPECIAL PROJECT
(ALL DATABASES SEARCHED TO 1/2 MILE)

SITE INVENTORY

MAP ID	PROPERTY AND THE ADJACENT AREA (within 1/2 mile) VISTA ID	A																						
		NPL	CORRACTS	TSD CORRACTS	SPL	TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	FINDS	WATER WELLS	TRIS	UST	AST	CALFID	LG GEN	SM GEN	RCRA VIOL	ERNS	SPILLS
1	KERN BLUFF OIL FLD SEC 7 T29S R28-29E BAKERSFIELD, CA 93306 *227213*							X						X					X					
2	KERN BLUFF PRODUCTION FACILITY DUMP ROAD BAKERSFIELD, CA 93306 *3194699*																X		X					
3	BEAR MOUNTAIN LIMITED SUPPLIMENTAL APN 436-060-11 SEC 12 T29S R28E MDBM BAKERSFIELD, CA 93306 *66642745*									X														

UNMAPPED SITES	VISTA ID	A																						
		NPL	CORRACTS	TSD CORRACTS	SPL	TSD	SCL	CERCLIS/NFRAP	LUST	SWLF	DEED RSTR	CORTESE	TOXIC PITS	FINDS	WATER WELLS	TRIS	UST	AST	CALFID	LG GEN	SM GEN	RCRA VIOL	ERNS	SPILLS
BAKERSFIELD REGIONAL GROU BAKERSFIELD AREA BAKERSFIELD, CA 93302	5771095						X					X							X					

SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

DETAILS

PROPERTY AND THE ADJACENT AREA (within 1/2 mile)

VISTA Address*:	KERN BLUFF OIL FLD SEC 7 T29S R28-29E BAKERSFIELD, CA 93306	VISTA ID#:	227213	Map ID
		Distance/Direction:	0.00 MI / NA	1
		Plotted as:	Radius	

FINDS - Facility Index System / SRC# 6		EPA/Agency ID:	N/A
Agency Address:	*KERN BLUFF OIL FLD SEC 7 T29S R28-29E KERN CO, CA 93000*		
Epa ID:	*CAD980736037*		
Facility Name:	*KERN BLUFF OIL FLD*		
Facility Address:	*SEC 7 T29S R28-29E*		
Facility City:	*KERN CO*		
Facility State:	*CA*		
Facility Zip:	*93000*		
Federal Facility:	*N*		
Tracking Program:	*CERCLIS*		
Program ID:	*0902007*		
Fields Not Reported by the Source Agency for this Site:	*Agency ID(1), Facility County(1), Indian Land(1), Duns Number(1), SIC Code(1), SIC Trans(1)*		

NFRAP / SRC# 18		Agency ID:	0902007
Agency Address:	*KERN BLUFF OIL FLD SEC 7 T29S R28-29E KERN CO, CA 93000*		
EPA ID:	*CAD980736037*		
Site ID:	*0902007*		
EPA Region:	*09*		
Ownership Type:	*UNKNOWN*		
Federal Facility Indicator:	*NOT A FEDERAL FACILITY*		
NPL Status:	*NOT ON THE NPL*		
Hazardous Waste Docket Flag:	*NOT ON THE HAZARDOUS WASTEDOCKET*		
Action:	*DISCOVERY*		
Action Lead:	*EPA FUND-FINANCED*		
Actual Completion Date:	*OCTOBER 1, 1979*		
Action:	*PRELIMINARY ASSESSMENT*		
Action Qualifier:	*LOW*		
Action Lead:	*EPA FUND-FINANCED*		
Actual Completion Date:	*MAY 1, 1980*		
Action:	*PRELIMINARY ASSESSMENT*		
Action Qualifier:	*LOW*		

PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.

Action Lead:	*EPA FUND-FINANCED*
Actual Completion Date:	*DECEMBER 27, 1989*
Action:	*SCREENING SITE INSPECTION*
Action Qualifier:	*NFRAP (NO FUTHER REMEDIAL ACTION PLANNED*
Action Lead:	*EPA FUND-FINANCED*
Actual Completion Date:	*MAY 10, 1991*
Operable Unit ID:	*00*
Operable Unit Name:	*SITEWIDE*
Fields Not Reported by the Source Agency for this Site:	*Financial Management System ID(1), USGS Hydrologic Unit Code(1), Site Incident Category Description(2), Action Qualifier(1), Scheduled Start Date(4), Scheduled Completion Date(4), Actual Start Date(4), (1), (1), (1)*

CALFID / SRC# 54	EPA/Agency ID:	N/A

Agency Address:	*KERN BLUFF OIL FLD* *SEC 7 T29S R2829E* *KERN CO, CA 93000*
Facility Name:	*KERN BLUFF OIL FLD*
Facility Address:	*SEC 7 T29S R2829E*
Facility City:	*KERN CO*
Facility State:	*CA*
Facility Zip:	*93000*
Regulatory Program:	*CERNF*
Program ID:	*CAD980736037*
Last Update:	*931109*
Mailing City:	*KERN CO*
Mailing Zip:	*93000*

CALFID / SRC# 54	EPA/Agency ID:	N/A

Agency Address:	*KERN BLUFF OIL FIELD* *SEC 7 T29S R2829E* *KERN CO, CA 93000*
Facility Name:	*KERN BLUFF OIL FIELD*
Facility Address:	*SEC 7 T29S R2829E*
Facility City:	*KERN CO*
Facility State:	*CA*
Facility Zip:	*93000*
Regulatory Program:	*FINDS*
Program ID:	*CAD980736037*
Last Update:	*940127*
Mailing City:	*KERN*
Mailing Zip:	*93000*
Fields Not Reported by the Source Agency for this Site:	*Agency ID(2), Epa ID(2), Facility County(2), Sic(2), Cortese Flag(2), Contact Name(2), Contact Phone(2)*

PROPERTY AND THE ADJACENT AREA (within 1/2 mile) CONT.

VISTA Address*:	KERN BLUFF PRODUCTION FACILITY DUMP ROAD BAKERSFIELD, CA 93306	VISTA ID#:	3194699	Map ID
		Distance/Direction:	0.23 MI / S	2
		Plotted as:	Point	

STATE UST - State Underground Storage Tank / SRC# 45 — EPA/Agency ID: N/A

Agency Address:	*KERN BLUFF PRODUCTION FACILITY DUMP ROAD BAKERSFIELD, CA 93302*
Facility Name:	*KERN BLUFF PRODUCTION FACILITY*
Facility Address:	*DUMP ROAD BAKERSFIELD, CA 93302*
Facility County:	*15021ROBER*
Total Underground Tanks:	*1*
Total Aboveground Tanks:	*NOT REPORTED*
Total Tanks Removed:	*0*
Tank ID #:	*T001U*
Tank Contents:	*UNKNOWN*
Tank Age:	*0*
Tank Capacity:	*2000 GALLONS*
Tank Status:	*ACTIVE/IN SERVICE*
Leak Monitor:	*MONITOR PRESENT*
Piping Type:	*UNKNOWN*
Tank Material:	*UNKNOWN*

CALFID / SRC# 54 — EPA/Agency ID: N/A

Agency Address:	*KERN BLUFF PRODUCTION FACILITY DUMP RD BAKERSFIELD, CA 93302*
Facility Name:	*KERN BLUFF PRODUCTION FACILITY*
Facility Address:	*DUMP RD*
Facility City:	*BAKERSFIELD*
Facility State:	*CA*
Facility Zip:	*93302*
Regulatory Program:	*UTNKA*
Program ID:	*00001915*
Last Update:	*931022*
Mailing Address:	*1800 030TH ST*
Mailing City:	*BAKERSFIELD*
Mailing Zip:	*93302*
Fields Not Reported by the Source Agency for this Site:	*Agency ID(1), Epa ID(1), Facility County(1), Sic(1), Cortese Flag(1), Contact Name(1), Contact Phone(1)*

VISTA Address*:	BEAR MOUNTAIN LIMITED SUPPLIMENTAL APN 436-060-11 SEC 12 T29S R28E MDBM BAKERSFIELD, CA 93306	VISTA ID#:	66642745	Map ID
		Distance/Direction:	0.37 MI / W	3
		Plotted as:	Point	
STATE SWLF - Solid Waste Landfill / SRC# 163		Agency ID:	15-AA-0321	

Agency Address:	*BEAR MOUNTAIN LIMITED SUPPLIMENTAL APN 436-060-11 SEC 12 T29S R28E MDBM BAKERSFIELD, CA 0*
Site Name:	*BEAR MOUNTAIN LIMITED SUPPLIMENTAL*
Site Address:	*APN 436-060-11 SEC 12 T29S R28E MDBM*
Site City:	*BAKERSFIELD*
Site State:	*CA*
Site County:	*KERN*
SWIS No:	*15-AA-0321*
Latitude:	*35.36667*
Longitude:	*-119.01667*
Operator Name:	*BEAR MOUNTAIN LIMITED*
Operator Address2:	*2500 CITY WEST BLVD. STE. 150*
Operator City:	*HOUSTON*
Operator State:	*TX*
Operator Zip:	*77042*
Facility Life:	*NOT REPORTED*
Unit No:	*01*
Category:	*TRANSFORMATION*
Activity:	*TRANSFORMATION FACILITY*
Regulatory Status:	*PROPOSED*
Operational Status:	*PLANNED*
Inspection Frequency:	*NONE*
Throughput:	*0*
Capacity:	*0*
Acreage:	*0*
Last Tire Inspection Count:	*0*
Original Tire Count:	*0*
Fields Not Reported by the Source Agency for this Site:	*Surrounding Land Use(1), Operator Phone(1), Operator Address(1), Permit Date(1), Permit Status(1), Waste Type(s)(1), Closure Date(1), Closure Type(1), Disposal Acreage(1), Remaining Capacity(1), Last Tire Inspection Count Date(1), Original Tire Count Date(1)*

UNMAPPED SITES

VISTA Address*:	BAKERSFIELD REGIONAL GROU BAKERSFIELD AREA BAKERSFIELD, CA 93302	VISTA ID#:	5771095
SCL - State Equivalent CERCLIS List / SRC# 112		Agency ID:	15990001

Agency Address:	*BAKERSFIELD REGIONAL GROUNDWATER SITE* *BAKERSFIELD AREA* *BAKERSFIELD, CA 93302*
Agency ID:	*15990001*
Facility Name:	*BAKERSFIELD REGIONAL GROUNDWATER SITE*
Facility Address:	*BAKERSFIELD AREA* *BAKERSFIELD, CA. 93302*
Region:	*SACRAMENTO*
County:	*KERN*
Branch:	*CENTRAL CALIFORNIA*
Status Date:	*04301998*
Status:	*REFRW*
Status Description:	*PROPERTY/SITE REFERRED TO RWQCB*
Lead Agency:	*N/A*
Type Name:	*N/A*
SIC Number:	*99*
SIC Name:	*NONCLASSIFIABLE ESTABLISHMENTS*
Water Control Board Region:	*CENTRAL VALLEY*
Cortese:	*L*
Groundwater:	*C*
Number of Sources:	*0*
Latitude:	*35-DEG, 22-MIN, 42-SEC*
Latitude Direction:	*N*
Longitude:	*119-DEG, 1-MIN, 0-SEC*
Longitude Direction:	*W*
Alternate Address:	*BAKERSFIELD AREA* *BAKERSFIELD, CA. 93302*
Alternate Name:	*CENTRAL VALLEY REGIONAL GW -BAKERSFIELD*
Alternate Name:	*BAKERSFIELD REGIONAL GROUNDWATER SITE*
Agency ID:	*15990001*
Comments:	*THREE REGIONAL GROUNDWATER SITES WERE DISCOVERED AFTER REVIEWING MUNICIPAL WATER SUPPLY WELL DATA COLLECTED BY THE DEPARTMENT OF HEALTH SERVICES, OFFICE OF DRINKING WATER. THE THREE SITES CONSISTOF: 1) THE SOURCES OF TETRACHLOROETHYLENE (PCE) CONTAMINATION IN CALIFORNIA WATERSERVICE COMPANY'S WELLS 119AND 153; 2) THE SOURCES OF PCE CONTAMINATION IN CALIFORNIA WATER SERVICE COMPANY'S WELLS 114, 123, AND 129; AND3) THE SOURCES OF TRICHLORO-ETHYLENE (TCE) CONTAMINATION IN CALIFORNIA WATER SERVICE COMPANY'S WELL 146.*
Fields Not Reported by the Source Agency for this Site:	*NPL(1), Tier(1), Fund(1), Access(1), Hazard Ranking Score(1), Hazard Ranking Date(1), Comment Key(1), Activity Number(1), Type of Activity(1), Comment Description(1), Completion Date(1), Estimated Years to Finish(1), Status at Start(1), Cubic Yards Removed(1), Gallons Removed(1), Yards Treated(1), Gallons Treated(1)*

SITE ASSESSMENT - SPECIAL PROJECT (ALL DATABASES SEARCHED TO 1/2 MILE)

DESCRIPTION OF DATABASES SEARCHED

A) DATABASES SEARCHED TO 1/2 MILE

NPL
SRC#: 19

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for National Priorities List was October, 2001.

The NPL Report is the US EPA's registry of the nation's worst uncontrolled or abandoned hazardous waste sites. NPL sites are targeted for possible long-term remedial action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980.

SPL
SRC#: 113

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for CalSites Database was October, 2000.

This database is provided by the Cal. Environmental Protection Agency, Dept. of Toxic Substances Control. The agency may be contacted at: 916-323-3400.

CERCLIS
SRC#: 17

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Comprehensive Environmental Response, Compensation and Liability Information Sys was October, 2001.

The CERCLIS database is a comprehensive listing of known or suspected uncontrolled or abandoned hazardous waste sites. These sites have either been investigated, or are currently under investigation by the U.S. EPA for the release, or threatened release of hazardous substances. Once a site is placed in CERCLIS, it may be subjected to several levels of review and evaluation, and ultimately placed on the National Priorities List (NPL).

NFRAP
SRC#: 18

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for No Further Remedial Action Planned was October, 2001.

The No Further Remedial Action Planned Report (NFRAP), also known as the CERCLIS Archive, contains information pertaining to sites which have been removed from the U.S. EPA's CERCLIS database. NFRAP sites may be sites where, following an initial investigation, either no contamination was found, contamination was removed quickly without need for the site to be placed on the NPL, or the contamination was not serious enough to require federal Superfund action or NPL consideration.

SCL
SRC#: 112

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for CalSites Database was October, 2000.

This database is provided by the Department of Toxic Substances Control. Two- thirds of these sites have been classified, based on available information, as needing "No Further Action" (NFA) by the Department of Toxic Substances Control. The remaining sites are in various stages of review and remediation to determine if a problem exists at the site. Several hundred sites have been remediated and are considered certified. Some of these sites may be in long term operation and maintenance.

CORRACTS
SRC#: 14

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for RCRIS Corrective Action Sites was August, 2001.

The CORRACTS database contains information concerning RCRA facilities that have conducted, or are currently conducting a corrective action. A Corrective Action Order is issued pursuant to RCRA Section 3008 (h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may also be imposed as a requirement of receiving and maintaining a TSDF permit.

ERNS
SRC#: 8

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Emergency Response Notification System was December, 2000.

ERNS is a national computer database system that is used to store information on the sudden and/or accidental release of hazardous substances, including petroleum, into the environment. The ERNS reporting system contains preliminary information on specific releases, including the spill location, the substance released, and the responsible party.

RCRIS-TSD
SRC#: 12

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for RCRIS Treatment, Storage and Disposal Facilities was August, 2001.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities which treat, store and/or dispose of hazardous waste.

RCRIS-TSDC
SRC#: 556

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for RCRIS TSDs Subject to Corrective Action was August, 2001.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDCs are treatment, storage and/or disposal facilities that are subject to corrective action under RCRA.

RCRA-LQG
SRC#: 16

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for RCRIS Large Quantity Generators was August, 2001.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Large Generators are facilities which generate at least 1000 kg./month of non-acutely hazardous waste (or 1 kg./month of acutely hazardous waste).

RCRIS-SQG
SRC#: 15

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for RCRIS Small Quantity Generators was August, 2001.

The EPA's Resource Conservation and Recovery Act (RCRA) Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRA Facilities database is a compilation by the EPA of facilities which report generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Small Quantity Generators are facilities which generate less than 1000 kg./month of non-acutely hazardous waste.

RCRIS-VIOL
SRC#: 11

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for RCRIS Facilities with Violations was August, 2001.

The Resource Conservation and Recovery Act Information System (RCRIS) identifies and tracks hazardous waste from the point of generation to the point of disposal. The RCRIS Violations report contains information concerning facilities that have been cited for violations of RCRA, as well as any enforcement actions taken against the facility.

SWLF
SRC#: 23

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for USGS Solid Waste Landfills was December, 1991.

This database is provided by the United States Geological Survey. The agency may be contacted at: 703-648-5613.

SWLF
SRC#: 163

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Solid Waste Inventory System was November, 2001.

This database is provided by the Integrated Waste Management Board. The agency may be contacted at: 916-255-4021.

SPILLS
SRC#: 147

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Region 5 SLIC/DOD/DOE Site List was July, 2001.

This database is provided by the Regional Water Quality Control Board, Region #5. The agency may be contacted at: 916-255-3000.

LUST-REG
SRC#: 108

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Region 6 Leaking Underground Storage Tanks was July, 2001.**

This database is provided by the Lahontan Region Six South Lake Tahoe. The agency may be contacted at: 530-542-5400.

LUST-REG
SRC#: 128

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Region 6 Leaking Underground Storage Tanks was July, 2001.**

This database is provided by the Regional Water Quality Control Board, Region #6. The agency may be contacted at: 760-241-7365.

LUST-REG
SRC#: 145

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Region 5 Leaking Underground Storage Tanks was July, 2001.**

This database is provided by the Regional Water Quality Control Board, Region #5. The agency may be contacted at: 916-255-3125.

LUST
SRC#: 164

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Leaking Underground Storage Tank Information System was August, 2001.**

This database is provided by the California Environmental Protection Agency. The agency may be contacted at: 916-341-5740.

UST
SRC#: 45

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for Underground Storage Tanks was January, 1994.**

This historical database is provided by the State Water Resources Control Board, Office of Underground Storage Tanks. Please refer to the local level UST list for more current information. Be advised that some states do not require registration of heating oil tanks, especially those used for residential purposes.

UST-BAKE
SRC#: 52

VISTA conducts a database search to identify all sites within 1/2 mile of your property. **The agency release date for City of Bakersfield Underground Storage Tanks was May, 1998.**

This database is provided by the Bakersfield Fire Department Office of Environmental Services. The agency may be contacted at: 805-326-3979. Be advised: Many states do not require registration of heating oil tanks, especially those used for residential purposes.

UST-CO-KER
SRC#: 158

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Kern County Underground Storage Tanks was July, 2000.

This database is provided by the Kern County Environmental Health Department. The agency may be contacted at: 805-862-8700. Be advised: Many states do not require registration of heating oil tanks, especially those used for residential purposes.

AST
SRC#: 60

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Aboveground Storage Tanks was January, 2001.

This database is provided by the State Water Resources Control Board. The agency may be contacted at: 916-227-4364.

TRIS
SRC#: 2

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Toxic Release Inventory System was January, 1998.

All facilities that manufacture, process, or import toxic chemicals in quantities in excess of 25,000 pounds per year are required to register with the EPA under Section 313 of the Superfund Amendments and Reauthorization Act (SARA Title III) of 1986. Data contained in the TRIS system covers approximately 20,000 sites and 75,000 chemical releases.

CORTESE
SRC#: 53

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Cortese List - Hazardous Waste Substance Site List was April, 1998.

This database is provided by the Office of Environmental Protection, Office of Hazardous Materials. The agency may be contacted at: 916-445-6532. The California Governor's Office of Planning and Research annually publishes a listing of potential and confirmed hazardous waste sites throughout the State of California under Government Code Section 65962.5. This database (CORTESE) is based on input from the following: (1)CALSITES-Department of Toxic Substances Control, Abandoned Sites Program Information Systems; (2)SARA Title III Section III Toxic Chemicals Release Inventory for 1987, 1988, 1989, and 1990; (3)FINDS; (4)HWIS-Department of Toxic Substances Control, Hazardous Waste Information System. Vista has not included one time generator facilities from Cortese in our database.; (5)SWRCB-State Water Resources Control Board; (6)SWIS-Integrated Waste Management Control Board (solid waste facilities); (7)AGT25-Air Resources Board, dischargers of greater than 25 tons of criteria pollutants to the air; (8)A1025-Air Resources Board, dischargers of greater than 10 and less than 25 tons of criteria pollutants to the air; (9)LTANK-SWRCB Leaking Underground Storage Tanks; (10)UTANK-SWRCB Underground tanks reported to the SWEEPS systems; (11)IUR-Inventory Update Rule (Chemical Manufacturers); (12)WB-LF- Waste Board - Leaking Facility, site has known migration; (13)WDSE-Waste Discharge System - Enforcement Action; (14)DTSCD-Department of Toxic Substance Control Docket.

BORDER-ZON
SRC#: 46

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Deed Restriction Properties Report was October, 2001.

The Deeds Restrictions list, also known as the Border Zone Property List, contains information concerning voluntary deed restriction. These agreements are made with owners of property who propose building residences, schools, hospitals, or day care centers on property that is on or within 2,000 feet of potentially hazardous waste site.

TOXICPITS
SRC#: 49

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Toxic Pits was February, 1995.

This database is provided by the Water Quality Control Board, Division of Loans Grants. The agency may be contacted at: 916-227-4396.

USGS-WELLS
SRC#: 3

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for USGS Water Wells was March, 1998.

The Ground Water Site Inventory (GWSI) database was provided by the United States Geological Survey (USGS). The database contains information for over 1,000,000 wells and other sources of groundwater which the USGS has studied, used or documented during research.

FINDS
SRC#: 6

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Facility Index System was February, 1999.

The FINDS report is an inventory of all facilities that are regulated or tracked by the U.S. Environmental Protection Agency. These facilities are assigned an identification number that serves as a cross-reference for other databases in the EPA's program system. Each FINDS record indicates the EPA Program Office that is responsible for the tracking of the facility.

CALFID
SRC#: 54

VISTA conducts a database search to identify all sites within 1/2 mile of your property.
The agency release date for Facility Inventory Data System was April, 1998.

The Facility Inventory Data System was created by the California Environmental Protection Agency (Cal/EPA), Department of Toxic Substances Control to facilitate the identification of complete environmental regulatory profiles for facilities. Currently, regulatory information on a given facility may exist in multiple sources located in multiple regulatory agencies at federal, state and local levels. The FID integrates facility information from many different regulatory sources by matching the facilities based on their location. The agency may be contacted at: 916-323-3400.

End of Report

VIII

NOTICE OF DETERMINATION

TO: X Office of Planning and Research
1400 Tenth Street, Room 121
Sacramento, CA 95814

FROM: City of Bakersfield
1715 Chester Avenue
Bakersfield, CA 93301

TO: X County Clerk
County of Kern
1115 Truxton Avenue
Bakersfield, CA 93301

SUBJECT: Filing of Notice of Determination in compliance with Section 21108 or 21152 of the Public Resources Code.

City in the Hills
Project Title

2000011101	Marc Gauthier	(805) 326-3733
State Clearinghouse Number (if Submitted to Clearinghouse)	Contact Person	Area Code/Number/Extension

Project Location: The project site is located within Section 17, the SE ¼ of the SE ¼ of Section 18, and the extreme NE portion (8.9 acres) of Section 19, Townshp 29 South, Range 29 East, in the northeast portion of Bakersfield. The project site encompasses approximately 694 acres and is located in the northeast portion of the City between Highway 178, Masterson Lane, Paladino Drive, and undeveloped portions of Vineland Road and Queen Street (one mile east of Morning Drive). The project site is currently undeveloped.

Project Description: The project is an amendment to the Land Use Element and the Circulation Element of the Metropolitan Bakersfield 2010 General Plan and a concurrent zone change. The proposed Land Use and Circulation Elements Amendments and the Zone Change will consist of boundary realignments of the Low Density Residential (2750 units), High Density Residential (1,300 units), and Commercial (1,048,706 square feet) land use designations and zoning districts. Proposed Circulation Element amendments include the addition of new arterial and collector street alignments within the development site.

This is to advise that the City of Bakersfield has approved the above described
(Lead Agency or Responsible Agency)

project on November 15, 2000 and has made the following determinations
(Date)

regarding the above described project:

1. The project X will, ___ will not have a significant effect on the environment.
2. X An Environmental Impact Report was prepared for this project pursuant to the provisions of CEQA.
   ___ A Negative Declaration was prepared for this project pursuant to the provisions of CEQA.
3. Mitigation Measures X were, ___ were not made a condition of the approval of the project.
4. A Statement of Overriding Considerations X was, ___ was not adopted for this project.

This is to certify that the final EIR/Negative Declaration with comments and responses and record of project approval is available to the general public at:

The City of Bakersfield, 1715 Chester Avenue Bakersfield, CA 93301

Stanley Gowley 11/16/00 Planning Director
Signature (Public Agency) Date Title

Date Received for Filing and Posting at OPR/County of: ____/____

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