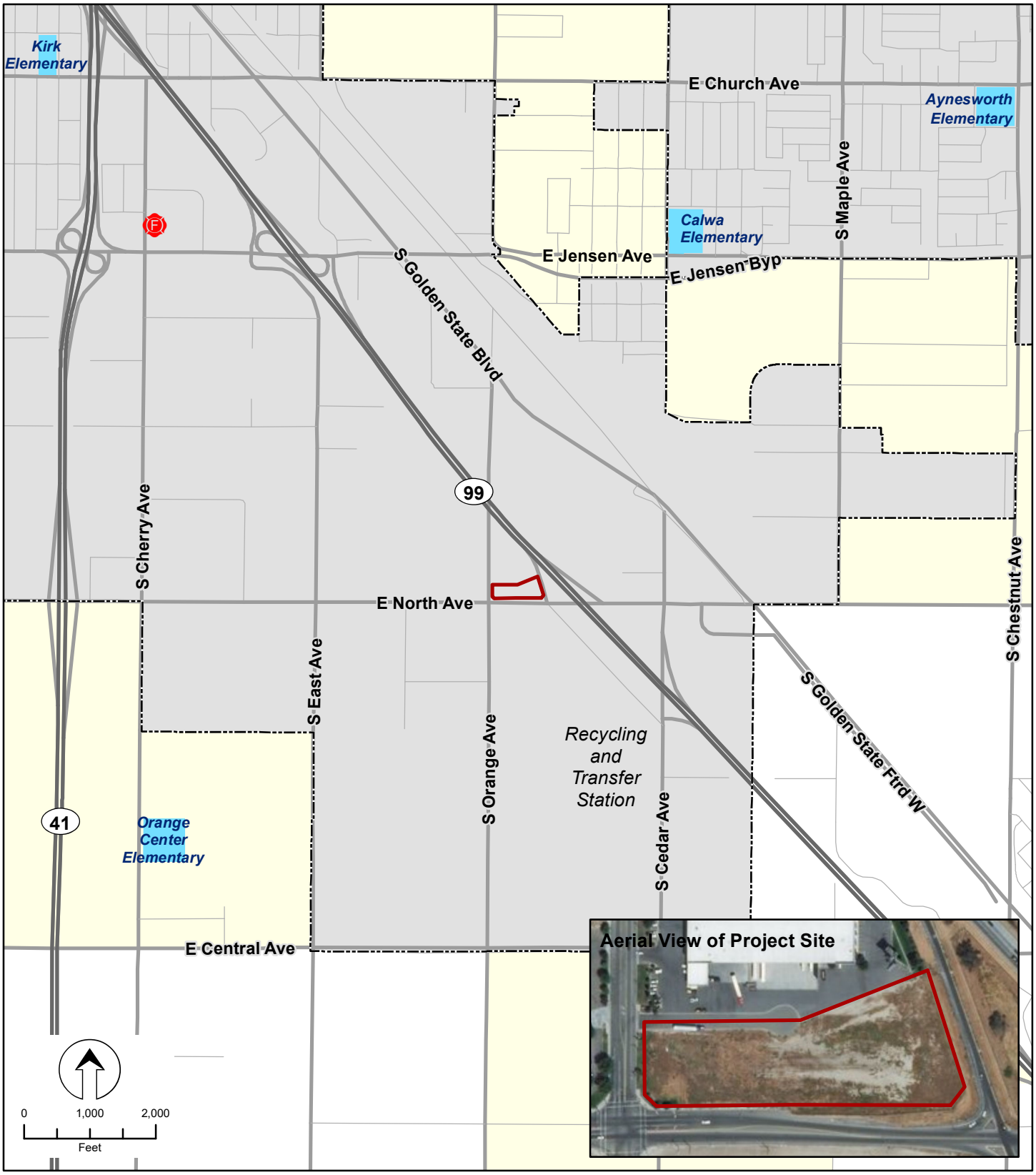
# Attachments




**Legend**

- Project Location
- Fresno City Limits
- Fresno Sphere of Influence
- School
- Fire Station

Sources: Fresno County GIS; City of Fresno GIS; ArcGIS Online World Imagery Map Service. Map date: March 14, 2019.

**FRESNO P18-02233**

# Vicinity Map

De Novo Planning Group
A Land Use Planning, Design, and Environmental Firm

# Appendix A

## Air Quality Technical Memorandum

Stantec

# Memo

| | | | |
|---|---|---|---|
| To: | Mr. Neil Angelillo<br>True North Properties<br>1155 W. Shaw Avenue # 104<br>Fresno, CA 93711 | From: | Elena Nuño, Senior Air Quality Scientist<br>7502 N Colonial, Suite 101<br>Fresno, CA 93711 |
| File: | 1857 | Date: | December 20, 2018 |

**Reference: Planning Application P18-02233 – North and 99 Project – 2999 South Orange Avenue**

At the request of True North Properties, Stantec Consulting services prepared this Air Quality Technical Memorandum to analyze criteria air pollutants and toxic air contaminants (TACs) associated with the construction and operation of the project located at 2999 South Orange Ave (referred to hereafter as the proposed project). This analysis is being performed to support the proposed project's California Environmental Quality Act (CEQA) documentation and per the request of the City of Fresno Planning Department.

This memorandum discusses the construction and operational emissions sources, methodology for calculating emissions, and the methodology for conducting the prioritization screening for health risks.

## PROJECT UNDERSTANDING

The proposed project is located at 2999 South Orange Avenue, in the City of Fresno, California, approximately 0.4 miles from the State Route 99 (SR 99) southbound off-ramp (North Avenue) and 0.90 miles from the SR 99 northbound offramp (Cedar Avenue) (see Figure 1). The proposed project involves the construction and operation of a 13,289 square foot commercial development on 3.72 acres in the City of Fresno, California. The project site is shown in Figure 2. The proposed project is broken up into the following components:

- Convenience market with gas station – 3,062 square feet of building and 12 pumps
- Panda Express – 2,227 square feet
- Retail Building – 5,000 square feet (note that the site plan shows a potential drive through)
- Fast food restaurant with drive through – 3,000 square feet

**Figure 1: Project Location**

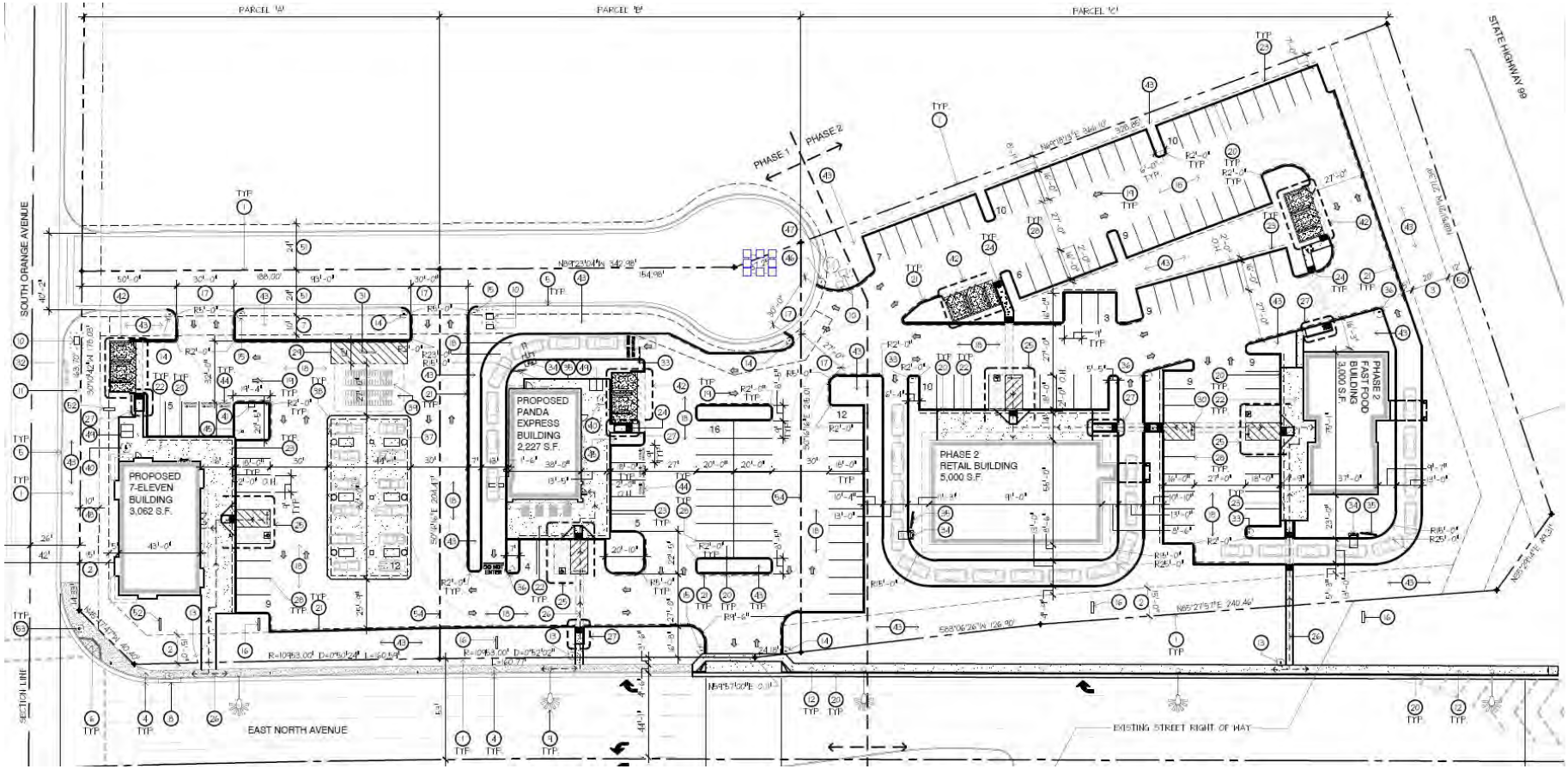



**Figure 2: Site Plan**

Reference: Planning Application P18-02233 – North and 99 Project – 2999 South Orange Avenue

## APPLICABLE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT REGULATIONS

The proposed project would be subject to the following the San Joaquin Valley Air Pollution Control District (District) regulations:

**Rule 2010 – Permits Required.** The purpose of this rule is to require any person constructing, altering, replacing or operating any source operation which emits, may emit, or may reduce emissions to obtain an Authority to Construct and a Permit to Operate. This rule also explains the posting requirements for a Permit to Operate and the illegality of a person willfully altering, defacing, forging, counterfeiting or falsifying any Permit to Operate.

**Rule 2201 – New and Modified Stationary Source Review Rule.** The purpose of this rule is to provide for the following: (1) The review of new and modified Stationary Sources of air pollution and to provide mechanisms including emission trade-offs by which Authorities to Construct such sources may be granted, without interfering with the attainment or maintenance of Ambient Air Quality Standards; and (2) No net increase in emissions above specified thresholds from new and modified Stationary Sources of all nonattainment pollutants and their precursors.

**Rule 4102 – Nuisance.** The purpose of this rule is to protect the health and safety of the public and applies to any source operation that emits or may emit air contaminants or other materials.

**Rule 4601 – Architectural Coatings.** The purpose of this rule is to limit Volatile Organic Compounds (VOC) emissions from architectural coatings. Emissions are reduced by limits on VOC content and providing requirements on coatings storage, cleanup, and labeling.

**Rule 4621 – Gasoline Transfer into Stationary Storage Containers, Delivery Vessels, and Bulk Plants.** The purpose of this rule is to limit VOC emissions from stationary storage containers, delivery vessels, and bulk plants and to provide the administrative requirements for determining compliance with this rule.

**Rule 4641 – Cutback, Slow Cure, and Emulsified Asphalt, Paving and Maintenance Operations.** The purpose of this rule is to limit VOC emissions from asphalt paving and maintenance operations. If asphalt paving will be used, then the paving operations will be subject to Rule 4641.

**Regulation VIII – Fugitive $PM_{10}$ Prohibitions.** Rule 8011-8081 are designed to reduce $PM_{10}$ emissions (predominantly dust/dirt) generated by human activity, including construction and demolition activities, road construction, bulk materials storage, paved and unpaved roads, carryout and trackout, etc. All development projects that involve soil disturbance are subject to at least one provision of the Regulation VIII series of rules.

**Rule 9510 – Indirect Source Review.** This rule reduces the impact of $NO_x$ and $PM_{10}$ emissions from growth on the Air Basin. The rule places application and emission reduction requirements on development projects meeting applicability criteria to reduce emissions through onsite mitigation, offsite District -administered projects, or a combination of the two. This project must comply with Rule 9510 because it would develop more than 2,000 square feet of commercial space.

## METHODOLOGY

The analysis followed the guidance presented by the District in its Guide for Assessing and Mitigating Air Quality Impacts (March 2015). The California Emissions Estimator Model (CalEEMod) version 2016.3.2 was used to estimate the criteria air pollutants from construction and operation of the project. The District's Prioritization Calculator was used to screen health risks.

## CONSTRUCTION

The proposed project would be constructed in three phases with the first phase beginning in 2019 and the final phase ending completion in 2024. The following construction schedule was used to estimate construction emissions, see Table 1. Construction occurring any time after January 2019 would result in decreased emissions since emission factors for construction equipment decrease as the analysis year is pushed out due to increasing regulation, such as the California Air Resources Board (CARB) In-Use Off-Road Diesel-Fueled Fleets regulation requiring the use of cleaner construction equipment fleets. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per CEQA guidelines.

**Table 1: Construction Schedule**

| Phase | Construction Phase | Anticipated Phase Start Date | Anticipated Phase End Date | Total Number of Days |
|---|---|---|---|---|
| **1 Convenience Market with Gasoline Station and Panda Express** | Site Preparation | 2/5/2019 | 2/5/2019 | 2 |
| | Site Grading | 2/11/2019 | 2/11/2019 | 4 |
| | Building Construction | 2/12/2019 | 11/18/2019 | 200 |
| | Paving | 11/19/2019 | 12/2/2019 | 10 |
| | Architectural Coating | 12/3/2019 | 12/19/2019 | 10 |
| **2 5,000 square foot building** | Site Preparation | 1/4/2021 | 1/5/2021 | 2 |
| | Site Grading | 1/6/2021 | 1/11/2021 | 4 |
| | Building Construction | 1/12/2021 | 10/18/2021 | 200 |
| | Paving | 10/19/2021 | 11/1/2021 | 10 |
| | Architectural Coating | 11/2/2021 | 11/15/2021 | 10 |
| **3 3,000 square foot building** | Site Preparation | 1/8/2024 | 1/9/2024 | 2 |
| | Site Grading | 1/10/2024 | 1/15/2024 | 4 |
| | Building Construction | 1/16/2024 | 10/21/2024 | 200 |
| | Paving | 10/22/2024 | 11/4/2024 | 10 |
| | Architectural Coating | 11/5/2025 | 11/18/2024 | 10 |
| Source: True North Properties – start of construction schedule; CalEEMod defaults for duration | | | | |

## OPERATIONS

### Non-Stationary Sources

The proposed project would become operational in phases beginning in the year 2020 and would be completely built out in the year 2025. Trip generation information for the proposed project was derived from the Traffic Impact Study prepared by JLB Traffic Engineering, Inc. and the Institute of Traffic Engineers (ITE) Trip Generation Manual 10th Edition. Trip generation for the proposed project is shown in Table 2.

**Table 2: Trip Generation Rate**

| Land Use Type (ITE Land Use Type) | Size | Trip Generation | | |
|---|---|---|---|---|
| | | Weekday | Saturday | Sunday |
| Convenience Market with gasoline Station (945) [1] | 12 pumps | 205.36 | 204.47 | 166.88 |
| Panda Express (934) [2] | 2.27 ksf | 470.95 | 616.12 | 472.58 |
| Retail Building (934) [2, 3] | 3.002 ksf | 470.95 | 616.12 | 472.58 |
| Retail Building (937)2, | 1.998 | 820.38 | 673.64 | 421.82 |
| Fast food Restaurant with Drive Through (934) [2] | 3 ksf | 470.95 | 616.12 | 472.58 |

Notes:

1. Daily rate from Traffic Impact Study prepared by JLB Traffic Engineering, Inc.; Saturday and Sunday from CalEEMod defaults (no ITE 10th edition rates for Saturday and Sunday)
2. Daily rates from Daily rate from Traffic Impact Study prepared by JLB Traffic Engineering, Inc.; Saturday and Sunday rates from ITE 10th Edition
3. Although the site plan shows the 5,000 square foot building as future retail, there is a drive through shown on the site plan, therefore the more conservative assumption of fast food restaurant with drive through was used for 3,002 square feet and the remaining 1,098 allocated to the ITE Land Use 937 for drive-through coffee shop/donut shop

The default fleet mix from CalEEMod overstates the number of trucks making deliveries to commercial/retail land uses. Stantec prepared an analysis of truck trip generation for similar land uses to identify a more accurate fleet mix for use in the project analysis. The tenants will include service providers such as fast-food restaurants and a convenience market. Separate fleet mixes for each land use were developed (see attached fleet mix revisions). In addition, a combined heavy-duty diesel truck estimate was prepared for the entire project site to reflect solid waste collection services. It was assumed that solid waste and recyclables would be collected 4 times per week. Based on the project's location near the commercial service provider of Mid-Valley Disposal and nearby transfer stations, the trip length was assumed to be 20 miles.

The default trip length in CalEEMod for customer trips (7.3 miles) was revised to reflect the location of the project near SR 99 and its proximity to major employment centers within an approximately 3-mile radius. This trip length is consistent with the findings in the addendum to the Traffic Impact Study. The primary, pass-by, and diverted trips from CalEEMod were revised to reflect the trip percentage estimates in the traffic impact study of 64 percent primary, 11 percent diverted, and 25 percent pass-by.

### Stationary Sources

The proposed project includes a gasoline dispensing facility which would be subject to District permitting requirements. The gasoline dispensing facility would need to apply for an Authority to Construct (ATC), Permit to Operate (PTO) and comply with Rule 4621. The facility will dispense up to 1.4 million gallons of gasoline annually. Notably, the facility will not include diesel fuel, therefore the only heavy-duty diesel fueled vehicles accessing the facility would be the tanker trucks unloading into the underground storage tanks.

The volatile organic compound (VOC) or reactive organic gases (ROG) estimate was derived from the emission factors in the District's Guidance for Air Dispersion Modeling (January 2007) based on the California Air Resources Board's 1997 report Gasoline Service Station Industrial Wide Risk Assessment Guidelines.

## RESULTS

### Construction

The proposed project's construction emissions in tons per year are shown in Table 3. The project's maximum daily emissions in pounds (lbs.) per day are shown in Table 4. As shown in Table 3, the project would not exceed the District's thresholds of significance for criteria air pollutants. Table 4 shows that the project would not exceed the District's screening threshold of 100 lbs. per day for requiring an ambient air quality analysis.

Based on the results, construction of the proposed project would not result in any significant impacts to air quality from a regional or localized perspective. Additionally, compliance with District Rule 9510 Indirect Source Review would further reduce $NO_x$ and $PM_{10}$ emissions through onsite measures or payment of fees to reduce emissions offsite.

**Table 3: Summary of Construction-Generated Emissions of Criteria Air Pollutants – Unmitigated (Tons/Year)**

| Phase | Year | Emissions (Tons/Year) | | | | | |
|---|---|---|---|---|---|---|---|
| | | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| 1 | 2019 | 0.31 | 1.89 | 1.56 | 0.002 | 0.14 | 0.11 |
| 2 | 2021 | 0.25 | 1.55 | 1.55 | 0.002 | 0.10 | 0.08 |
| 3 | 2024 | 0.19 | 1.24 | 1.24 | 0.002 | 0.07 | 0.06 |
| Significance Thresholds | | 10 | 10 | 100 | 27 | 15 | 15 |
| Any Year Exceed Significance Thresholds? | | No | No | No | No | No | No |
| Source: Stantec Consulting Services, Inc., CalEEMod 2016.3.2 | | | | | | | |

**Table 4: Summary of Construction-Generated Emissions of Criteria Air Pollutants – Unmitigated Maximum (lbs./day)**

| Phase | Year | Emissions (lbs./day) | | | | | |
|---|---|---|---|---|---|---|---|
| | | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| 1 | 2019 | 10.69 | 19.51 | 14.80 | 0.028 | 3.56 | 2.16 |
| 2 | 2021 | 9.01 | 17.44 | 13.55 | 0.026 | 3.44 | 2.05 |
| 3 | 2024 | 6.33 | 11.86 | 13.05 | 0.026 | 3.16 | 1.79 |
| Ambient Air Quality Analysis Screening Threshold | | 100 | 100 | 100 | 100 | 100 | 100 |
| Any Year Exceed Screening Thresholds? | | No | No | No | No | No | No |
| Source: Stantec Consulting Services, Inc., CalEEMod 2016.3.2 | | | | | | | |

## Operational

The proposed project's long-term operational emissions are shown in Table 5 (annual) and Table 6 (daily). As shown in Table 5, the proposed project would not exceed the District's thresholds of significance. As shown in Table 6, the proposed project would not exceed 100 lbs. per day, thus an ambient air quality analysis is not required pursuant to District guidance.

Based on the results, operation of the proposed project would not result in any significant impacts to air quality from a regional or localized perspective. Additionally, compliance with District Rule 9510 Indirect Source Review would further reduce $NO_x$ and $PM_{10}$ emissions through onsite measures or payment of fees to reduce emissions offsite.

**Table 5: Summary of Operational Emissions of Criteria Air Pollutants – Unmitigated (Tons/Year)**

| Year | Component | Emissions (Tons/Year) | | | | | |
|---|---|---|---|---|---|---|---|
| | | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| 2020 | Convenience Market w/gasoline Station | 0.65 | 0.73 | 4.61 | 0.01 | 0.86 | 0.23 |
| | Panda Express | 0.30 | 0.35 | 2.15 | 0.00 | 0.40 | 0.11 |
| | Refuse Collection | < 0.00 | 0.06 | 0.01 | < 0.00 | 0.00 | 0.00 |
| | Subtotal | 0.95 | 1.14 | 6.77 | 0.01 | 1.26 | 0.34 |
| 2022 | 5,000 sf Building | 0.70 | 0.79 | 5.03 | 0.01 | 1.21 | 0.33 |
| 2024 | 3,000 sf building | 0.29 | 0.30 | 2.07 | 0.01 | 0.66 | 0.18 |
| Total | | 1.94 | 2.23 | 13.87 | 0.03 | 3.13 | 0.85 |
| Significance Thresholds | | 10 | 10 | 100 | 27 | 15 | 15 |
| Any Year Exceed Significance Thresholds? | | No | No | No | No | No | No |
| Does Project Buildout Exceed the Significance Thresholds? | | No | No | No | No | No | No |

Notes:
Project buildout totaled the emissions from early years and did not remodel the emissions estimate, the total project buildout would be less than the emissions shown due to cleaner mobile source vehicles in later years.
Source: Stantec Consulting Services, Inc., CalEEMod 2016.3.2

Reference: Planning Application P18-02233 – North and 99 Project – 2999 South Orange Avenue

**Table 6: Summary of Operational Emissions of Criteria Air Pollutants – Unmitigated (lbs./day)**

| Year | Component | Emissions (lbs./day) | | | | | |
|---|---|---|---|---|---|---|---|
| | | ROG | $NO_X$ | CO | $SO_X$ | $PM_{10}$ | $PM_{2.5}$ |
| 2020 | Convenience Market w/gasoline Station | 0.65 | 0.73 | 4.61 | 0.01 | 0.86 | 0.23 |
| | Panda Express | 0.30 | 0.35 | 2.15 | 0.00 | 0.40 | 0.11 |
| | Refuse Collection | < 0.00 | 0.06 | 0.01 | < 0.00 | 0.00 | 0.00 |
| | Subtotal | 0.95 | 1.14 | 6.77 | 0.01 | 1.26 | 0.34 |
| 2022 | 5,000 sf Building | 4.05 | 5.39 | 34.68 | 0.08 | 8.09 | 2.21 |
| 2024 | 3,000 sf building | 0.29 | 0.30 | 2.07 | 0.01 | 0.66 | 0.18 |
| Total | | 11.00 | 14.85 | 93.58 | 0.20 | 20.62 | 5.63 |
| Ambient Air Quality Analysis Screening Threshold | | 100 | 100 | 100 | 100 | 100 | 100 |
| Any Year Exceed Screening Thresholds? | | No | No | No | No | No | No |
| Does Project Buildout Exceed Screening Thresholds? | | No | No | No | No | No | No |

Notes:
Project buildout totaled the emissions from early years and did not remodel the emissions estimate, the total project buildout would be less than the emissions shown due to cleaner mobile source vehicles in later years.
Source: Stantec Consulting Services, Inc., CalEEMod 2016.3.2

**Stationary Sources**

Gasoline Dispensing Facility

1. Loading (Tank) = VOC = 0.84 lbs./1,000 gallons x 1.4 million gallons = 1,176 lbs.
2. Breathing (Tank) = VOC = 0.74 lbs./1,000 gallons x 1.4 million gallons = 1,036 lbs.
3. Refueling = VOC = 0.74 lbs./1,000 gallons x 1.4 million gallons = 1,036 lbs.
4. Spillage = VOC = 0.42 lbs./1,000 gallons x 1.4 million gallons = 588 lbs.

Total = 3,836 lbs. or 1.918 tons of VOC (less than the District thresholds of significance).

## HEALTH RISK PRIORITIZATION

Those who are sensitive to air pollution include children, the elderly, and persons with pre-existing respiratory or cardiovascular illness. For purposes of CEQA, the SJVAPCD considers a sensitive receptor a location that houses or attracts children, the elderly, people with illnesses, or others who are especially sensitive to the effects of air pollutants. Examples of sensitive receptors include hospitals, residences, convalescent facilities, and schools. The nearest sensitive receptor the project site are residences located approximately one-mile south at Central and North Avenues. The nearest worksite receptor is located approximately 100 feet west from the project site boundary on Orange Avenue.

The District recommended that a screening analysis be performed to determine if a refined Health Risk Assessment (HRA) should be performed. The District's recommended method for screening risks is by using its prioritization calculator based on the California Air Pollution Control Officers Facility Prioritization Guidelines (August 2016). The prioritization calculator will provide a score based on the emission potency method. The prioritization score is an indicator of a facility's potential risk. Scores of 10 or greater indicate that a refined HRA should be prepared because there is the potential for a significant health risk. Scores less than 10 indicate that the project's TAC emissions are not a high risk.

The various TACs that would be emitted from the project include: Benzene, Toluene, and Xylene from the gasoline dispensing facility and diesel engine exhaust from delivery vehicles to the project site.

The maximum prioritization score total is 2.51 to the nearest worksite receptor. This is less than the District recommended screening threshold of 10 for conducting a refined HRA. The maximum prioritization score for the nearest residential receptor is 0.00251.

Based on the score of 2.51, the proposed project would not result in a significant health risk and does not require a refined HRA.

## LOCALIZED AIR QUALITY IMPACTS

Localized impacts to air quality are a possibility when criteria air pollutant emissions exceed 100 lbs. per day. Localized fugitive dust impacts are also a possibility where fugitive dust controls are not implemented. The proposed project would not exceed 100 lbs. per day during construction or operation, therefore potential localized air quality impacts would be less than significant. The proposed project would be required to comply with the District's Regulation VIII Fugitive Dust Prohibitions, which requires the preparation and implementation of a dust control plan or dust control notification. Under either scenario, construction of the project would be required to implement best management practices to control fugitive dust. Therefore, potential fugitive dust impacts would be less than significant.

Reference: Planning Application P18-02233 – North and 99 Project – 2999 South Orange Avenue

## SUMMARY

Based on the analysis, the proposed project would not result in a significant impact to air quality based on the following results:

- The proposed project would not result in any exceedances of the District's significance thresholds.
- The proposed project does not exceed any screening thresholds for localized air quality impacts.
- The proposed project's prioritization score of 2.51 is less than the District's screening threshold of 10. This score indicates that the project would not result in a significant health risk to nearby offsite workers and the risk to the nearest residential receptors is reduced even further.
- The proposed project's stationary source emissions would not exceed the District's thresholds of significance. The proposed project would be required to obtain an ATC prior to constructing the gasoline dispensing facility and a PTO would be issued upon the District's confirmation that the facility was constructed in accordance with the conditions in the ATC.

**Stantec Consulting Services Inc.**

**Elena Nuno**
Senior Air Quality Scientist

Phone: 559.355.0580
elena.nuno@stantec.com

Attachments: CalEEMod Modeling Outputs
Fleet mix revisions
Prioritization Calculator

## REFERENCES

California Air Pollution Control Officers. 2016. CAPCOA Air Toxic "Hot Spots" Program Facility Prioritization Guidelines. August. Website: http://www.capcoa.org/wp-content/uploads/2016/08/CAPCOA%20Prioritization%20Guidelines%20-%20August%202016%20FINAL.pdf. Accessed December 17, 2018.

California Air Pollution Control Officers. 1997. CAPCOA Air Toxic "Hot Spots" Program Gasoline Service Station Industrywide Risk Assessment Guidelines. Website: https://www.arb.ca.gov/ab2588/rrap-iwra/GasIWRA.pdf. Accessed December 18, 2018

JLB Traffic Engineering, Inc. 2018. Draft Traffic Impact Analysis Commercial Development. January.

JLB Traffic Engineering, Inc. 2018. Trip Generation Analysis for the Commercial Development located at the Northeast Corner of North Avenue and Orange Avenue in the City of Fresno. December

San Joaquin Valley Air Pollution Control District. 2015. Guide for Assessing and Mitigating Air Quality Impacts. March. Website: http://www.valleyair.org/busind/pto/tox_resources/Modeling%20Guidance%20W_O%20Pic.pdf. Accessed December 17, 2018.

San Joaquin Valley Air Pollution Control District. 2007. Guidance for Air Dispersion Modeling. January. Website: http://www.valleyair.org/transportation/GAMAQI_3-19-15.pdf. Accessed December 17, 2018.

# CALEEMOD

## Construction Results

# 99 and North Phase 1 - Construction Only

**Fresno County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Strip Mall | 5.29 | 1000sqft | 0.12 | 5,289.00 | 0 |
| Parking Lot | 47.00 | Space | 0.42 | 18,800.00 | 0 |
| Other Asphalt Surfaces | 1.09 | Acre | 1.09 | 47,480.40 | 0 |
| Other Non-Asphalt Surfaces | 0.15 | Acre | 0.15 | 6,534.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

| | | | |
|---|---|---|---|
| tblConstructionPhase | PhaseEndDate | 1/13/2020 | 12/16/2019 |
| tblConstructionPhase | PhaseEndDate | 12/16/2019 | 11/18/2019 |
| tblConstructionPhase | PhaseEndDate | 3/11/2019 | 2/11/2019 |
| tblConstructionPhase | PhaseEndDate | 12/30/2019 | 12/2/2019 |
| tblConstructionPhase | PhaseEndDate | 3/5/2019 | 2/5/2019 |
| tblConstructionPhase | PhaseStartDate | 12/31/2019 | 12/3/2019 |
| tblConstructionPhase | PhaseStartDate | 3/12/2019 | 2/12/2019 |
| tblConstructionPhase | PhaseStartDate | 3/6/2019 | 2/6/2019 |
| tblConstructionPhase | PhaseStartDate | 12/17/2019 | 11/19/2019 |
| tblConstructionPhase | PhaseStartDate | 3/2/2019 | 2/4/2019 |

# 2.0 Emissions Summary

## 2.1 Overall Construction

### Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2019 | 0.3132 | 1.8907 | 1.5569 | 2.97E-03 | 0.0508 | 0.0987 | 0.1494 | 0.0176 | 0.0951 | 0.1126 | | | | | | |
| **Maximum** | **0.3132** | **1.8907** | **1.5569** | **2.9700e-003** | **0.0508** | **0.0987** | **0.1494** | **0.0176** | **0.0951** | **0.1126** | | | | | | |

### Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2019 | 0.3132 | 1.8907 | 1.5569 | 2.9700e-003 | 0.0422 | 0.0987 | 0.1408 | 0.0131 | 0.0951 | 0.1082 | | | | | | |
| **Maximum** | **0.3132** | **1.8907** | **1.5569** | **2.9700e-003** | **0.0422** | **0.0987** | **0.1408** | **0.0131** | **0.0951** | **0.1082** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **16.94** | **0.00** | **5.75** | **25.13** | **0.00** | **3.91** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| Quarter | Start Date | End Date | Maximum Unmitigated ROG + NOX (tons/quarter) | Maximum Mitigated ROG + NOX (tons/quarter) |
|---|---|---|---|---|
| 1 | 2-4-2019 | 5-3-2019 | 0.6407 | 0.6407 |
| 2 | 5-4-2019 | 8-3-2019 | 0.6672 | 0.6672 |
| 3 | 8-4-2019 | 9-30-2019 | 0.4206 | 0.4206 |
| | | Highest | 0.6672 | 0.6672 |

## 3.0 Construction Detail

### Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 2/4/2019 | 2/5/2019 | 5 | 2 | |
| 2 | Grading | Grading | 2/6/2019 | 2/11/2019 | 5 | 4 | |
| 3 | Building Construction | Building Construction | 2/12/2019 | 11/18/2019 | 5 | 200 | |
| 4 | Paving | Paving | 11/19/2019 | 12/2/2019 | 5 | 10 | |
| 5 | Architectural Coating | Architectural Coating | 12/3/2019 | 12/16/2019 | 5 | 10 | |

**Acres of Grading (Site Preparation Phase): 1**

**Acres of Grading (Grading Phase): 1.5**

**Acres of Paving: 1.66**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,934; Non-Residential Outdoor: 2,645; Striped Parking Area:**

### OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 6.00 | 9 | 0.56 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Cranes | 1 | 6.00 | 231 | 0.29 |
| Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Paving | Pavers | 1 | 6.00 | 130 | 0.42 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |

| | | | | | |
|---|---|---|---|---|---|
| Grading | Rubber Tired Dozers | 1 | 6.00 | 247 | 0.40 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Grading | Graders | 1 | 6.00 | 187 | 0.41 |
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Site Preparation | Rubber Tired Dozers | 1 | 7.00 | 247 | 0.40 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 7 | 32.00 | 13.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 5 | 13.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 6.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

## 3.2 Site Preparation - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 5.8000e-003 | 0.0000 | 5.8000e-003 | 2.9500e-003 | 0.0000 | 2.9500e-003 | | | | | | |
| Off-Road | 1.7100e-003 | 0.0195 | 7.8900e-003 | 2.0000e-005 | | 8.8000e-004 | 8.8000e-004 | | 8.1000e-004 | 8.1000e-004 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **1.7100e-003** | **0.0195** | **7.8900e-003** | **2.0000e-005** | **5.8000e-003** | **8.8000e-004** | **6.6800e-003** | **2.9500e-003** | **8.1000e-004** | **3.7600e-003** | | | | | | |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 4.0000e-005 | 2.0000e-005 | 2.5000e-004 | 0.0000 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | | | | | | |
| **Total** | **4.0000e-005** | **2.0000e-005** | **2.5000e-004** | **0.0000** | **6.0000e-005** | **0.0000** | **6.0000e-005** | **2.0000e-005** | **0.0000** | **2.0000e-005** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.6100e-003 | 0.0000 | 2.6100e-003 | 1.3300e-003 | 0.0000 | 1.3300e-003 | | | | | | |
| Off-Road | 1.7100e-003 | 0.0195 | 7.8900e-003 | 2.0000e-005 | | 8.8000e-004 | 8.8000e-004 | | 8.1000e-004 | 8.1000e-004 | | | | | | |
| **Total** | **1.7100e-003** | **0.0195** | **7.8900e-003** | **2.0000e-005** | **2.6100e-003** | **8.8000e-004** | **3.4900e-003** | **1.3300e-003** | **8.1000e-004** | **2.1400e-003** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 4.0000e-005 | 2.0000e-005 | 2.5000e-004 | 0.0000 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | | | | | | |
| **Total** | **4.0000e-005** | **2.0000e-005** | **2.5000e-004** | **0.0000** | **6.0000e-005** | **0.0000** | **6.0000e-005** | **2.0000e-005** | **0.0000** | **2.0000e-005** | | | | | | |

## 3.3 Grading - 2019

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 9.8300e-003 | 0.0000 | 9.8300e-003 | 5.0500e-003 | 0.0000 | 5.0500e-003 | | | | | | |
| Off-Road | 2.8400e-003 | 0.0321 | 0.0132 | 3.0000e-005 | | 1.4700e-003 | 1.4700e-003 | | 1.3600e-003 | 1.3600e-003 | | | | | | |
| **Total** | **2.8400e-003** | **0.0321** | **0.0132** | **3.0000e-005** | **9.8300e-003** | **1.4700e-003** | **0.0113** | **5.0500e-003** | **1.3600e-003** | **6.4100e-003** | | | | | | |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 8.0000e-005 | 5.0000e-005 | 5.0000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | | | | | | |
| **Total** | **8.0000e-005** | **5.0000e-005** | **5.0000e-004** | **0.0000** | **1.3000e-004** | **0.0000** | **1.3000e-004** | **3.0000e-005** | **0.0000** | **3.0000e-005** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 4.4200e-003 | 0.0000 | 4.4200e-003 | 2.2700e-003 | 0.0000 | 2.2700e-003 | | | | | | |
| Off-Road | 2.8400e-003 | 0.0321 | 0.0132 | 3.0000e-005 | | 1.4700e-003 | 1.4700e-003 | | 1.3600e-003 | 1.3600e-003 | | | | | | |
| **Total** | **2.8400e-003** | **0.0321** | **0.0132** | **3.0000e-005** | **4.4200e-003** | **1.4700e-003** | **5.8900e-003** | **2.2700e-003** | **1.3600e-003** | **3.6300e-003** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 8.0000e-005 | 5.0000e-005 | 5.0000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | | | | | | |
| **Total** | **8.0000e-005** | **5.0000e-005** | **5.0000e-004** | **0.0000** | **1.3000e-004** | **0.0000** | **1.3000e-004** | **3.0000e-005** | **0.0000** | **3.0000e-005** | | | | | | |

# 3.4 Building Construction - 2019

## Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | 0.2272 | 1.5980 | 1.3487 | 2.2000e-003 | | 0.0916 | 0.0916 | | 0.0885 | 0.0885 | | | | | | |
| **Total** | **0.2272** | **1.5980** | **1.3487** | **2.2000e-003** | | **0.0916** | **0.0916** | | **0.0885** | **0.0885** | | | | | | |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 5.9800e-003 | 0.1758 | 0.0300 | 3.7000e-004 | 8.6200e-003 | 1.2700e-003 | 9.8900e-003 | 2.4900e-003 | 1.2200e-003 | 3.7100e-003 | | | | | | |
| Worker | 0.0151 | 9.9500e-003 | 0.0997 | 2.5000e-004 | 0.0256 | 1.7000e-004 | 0.0258 | 6.8000e-003 | 1.6000e-004 | 6.9600e-003 | | | | | | |
| **Total** | **0.0211** | **0.1857** | **0.1297** | **6.2000e-004** | **0.0342** | **1.4400e-003** | **0.0356** | **9.2900e-003** | **1.3800e-003** | **0.0107** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.2272 | 1.5980 | 1.3487 | 2.2000e-003 | | 0.0916 | 0.0916 | | 0.0885 | 0.0885 | | | | | | |
| **Total** | **0.2272** | **1.5980** | **1.3487** | **2.2000e-003** | | **0.0916** | **0.0916** | | **0.0885** | **0.0885** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 5.9800e-003 | 0.1758 | 0.0300 | 3.7000e-004 | 8.6200e-003 | 1.2700e-003 | 9.8900e-003 | 2.4900e-003 | 1.2200e-003 | 3.7100e-003 | | | | | | |
| Worker | 0.0151 | 9.9500e-003 | 0.0997 | 2.5000e-004 | 0.0256 | 1.7000e-004 | 0.0258 | 6.8000e-003 | 1.6000e-004 | 6.9600e-003 | | | | | | |
| **Total** | **0.0211** | **0.1857** | **0.1297** | **6.2000e-004** | **0.0342** | **1.4400e-003** | **0.0356** | **9.2900e-003** | **1.3800e-003** | **0.0107** | | | | | | |

## 3.5 Paving - 2019

## Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 4.5200e-003 | 0.0459 | 0.0445 | 7.0000e-005 | | 2.6100e-003 | 2.6100e-003 | | 2.4100e-003 | 2.4100e-003 | | | | | | |
| Paving | 1.9800e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **6.5000e-003** | **0.0459** | **0.0445** | **7.0000e-005** | | **2.6100e-003** | **2.6100e-003** | | **2.4100e-003** | **2.4100e-003** | | | | | | |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 3.1000e-004 | 2.0000e-004 | 2.0300e-003 | 1.0000e-005 | 5.2000e-004 | 0.0000 | 5.2000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | | | | | | |
| **Total** | **3.1000e-004** | **2.0000e-004** | **2.0300e-003** | **1.0000e-005** | **5.2000e-004** | **0.0000** | **5.2000e-004** | **1.4000e-004** | **0.0000** | **1.4000e-004** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 4.5200e-003 | 0.0459 | 0.0445 | 7.0000e-005 | | 2.6100e-003 | 2.6100e-003 | | 2.4100e-003 | 2.4100e-003 | | | | | | |
| Paving | 1.9800e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **6.5000e-003** | **0.0459** | **0.0445** | **7.0000e-005** | | **2.6100e-003** | **2.6100e-003** | | **2.4100e-003** | **2.4100e-003** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 3.1000e-004 | 2.0000e-004 | 2.0300e-003 | 1.0000e-005 | 5.2000e-004 | 0.0000 | 5.2000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | | | | | | |
| **Total** | **3.1000e-004** | **2.0000e-004** | **2.0300e-003** | **1.0000e-005** | **5.2000e-004** | **0.0000** | **5.2000e-004** | **1.4000e-004** | **0.0000** | **1.4000e-004** | | | | | | |

## 3.6 Architectural Coating - 2019

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0520 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Off-Road | 1.3300e-003 | 9.1800e-003 | 9.2100e-003 | 1.0000e-005 | | 6.4000e-004 | 6.4000e-004 | | 6.4000e-004 | 6.4000e-004 | | | | | | |
| **Total** | **0.0533** | **9.1800e-003** | **9.2100e-003** | **1.0000e-005** | | **6.4000e-004** | **6.4000e-004** | | **6.4000e-004** | **6.4000e-004** | | | | | | |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 1.4000e-004 | 9.0000e-005 | 9.3000e-004 | 0.0000 | 2.4000e-004 | 0.0000 | 2.4000e-004 | 6.0000e-005 | 0.0000 | 7.0000e-005 | | | | | | |
| **Total** | **1.4000e-004** | **9.0000e-005** | **9.3000e-004** | **0.0000** | **2.4000e-004** | **0.0000** | **2.4000e-004** | **6.0000e-005** | **0.0000** | **7.0000e-005** | | | | | | |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Archit. Coating | 0.0520 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Off-Road | 1.3300e-003 | 9.1800e-003 | 9.2100e-003 | 1.0000e-005 | | 6.4000e-004 | 6.4000e-004 | | 6.4000e-004 | 6.4000e-004 | | | | | | |
| **Total** | **0.0533** | **9.1800e-003** | **9.2100e-003** | **1.0000e-005** | | **6.4000e-004** | **6.4000e-004** | | **6.4000e-004** | **6.4000e-004** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 1.4000e-004 | 9.0000e-005 | 9.3000e-004 | 0.0000 | 2.4000e-004 | 0.0000 | 2.4000e-004 | 6.0000e-005 | 0.0000 | 7.0000e-005 | | | | | | |
| **Total** | **1.4000e-004** | **9.0000e-005** | **9.3000e-004** | **0.0000** | **2.4000e-004** | **0.0000** | **2.4000e-004** | **6.0000e-005** | **0.0000** | **7.0000e-005** | | | | | | |

# 99 and North Phase 1 - Construction Only

**Fresno County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Strip Mall | 5.29 | 1000sqft | 0.12 | 5,289.00 | 0 |
| Parking Lot | 47.00 | Space | 0.42 | 18,800.00 | 0 |
| Other Asphalt Surfaces | 1.09 | Acre | 1.09 | 47,480.40 | 0 |
| Other Non-Asphalt Surfaces | 0.15 | Acre | 0.15 | 6,534.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

| | | | |
|---|---|---|---|
| tblConstructionPhase | PhaseEndDate | 1/13/2020 | 12/16/2019 |
| tblConstructionPhase | PhaseEndDate | 12/16/2019 | 11/18/2019 |
| tblConstructionPhase | PhaseEndDate | 3/11/2019 | 2/11/2019 |
| tblConstructionPhase | PhaseEndDate | 12/30/2019 | 12/2/2019 |
| tblConstructionPhase | PhaseEndDate | 3/5/2019 | 2/5/2019 |
| tblConstructionPhase | PhaseStartDate | 12/31/2019 | 12/3/2019 |
| tblConstructionPhase | PhaseStartDate | 3/12/2019 | 2/12/2019 |
| tblConstructionPhase | PhaseStartDate | 3/6/2019 | 2/6/2019 |
| tblConstructionPhase | PhaseStartDate | 12/17/2019 | 11/19/2019 |
| tblConstructionPhase | PhaseStartDate | 3/2/2019 | 2/4/2019 |

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2019 | 10.6890 | 19.5093 | 14.8007 | 0.0281 | 5.8653 | 0.9304 | 6.7481 | 2.9711 | 0.8984 | 3.7833 | | | | | | |
| **Maximum** | **10.6890** | **19.5093** | **14.8007** | **0.0281** | **5.8653** | **0.9304** | **6.7481** | **2.9711** | **0.8984** | **3.7833** | | | | | | |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2019 | 10.6890 | 19.5093 | 14.8007 | 0.0281 | 2.6755 | 0.9304 | 3.5583 | 1.3466 | 0.8984 | 2.1588 | | | | | | |
| **Maximum** | **10.6890** | **19.5093** | **14.8007** | **0.0281** | **2.6755** | **0.9304** | **3.5583** | **1.3466** | **0.8984** | **2.1588** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **54.38** | **0.00** | **47.27** | **54.68** | **0.00** | **42.94** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

### Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 2/4/2019 | 2/5/2019 | 5 | 2 | |
| 2 | Grading | Grading | 2/6/2019 | 2/11/2019 | 5 | 4 | |
| 3 | Building Construction | Building Construction | 2/12/2019 | 11/18/2019 | 5 | 200 | |
| 4 | Paving | Paving | 11/19/2019 | 12/2/2019 | 5 | 10 | |
| 5 | Architectural Coating | Architectural Coating | 12/3/2019 | 12/16/2019 | 5 | 10 | |

**Acres of Grading (Site Preparation Phase): 1**

**Acres of Grading (Grading Phase): 1.5**

**Acres of Paving: 1.66**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,934; Non-Residential Outdoor: 2,645; Striped Parking Area:**

### OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 6.00 | 9 | 0.56 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Cranes | 1 | 6.00 | 231 | 0.29 |
| Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Paving | Pavers | 1 | 6.00 | 130 | 0.42 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 6.00 | 247 | 0.40 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Grading | Graders | 1 | 6.00 | 187 | 0.41 |

| | | | | | |
|---|---|---|---|---|---|
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Site Preparation | Rubber Tired Dozers | 1 | 7.00 | 247 | 0.40 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 7 | 32.00 | 13.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 5 | 13.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 6.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

## 3.2 Site Preparation - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 5.7996 | 0.0000 | 5.7996 | 2.9537 | 0.0000 | 2.9537 | | | | | | |
| Off-Road | 1.7123 | 19.4821 | 7.8893 | 0.0172 | | 0.8824 | 0.8824 | | 0.8118 | 0.8118 | | | | | | |
| **Total** | **1.7123** | **19.4821** | **7.8893** | **0.0172** | **5.7996** | **0.8824** | **6.6819** | **2.9537** | **0.8118** | **3.7655** | | | | | | |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0399 | 0.0273 | 0.2463 | 6.1000e-004 | 0.0657 | 4.2000e-004 | 0.0661 | 0.0174 | 3.9000e-004 | 0.0178 | | | | | | |
| **Total** | **0.0399** | **0.0273** | **0.2463** | **6.1000e-004** | **0.0657** | **4.2000e-004** | **0.0661** | **0.0174** | **3.9000e-004** | **0.0178** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.6098 | 0.0000 | 2.6098 | 1.3292 | 0.0000 | 1.3292 | | | | | | |
| Off-Road | 1.7123 | 19.4821 | 7.8893 | 0.0172 | | 0.8824 | 0.8824 | | 0.8118 | 0.8118 | | | | | | |
| **Total** | **1.7123** | **19.4821** | **7.8893** | **0.0172** | **2.6098** | **0.8824** | **3.4922** | **1.3292** | **0.8118** | **2.1409** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0399 | 0.0273 | 0.2463 | 6.1000e-004 | 0.0657 | 4.2000e-004 | 0.0661 | 0.0174 | 3.9000e-004 | 0.0178 | | | | | | |
| **Total** | **0.0399** | **0.0273** | **0.2463** | **6.1000e-004** | **0.0657** | **4.2000e-004** | **0.0661** | **0.0174** | **3.9000e-004** | **0.0178** | | | | | | |

## 3.3 Grading - 2019

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 4.9143 | 0.0000 | 4.9143 | 2.5256 | 0.0000 | 2.5256 | | | | | | |
| Off-Road | 1.4197 | 16.0357 | 6.6065 | 0.0141 | | 0.7365 | 0.7365 | | 0.6775 | 0.6775 | | | | | | |
| **Total** | **1.4197** | **16.0357** | **6.6065** | **0.0141** | **4.9143** | **0.7365** | **5.6507** | **2.5256** | **0.6775** | **3.2032** | | | | | | |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0399 | 0.0273 | 0.2463 | 6.1000e-004 | 0.0657 | 4.2000e-004 | 0.0661 | 0.0174 | 3.9000e-004 | 0.0178 | | | | | | |
| **Total** | **0.0399** | **0.0273** | **0.2463** | **6.1000e-004** | **0.0657** | **4.2000e-004** | **0.0661** | **0.0174** | **3.9000e-004** | **0.0178** | | | | | | |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.2114 | 0.0000 | 2.2114 | 1.1365 | 0.0000 | 1.1365 | | | | | | |
| Off-Road | 1.4197 | 16.0357 | 6.6065 | 0.0141 | | 0.7365 | 0.7365 | | 0.6775 | 0.6775 | | | | | | |
| **Total** | **1.4197** | **16.0357** | **6.6065** | **0.0141** | **2.2114** | **0.7365** | **2.9479** | **1.1365** | **0.6775** | **1.8141** | | | | | | |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0399 | 0.0273 | 0.2463 | 6.1000e-004 | 0.0657 | 4.2000e-004 | 0.0661 | 0.0174 | 3.9000e-004 | 0.0178 | | | | | | |
| **Total** | **0.0399** | **0.0273** | **0.2463** | **6.1000e-004** | **0.0657** | **4.2000e-004** | **0.0661** | **0.0174** | **3.9000e-004** | **0.0178** | | | | | | |

## 3.4 Building Construction - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.2721 | 15.9802 | 13.4870 | 0.0220 | | 0.9158 | 0.9158 | | 0.8846 | 0.8846 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **2.2721** | **15.9802** | **13.4870** | **0.0220** | | **0.9158** | **0.9158** | | **0.8846** | **0.8846** | | | | | | |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0614 | 1.7549 | 0.3285 | 3.6500e-003 | 0.0881 | 0.0129 | 0.1010 | 0.0254 | 0.0123 | 0.0377 | | | | | | |
| Worker | 0.1597 | 0.1090 | 0.9851 | 2.4300e-003 | 0.2629 | 1.7000e-003 | 0.2646 | 0.0697 | 1.5600e-003 | 0.0713 | | | | | | |
| **Total** | **0.2211** | **1.8639** | **1.3136** | **6.0800e-003** | **0.3510** | **0.0146** | **0.3655** | **0.0951** | **0.0139** | **0.1090** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 2.2721 | 15.9802 | 13.4870 | 0.0220 | | 0.9158 | 0.9158 | | 0.8846 | 0.8846 | | | | | | |
| **Total** | **2.2721** | **15.9802** | **13.4870** | **0.0220** | | **0.9158** | **0.9158** | | **0.8846** | **0.8846** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0614 | 1.7549 | 0.3285 | 3.6500e-003 | 0.0881 | 0.0129 | 0.1010 | 0.0254 | 0.0123 | 0.0377 | | | | | | |
| Worker | 0.1597 | 0.1090 | 0.9851 | 2.4300e-003 | 0.2629 | 1.7000e-003 | 0.2646 | 0.0697 | 1.5600e-003 | 0.0713 | | | | | | |
| **Total** | **0.2211** | **1.8639** | **1.3136** | **6.0800e-003** | **0.3510** | **0.0146** | **0.3655** | **0.0951** | **0.0139** | **0.1090** | | | | | | |

## 3.5 Paving - 2019

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.9038 | 9.1743 | 8.9025 | 0.0135 | | 0.5225 | 0.5225 | | 0.4815 | 0.4815 | | | | | | |
| Paving | 0.3956 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **1.2995** | **9.1743** | **8.9025** | **0.0135** | | **0.5225** | **0.5225** | | **0.4815** | **0.4815** | | | | | | |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0649 | 0.0443 | 0.4002 | 9.9000e-004 | 0.1068 | 6.9000e-004 | 0.1075 | 0.0283 | 6.3000e-004 | 0.0290 | | | | | | |
| **Total** | **0.0649** | **0.0443** | **0.4002** | **9.9000e-004** | **0.1068** | **6.9000e-004** | **0.1075** | **0.0283** | **6.3000e-004** | **0.0290** | | | | | | |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.9038 | 9.1743 | 8.9025 | 0.0135 | | 0.5225 | 0.5225 | | 0.4815 | 0.4815 | | | | | | |
| Paving | 0.3956 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **1.2995** | **9.1743** | **8.9025** | **0.0135** | | **0.5225** | **0.5225** | | **0.4815** | **0.4815** | | | | | | |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0649 | 0.0443 | 0.4002 | 9.9000e-004 | 0.1068 | 6.9000e-004 | 0.1075 | 0.0283 | 6.3000e-004 | 0.0290 | | | | | | |
| **Total** | **0.0649** | **0.0443** | **0.4002** | **9.9000e-004** | **0.1068** | **6.9000e-004** | **0.1075** | **0.0283** | **6.3000e-004** | **0.0290** | | | | | | |

## 3.6 Architectural Coating - 2019

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 10.3926 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Off-Road | 0.2664 | 1.8354 | 1.8413 | 2.9700e-003 | | 0.1288 | 0.1288 | | 0.1288 | 0.1288 | | | | | | |
| **Total** | **10.6590** | **1.8354** | **1.8413** | **2.9700e-003** | | **0.1288** | **0.1288** | | **0.1288** | **0.1288** | | | | | | |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0299 | 0.0204 | 0.1847 | 4.6000e-004 | 0.0493 | 3.2000e-004 | 0.0496 | 0.0131 | 2.9000e-004 | 0.0134 | | | | | | |
| **Total** | **0.0299** | **0.0204** | **0.1847** | **4.6000e-004** | **0.0493** | **3.2000e-004** | **0.0496** | **0.0131** | **2.9000e-004** | **0.0134** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 10.3926 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | 0.2664 | 1.8354 | 1.8413 | 2.9700e-003 | | 0.1288 | 0.1288 | | 0.1288 | 0.1288 | | | | | | |
| **Total** | **10.6590** | **1.8354** | **1.8413** | **2.9700e-003** | | **0.1288** | **0.1288** | | **0.1288** | **0.1288** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0299 | 0.0204 | 0.1847 | 4.6000e-004 | 0.0493 | 3.2000e-004 | 0.0496 | 0.0131 | 2.9000e-004 | 0.0134 | | | | | | |
| **Total** | **0.0299** | **0.0204** | **0.1847** | **4.6000e-004** | **0.0493** | **3.2000e-004** | **0.0496** | **0.0131** | **2.9000e-004** | **0.0134** | | | | | | |

# 99 and North Phase 2 - Construction Only

**Fresno County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Strip Mall | 5.00 | 1000sqft | 0.11 | 5,000.00 | 0 |
| Parking Lot | 36.00 | Space | 0.32 | 14,400.00 | 0 |
| Other Asphalt Surfaces | 0.51 | Acre | 0.51 | 22,215.60 | 0 |
| Other Non-Asphalt Surfaces | 0.16 | Acre | 0.16 | 6,969.60 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2022 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

## 2.0 Emissions Summary

### 2.1 Overall Construction

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2021 | 0.2461 | 1.5512 | 1.4304 | 2.7100e-003 | 0.0378 | 0.0734 | 0.1112 | 0.0140 | 0.0707 | 0.0847 | | | | | | |
| **Maximum** | **0.2461** | **1.5512** | **1.4304** | **2.7100e-003** | **0.0378** | **0.0734** | **0.1112** | **0.0140** | **0.0707** | **0.0847** | | | | | | |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2021 | 0.2461 | 1.5512 | 1.4304 | 2.7100e-003 | 0.0292 | 0.0734 | 0.1026 | 9.6200e-003 | 0.0707 | 0.0803 | | | | | | |
| **Maximum** | **0.2461** | **1.5512** | **1.4304** | **2.7100e-003** | **0.0292** | **0.0734** | **0.1026** | **9.6200e-003** | **0.0707** | **0.0803** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **22.73** | **0.00** | **7.74** | **31.38** | **0.00** | **5.20** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| **Quarter** | **Start Date** | **End Date** | **Maximum Unmitigated ROG + NOX (tons/quarter)** | **Maximum Mitigated ROG + NOX (tons/quarter)** |
|---|---|---|---|---|
| **1** | **1-4-2021** | **4-3-2021** | 0.5306 | 0.5306 |
| **2** | **4-4-2021** | **7-3-2021** | 0.5362 | 0.5362 |
| **3** | **7-4-2021** | **9-30-2021** | 0.5244 | 0.5244 |
| | | **Highest** | 0.5362 | 0.5362 |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 1/4/2021 | 1/5/2021 | 5 | 2 | |
| 2 | Grading | Grading | 1/6/2021 | 1/11/2021 | 5 | 4 | |
| 3 | Building Construction | Building Construction | 1/12/2021 | 10/18/2021 | 5 | 200 | |
| 4 | Paving | Paving | 10/19/2021 | 11/1/2021 | 5 | 10 | |
| 5 | Architectural Coating | Architectural Coating | 11/2/2021 | 11/15/2021 | 5 | 10 | |

**Acres of Grading (Site Preparation Phase): 1**

**Acres of Grading (Grading Phase): 1.5**

**Acres of Paving: 0.99**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area:**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 6.00 | 9 | 0.56 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Cranes | 1 | 6.00 | 231 | 0.29 |
| Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Paving | Pavers | 1 | 6.00 | 130 | 0.42 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 6.00 | 247 | 0.40 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Grading | Graders | 1 | 6.00 | 187 | 0.41 |
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Site Preparation | Rubber Tired Dozers | 1 | 7.00 | 247 | 0.40 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 7 | 20.00 | 8.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 5 | 13.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 4.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

## 3.2 Site Preparation - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 5.8000e-003 | 0.0000 | 5.8000e-003 | 2.9500e-003 | 0.0000 | 2.9500e-003 | | | | | | |
| Off-Road | 1.5600e-003 | 0.0174 | 7.5600e-003 | 2.0000e-005 | | 7.7000e-004 | 7.7000e-004 | | 7.0000e-004 | 7.0000e-004 | | | | | | |
| **Total** | **1.5600e-003** | **0.0174** | **7.5600e-003** | **2.0000e-005** | **5.8000e-003** | **7.7000e-004** | **6.5700e-003** | **2.9500e-003** | **7.0000e-004** | **3.6500e-003** | | | | | | |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 3.0000e-005 | 2.0000e-005 | 2.0000e-004 | 0.0000 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | | | | | | |
| **Total** | **3.0000e-005** | **2.0000e-005** | **2.0000e-004** | **0.0000** | **6.0000e-005** | **0.0000** | **6.0000e-005** | **2.0000e-005** | **0.0000** | **2.0000e-005** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.6100e-003 | 0.0000 | 2.6100e-003 | 1.3300e-003 | 0.0000 | 1.3300e-003 | | | | | | |
| Off-Road | 1.5600e-003 | 0.0174 | 7.5600e-003 | 2.0000e-005 | | 7.7000e-004 | 7.7000e-004 | | 7.0000e-004 | 7.0000e-004 | | | | | | |
| **Total** | **1.5600e-003** | **0.0174** | **7.5600e-003** | **2.0000e-005** | **2.6100e-003** | **7.7000e-004** | **3.3800e-003** | **1.3300e-003** | **7.0000e-004** | **2.0300e-003** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 3.0000e-005 | 2.0000e-005 | 2.0000e-004 | 0.0000 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **3.0000e-005** | **2.0000e-005** | **2.0000e-004** | **0.0000** | **6.0000e-005** | **0.0000** | **6.0000e-005** | **2.0000e-005** | **0.0000** | **2.0000e-005** | | | | | | |

## 3.3 Grading - 2021

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 9.8300e-003 | 0.0000 | 9.8300e-003 | 5.0500e-003 | 0.0000 | 5.0500e-003 | | | | | | |
| Off-Road | 2.5800e-003 | 0.0287 | 0.0127 | 3.0000e-005 | | 1.2800e-003 | 1.2800e-003 | | 1.1700e-003 | 1.1700e-003 | | | | | | |
| **Total** | **2.5800e-003** | **0.0287** | **0.0127** | **3.0000e-005** | **9.8300e-003** | **1.2800e-003** | **0.0111** | **5.0500e-003** | **1.1700e-003** | **6.2200e-003** | | | | | | |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 6.0000e-005 | 4.0000e-005 | 4.0000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | | | | | | |
| **Total** | **6.0000e-005** | **4.0000e-005** | **4.0000e-004** | **0.0000** | **1.3000e-004** | **0.0000** | **1.3000e-004** | **3.0000e-005** | **0.0000** | **3.0000e-005** | | | | | | |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 4.4200e-003 | 0.0000 | 4.4200e-003 | 2.2700e-003 | 0.0000 | 2.2700e-003 | | | | | | |
| Off-Road | 2.5800e-003 | 0.0287 | 0.0127 | 3.0000e-005 | | 1.2800e-003 | 1.2800e-003 | | 1.1700e-003 | 1.1700e-003 | | | | | | |
| **Total** | **2.5800e-003** | **0.0287** | **0.0127** | **3.0000e-005** | **4.4200e-003** | **1.2800e-003** | **5.7000e-003** | **2.2700e-003** | **1.1700e-003** | **3.4400e-003** | | | | | | |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 6.0000e-005 | 4.0000e-005 | 4.0000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | | | | | | |
| **Total** | **6.0000e-005** | **4.0000e-005** | **4.0000e-004** | **0.0000** | **1.3000e-004** | **0.0000** | **1.3000e-004** | **3.0000e-005** | **0.0000** | **3.0000e-005** | | | | | | |

## 3.4 Building Construction - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1813 | 1.3636 | 1.2899 | 2.2000e-003 | | 0.0684 | 0.0684 | | 0.0661 | 0.0661 | | | | | | |
| **Total** | **0.1813** | **1.3636** | **1.2899** | **2.2000e-003** | | **0.0684** | **0.0684** | | **0.0661** | **0.0661** | | | | | | |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 2.4200e-003 | 0.0901 | 0.0137 | 2.2000e-004 | 5.3000e-003 | 2.4000e-004 | 5.5400e-003 | 1.5300e-003 | 2.3000e-004 | 1.7600e-003 | | | | | | |
| Worker | 7.9800e-003 | 4.8700e-003 | 0.0504 | 1.5000e-004 | 0.0160 | 1.0000e-004 | 0.0161 | 4.2500e-003 | 9.0000e-005 | 4.3400e-003 | | | | | | |
| **Total** | **0.0104** | **0.0949** | **0.0642** | **3.7000e-004** | **0.0213** | **3.4000e-004** | **0.0216** | **5.7800e-003** | **3.2000e-004** | **6.1000e-003** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1813 | 1.3636 | 1.2899 | 2.2000e-003 | | 0.0684 | 0.0684 | | 0.0661 | 0.0661 | | | | | | |
| **Total** | **0.1813** | **1.3636** | **1.2899** | **2.2000e-003** | | **0.0684** | **0.0684** | | **0.0661** | **0.0661** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 2.4200e-003 | 0.0901 | 0.0137 | 2.2000e-004 | 5.3000e-003 | 2.4000e-004 | 5.5400e-003 | 1.5300e-003 | 2.3000e-004 | 1.7600e-003 | | | | | | |
| Worker | 7.9800e-003 | 4.8700e-003 | 0.0504 | 1.5000e-004 | 0.0160 | 1.0000e-004 | 0.0161 | 4.2500e-003 | 9.0000e-005 | 4.3400e-003 | | | | | | |
| **Total** | **0.0104** | **0.0949** | **0.0642** | **3.7000e-004** | **0.0213** | **3.4000e-004** | **0.0216** | **5.7800e-003** | **3.2000e-004** | **6.1000e-003** | | | | | | |

## 3.5 Paving - 2021

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 3.8700e-003 | 0.0387 | 0.0443 | 7.0000e-005 | | 2.0800e-003 | 2.0800e-003 | | 1.9100e-003 | 1.9100e-003 | | | | | | |
| Paving | 1.0900e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **4.9600e-003** | **0.0387** | **0.0443** | **7.0000e-005** | | **2.0800e-003** | **2.0800e-003** | | **1.9100e-003** | **1.9100e-003** | | | | | | |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Worker | 2.6000e-004 | 1.6000e-004 | 1.6400e-003 | 0.0000 | 5.2000e-004 | 0.0000 | 5.2000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | | | | | | |
| **Total** | **2.6000e-004** | **1.6000e-004** | **1.6400e-003** | **0.0000** | **5.2000e-004** | **0.0000** | **5.2000e-004** | **1.4000e-004** | **0.0000** | **1.4000e-004** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 3.8700e-003 | 0.0387 | 0.0443 | 7.0000e-005 | | 2.0800e-003 | 2.0800e-003 | | 1.9100e-003 | 1.9100e-003 | | | | | | |
| Paving | 1.0900e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **4.9600e-003** | **0.0387** | **0.0443** | **7.0000e-005** | | **2.0800e-003** | **2.0800e-003** | | **1.9100e-003** | **1.9100e-003** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 2.6000e-004 | 1.6000e-004 | 1.6400e-003 | 0.0000 | 5.2000e-004 | 0.0000 | 5.2000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | | | | | | |
| **Total** | **2.6000e-004** | **1.6000e-004** | **1.6400e-003** | **0.0000** | **5.2000e-004** | **0.0000** | **5.2000e-004** | **1.4000e-004** | **0.0000** | **1.4000e-004** | | | | | | |

# 3.6 Architectural Coating - 2021

## Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0439 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Off-Road | 1.0900e-003 | 7.6300e-003 | 9.0900e-003 | 1.0000e-005 | | 4.7000e-004 | 4.7000e-004 | | 4.7000e-004 | 4.7000e-004 | | | | | | |
| **Total** | **0.0449** | **7.6300e-003** | **9.0900e-003** | **1.0000e-005** | | **4.7000e-004** | **4.7000e-004** | | **4.7000e-004** | **4.7000e-004** | | | | | | |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 8.0000e-005 | 5.0000e-005 | 5.0000e-004 | 0.0000 | 1.6000e-004 | 0.0000 | 1.6000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | | | | | | |
| **Total** | **8.0000e-005** | **5.0000e-005** | **5.0000e-004** | **0.0000** | **1.6000e-004** | **0.0000** | **1.6000e-004** | **4.0000e-005** | **0.0000** | **4.0000e-005** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0439 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | 1.0900e-003 | 7.6300e-003 | 9.0900e-003 | 1.0000e-005 | | 4.7000e-004 | 4.7000e-004 | | 4.7000e-004 | 4.7000e-004 | | | | | | |
| **Total** | **0.0449** | **7.6300e-003** | **9.0900e-003** | **1.0000e-005** | | **4.7000e-004** | **4.7000e-004** | | **4.7000e-004** | **4.7000e-004** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 8.0000e-005 | 5.0000e-005 | 5.0000e-004 | 0.0000 | 1.6000e-004 | 0.0000 | 1.6000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | | | | | | |
| **Total** | **8.0000e-005** | **5.0000e-005** | **5.0000e-004** | **0.0000** | **1.6000e-004** | **0.0000** | **1.6000e-004** | **4.0000e-005** | **0.0000** | **4.0000e-005** | | | | | | |

# 99 and North Phase 2 - Construction Only

**Fresno County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Strip Mall | 5.00 | 1000sqft | 0.11 | 5,000.00 | 0 |
| Parking Lot | 36.00 | Space | 0.32 | 14,400.00 | 0 |
| Other Asphalt Surfaces | 0.51 | Acre | 0.51 | 22,215.60 | 0 |
| Other Non-Asphalt Surfaces | 0.16 | Acre | 0.16 | 6,969.60 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2022 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

## 2.0 Emissions Summary

### 2.1 Overall Construction (Maximum Daily Emission)

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2021 | 9.0063 | 17.4416 | 13.5472 | 0.0257 | 5.8653 | 0.7658 | 6.6311 | 2.9711 | 0.7045 | 3.6756 | | | | | | |
| **Maximum** | **9.0063** | **17.4416** | **13.5472** | **0.0257** | **5.8653** | **0.7658** | **6.6311** | **2.9711** | **0.7045** | **3.6756** | | | | | | |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2021 | 9.0063 | 17.4416 | 13.5472 | 0.0257 | 2.6755 | 0.7658 | 3.4413 | 1.3466 | 0.7045 | 2.0511 | | | | | | |
| **Maximum** | **9.0063** | **17.4416** | **13.5472** | **0.0257** | **2.6755** | **0.7658** | **3.4413** | **1.3466** | **0.7045** | **2.0511** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **54.38** | **0.00** | **48.10** | **54.68** | **0.00** | **44.20** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

## 3.0 Construction Detail

**Construction Phase**

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 1/4/2021 | 1/5/2021 | 5 | 2 | |
| 2 | Grading | Grading | 1/6/2021 | 1/11/2021 | 5 | 4 | |
| 3 | Building Construction | Building Construction | 1/12/2021 | 10/18/2021 | 5 | 200 | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 4 | Paving | Paving | 10/19/2021 | 11/1/2021 | 5 | 10 | |
| 5 | Architectural Coating | Architectural Coating | 11/2/2021 | 11/15/2021 | 5 | 10 | |

**Acres of Grading (Site Preparation Phase): 1**

**Acres of Grading (Grading Phase): 1.5**

**Acres of Paving: 0.99**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 7,500; Non-Residential Outdoor: 2,500; Striped Parking Area:**

**OffRoad Equipment**

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 6.00 | 9 | 0.56 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Cranes | 1 | 6.00 | 231 | 0.29 |
| Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Paving | Pavers | 1 | 6.00 | 130 | 0.42 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 6.00 | 247 | 0.40 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Grading | Graders | 1 | 6.00 | 187 | 0.41 |
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Site Preparation | Rubber Tired Dozers | 1 | 7.00 | 247 | 0.40 |
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 7 | 20.00 | 8.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 5 | 13.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 4.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

## 3.2 Site Preparation - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 5.7996 | 0.0000 | 5.7996 | 2.9537 | 0.0000 | 2.9537 | | | | | | |
| Off-Road | 1.5558 | 17.4203 | 7.5605 | 0.0172 | | 0.7654 | 0.7654 | | 0.7041 | 0.7041 | | | | | | |
| **Total** | **1.5558** | **17.4203** | **7.5605** | **0.0172** | **5.7996** | **0.7654** | **6.5650** | **2.9537** | **0.7041** | **3.6578** | | | | | | |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Worker | 0.0337 | 0.0213 | 0.1984 | 5.7000e-004 | 0.0657 | 4.0000e-004 | 0.0661 | 0.0174 | 3.7000e-004 | 0.0178 | | | | | | |
| **Total** | **0.0337** | **0.0213** | **0.1984** | **5.7000e-004** | **0.0657** | **4.0000e-004** | **0.0661** | **0.0174** | **3.7000e-004** | **0.0178** | | | | | | |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.6098 | 0.0000 | 2.6098 | 1.3292 | 0.0000 | 1.3292 | | | | | | |
| Off-Road | 1.5558 | 17.4203 | 7.5605 | 0.0172 | | 0.7654 | 0.7654 | | 0.7041 | 0.7041 | | | | | | |
| **Total** | **1.5558** | **17.4203** | **7.5605** | **0.0172** | **2.6098** | **0.7654** | **3.3752** | **1.3292** | **0.7041** | **2.0333** | | | | | | |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0337 | 0.0213 | 0.1984 | 5.7000e-004 | 0.0657 | 4.0000e-004 | 0.0661 | 0.0174 | 3.7000e-004 | 0.0178 | | | | | | |
| **Total** | **0.0337** | **0.0213** | **0.1984** | **5.7000e-004** | **0.0657** | **4.0000e-004** | **0.0661** | **0.0174** | **3.7000e-004** | **0.0178** | | | | | | |

## 3.3 Grading - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 4.9143 | 0.0000 | 4.9143 | 2.5256 | 0.0000 | 2.5256 | | | | | | |
| Off-Road | 1.2884 | 14.3307 | 6.3314 | 0.0141 | | 0.6379 | 0.6379 | | 0.5869 | 0.5869 | | | | | | |
| **Total** | **1.2884** | **14.3307** | **6.3314** | **0.0141** | **4.9143** | **0.6379** | **5.5522** | **2.5256** | **0.5869** | **3.1125** | | | | | | |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0337 | 0.0213 | 0.1984 | 5.7000e-004 | 0.0657 | 4.0000e-004 | 0.0661 | 0.0174 | 3.7000e-004 | 0.0178 | | | | | | |
| **Total** | **0.0337** | **0.0213** | **0.1984** | **5.7000e-004** | **0.0657** | **4.0000e-004** | **0.0661** | **0.0174** | **3.7000e-004** | **0.0178** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Fugitive Dust | | | | | 2.2114 | 0.0000 | 2.2114 | 1.1365 | 0.0000 | 1.1365 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | 1.2884 | 14.3307 | 6.3314 | 0.0141 | | 0.6379 | 0.6379 | | 0.5869 | 0.5869 | | | | | | |
| **Total** | **1.2884** | **14.3307** | **6.3314** | **0.0141** | **2.2114** | **0.6379** | **2.8493** | **1.1365** | **0.5869** | **1.7234** | | | | | | |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0337 | 0.0213 | 0.1984 | 5.7000e-004 | 0.0657 | 4.0000e-004 | 0.0661 | 0.0174 | 3.7000e-004 | 0.0178 | | | | | | |
| **Total** | **0.0337** | **0.0213** | **0.1984** | **5.7000e-004** | **0.0657** | **4.0000e-004** | **0.0661** | **0.0174** | **3.7000e-004** | **0.0178** | | | | | | |

## 3.4 Building Construction - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.8125 | 13.6361 | 12.8994 | 0.0221 | | 0.6843 | 0.6843 | | 0.6608 | 0.6608 | | | | | | |
| **Total** | **1.8125** | **13.6361** | **12.8994** | **0.0221** | | **0.6843** | **0.6843** | | **0.6608** | **0.6608** | | | | | | |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0250 | 0.8976 | 0.1518 | 2.2100e-003 | 0.0542 | 2.4700e-003 | 0.0567 | 0.0156 | 2.3700e-003 | 0.0180 | | | | | | |
| Worker | 0.0842 | 0.0534 | 0.4961 | 1.4200e-003 | 0.1643 | 1.0000e-003 | 0.1653 | 0.0436 | 9.2000e-004 | 0.0445 | | | | | | |
| **Total** | **0.1092** | **0.9510** | **0.6478** | **3.6300e-003** | **0.2185** | **3.4700e-003** | **0.2220** | **0.0592** | **3.2900e-003** | **0.0625** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 1.8125 | 13.6361 | 12.8994 | 0.0221 | | 0.6843 | 0.6843 | | 0.6608 | 0.6608 | | | | | | |
| **Total** | **1.8125** | **13.6361** | **12.8994** | **0.0221** | | **0.6843** | **0.6843** | | **0.6608** | **0.6608** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vendor | 0.0250 | 0.8976 | 0.1518 | 2.2100e-003 | 0.0542 | 2.4700e-003 | 0.0567 | 0.0156 | 2.3700e-003 | 0.0180 | | | | | | |
| Worker | 0.0842 | 0.0534 | 0.4961 | 1.4200e-003 | 0.1643 | 1.0000e-003 | 0.1653 | 0.0436 | 9.2000e-004 | 0.0445 | | | | | | |
| **Total** | **0.1092** | **0.9510** | **0.6478** | **3.6300e-003** | **0.2185** | **3.4700e-003** | **0.2220** | **0.0592** | **3.2900e-003** | **0.0625** | | | | | | |

## 3.5 Paving - 2021

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.7739 | 7.7422 | 8.8569 | 0.0135 | | 0.4153 | 0.4153 | | 0.3830 | 0.3830 | | | | | | |
| Paving | 0.2175 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.9913** | **7.7422** | **8.8569** | **0.0135** | | **0.4153** | **0.4153** | | **0.3830** | **0.3830** | | | | | | |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0547 | 0.0347 | 0.3224 | 9.2000e-004 | 0.1068 | 6.5000e-004 | 0.1074 | 0.0283 | 6.0000e-004 | 0.0289 | | | | | | |
| **Total** | **0.0547** | **0.0347** | **0.3224** | **9.2000e-004** | **0.1068** | **6.5000e-004** | **0.1074** | **0.0283** | **6.0000e-004** | **0.0289** | | | | | | |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Off-Road | 0.7739 | 7.7422 | 8.8569 | 0.0135 | | 0.4153 | 0.4153 | | 0.3830 | 0.3830 | | | | | | |
| Paving | 0.2175 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.9913** | **7.7422** | **8.8569** | **0.0135** | | **0.4153** | **0.4153** | | **0.3830** | **0.3830** | | | | | | |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0547 | 0.0347 | 0.3224 | 9.2000e-004 | 0.1068 | 6.5000e-004 | 0.1074 | 0.0283 | 6.0000e-004 | 0.0289 | | | | | | |
| **Total** | **0.0547** | **0.0347** | **0.3224** | **9.2000e-004** | **0.1068** | **6.5000e-004** | **0.1074** | **0.0283** | **6.0000e-004** | **0.0289** | | | | | | |

## 3.6 Architectural Coating - 2021

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 8.7706 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | 0.2189 | 1.5268 | 1.8176 | 2.9700e-003 | | 0.0941 | 0.0941 | | 0.0941 | 0.0941 | | | | | | |
| **Total** | **8.9895** | **1.5268** | **1.8176** | **2.9700e-003** | | **0.0941** | **0.0941** | | **0.0941** | **0.0941** | | | | | | |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0168 | 0.0107 | 0.0992 | 2.8000e-004 | 0.0329 | 2.0000e-004 | 0.0331 | 8.7200e-003 | 1.8000e-004 | 8.9000e-003 | | | | | | |
| **Total** | **0.0168** | **0.0107** | **0.0992** | **2.8000e-004** | **0.0329** | **2.0000e-004** | **0.0331** | **8.7200e-003** | **1.8000e-004** | **8.9000e-003** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Archit. Coating | 8.7706 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Off-Road | 0.2189 | 1.5268 | 1.8176 | 2.9700e-003 | | 0.0941 | 0.0941 | | 0.0941 | 0.0941 | | | | | | |
| **Total** | **8.9895** | **1.5268** | **1.8176** | **2.9700e-003** | | **0.0941** | **0.0941** | | **0.0941** | **0.0941** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 0.0168 | 0.0107 | 0.0992 | 2.8000e-004 | 0.0329 | 2.0000e-004 | 0.0331 | 8.7200e-003 | 1.8000e-004 | 8.9000e-003 | | | | | | |
| **Total** | **0.0168** | **0.0107** | **0.0992** | **2.8000e-004** | **0.0329** | **2.0000e-004** | **0.0331** | **8.7200e-003** | **1.8000e-004** | **8.9000e-003** | | | | | | |

# 99 and North Phase 4 - Construction Only

**Fresno County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Strip Mall | 3.00 | 1000sqft | 0.07 | 3,000.00 | 0 |
| Parking Lot | 51.00 | Space | 0.46 | 20,400.00 | 0 |
| Other Asphalt Surfaces | 0.45 | Acre | 0.45 | 19,602.00 | 0 |
| Other Non-Asphalt Surfaces | 0.16 | Acre | 0.16 | 6,969.60 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2025 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

## 2.0 Emissions Summary

### 2.1 Overall Construction

**Unmitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2024 | 0.1894 | 1.2431 | 1.3751 | 2.6900e-003 | 0.0386 | 0.0482 | 0.0868 | 0.0142 | 0.0464 | 0.0606 | | | | | | |
| **Maximum** | **0.1894** | **1.2431** | **1.3751** | **2.6900e-003** | **0.0386** | **0.0482** | **0.0868** | **0.0142** | **0.0464** | **0.0606** | | | | | | |

**Mitigated Construction**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | tons/yr | | | | | | | | | | MT/yr | | | | | |
| 2024 | 0.1894 | 1.2431 | 1.3751 | 2.6900e-003 | 0.0300 | 0.0482 | 0.0782 | 9.8300e-003 | 0.0464 | 0.0562 | | | | | | |
| **Maximum** | **0.1894** | **1.2431** | **1.3751** | **2.6900e-003** | **0.0300** | **0.0482** | **0.0782** | **9.8300e-003** | **0.0464** | **0.0562** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **22.26** | **0.02** | **9.91** | **30.92** | **0.00** | **7.26** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

| **Quarter** | **Start Date** | **End Date** | **Maximum Unmitigated ROG + NOX (tons/quarter)** | **Maximum Mitigated ROG + NOX (tons/quarter)** |
|---|---|---|---|---|
| **1** | **1-8-2024** | **4-7-2024** | 0.4255 | 0.4255 |
| **2** | **4-8-2024** | **7-7-2024** | 0.4311 | 0.4311 |
| **3** | **7-8-2024** | **9-30-2024** | 0.4027 | 0.4027 |
| | | **Highest** | 0.4311 | 0.4311 |

## 3.0 Construction Detail

## Construction Phase

| Phase Number | Phase Name | Phase Type | Start Date | End Date | Num Days Week | Num Days | Phase Description |
|---|---|---|---|---|---|---|---|
| 1 | Site Preparation | Site Preparation | 1/8/2024 | 1/9/2024 | 5 | 2 | |
| 2 | Grading | Grading | 1/10/2024 | 1/15/2024 | 5 | 4 | |
| 3 | Building Construction | Building Construction | 1/16/2024 | 10/21/2024 | 5 | 200 | |
| 4 | Paving | Paving | 10/22/2024 | 11/4/2024 | 5 | 10 | |
| 5 | Architectural Coating | Architectural Coating | 11/5/2024 | 11/18/2024 | 5 | 10 | |

**Acres of Grading (Site Preparation Phase): 1**

**Acres of Grading (Grading Phase): 1.5**

**Acres of Paving: 1.07**

**Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 4,500; Non-Residential Outdoor: 1,500; Striped Parking Area:**

## OffRoad Equipment

| Phase Name | Offroad Equipment Type | Amount | Usage Hours | Horse Power | Load Factor |
|---|---|---|---|---|---|
| Architectural Coating | Air Compressors | 1 | 6.00 | 78 | 0.48 |
| Paving | Cement and Mortar Mixers | 1 | 6.00 | 9 | 0.56 |
| Building Construction | Generator Sets | 1 | 8.00 | 84 | 0.74 |
| Building Construction | Cranes | 1 | 6.00 | 231 | 0.29 |
| Building Construction | Forklifts | 1 | 6.00 | 89 | 0.20 |
| Site Preparation | Graders | 1 | 8.00 | 187 | 0.41 |
| Paving | Pavers | 1 | 6.00 | 130 | 0.42 |
| Paving | Rollers | 1 | 7.00 | 80 | 0.38 |
| Grading | Rubber Tired Dozers | 1 | 6.00 | 247 | 0.40 |
| Building Construction | Tractors/Loaders/Backhoes | 1 | 6.00 | 97 | 0.37 |
| Grading | Tractors/Loaders/Backhoes | 1 | 7.00 | 97 | 0.37 |
| Paving | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Site Preparation | Tractors/Loaders/Backhoes | 1 | 8.00 | 97 | 0.37 |
| Grading | Graders | 1 | 6.00 | 187 | 0.41 |
| Paving | Paving Equipment | 1 | 8.00 | 132 | 0.36 |
| Site Preparation | Rubber Tired Dozers | 1 | 7.00 | 247 | 0.40 |

| | | | | | |
|---|---|---|---|---|---|
| Building Construction | Welders | 3 | 8.00 | 46 | 0.45 |

**Trips and VMT**

| Phase Name | Offroad Equipment Count | Worker Trip Number | Vendor Trip Number | Hauling Trip Number | Worker Trip Length | Vendor Trip Length | Hauling Trip Length | Worker Vehicle Class | Vendor Vehicle Class | Hauling Vehicle Class |
|---|---|---|---|---|---|---|---|---|---|---|
| Site Preparation | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Grading | 3 | 8.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Building Construction | 7 | 21.00 | 8.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Paving | 5 | 13.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |
| Architectural Coating | 1 | 4.00 | 0.00 | 0.00 | 10.80 | 7.30 | 20.00 | LD_Mix | HDT_Mix | HHDT |

## 3.1 Mitigation Measures Construction

Water Exposed Area

## 3.2 Site Preparation - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 5.8000e-003 | 0.0000 | 5.8000e-003 | 2.9500e-003 | 0.0000 | 2.9500e-003 | | | | | | |
| Off-Road | 1.1100e-003 | 0.0118 | 6.6300e-003 | 2.0000e-005 | | 4.8000e-004 | 4.8000e-004 | | 4.4000e-004 | 4.4000e-004 | | | | | | |
| **Total** | **1.1100e-003** | **0.0118** | **6.6300e-003** | **2.0000e-005** | **5.8000e-003** | **4.8000e-004** | **6.2800e-003** | **2.9500e-003** | **4.4000e-004** | **3.3900e-003** | | | | | | |

**Unmitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 3.0000e-005 | 1.0000e-005 | 1.5000e-004 | 0.0000 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | | | | | | |
| **Total** | **3.0000e-005** | **1.0000e-005** | **1.5000e-004** | **0.0000** | **6.0000e-005** | **0.0000** | **6.0000e-005** | **2.0000e-005** | **0.0000** | **2.0000e-005** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 2.6100e-003 | 0.0000 | 2.6100e-003 | 1.3300e-003 | 0.0000 | 1.3300e-003 | | | | | | |
| Off-Road | 1.1100e-003 | 0.0118 | 6.6300e-003 | 2.0000e-005 | | 4.8000e-004 | 4.8000e-004 | | 4.4000e-004 | 4.4000e-004 | | | | | | |
| **Total** | **1.1100e-003** | **0.0118** | **6.6300e-003** | **2.0000e-005** | **2.6100e-003** | **4.8000e-004** | **3.0900e-003** | **1.3300e-003** | **4.4000e-004** | **1.7700e-003** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 3.0000e-005 | 1.0000e-005 | 1.5000e-004 | 0.0000 | 6.0000e-005 | 0.0000 | 6.0000e-005 | 2.0000e-005 | 0.0000 | 2.0000e-005 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **3.0000e-005** | **1.0000e-005** | **1.5000e-004** | **0.0000** | **6.0000e-005** | **0.0000** | **6.0000e-005** | **2.0000e-005** | **0.0000** | **2.0000e-005** | | | | | | |

## 3.3 Grading - 2024

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 9.8300e-003 | 0.0000 | 9.8300e-003 | 5.0500e-003 | 0.0000 | 5.0500e-003 | | | | | | |
| Off-Road | 1.8300e-003 | 0.0195 | 0.0111 | 3.0000e-005 | | 8.0000e-004 | 8.0000e-004 | | 7.4000e-004 | 7.4000e-004 | | | | | | |
| **Total** | **1.8300e-003** | **0.0195** | **0.0111** | **3.0000e-005** | **9.8300e-003** | **8.0000e-004** | **0.0106** | **5.0500e-003** | **7.4000e-004** | **5.7900e-003** | | | | | | |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 5.0000e-005 | 3.0000e-005 | 3.1000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | | | | | | |
| **Total** | **5.0000e-005** | **3.0000e-005** | **3.1000e-004** | **0.0000** | **1.3000e-004** | **0.0000** | **1.3000e-004** | **3.0000e-005** | **0.0000** | **3.0000e-005** | | | | | | |

### Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fugitive Dust | | | | | 4.4200e-003 | 0.0000 | 4.4200e-003 | 2.2700e-003 | 0.0000 | 2.2700e-003 | | | | | | |
| Off-Road | 1.8300e-003 | 0.0195 | 0.0111 | 3.0000e-005 | | 8.0000e-004 | 8.0000e-004 | | 7.4000e-004 | 7.4000e-004 | | | | | | |
| **Total** | **1.8300e-003** | **0.0195** | **0.0111** | **3.0000e-005** | **4.4200e-003** | **8.0000e-004** | **5.2200e-003** | **2.2700e-003** | **7.4000e-004** | **3.0100e-003** | | | | | | |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 5.0000e-005 | 3.0000e-005 | 3.1000e-004 | 0.0000 | 1.3000e-004 | 0.0000 | 1.3000e-004 | 3.0000e-005 | 0.0000 | 3.0000e-005 | | | | | | |
| **Total** | **5.0000e-005** | **3.0000e-005** | **3.1000e-004** | **0.0000** | **1.3000e-004** | **0.0000** | **1.3000e-004** | **3.0000e-005** | **0.0000** | **3.0000e-005** | | | | | | |

## 3.4 Building Construction - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1420 | 1.1064 | 1.2517 | 2.2100e-003 | | 0.0451 | 0.0451 | | 0.0435 | 0.0435 | | | | | | |
| **Total** | **0.1420** | **1.1064** | **1.2517** | **2.2100e-003** | | **0.0451** | **0.0451** | | **0.0435** | **0.0435** | | | | | | |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 1.5000e-003 | 0.0662 | 9.8100e-003 | 2.2000e-004 | 5.3000e-003 | 6.0000e-005 | 5.3700e-003 | 1.5300e-003 | 6.0000e-005 | 1.5900e-003 | | | | | | |
| Worker | 6.7800e-003 | 3.6700e-003 | 0.0405 | 1.4000e-004 | 0.0168 | 1.0000e-004 | 0.0169 | 4.4600e-003 | 9.0000e-005 | 4.5500e-003 | | | | | | |
| **Total** | **8.2800e-003** | **0.0698** | **0.0504** | **3.6000e-004** | **0.0221** | **1.6000e-004** | **0.0223** | **5.9900e-003** | **1.5000e-004** | **6.1400e-003** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 0.1420 | 1.1064 | 1.2517 | 2.2100e-003 | | 0.0451 | 0.0451 | | 0.0435 | 0.0435 | | | | | | |
| **Total** | **0.1420** | **1.1064** | **1.2517** | **2.2100e-003** | | **0.0451** | **0.0451** | | **0.0435** | **0.0435** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 1.5000e-003 | 0.0662 | 9.8100e-003 | 2.2000e-004 | 5.3000e-003 | 6.0000e-005 | 5.3700e-003 | 1.5300e-003 | 6.0000e-005 | 1.5900e-003 | | | | | | |
| Worker | 6.7800e-003 | 3.6700e-003 | 0.0405 | 1.4000e-004 | 0.0168 | 1.0000e-004 | 0.0169 | 4.4600e-003 | 9.0000e-005 | 4.5500e-003 | | | | | | |
| **Total** | **8.2800e-003** | **0.0698** | **0.0504** | **3.6000e-004** | **0.0221** | **1.6000e-004** | **0.0223** | **5.9900e-003** | **1.5000e-004** | **6.1400e-003** | | | | | | |

## 3.5 Paving - 2024

### Unmitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 3.0900e-003 | 0.0293 | 0.0441 | 7.0000e-005 | | 1.4100e-003 | 1.4100e-003 | | 1.3000e-003 | 1.3000e-003 | | | | | | |
| Paving | 1.1900e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **4.2800e-003** | **0.0293** | **0.0441** | **7.0000e-005** | | **1.4100e-003** | **1.4100e-003** | | **1.3000e-003** | **1.3000e-003** | | | | | | |

### Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Worker | 2.1000e-004 | 1.1000e-004 | 1.2500e-003 | 0.0000 | 5.2000e-004 | 0.0000 | 5.2000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | | | | | | |
| **Total** | **2.1000e-004** | **1.1000e-004** | **1.2500e-003** | **0.0000** | **5.2000e-004** | **0.0000** | **5.2000e-004** | **1.4000e-004** | **0.0000** | **1.4000e-004** | | | | | | |

**Mitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Off-Road | 3.0900e-003 | 0.0293 | 0.0441 | 7.0000e-005 | | 1.4100e-003 | 1.4100e-003 | | 1.3000e-003 | 1.3000e-003 | | | | | | |
| Paving | 1.1900e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **4.2800e-003** | **0.0293** | **0.0441** | **7.0000e-005** | | **1.4100e-003** | **1.4100e-003** | | **1.3000e-003** | **1.3000e-003** | | | | | | |

**Mitigated Construction Off-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 2.1000e-004 | 1.1000e-004 | 1.2500e-003 | 0.0000 | 5.2000e-004 | 0.0000 | 5.2000e-004 | 1.4000e-004 | 0.0000 | 1.4000e-004 | | | | | | |
| **Total** | **2.1000e-004** | **1.1000e-004** | **1.2500e-003** | **0.0000** | **5.2000e-004** | **0.0000** | **5.2000e-004** | **1.4000e-004** | **0.0000** | **1.4000e-004** | | | | | | |

## 3.6 Architectural Coating - 2024

**Unmitigated Construction On-Site**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0307 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Off-Road | 9.0000e-004 | 6.0900e-003 | 9.0500e-003 | 1.0000e-005 | | 3.0000e-004 | 3.0000e-004 | | 3.0000e-004 | 3.0000e-004 | | | | | | |
| **Total** | **0.0316** | **6.0900e-003** | **9.0500e-003** | **1.0000e-005** | | **3.0000e-004** | **3.0000e-004** | | **3.0000e-004** | **3.0000e-004** | | | | | | |

## Unmitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 6.0000e-005 | 3.0000e-005 | 3.9000e-004 | 0.0000 | 1.6000e-004 | 0.0000 | 1.6000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | | | | | | |
| **Total** | **6.0000e-005** | **3.0000e-005** | **3.9000e-004** | **0.0000** | **1.6000e-004** | **0.0000** | **1.6000e-004** | **4.0000e-005** | **0.0000** | **4.0000e-005** | | | | | | |

## Mitigated Construction On-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Archit. Coating | 0.0307 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Off-Road | 9.0000e-004 | 6.0900e-003 | 9.0500e-003 | 1.0000e-005 | | 3.0000e-004 | 3.0000e-004 | | 3.0000e-004 | 3.0000e-004 | | | | | | |
| **Total** | **0.0316** | **6.0900e-003** | **9.0500e-003** | **1.0000e-005** | | **3.0000e-004** | **3.0000e-004** | | **3.0000e-004** | **3.0000e-004** | | | | | | |

## Mitigated Construction Off-Site

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Hauling | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Vendor | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | |
| Worker | 6.0000e-005 | 3.0000e-005 | 3.9000e-004 | 0.0000 | 1.6000e-004 | 0.0000 | 1.6000e-004 | 4.0000e-005 | 0.0000 | 4.0000e-005 | | | | | | |
| **Total** | **6.0000e-005** | **3.0000e-005** | **3.9000e-004** | **0.0000** | **1.6000e-004** | **0.0000** | **1.6000e-004** | **4.0000e-005** | **0.0000** | **4.0000e-005** | | | | | | |

# 99 and North Phase 3 - Construction Only

**Fresno County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Strip Mall | 3.00 | 1000sqft | 0.07 | 3,000.00 | 0 |
| Parking Lot | 51.00 | Space | 0.46 | 20,400.00 | 0 |
| Other Asphalt Surfaces | 0.45 | Acre | 0.45 | 19,602.00 | 0 |
| Other Non-Asphalt Surfaces | 0.16 | Acre | 0.16 | 6,969.60 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2025 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

# 2.0 Emissions Summary

## 2.1 Overall Construction (Maximum Daily Emission)

### Unmitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2024 | 6.3251 | 11.8560 | 13.0204 | 0.0255 | 5.8653 | 0.4826 | 6.3479 | 2.9711 | 0.4440 | 3.4151 | | | | | | |
| **Maximum** | **6.3251** | **11.8560** | **13.0204** | **0.0255** | **5.8653** | **0.4826** | **6.3479** | **2.9711** | **0.4440** | **3.4151** | | | | | | |

### Mitigated Construction

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year | lb/day | | | | | | | | | | lb/day | | | | | |
| 2024 | 6.3251 | 11.8560 | 13.0204 | 0.0255 | 2.6755 | 0.4826 | 3.1582 | 1.3466 | 0.4440 | 1.7906 | | | | | | |
| **Maximum** | **6.3251** | **11.8560** | **13.0204** | **0.0255** | **2.6755** | **0.4826** | **3.1582** | **1.3466** | **0.4440** | **1.7906** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **54.38** | **0.00** | **50.25** | **54.68** | **0.00** | **47.57** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

# CALEEMOD

## Operational Results

# 99 and North - Operational - Convenience Market w Gas Station

**Fresno County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Other Non-Asphalt Surfaces | 0.97 | Acre | 0.97 | 42,253.20 | 0 |
| Parking Lot | 47.00 | Space | 0.72 | 18,800.00 | 0 |
| Convenience Market With Gas Pumps | 12.00 | Pump | 0.04 | 1,694.10 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan with parking from Panda Express

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Traffic Study and ITE 10th Edition does not have Sat or Sun trip rate the defaults were used. Estimate of 3 miles for service area for customers. TIS for trip %

Fleet Mix - Revised fleet mix based on estimated truck trips

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

| | | | |
|---|---|---|---|
| tblFleetMix | HHD | 0.12 | 8.3400e-004 |
| tblFleetMix | LDA | 0.48 | 0.59 |
| tblFleetMix | LDT1 | 0.03 | 0.04 |
| tblFleetMix | LDT2 | 0.17 | 0.21 |
| tblFleetMix | LHD2 | 4.9970e-003 | 0.00 |
| tblFleetMix | MHD | 0.03 | 8.3400e-004 |
| tblLandUse | LotAcreage | 0.42 | 0.72 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 5.00 | 0.00 |
| tblVehicleTrips | CC_TL | 7.30 | 3.00 |
| tblVehicleTrips | DV_TP | 21.00 | 11.00 |
| tblVehicleTrips | PB_TP | 65.00 | 25.00 |
| tblVehicleTrips | PR_TP | 14.00 | 64.00 |
| tblVehicleTrips | WD_TR | 542.60 | 205.36 |

## 2.0 Emissions Summary

### 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0131 | 1.0000e-005 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 1.0000e-004 | 8.9000e-004 | 7.5000e-004 | 1.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | | | | | |
| Mobile | 0.6337 | 0.7248 | 4.6071 | 9.3500e-003 | 0.8478 | 8.5100e-003 | 0.8563 | 0.2263 | 7.9100e-003 | 0.2342 | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.6469** | **0.7257** | **4.6084** | **9.3600e-003** | **0.8478** | **8.5800e-003** | **0.8563** | **0.2263** | **7.9800e-003** | **0.2343** | | | | | | |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0131 | 1.0000e-005 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 1.0000e-004 | 8.9000e-004 | 7.5000e-004 | 1.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | | | | | |
| Mobile | 0.6337 | 0.7248 | 4.6071 | 9.3500e-003 | 0.8478 | 8.5100e-003 | 0.8563 | 0.2263 | 7.9100e-003 | 0.2342 | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.6469** | **0.7257** | **4.6084** | **9.3600e-003** | **0.8478** | **8.5800e-003** | **0.8563** | **0.2263** | **7.9800e-003** | **0.2343** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.6337 | 0.7248 | 4.6071 | 9.3500e-003 | 0.8478 | 8.5100e-003 | 0.8563 | 0.2263 | 7.9100e-003 | 0.2342 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unmitigated | 0.6337 | 0.7248 | 4.6071 | 9.3500e-003 | 0.8478 | 8.5100e-003 | 0.8563 | 0.2263 | 7.9100e-003 | 0.2342 | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Convenience Market With Gas Pumps | 2,464.32 | 2,453.64 | 2002.56 | 2,274,952 | 2,274,952 |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Total | 2,464.32 | 2,453.64 | 2,002.56 | 2,274,952 | 2,274,952 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C- | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Convenience Market With Gas | 9.50 | 3.00 | 7.30 | 0.80 | 80.20 | 19.00 | 64 | 11 | 25 |
| Other Non-Asphalt Surfaces | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Convenience Market With Gas Pumps | 0.593367 | 0.040439 | 0.207844 | 0.127212 | 0.018382 | 0.000000 | 0.000834 | 0.000834 | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000667 |
| Other Non-Asphalt Surfaces | 0.481390 | 0.032808 | 0.168621 | 0.127212 | 0.018382 | 0.004997 | 0.032622 | 0.122881 | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000667 |
| Parking Lot | 0.481390 | 0.032808 | 0.168621 | 0.127212 | 0.018382 | 0.004997 | 0.032622 | 0.122881 | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000667 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| NaturalGas Mitigated | 1.0000e-004 | 8.9000e-004 | 7.5000e-004 | 1.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | | | | | |
| NaturalGas Unmitigated | 1.0000e-004 | 8.9000e-004 | 7.5000e-004 | 1.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | | | | | |

## 5.2 Energy by Land Use - NaturalGas

### Unmitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Convenience Market With Gas Pumps | 18126.9 | 1.0000e-004 | 8.9000e-004 | 7.5000e-004 | 1.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | | **1.0000e-004** | **8.9000e-004** | **7.5000e-004** | **1.0000e-005** | | **7.0000e-005** | **7.0000e-005** | | **7.0000e-005** | **7.0000e-005** | | | | | | |

### Mitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Convenience Market With Gas Pumps | 18126.9 | 1.0000e-004 | 8.9000e-004 | 7.5000e-004 | 1.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | 7.0000e-005 | 7.0000e-005 | | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | | **1.0000e-004** | **8.9000e-004** | **7.5000e-004** | **1.0000e-005** | | **7.0000e-005** | **7.0000e-005** | | **7.0000e-005** | **7.0000e-005** | | | | | | |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Convenience Market With Gas Pumps | 13806.9 | | | | |
| Other Non-Asphalt Surfaces | 0 | | | | |
| Parking Lot | 6580 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Convenience Market With Gas Pumps | 13806.9 | | | | |
| Other Non-Asphalt Surfaces | 0 | | | | |
| Parking Lot | 6580 | | | | |
| **Total** | | | | | |

## 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.0131 | 1.0000e-005 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Unmitigated | 0.0131 | 1.0000e-005 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 2.4500e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0106 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 5.0000e-005 | 1.0000e-005 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.0131** | **1.0000e-005** | **5.5000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | | | | | |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 2.4500e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0106 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 5.0000e-005 | 1.0000e-005 | 5.5000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.0131** | **1.0000e-005** | **5.5000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | | | | | |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | | | | |
| Unmitigated | | | | |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |

| | | | | |
|---|---|---|---|---|
| Convenience Market With Gas | 0.125486 / 0.0769109 | | | |
| Other Non-Asphalt Surfaces | 0 / 0 | | | |
| Parking Lot | 0 / 0 | | | |
| **Total** | | | | |

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Convenience Market With Gas | 0.125486 / 0.0769109 | | | | |
| Other Non-Asphalt Surfaces | 0 / 0 | | | | |
| Parking Lot | 0 / 0 | | | | |
| **Total** | | | | | |

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | | | | |

| | | | | |
|---|---|---|---|---|
| Unmitigated | | | | |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 | | | | |
| Parking Lot | 0 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Other Non-Asphalt Surfaces | 0 | | | | |
| Parking Lot | 0 | | | | |
| **Total** | | | | | |

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# 99 and North - Operational - Convenience Market w Gas Station

**Fresno County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Other Non-Asphalt Surfaces | 0.97 | Acre | 0.97 | 42,253.20 | 0 |
| Parking Lot | 47.00 | Space | 0.72 | 18,800.00 | 0 |
| Convenience Market With Gas Pumps | 12.00 | Pump | 0.04 | 1,694.10 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan with parking from Panda Express

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Traffic Study and ITE 10th Edition does not have Sat or Sun trip rate the defaults were used. Estimate of 3 miles for service area for customers. TIS for trip %

Fleet Mix - Revised fleet mix based on estimated truck trips

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|

| | | | |
|---|---|---|---|
| tblFleetMix | HHD | 0.12 | 8.3400e-004 |
| tblFleetMix | LDA | 0.48 | 0.59 |
| tblFleetMix | LDT1 | 0.03 | 0.04 |
| tblFleetMix | LDT2 | 0.17 | 0.21 |
| tblFleetMix | LHD2 | 4.9970e-003 | 0.00 |
| tblFleetMix | MHD | 0.03 | 8.3400e-004 |
| tblLandUse | LotAcreage | 0.42 | 0.72 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 5.00 | 0.00 |
| tblVehicleTrips | CC_TL | 7.30 | 3.00 |
| tblVehicleTrips | DV_TP | 21.00 | 11.00 |
| tblVehicleTrips | PB_TP | 65.00 | 25.00 |
| tblVehicleTrips | PR_TP | 14.00 | 64.00 |
| tblVehicleTrips | WD_TR | 542.60 | 205.36 |

## 2.0 Emissions Summary

### 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.0719 | 6.0000e-005 | 6.1600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| Energy | 5.4000e-004 | 4.8700e-003 | 4.0900e-003 | 3.0000e-005 | | 3.7000e-004 | 3.7000e-004 | | 3.7000e-004 | 3.7000e-004 | | | | | | |
| Mobile | 3.2302 | 4.3396 | 27.9923 | 0.0511 | 4.9201 | 0.0482 | 4.9683 | 1.3104 | 0.0448 | 1.3552 | | | | | | |
| **Total** | **3.3027** | **4.3446** | **28.0025** | **0.0511** | **4.9201** | **0.0486** | **4.9687** | **1.3104** | **0.0452** | **1.3556** | | | | | | |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.0719 | 6.0000e-005 | 6.1600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| Energy | 5.4000e-004 | 4.8700e-003 | 4.0900e-003 | 3.0000e-005 | | 3.7000e-004 | 3.7000e-004 | | 3.7000e-004 | 3.7000e-004 | | | | | | |
| Mobile | 3.2302 | 4.3396 | 27.9923 | 0.0511 | 4.9201 | 0.0482 | 4.9683 | 1.3104 | 0.0448 | 1.3552 | | | | | | |
| **Total** | **3.3027** | **4.3446** | **28.0025** | **0.0511** | **4.9201** | **0.0486** | **4.9687** | **1.3104** | **0.0452** | **1.3556** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 3.2302 | 4.3396 | 27.9923 | 0.0511 | 4.9201 | 0.0482 | 4.9683 | 1.3104 | 0.0448 | 1.3552 | | | | | | |
| Unmitigated | 3.2302 | 4.3396 | 27.9923 | 0.0511 | 4.9201 | 0.0482 | 4.9683 | 1.3104 | 0.0448 | 1.3552 | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Convenience Market With Gas Pumps | 2,464.32 | 2,453.64 | 2002.56 | 2,274,952 | 2,274,952 |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |

| | | | | | |
|---|---|---|---|---|---|
| Total | 2,464.32 | 2,453.64 | 2,002.56 | 2,274,952 | 2,274,952 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C- | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Convenience Market With Gas Pumps | 9.50 | 3.00 | 7.30 | 0.80 | 80.20 | 19.00 | 64 | 11 | 25 |
| Other Non-Asphalt Surfaces | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Convenience Market With Gas Pumps | 0.593367 | 0.040439 | 0.207844 | 0.127212 | 0.018382 | 0.000000 | 0.000834 | 0.000834 | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000667 |
| Other Non-Asphalt Surfaces | 0.481390 | 0.032808 | 0.168621 | 0.127212 | 0.018382 | 0.004997 | 0.032622 | 0.122881 | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000667 |
| Parking Lot | 0.481390 | 0.032808 | 0.168621 | 0.127212 | 0.018382 | 0.004997 | 0.032622 | 0.122881 | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000667 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 5.4000e-004 | 4.8700e-003 | 4.0900e-003 | 3.0000e-005 | | 3.7000e-004 | 3.7000e-004 | | 3.7000e-004 | 3.7000e-004 | | | | | | |
| NaturalGas Unmitigated | 5.4000e-004 | 4.8700e-003 | 4.0900e-003 | 3.0000e-005 | | 3.7000e-004 | 3.7000e-004 | | 3.7000e-004 | 3.7000e-004 | | | | | | |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Convenience Market With Gas Pumps | 49.6627 | 5.4000e-004 | 4.8700e-003 | 4.0900e-003 | 3.0000e-005 | | 3.7000e-004 | 3.7000e-004 | | 3.7000e-004 | 3.7000e-004 | | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | | **5.4000e-004** | **4.8700e-003** | **4.0900e-003** | **3.0000e-005** | | **3.7000e-004** | **3.7000e-004** | | **3.7000e-004** | **3.7000e-004** | | | | | | |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Convenience Market With Gas Pumps | 0.0496627 | 5.4000e-004 | 4.8700e-003 | 4.0900e-003 | 3.0000e-005 | | 3.7000e-004 | 3.7000e-004 | | 3.7000e-004 | 3.7000e-004 | | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | | **5.4000e-004** | **4.8700e-003** | **4.0900e-003** | **3.0000e-005** | | **3.7000e-004** | **3.7000e-004** | | **3.7000e-004** | **3.7000e-004** | | | | | | |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0719 | 6.0000e-005 | 6.1600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| Unmitigated | 0.0719 | 6.0000e-005 | 6.1600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.0134 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0579 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 5.8000e-004 | 6.0000e-005 | 6.1600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| **Total** | **0.0719** | **6.0000e-005** | **6.1600e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | | | | | |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Architectural Coating | 0.0134 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0579 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 5.8000e-004 | 6.0000e-005 | 6.1600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| **Total** | **0.0719** | **6.0000e-005** | **6.1600e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | | | | | |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# 99 and North - Operational - Panda Express

**Fresno County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Fast Food Restaurant with Drive Thru | 2.23 | 1000sqft | 0.05 | 2,227.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Traffic Study and ITE 10th Edition for Sat or Sun trip rate. Estimate of 3 miles for service area for customers. Trip % from TIS

Fleet Mix - Revised fleet mix based on estimated truck trips

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblFleetMix | HHD | 0.12 | 2.5700e-004 |
| tblFleetMix | LDA | 0.48 | 0.59 |

| | | | |
|---|---|---|---|
| tblFleetMix | LDT1 | 0.03 | 0.04 |
| tblFleetMix | LDT2 | 0.17 | 0.21 |
| tblFleetMix | LHD2 | 4.9970e-003 | 1.7200e-004 |
| tblFleetMix | MHD | 0.03 | 9.4400e-004 |
| tblLandUse | LandUseSquareFeet | 2,230.00 | 2,227.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblVehicleTrips | CC_TL | 7.30 | 3.00 |
| tblVehicleTrips | DV_TP | 21.00 | 11.00 |
| tblVehicleTrips | PB_TP | 50.00 | 25.00 |
| tblVehicleTrips | PR_TP | 29.00 | 64.00 |
| tblVehicleTrips | ST_TR | 722.03 | 616.12 |
| tblVehicleTrips | SU_TR | 542.72 | 472.58 |
| tblVehicleTrips | WD_TR | 496.12 | 470.95 |

# 2.0 Emissions Summary

## 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0103 | 0.0000 | 2.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 2.5300e-003 | 0.0230 | 0.0193 | 1.4000e-004 | | 1.7500e-003 | 1.7500e-003 | | 1.7500e-003 | 1.7500e-003 | | | | | | |
| Mobile | 0.2908 | 0.3235 | 2.1343 | 4.3500e-003 | 0.3970 | 3.9500e-003 | 0.4010 | 0.1060 | 3.6700e-003 | 0.1096 | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.3036** | **0.3465** | **2.1536** | **4.4900e-003** | **0.3970** | **5.7000e-003** | **0.4027** | **0.1060** | **5.4200e-003** | **0.1114** | | | | | | |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0103 | 0.0000 | 2.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 2.5300e-003 | 0.0230 | 0.0193 | 1.4000e-004 | | 1.7500e-003 | 1.7500e-003 | | 1.7500e-003 | 1.7500e-003 | | | | | | |
| Mobile | 0.2908 | 0.3235 | 2.1343 | 4.3500e-003 | 0.3970 | 3.9500e-003 | 0.4010 | 0.1060 | 3.6700e-003 | 0.1096 | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.3036** | **0.3465** | **2.1536** | **4.4900e-003** | **0.3970** | **5.7000e-003** | **0.4027** | **0.1060** | **5.4200e-003** | **0.1114** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.2908 | 0.3235 | 2.1343 | 4.3500e-003 | 0.3970 | 3.9500e-003 | 0.4010 | 0.1060 | 3.6700e-003 | 0.1096 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unmitigated | 0.2908 | 0.3235 | 2.1343 | 4.3500e-003 | 0.3970 | 3.9500e-003 | 0.4010 | 0.1060 | 3.6700e-003 | 0.1096 | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Fast Food Restaurant with Drive Thru | 1,050.22 | 1,373.95 | 1053.85 | 1,065,459 | 1,065,459 |
| Total | 1,050.22 | 1,373.95 | 1,053.85 | 1,065,459 | 1,065,459 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C- | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Fast Food Restaurant with Drive Thru | 9.50 | 3.00 | 7.30 | 2.20 | 78.80 | 19.00 | 64 | 11 | 25 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fast Food Restaurant with Drive Thru | 0.593575 | 0.040454 | 0.207917 | 0.127212 | 0.018382 | 0.000172 | 0.000944 | 0.000257 | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000667 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NaturalGas Mitigated | 2.5300e-003 | 0.0230 | 0.0193 | 1.4000e-004 | | 1.7500e-003 | 1.7500e-003 | | 1.7500e-003 | 1.7500e-003 | | | | | | |
| NaturalGas Unmitigated | 2.5300e-003 | 0.0230 | 0.0193 | 1.4000e-004 | | 1.7500e-003 | 1.7500e-003 | | 1.7500e-003 | 1.7500e-003 | | | | | | |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fast Food Restaurant with | 468605 | 2.5300e-003 | 0.0230 | 0.0193 | 1.4000e-004 | | 1.7500e-003 | 1.7500e-003 | | 1.7500e-003 | 1.7500e-003 | | | | | | |
| **Total** | | **2.5300e-003** | **0.0230** | **0.0193** | **1.4000e-004** | | **1.7500e-003** | **1.7500e-003** | | **1.7500e-003** | **1.7500e-003** | | | | | | |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fast Food Restaurant with | 468605 | 2.5300e-003 | 0.0230 | 0.0193 | 1.4000e-004 | | 1.7500e-003 | 1.7500e-003 | | 1.7500e-003 | 1.7500e-003 | | | | | | |
| **Total** | | **2.5300e-003** | **0.0230** | **0.0193** | **1.4000e-004** | | **1.7500e-003** | **1.7500e-003** | | **1.7500e-003** | **1.7500e-003** | | | | | | |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Fast Food Restaurant with | 64516.2 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Fast Food Restaurant with | 64516.2 | | | | |
| **Total** | | | | | |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.0103 | 0.0000 | 2.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unmitigated | 0.0103 | 0.0000 | 2.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 1.5500e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 8.7000e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 0.0000 | 0.0000 | 2.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.0103** | **0.0000** | **2.0000e-005** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | | | | | |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 1.5500e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 8.7000e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 0.0000 | 0.0000 | 2.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.0103** | **0.0000** | **2.0000e-005** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | | | | | |

## 7.0 Water Detail

## 7.1 Mitigation Measures Water

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | | | | |
| Unmitigated | | | | |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Fast Food Restaurant with | 0.67688 / 0.0432051 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|

| Land Use | Mgal | MT/yr | | |
|---|---|---|---|---|
| Fast Food Restaurant with | 0.67688 / 0.0432051 | | | |
| **Total** | | | | |

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | | | | |
| Unmitigated | | | | |

### 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Fast Food Restaurant with | 25.69 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Fast Food Restaurant with | 25.69 | | | | |
| **Total** | | | | | |

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# 99 and North - Operational - Panda Express

**Fresno County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Fast Food Restaurant with Drive Thru | 2.23 | 1000sqft | 0.05 | 2,227.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Traffic Study and ITE 10th Edition for Sat or Sun trip rate. Estimate of 3 miles for service area for customers. Trip % from TIS

Fleet Mix - Revised fleet mix based on estimated truck trips

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblFleetMix | HHD | 0.12 | 2.5700e-004 |
| tblFleetMix | LDA | 0.48 | 0.59 |

| | | | |
|---|---|---|---|
| tblFleetMix | LDT1 | 0.03 | 0.04 |
| tblFleetMix | LDT2 | 0.17 | 0.21 |
| tblFleetMix | LHD2 | 4.9970e-003 | 1.7200e-004 |
| tblFleetMix | MHD | 0.03 | 9.4400e-004 |
| tblLandUse | LandUseSquareFeet | 2,230.00 | 2,227.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblVehicleTrips | CC_TL | 7.30 | 3.00 |
| tblVehicleTrips | DV_TP | 21.00 | 11.00 |
| tblVehicleTrips | PB_TP | 50.00 | 25.00 |
| tblVehicleTrips | PR_TP | 29.00 | 64.00 |
| tblVehicleTrips | ST_TR | 722.03 | 616.12 |
| tblVehicleTrips | SU_TR | 542.72 | 472.58 |
| tblVehicleTrips | WD_TR | 496.12 | 470.95 |

## 2.0 Emissions Summary

### 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.0562 | 0.0000 | 2.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 0.0139 | 0.1259 | 0.1057 | 7.6000e-004 | | 9.5700e-003 | 9.5700e-003 | | 9.5700e-003 | 9.5700e-003 | | | | | | |
| Mobile | 1.8058 | 2.3663 | 15.7726 | 0.0290 | 2.8070 | 0.0273 | 2.8342 | 0.7476 | 0.0253 | 0.7729 | | | | | | |
| **Total** | **1.8759** | **2.4922** | **15.8785** | **0.0297** | **2.8070** | **0.0368** | **2.8438** | **0.7476** | **0.0349** | **0.7825** | | | | | | |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.0562 | 0.0000 | 2.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 0.0139 | 0.1259 | 0.1057 | 7.6000e-004 | | 9.5700e-003 | 9.5700e-003 | | 9.5700e-003 | 9.5700e-003 | | | | | | |
| Mobile | 1.8058 | 2.3663 | 15.7726 | 0.0290 | 2.8070 | 0.0273 | 2.8342 | 0.7476 | 0.0253 | 0.7729 | | | | | | |
| **Total** | **1.8759** | **2.4922** | **15.8785** | **0.0297** | **2.8070** | **0.0368** | **2.8438** | **0.7476** | **0.0349** | **0.7825** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.8058 | 2.3663 | 15.7726 | 0.0290 | 2.8070 | 0.0273 | 2.8342 | 0.7476 | 0.0253 | 0.7729 | | | | | | |
| Unmitigated | 1.8058 | 2.3663 | 15.7726 | 0.0290 | 2.8070 | 0.0273 | 2.8342 | 0.7476 | 0.0253 | 0.7729 | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Fast Food Restaurant with Drive Thru | 1,050.22 | 1,373.95 | 1053.85 | 1,065,459 | 1,065,459 |
| Total | 1,050.22 | 1,373.95 | 1,053.85 | 1,065,459 | 1,065,459 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C- | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Fast Food Restaurant with | 9.50 | 3.00 | 7.30 | 2.20 | 78.80 | 19.00 | 64 | 11 | 25 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fast Food Restaurant with Drive Thru | 0.593575 | 0.040454 | 0.207917 | 0.127212 | 0.018382 | 0.000172 | 0.000944 | 0.000257 | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000667 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0139 | 0.1259 | 0.1057 | 7.6000e-004 | | 9.5700e-003 | 9.5700e-003 | | 9.5700e-003 | 9.5700e-003 | | | | | | |
| NaturalGas Unmitigated | 0.0139 | 0.1259 | 0.1057 | 7.6000e-004 | | 9.5700e-003 | 9.5700e-003 | | 9.5700e-003 | 9.5700e-003 | | | | | | |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Fast Food Restaurant with | 1283.85 | 0.0139 | 0.1259 | 0.1057 | 7.6000e-004 | | 9.5700e-003 | 9.5700e-003 | | 9.5700e-003 | 9.5700e-003 | | | | | | |
| **Total** | | **0.0139** | **0.1259** | **0.1057** | **7.6000e-004** | | **9.5700e-003** | **9.5700e-003** | | **9.5700e-003** | **9.5700e-003** | | | | | | |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Fast Food Restaurant with | 1.28385 | 0.0139 | 0.1259 | 0.1057 | 7.6000e-004 | | 9.5700e-003 | 9.5700e-003 | | 9.5700e-003 | 9.5700e-003 | | | | | | |
| **Total** | | **0.0139** | **0.1259** | **0.1057** | **7.6000e-004** | | **9.5700e-003** | **9.5700e-003** | | **9.5700e-003** | **9.5700e-003** | | | | | | |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Category | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mitigated | 0.0562 | 0.0000 | 2.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Unmitigated | 0.0562 | 0.0000 | 2.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

## 6.2 Area by SubCategory

### Unmitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 8.4900e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0477 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 2.0000e-005 | 0.0000 | 2.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.0562** | **0.0000** | **2.3000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | | | | | |

### Mitigated

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 8.4900e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0477 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 2.0000e-005 | 0.0000 | 2.3000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **0.0562** | **0.0000** | **2.3000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | | | | | |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# 99 and North 5K Building Operational

**Fresno County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Other Asphalt Surfaces | 0.51 | Acre | 0.51 | 22,215.60 | 0 |
| Other Non-Asphalt Surfaces | 0.16 | Acre | 0.16 | 6,969.60 | 0 |
| Parking Lot | 36.00 | Space | 0.32 | 14,400.00 | 0 |
| Fast Food Restaurant with Drive Thru | 2.00 | 1000sqft | 0.05 | 1,998.00 | 0 |
| Strip Mall | 3.00 | 1000sqft | 0.07 | 3,002.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2022 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Assumed worst-case - FF rest w drive through. Traffic study and ITE 10th Edition. 3 mile service area

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Fleet Mix - Revised fleet mix based on estimated trucks

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblFleetMix | HHD | 0.13 | 4.0000e-004 |
| tblFleetMix | HHD | 0.13 | 4.0000e-004 |
| tblFleetMix | LDA | 0.49 | 0.61 |
| tblFleetMix | LDA | 0.49 | 0.61 |
| tblFleetMix | LDT1 | 0.03 | 0.04 |
| tblFleetMix | LDT1 | 0.03 | 0.04 |
| tblFleetMix | LDT2 | 0.17 | 0.21 |
| tblFleetMix | LDT2 | 0.17 | 0.21 |
| tblFleetMix | LHD2 | 4.5020e-003 | 2.6700e-004 |
| tblFleetMix | LHD2 | 4.5020e-003 | 2.6700e-004 |
| tblFleetMix | MHD | 0.03 | 1.2010e-003 |
| tblFleetMix | MHD | 0.03 | 1.2010e-003 |
| tblLandUse | LandUseSquareFeet | 2,000.00 | 1,998.00 |
| tblLandUse | LandUseSquareFeet | 3,000.00 | 3,002.00 |
| tblVehicleTrips | CC_TL | 7.30 | 3.00 |
| tblVehicleTrips | CC_TL | 7.30 | 3.00 |
| tblVehicleTrips | DV_TP | 21.00 | 11.00 |
| tblVehicleTrips | DV_TP | 40.00 | 11.00 |
| tblVehicleTrips | PB_TP | 50.00 | 25.00 |
| tblVehicleTrips | PB_TP | 15.00 | 25.00 |
| tblVehicleTrips | PR_TP | 29.00 | 64.00 |
| tblVehicleTrips | PR_TP | 45.00 | 64.00 |
| tblVehicleTrips | ST_TR | 722.03 | 673.64 |
| tblVehicleTrips | ST_TR | 42.04 | 616.12 |
| tblVehicleTrips | SU_TR | 542.72 | 421.82 |
| tblVehicleTrips | SU_TR | 20.43 | 472.58 |

| | | | |
|---|---|---|---|
| tblVehicleTrips | WD_TR | 496.12 | 820.38 |
| tblVehicleTrips | WD_TR | 44.32 | 470.95 |

## 2.0 Emissions Summary

### 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0268 | 0.0000 | 3.8000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 2.4400e-003 | 0.0222 | 0.0186 | 1.3000e-004 | | 1.6900e-003 | 1.6900e-003 | | 1.6900e-003 | 1.6900e-003 | | | | | | |
| Mobile | 0.6696 | 0.7639 | 5.0113 | 0.0120 | 1.1959 | 0.0106 | 1.2065 | 0.3191 | 9.7900e-003 | 0.3289 | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.6988** | **0.7861** | **5.0303** | **0.0122** | **1.1959** | **0.0122** | **1.2082** | **0.3191** | **0.0115** | **0.3306** | | | | | | |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0268 | 0.0000 | 3.8000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 2.4400e-003 | 0.0222 | 0.0186 | 1.3000e-004 | | 1.6900e-003 | 1.6900e-003 | | 1.6900e-003 | 1.6900e-003 | | | | | | |
| Mobile | 0.6696 | 0.7639 | 5.0113 | 0.0120 | 1.1959 | 0.0106 | 1.2065 | 0.3191 | 9.7900e-003 | 0.3289 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.6988** | **0.7861** | **5.0303** | **0.0122** | **1.1959** | **0.0122** | **1.2082** | **0.3191** | **0.0115** | **0.3306** | | | | | | |

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio-CO2 | Total CO2 | CH4 | N20 | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.6696 | 0.7639 | 5.0113 | 0.0120 | 1.1959 | 0.0106 | 1.2065 | 0.3191 | 9.7900e-003 | 0.3289 | | | | | | |
| Unmitigated | 0.6696 | 0.7639 | 5.0113 | 0.0120 | 1.1959 | 0.0106 | 1.2065 | 0.3191 | 9.7900e-003 | 0.3289 | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Fast Food Restaurant with Drive Thru | 1,640.76 | 1,347.28 | 843.64 | 1,442,284 | 1,442,284 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Strip Mall | 1,412.85 | 1,848.36 | 1417.74 | 1,768,971 | 1,768,971 |
| Total | 3,053.61 | 3,195.64 | 2,261.38 | 3,211,255 | 3,211,255 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C- | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Fast Food Restaurant with Drive Thru | 9.50 | 3.00 | 7.30 | 2.20 | 78.80 | 19.00 | 64 | 11 | 25 |
| Other Asphalt Surfaces | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Other Non-Asphalt Surfaces | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Strip Mall | 9.50 | 3.00 | 7.30 | 16.60 | 64.40 | 19.00 | 64 | 11 | 25 |

### 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fast Food Restaurant with Drive Thru | 0.607500 | 0.038442 | 0.209596 | 0.116157 | 0.015815 | 0.000267 | 0.001201 | 0.000400 | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 |
| Other Asphalt Surfaces | 0.492212 | 0.031147 | 0.169820 | 0.116157 | 0.015815 | 0.004502 | 0.033398 | 0.126328 | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 |
| Other Non-Asphalt Surfaces | 0.492212 | 0.031147 | 0.169820 | 0.116157 | 0.015815 | 0.004502 | 0.033398 | 0.126328 | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 |
| Parking Lot | 0.492212 | 0.031147 | 0.169820 | 0.116157 | 0.015815 | 0.004502 | 0.033398 | 0.126328 | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 |
| Strip Mall | 0.607500 | 0.038442 | 0.209596 | 0.116157 | 0.015815 | 0.000267 | 0.001201 | 0.000400 | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 |

## 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| NaturalGas Mitigated | 2.4400e-003 | 0.0222 | 0.0186 | 1.3000e-004 | | 1.6900e-003 | 1.6900e-003 | | 1.6900e-003 | 1.6900e-003 | | | | | | |
| NaturalGas Unmitigated | 2.4400e-003 | 0.0222 | 0.0186 | 1.3000e-004 | | 1.6900e-003 | 1.6900e-003 | | 1.6900e-003 | 1.6900e-003 | | | | | | |

### 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fast Food Restaurant with Drive Thru | 420419 | 2.2700e-003 | 0.0206 | 0.0173 | 1.2000e-004 | | 1.5700e-003 | 1.5700e-003 | | 1.5700e-003 | 1.5700e-003 | | | | | | |
| Other Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Strip Mall | 32121.4 | 1.7000e-004 | 1.5700e-003 | 1.3200e-003 | 1.0000e-005 | | 1.2000e-004 | 1.2000e-004 | | 1.2000e-004 | 1.2000e-004 | | | | | | |
| **Total** | | **2.4400e-003** | **0.0222** | **0.0186** | **1.3000e-004** | | **1.6900e-003** | **1.6900e-003** | | **1.6900e-003** | **1.6900e-003** | | | | | | |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Fast Food Restaurant with Drive Thru | 420419 | 2.2700e-003 | 0.0206 | 0.0173 | 1.2000e-004 | | 1.5700e-003 | 1.5700e-003 | | 1.5700e-003 | 1.5700e-003 | | | | | | |
| Other Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Strip Mall | 32121.4 | 1.7000e-004 | 1.5700e-003 | 1.3200e-003 | 1.0000e-005 | | 1.2000e-004 | 1.2000e-004 | | 1.2000e-004 | 1.2000e-004 | | | | | | |
| **Total** | | **2.4400e-003** | **0.0222** | **0.0186** | **1.3000e-004** | | **1.6900e-003** | **1.6900e-003** | | **1.6900e-003** | **1.6900e-003** | | | | | | |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Fast Food Restaurant with Drive Thru | 57882.1 | | | | |
| Other Asphalt Surfaces | 0 | | | | |
| Other Non-Asphalt Surfaces | 0 | | | | |
| Parking Lot | 5040 | | | | |
| Strip Mall | 24466.3 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Fast Food Restaurant with Drive Thru | 57882.1 | | | | |
| Other Asphalt Surfaces | 0 | | | | |
| Other Non-Asphalt Surfaces | 0 | | | | |
| Parking Lot | 5040 | | | | |
| Strip Mall | 24466.3 | | | | |
| **Total** | | | | | |

## 6.0 Area Detail

## 6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.0268 | 0.0000 | 3.8000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Unmitigated | 0.0268 | 0.0000 | 3.8000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 4.3900e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0223 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 4.0000e-005 | 0.0000 | 3.8000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.0268** | **0.0000** | **3.8000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | | | | | |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 4.3900e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0223 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 4.0000e-005 | 0.0000 | 3.8000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.0268** | **0.0000** | **3.8000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | | | | | |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | | | | |
| Unmitigated | | | | |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Fast Food Restaurant with Drive Thru | 0.607067 / 0.038749 | | | | |
| Other Asphalt Surfaces | 0 / 0 | | | | |
| Other Non-Asphalt Surfaces | 0 / 0 | | | | |
| Parking Lot | 0 / 0 | | | | |
| Strip Mall | 0.222218 / 0.136198 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Fast Food Restaurant with Drive Thru | 0.485654 / 0.0363853 | | | | |
| Other Asphalt Surfaces | 0 / 0 | | | | |
| Other Non-Asphalt Surfaces | 0 / 0 | | | | |
| Parking Lot | 0 / 0 | | | | |
| Strip Mall | 0.177774 / 0.12789 | | | | |
| **Total** | | | | | |

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | | | | |
| Unmitigated | | | | |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Fast Food Restaurant with Drive Thru | 23.04 | | | | |
| Other Asphalt Surfaces | 0 | | | | |
| Other Non-Asphalt Surfaces | 0 | | | | |
| Parking Lot | 0 | | | | |
| Strip Mall | 3.15 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Fast Food Restaurant with Drive Thru | 23.04 | | | | |
| Other Asphalt Surfaces | 0 | | | | |
| Other Non-Asphalt Surfaces | 0 | | | | |
| Parking Lot | 0 | | | | |
| Strip Mall | 3.15 | | | | |
| **Total** | | | | | |

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# 99 and North 5K Building Operational

**Fresno County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Other Asphalt Surfaces | 0.51 | Acre | 0.51 | 22,215.60 | 0 |
| Other Non-Asphalt Surfaces | 0.16 | Acre | 0.16 | 6,969.60 | 0 |
| Parking Lot | 36.00 | Space | 0.32 | 14,400.00 | 0 |
| Fast Food Restaurant with Drive Thru | 2.00 | 1000sqft | 0.05 | 1,998.00 | 0 |
| Strip Mall | 3.00 | 1000sqft | 0.07 | 3,002.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2022 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Assumed worst-case - FF rest w drive through. Traffic study and ITE 10th Edition. 3 mile service area

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Fleet Mix - Revised fleet mix based on estimated trucks

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblFleetMix | HHD | 0.13 | 4.0000e-004 |
| tblFleetMix | HHD | 0.13 | 4.0000e-004 |
| tblFleetMix | LDA | 0.49 | 0.61 |
| tblFleetMix | LDA | 0.49 | 0.61 |
| tblFleetMix | LDT1 | 0.03 | 0.04 |
| tblFleetMix | LDT1 | 0.03 | 0.04 |
| tblFleetMix | LDT2 | 0.17 | 0.21 |
| tblFleetMix | LDT2 | 0.17 | 0.21 |
| tblFleetMix | LHD2 | 4.5020e-003 | 2.6700e-004 |
| tblFleetMix | LHD2 | 4.5020e-003 | 2.6700e-004 |
| tblFleetMix | MHD | 0.03 | 1.2010e-003 |
| tblFleetMix | MHD | 0.03 | 1.2010e-003 |
| tblLandUse | LandUseSquareFeet | 2,000.00 | 1,998.00 |
| tblLandUse | LandUseSquareFeet | 3,000.00 | 3,002.00 |
| tblVehicleTrips | CC_TL | 7.30 | 3.00 |
| tblVehicleTrips | CC_TL | 7.30 | 3.00 |
| tblVehicleTrips | DV_TP | 21.00 | 11.00 |
| tblVehicleTrips | DV_TP | 40.00 | 11.00 |
| tblVehicleTrips | PB_TP | 50.00 | 25.00 |
| tblVehicleTrips | PB_TP | 15.00 | 25.00 |
| tblVehicleTrips | PR_TP | 29.00 | 64.00 |
| tblVehicleTrips | PR_TP | 45.00 | 64.00 |
| tblVehicleTrips | ST_TR | 722.03 | 673.64 |
| tblVehicleTrips | ST_TR | 42.04 | 616.12 |
| tblVehicleTrips | SU_TR | 542.72 | 421.82 |
| tblVehicleTrips | SU_TR | 20.43 | 472.58 |

| | | | |
|---|---|---|---|
| tblVehicleTrips | WD_TR | 496.12 | 820.38 |
| tblVehicleTrips | WD_TR | 44.32 | 470.95 |

## 2.0 Emissions Summary

### 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.1469 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| Energy | 0.0134 | 0.1216 | 0.1021 | 7.3000e-004 | | 9.2400e-003 | 9.2400e-003 | | 9.2400e-003 | 9.2400e-003 | | | | | | |
| Mobile | 3.8873 | 5.2638 | 34.5747 | 0.0757 | 8.0079 | 0.0688 | 8.0767 | 2.1320 | 0.0638 | 2.1958 | | | | | | |
| **Total** | **4.0475** | **5.3853** | **34.6811** | **0.0765** | **8.0079** | **0.0780** | **8.0859** | **2.1320** | **0.0731** | **2.2051** | | | | | | |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.1469 | 4.0000e-005 | 4.2100e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | | | | | | |
| Energy | 0.0134 | 0.1216 | 0.1021 | 7.3000e-004 | | 9.2400e-003 | 9.2400e-003 | | 9.2400e-003 | 9.2400e-003 | | | | | | |
| Mobile | 3.8873 | 5.2638 | 34.5747 | 0.0757 | 8.0079 | 0.0688 | 8.0767 | 2.1320 | 0.0638 | 2.1958 | | | | | | |
| **Total** | **4.0475** | **5.3853** | **34.6810** | **0.0765** | **8.0079** | **0.0780** | **8.0859** | **2.1320** | **0.0731** | **2.2051** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.01** | **0.00** | **0.00** | **0.01** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 3.8873 | 5.2638 | 34.5747 | 0.0757 | 8.0079 | 0.0688 | 8.0767 | 2.1320 | 0.0638 | 2.1958 | | | | | | |
| Unmitigated | 3.8873 | 5.2638 | 34.5747 | 0.0757 | 8.0079 | 0.0688 | 8.0767 | 2.1320 | 0.0638 | 2.1958 | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Fast Food Restaurant with Drive Thru | 1,640.76 | 1,347.28 | 843.64 | 1,442,284 | 1,442,284 |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Strip Mall | 1,412.85 | 1,848.36 | 1417.74 | 1,768,971 | 1,768,971 |
| Total | 3,053.61 | 3,195.64 | 2,261.38 | 3,211,255 | 3,211,255 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C- | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Fast Food Restaurant with Drive Thru | 9.50 | 3.00 | 7.30 | 2.20 | 78.80 | 19.00 | 64 | 11 | 25 |
| Other Asphalt Surfaces | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Other Non-Asphalt Surfaces | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Strip Mall | 9.50 | 3.00 | 7.30 | 16.60 | 64.40 | 19.00 | 64 | 11 | 25 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fast Food Restaurant with Drive Thru | 0.607500 | 0.038442 | 0.209596 | 0.116157 | 0.015815 | 0.000267 | 0.001201 | 0.000400 | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 |

| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | 0.492212 | 0.031147 | 0.169820 | 0.116157 | 0.015815 | 0.004502 | 0.033398 | 0.126328 | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 |
| Other Non-Asphalt Surfaces | 0.492212 | 0.031147 | 0.169820 | 0.116157 | 0.015815 | 0.004502 | 0.033398 | 0.126328 | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 |
| Parking Lot | 0.492212 | 0.031147 | 0.169820 | 0.116157 | 0.015815 | 0.004502 | 0.033398 | 0.126328 | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 |
| Strip Mall | 0.607500 | 0.038442 | 0.209596 | 0.116157 | 0.015815 | 0.000267 | 0.001201 | 0.000400 | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 |

## 5.0 Energy Detail

Historical Energy Use: N

### 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| NaturalGas Mitigated | 0.0134 | 0.1216 | 0.1021 | 7.3000e-004 | | 9.2400e-003 | 9.2400e-003 | | 9.2400e-003 | 9.2400e-003 | | | | | | |
| NaturalGas Unmitigated | 0.0134 | 0.1216 | 0.1021 | 7.3000e-004 | | 9.2400e-003 | 9.2400e-003 | | 9.2400e-003 | 9.2400e-003 | | | | | | |

### 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Fast Food Restaurant with Drive Thru | 1151.83 | 0.0124 | 0.1129 | 0.0949 | 6.8000e-004 | | 8.5800e-003 | 8.5800e-003 | | 8.5800e-003 | 8.5800e-003 | | | | | | |
| Other Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Strip Mall | 88.0038 | 9.5000e-004 | 8.6300e-003 | 7.2500e-003 | 5.0000e-005 | | 6.6000e-004 | 6.6000e-004 | | 6.6000e-004 | 6.6000e-004 | | | | | | |
| **Total** | | **0.0134** | **0.1216** | **0.1021** | **7.3000e-004** | | **9.2400e-003** | **9.2400e-003** | | **9.2400e-003** | **9.2400e-003** | | | | | | |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Fast Food Restaurant with | 1.15183 | 0.0124 | 0.1129 | 0.0949 | 6.8000e-004 | | 8.5800e-003 | 8.5800e-003 | | 8.5800e-003 | 8.5800e-003 | | | | | | |
| Other Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Strip Mall | 0.0880038 | 9.5000e-004 | 8.6300e-003 | 7.2500e-003 | 5.0000e-005 | | 6.6000e-004 | 6.6000e-004 | | 6.6000e-004 | 6.6000e-004 | | | | | | |
| **Total** | | **0.0134** | **0.1216** | **0.1021** | **7.3000e-004** | | **9.2400e-003** | **9.2400e-003** | | **9.2400e-003** | **9.2400e-003** | | | | | | |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.1469 | 4.0000e-005 | 4.2100e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | | | | | | |
| Unmitigated | 0.1469 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.0240 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.1224 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 4.0000e-004 | 4.0000e-005 | 4.2600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| **Total** | **0.1469** | **4.0000e-005** | **4.2600e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | | | | | |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Architectural Coating | 0.0240 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.1224 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 3.9000e-004 | 4.0000e-005 | 4.2100e-003 | 0.0000 | | 1.0000e-005 | 1.0000e-005 | | 1.0000e-005 | 1.0000e-005 | | | | | | |
| **Total** | **0.1469** | **4.0000e-005** | **4.2100e-003** | **0.0000** | | **1.0000e-005** | **1.0000e-005** | | **1.0000e-005** | **1.0000e-005** | | | | | | |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# 99 and North 3K Building - Operational

**Fresno County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Other Asphalt Surfaces | 0.45 | Acre | 0.45 | 19,602.00 | 0 |
| Other Non-Asphalt Surfaces | 0.16 | Acre | 0.16 | 6,969.60 | 0 |
| Parking Lot | 51.00 | Space | 0.46 | 20,400.00 | 0 |
| Strip Mall | 3.00 | 1000sqft | 0.07 | 3,000.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2025 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Used worst-case of FF Rest w drive through. Traffic study and ITE 10th edition. 3 mile service area. Trip % from TIS

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Fleet Mix - Revised fleet mix based on truck trips

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblFleetMix | HHD | 0.13 | 4.0000e-004 |
| tblFleetMix | LDA | 0.51 | 0.62 |
| tblFleetMix | LDT1 | 0.03 | 0.04 |
| tblFleetMix | LDT2 | 0.17 | 0.21 |
| tblFleetMix | LHD2 | 3.9290e-003 | 2.6700e-004 |
| tblFleetMix | MHD | 0.03 | 1.2010e-003 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 4.00 | 0.00 |
| tblVehicleTrips | CC_TL | 7.30 | 3.00 |
| tblVehicleTrips | DV_TP | 40.00 | 11.00 |
| tblVehicleTrips | PB_TP | 15.00 | 25.00 |
| tblVehicleTrips | PR_TP | 45.00 | 64.00 |
| tblVehicleTrips | ST_TR | 42.04 | 616.12 |
| tblVehicleTrips | SU_TR | 20.43 | 472.58 |
| tblVehicleTrips | WD_TR | 44.32 | 470.95 |

## 2.0 Emissions Summary

### 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0179 | 0.0000 | 5.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Energy | 1.7000e-004 | 1.5700e-003 | 1.3200e-003 | 1.0000e-005 | | 1.2000e-004 | 1.2000e-004 | | 1.2000e-004 | 1.2000e-004 | | | | | | |
| Mobile | 0.2716 | 0.2984 | 2.0701 | 5.7900e-003 | 0.6583 | 5.1200e-003 | 0.6634 | 0.1756 | 4.7400e-003 | 0.1803 | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.2896** | **0.3000** | **2.0719** | **5.8000e-003** | **0.6583** | **5.2400e-003** | **0.6635** | **0.1756** | **4.8600e-003** | **0.1804** | | | | | | |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0179 | 0.0000 | 4.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 1.7000e-004 | 1.5700e-003 | 1.3200e-003 | 1.0000e-005 | | 1.2000e-004 | 1.2000e-004 | | 1.2000e-004 | 1.2000e-004 | | | | | | |
| Mobile | 0.2716 | 0.2984 | 2.0701 | 5.7900e-003 | 0.6583 | 5.1200e-003 | 0.6634 | 0.1756 | 4.7400e-003 | 0.1803 | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.2896** | **0.3000** | **2.0719** | **5.8000e-003** | **0.6583** | **5.2400e-003** | **0.6635** | **0.1756** | **4.8600e-003** | **0.1804** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.2716 | 0.2984 | 2.0701 | 5.7900e-003 | 0.6583 | 5.1200e-003 | 0.6634 | 0.1756 | 4.7400e-003 | 0.1803 | | | | | | |
| Unmitigated | 0.2716 | 0.2984 | 2.0701 | 5.7900e-003 | 0.6583 | 5.1200e-003 | 0.6634 | 0.1756 | 4.7400e-003 | 0.1803 | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Strip Mall | 1,412.85 | 1,848.36 | 1417.74 | 1,768,971 | 1,768,971 |
| Total | 1,412.85 | 1,848.36 | 1,417.74 | 1,768,971 | 1,768,971 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C-W | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Other Asphalt Surfaces | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Other Non-Asphalt Surfaces | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Strip Mall | 9.50 | 3.00 | 7.30 | 16.60 | 64.40 | 19.00 | 64 | 11 | 25 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | 0.505528 | 0.029619 | 0.172275 | 0.104063 | 0.012782 | 0.003929 | 0.033727 | 0.128026 | 0.002328 | 0.001354 | 0.004810 | 0.001048 | 0.000512 |
| Other Non-Asphalt Surfaces | 0.505528 | 0.029619 | 0.172275 | 0.104063 | 0.012782 | 0.003929 | 0.033727 | 0.128026 | 0.002328 | 0.001354 | 0.004810 | 0.001048 | 0.000512 |
| Parking Lot | 0.505528 | 0.029619 | 0.172275 | 0.104063 | 0.012782 | 0.003929 | 0.033727 | 0.128026 | 0.002328 | 0.001354 | 0.004810 | 0.001048 | 0.000512 |
| Strip Mall | 0.622590 | 0.036478 | 0.212168 | 0.104063 | 0.012782 | 0.000267 | 0.001201 | 0.000400 | 0.002328 | 0.001354 | 0.004810 | 0.001048 | 0.000512 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Electricity Mitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Electricity Unmitigated | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| NaturalGas Mitigated | 1.7000e-004 | 1.5700e-003 | 1.3200e-003 | 1.0000e-005 | | 1.2000e-004 | 1.2000e-004 | | 1.2000e-004 | 1.2000e-004 | | | | | | |
| NaturalGas Unmitigated | 1.7000e-004 | 1.5700e-003 | 1.3200e-003 | 1.0000e-005 | | 1.2000e-004 | 1.2000e-004 | | 1.2000e-004 | 1.2000e-004 | | | | | | |

## 5.2 Energy by Land Use - NaturalGas

**Unmitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Other Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Strip Mall | 32100 | 1.7000e-004 | 1.5700e-003 | 1.3200e-003 | 1.0000e-005 | | 1.2000e-004 | 1.2000e-004 | | 1.2000e-004 | 1.2000e-004 | | | | | | |
| **Total** | | **1.7000e-004** | **1.5700e-003** | **1.3200e-003** | **1.0000e-005** | | **1.2000e-004** | **1.2000e-004** | | **1.2000e-004** | **1.2000e-004** | | | | | | |

**Mitigated**

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Other Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Strip Mall | 32100 | 1.7000e-004 | 1.5700e-003 | 1.3200e-003 | 1.0000e-005 | | 1.2000e-004 | 1.2000e-004 | | 1.2000e-004 | 1.2000e-004 | | | | | | |
| **Total** | | **1.7000e-004** | **1.5700e-003** | **1.3200e-003** | **1.0000e-005** | | **1.2000e-004** | **1.2000e-004** | | **1.2000e-004** | **1.2000e-004** | | | | | | |

## 5.3 Energy by Land Use - Electricity

**Unmitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Other Asphalt Surfaces | 0 | | | | |
| Other Non-Asphalt Surfaces | 0 | | | | |
| Parking Lot | 7140 | | | | |
| Strip Mall | 24450 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Electricity Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | kWh/yr | MT/yr | | | |
| Other Asphalt Surfaces | 0 | | | | |
| Other Non-Asphalt Surfaces | 0 | | | | |
| Parking Lot | 7140 | | | | |
| Strip Mall | 24450 | | | | |
| **Total** | | | | | |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Mitigated | 0.0179 | 0.0000 | 4.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Unmitigated | 0.0179 | 0.0000 | 5.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 3.0700e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0148 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 5.0000e-005 | 0.0000 | 5.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.0179** | **0.0000** | **5.0000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | | | | | |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Architectural Coating | 3.0700e-003 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0148 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 5.0000e-005 | 0.0000 | 4.9000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **0.0179** | **0.0000** | **4.9000e-004** | **0.0000** | | **0.0000** | **0.0000** | | **0.0000** | **0.0000** | | | | | | |

# 7.0 Water Detail

## 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| Category | MT/yr | | | |
| Mitigated | | | | |
| Unmitigated | | | | |

## 7.2 Water by Land Use

**Unmitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | Mgal | MT/yr | | | |
| Other Asphalt Surfaces | 0 / 0 | | | | |
| Other Non-Asphalt Surfaces | 0 / 0 | | | | |
| Parking Lot | 0 / 0 | | | | |
| Strip Mall | 0.222218 / 0.136198 | | | | |
| **Total** | | | | | |

**Mitigated**

| | Indoor/Outdoor Use | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|

| Land Use | Mgal | MT/yr | | |
|---|---|---|---|---|
| Other Asphalt Surfaces | 0 / 0 | | | |
| Other Non-Asphalt Surfaces | 0 / 0 | | | |
| Parking Lot | 0 / 0 | | | |
| Strip Mall | 0.177774 / 0.12789 | | | |
| **Total** | | | | |

# 8.0 Waste Detail

## 8.1 Mitigation Measures Waste

**Category/Year**

| | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|
| | MT/yr | | | |
| Mitigated | | | | |
| Unmitigated | | | | |

## 8.2 Waste by Land Use

**Unmitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |

| | | | | |
|---|---|---|---|---|
| Other Asphalt Surfaces | 0 | | | |
| Other Non-Asphalt Surfaces | 0 | | | |
| Parking Lot | 0 | | | |
| Strip Mall | 3.15 | | | |
| **Total** | | | | |

**Mitigated**

| | Waste Disposed | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|
| Land Use | tons | MT/yr | | | |
| Other Asphalt Surfaces | 0 | | | | |
| Other Non-Asphalt Surfaces | 0 | | | | |
| Parking Lot | 0 | | | | |
| Strip Mall | 3.15 | | | | |
| **Total** | | | | | |

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# 99 and North 3K Building - Operational

**Fresno County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| Other Asphalt Surfaces | 0.45 | Acre | 0.45 | 19,602.00 | 0 |
| Other Non-Asphalt Surfaces | 0.16 | Acre | 0.16 | 6,969.60 | 0 |
| Parking Lot | 51.00 | Space | 0.46 | 20,400.00 | 0 |
| Strip Mall | 3.00 | 1000sqft | 0.07 | 3,000.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2025 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Site Plan

Construction Phase -

Off-road Equipment - Operational only

Trips and VMT - Operational only

Vehicle Trips - Used worst-case of FF Rest w drive through. Traffic study and ITE 10th edition. 3 mile service area. Trip % from TIS

Construction Off-road Equipment Mitigation -

Area Mitigation -

Water Mitigation -

Fleet Mix - Revised fleet mix based on truck trips

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblFleetMix | HHD | 0.13 | 4.0000e-004 |
| tblFleetMix | LDA | 0.51 | 0.62 |
| tblFleetMix | LDT1 | 0.03 | 0.04 |
| tblFleetMix | LDT2 | 0.17 | 0.21 |
| tblFleetMix | LHD2 | 3.9290e-003 | 2.6700e-004 |
| tblFleetMix | MHD | 0.03 | 1.2010e-003 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblTripsAndVMT | WorkerTripNumber | 4.00 | 0.00 |
| tblVehicleTrips | CC_TL | 7.30 | 3.00 |
| tblVehicleTrips | DV_TP | 40.00 | 11.00 |
| tblVehicleTrips | PB_TP | 15.00 | 25.00 |
| tblVehicleTrips | PR_TP | 45.00 | 64.00 |
| tblVehicleTrips | ST_TR | 42.04 | 616.12 |
| tblVehicleTrips | SU_TR | 20.43 | 472.58 |
| tblVehicleTrips | WD_TR | 44.32 | 470.95 |

## 2.0 Emissions Summary

### 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.0982 | 5.0000e-005 | 5.5600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| Energy | 9.5000e-004 | 8.6200e-003 | 7.2400e-003 | 5.0000e-005 | | 6.6000e-004 | 6.6000e-004 | | 6.6000e-004 | 6.6000e-004 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mobile | 1.6592 | 2.1734 | 14.9472 | 0.0385 | 4.6543 | 0.0353 | 4.6896 | 1.2386 | 0.0327 | 1.2713 | | | | | | |
| **Total** | **1.7583** | **2.1820** | **14.9600** | **0.0386** | **4.6543** | **0.0359** | **4.6903** | **1.2386** | **0.0333** | **1.2720** | | | | | | |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 0.0981 | 5.0000e-005 | 5.4900e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| Energy | 9.5000e-004 | 8.6200e-003 | 7.2400e-003 | 5.0000e-005 | | 6.6000e-004 | 6.6000e-004 | | 6.6000e-004 | 6.6000e-004 | | | | | | |
| Mobile | 1.6592 | 2.1734 | 14.9472 | 0.0385 | 4.6543 | 0.0353 | 4.6896 | 1.2386 | 0.0327 | 1.2713 | | | | | | |
| **Total** | **1.7583** | **2.1820** | **14.9599** | **0.0386** | **4.6543** | **0.0359** | **4.6903** | **1.2386** | **0.0333** | **1.2720** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 1.6592 | 2.1734 | 14.9472 | 0.0385 | 4.6543 | 0.0353 | 4.6896 | 1.2386 | 0.0327 | 1.2713 | | | | | | |
| Unmitigated | 1.6592 | 2.1734 | 14.9472 | 0.0385 | 4.6543 | 0.0353 | 4.6896 | 1.2386 | 0.0327 | 1.2713 | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| Other Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Other Non-Asphalt Surfaces | 0.00 | 0.00 | 0.00 | | |
| Parking Lot | 0.00 | 0.00 | 0.00 | | |
| Strip Mall | 1,412.85 | 1,848.36 | 1417.74 | 1,768,971 | 1,768,971 |
| Total | 1,412.85 | 1,848.36 | 1,417.74 | 1,768,971 | 1,768,971 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C- | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| Other Asphalt Surfaces | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Other Non-Asphalt Surfaces | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Parking Lot | 9.50 | 7.30 | 7.30 | 0.00 | 0.00 | 0.00 | 0 | 0 | 0 |
| Strip Mall | 9.50 | 3.00 | 7.30 | 16.60 | 64.40 | 19.00 | 64 | 11 | 25 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Other Asphalt Surfaces | 0.505528 | 0.029619 | 0.172275 | 0.104063 | 0.012782 | 0.003929 | 0.033727 | 0.128026 | 0.002328 | 0.001354 | 0.004810 | 0.001048 | 0.000512 |
| Other Non-Asphalt Surfaces | 0.505528 | 0.029619 | 0.172275 | 0.104063 | 0.012782 | 0.003929 | 0.033727 | 0.128026 | 0.002328 | 0.001354 | 0.004810 | 0.001048 | 0.000512 |
| Parking Lot | 0.505528 | 0.029619 | 0.172275 | 0.104063 | 0.012782 | 0.003929 | 0.033727 | 0.128026 | 0.002328 | 0.001354 | 0.004810 | 0.001048 | 0.000512 |
| Strip Mall | 0.622590 | 0.036478 | 0.212168 | 0.104063 | 0.012782 | 0.000267 | 0.001201 | 0.000400 | 0.002328 | 0.001354 | 0.004810 | 0.001048 | 0.000512 |

# 5.0 Energy Detail

Historical Energy Use: N

## 5.1 Mitigation Measures Energy

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| Category | lb/day | | | | | | | | | | lb/day | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NaturalGas Mitigated | 9.5000e-004 | 8.6200e-003 | 7.2400e-003 | 5.0000e-005 | | 6.6000e-004 | 6.6000e-004 | | 6.6000e-004 | 6.6000e-004 | | | | | | |
| NaturalGas Unmitigated | 9.5000e-004 | 8.6200e-003 | 7.2400e-003 | 5.0000e-005 | | 6.6000e-004 | 6.6000e-004 | | 6.6000e-004 | 6.6000e-004 | | | | | | |

## 5.2 Energy by Land Use - NaturalGas

### Unmitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Other Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Strip Mall | 87.9452 | 9.5000e-004 | 8.6200e-003 | 7.2400e-003 | 5.0000e-005 | | 6.6000e-004 | 6.6000e-004 | | 6.6000e-004 | 6.6000e-004 | | | | | | |
| **Total** | | **9.5000e-004** | **8.6200e-003** | **7.2400e-003** | **5.0000e-005** | | **6.6000e-004** | **6.6000e-004** | | **6.6000e-004** | **6.6000e-004** | | | | | | |

### Mitigated

| | NaturalGas Use | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Land Use | kBTU/yr | lb/day | | | | | | | | | | lb/day | | | | | |
| Other Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Other Non-Asphalt Surfaces | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Parking Lot | 0 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Strip Mall | 0.0879452 | 9.5000e-004 | 8.6200e-003 | 7.2400e-003 | 5.0000e-005 | | 6.6000e-004 | 6.6000e-004 | | 6.6000e-004 | 6.6000e-004 | | | | | | |
| **Total** | | **9.5000e-004** | **8.6200e-003** | **7.2400e-003** | **5.0000e-005** | | **6.6000e-004** | **6.6000e-004** | | **6.6000e-004** | **6.6000e-004** | | | | | | |

# 6.0 Area Detail

## 6.1 Mitigation Measures Area

Use Electric Lawnmower

Use Electric Leafblower

Use Electric Chainsaw

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0981 | 5.0000e-005 | 5.4900e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| Unmitigated | 0.0982 | 5.0000e-005 | 5.5600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |

## 6.2 Area by SubCategory

**Unmitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.0168 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0808 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Landscaping | 5.1000e-004 | 5.0000e-005 | 5.5600e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| **Total** | **0.0982** | **5.0000e-005** | **5.5600e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | | | | | |

**Mitigated**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SubCategory | lb/day | | | | | | | | | | lb/day | | | | | |
| Architectural Coating | 0.0168 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Consumer Products | 0.0808 | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Landscaping | 5.0000e-004 | 5.0000e-005 | 5.4900e-003 | 0.0000 | | 2.0000e-005 | 2.0000e-005 | | 2.0000e-005 | 2.0000e-005 | | | | | | |
| **Total** | **0.0981** | **5.0000e-005** | **5.4900e-003** | **0.0000** | | **2.0000e-005** | **2.0000e-005** | | **2.0000e-005** | **2.0000e-005** | | | | | | |

## 7.0 Water Detail

### 7.1 Mitigation Measures Water

Apply Water Conservation Strategy

## 8.0 Waste Detail

### 8.1 Mitigation Measures Waste

## 9.0 Operational Offroad

| Equipment Type | Number | Hours/Day | Days/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

## 10.0 Stationary Equipment

**Fire Pumps and Emergency Generators**

| Equipment Type | Number | Hours/Day | Hours/Year | Horse Power | Load Factor | Fuel Type |
|---|---|---|---|---|---|---|

**Boilers**

| Equipment Type | Number | Heat Input/Day | Heat Input/Year | Boiler Rating | Fuel Type |
|---|---|---|---|---|---|

**User Defined Equipment**

| Equipment Type | Number |
|---|---|

## 11.0 Vegetation

# 99 and North - HHD for Refuse collection

**Fresno County, Annual**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| User Defined Industrial | 1.00 | User Defined Unit | 0.00 | 0.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - HHD trucks from refuse only

Construction Phase -

Off-road Equipment - Ops only

Trips and VMT - Ops only

Vehicle Trips - 20 mile trip length. 52 weeks x 4 service trips per week x 2 (roundtrip) = 416 trips divided by 260 days = 1.6 trip rate

Fleet Mix - All HHD

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblFleetMix | HHD | 0.12 | 1.00 |
| tblFleetMix | LDA | 0.48 | 0.00 |

| | | | |
|---|---|---|---|
| tblFleetMix | LDT1 | 0.03 | 0.00 |
| tblFleetMix | LDT2 | 0.17 | 0.00 |
| tblFleetMix | LHD1 | 0.02 | 0.00 |
| tblFleetMix | LHD2 | 4.9970e-003 | 0.00 |
| tblFleetMix | MCY | 5.2610e-003 | 0.00 |
| tblFleetMix | MDV | 0.13 | 0.00 |
| tblFleetMix | MH | 6.6700e-004 | 0.00 |
| tblFleetMix | MHD | 0.03 | 0.00 |
| tblFleetMix | OBUS | 2.3690e-003 | 0.00 |
| tblFleetMix | SBUS | 1.1150e-003 | 0.00 |
| tblFleetMix | UBUS | 1.6750e-003 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblVehicleTrips | CC_TL | 7.30 | 20.00 |
| tblVehicleTrips | CC_TTP | 0.00 | 100.00 |
| tblVehicleTrips | CNW_TL | 7.30 | 0.00 |
| tblVehicleTrips | CW_TL | 9.50 | 0.00 |
| tblVehicleTrips | PR_TP | 0.00 | 100.00 |
| tblVehicleTrips | WD_TR | 0.00 | 1.60 |

## 2.0 Emissions Summary

### 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0000 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Mobile | 1.6500e-003 | 0.0583 | 7.8300e-003 | 1.7000e-004 | 3.5500e-003 | 2.0000e-004 | 3.7500e-003 | 9.8000e-004 | 1.9000e-004 | 1.1700e-003 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **1.6500e-003** | **0.0583** | **7.8400e-003** | **1.7000e-004** | **3.5500e-003** | **2.0000e-004** | **3.7500e-003** | **9.8000e-004** | **1.9000e-004** | **1.1700e-003** | | | | | | |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |
| Area | 0.0000 | 0.0000 | 1.0000e-005 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Mobile | 1.6500e-003 | 0.0583 | 7.8300e-003 | 1.7000e-004 | 3.5500e-003 | 2.0000e-004 | 3.7500e-003 | 9.8000e-004 | 1.9000e-004 | 1.1700e-003 | | | | | | |
| Waste | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Water | | | | | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| **Total** | **1.6500e-003** | **0.0583** | **7.8400e-003** | **1.7000e-004** | **3.5500e-003** | **2.0000e-004** | **3.7500e-003** | **9.8000e-004** | **1.9000e-004** | **1.1700e-003** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | tons/yr | | | | | | | | | | MT/yr | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mitigated | 1.6500e-003 | 0.0583 | 7.8300e-003 | 1.7000e-004 | 3.5500e-003 | 2.0000e-004 | 3.7500e-003 | 9.8000e-004 | 1.9000e-004 | 1.1700e-003 | | | | | | |
| Unmitigated | 1.6500e-003 | 0.0583 | 7.8300e-003 | 1.7000e-004 | 3.5500e-003 | 2.0000e-004 | 3.7500e-003 | 9.8000e-004 | 1.9000e-004 | 1.1700e-003 | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| User Defined Industrial | 1.60 | 0.00 | 0.00 | 8,320 | 8,320 |
| Total | 1.60 | 0.00 | 0.00 | 8,320 | 8,320 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C- | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| User Defined Industrial | 0.00 | 20.00 | 0.00 | 0.00 | 100.00 | 0.00 | 100 | 0 | 0 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| User Defined Industrial | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 1.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

# 99 and North - HHD for Refuse collection

**Fresno County, Winter**

## 1.0 Project Characteristics

### 1.1 Land Usage

| Land Uses | Size | Metric | Lot Acreage | Floor Surface Area | Population |
|---|---|---|---|---|---|
| User Defined Industrial | 1.00 | User Defined Unit | 0.00 | 0.00 | 0 |

### 1.2 Other Project Characteristics

| | | | | | |
|---|---|---|---|---|---|
| **Urbanization** | Urban | **Wind Speed (m/s)** | 2.2 | **Precipitation Freq (Days)** | 45 |
| **Climate Zone** | 3 | | | **Operational Year** | 2020 |
| **Utility Company** | Pacific Gas & Electric Company | | | | |
| **CO2 Intensity (lb/MWhr)** | 641.35 | **CH4 Intensity (lb/MWhr)** | 0.029 | **N2O Intensity (lb/MWhr)** | 0.006 |

### 1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - HHD trucks from refuse only

Construction Phase -

Off-road Equipment - Ops only

Trips and VMT - Ops only

Vehicle Trips - 20 mile trip length. 52 weeks x 4 service trips per week x 2 (roundtrip) = 416 trips divided by 260 days = 1.6 trip rate

Fleet Mix - All HHD

| Table Name | Column Name | Default Value | New Value |
|---|---|---|---|
| tblFleetMix | HHD | 0.12 | 1.00 |
| tblFleetMix | LDA | 0.48 | 0.00 |

| | | | |
|---|---|---|---|
| tblFleetMix | LDT1 | 0.03 | 0.00 |
| tblFleetMix | LDT2 | 0.17 | 0.00 |
| tblFleetMix | LHD1 | 0.02 | 0.00 |
| tblFleetMix | LHD2 | 4.9970e-003 | 0.00 |
| tblFleetMix | MCY | 5.2610e-003 | 0.00 |
| tblFleetMix | MDV | 0.13 | 0.00 |
| tblFleetMix | MH | 6.6700e-004 | 0.00 |
| tblFleetMix | MHD | 0.03 | 0.00 |
| tblFleetMix | OBUS | 2.3690e-003 | 0.00 |
| tblFleetMix | SBUS | 1.1150e-003 | 0.00 |
| tblFleetMix | UBUS | 1.6750e-003 | 0.00 |
| tblOffRoadEquipment | OffRoadEquipmentUnitAmount | 1.00 | 0.00 |
| tblVehicleTrips | CC_TL | 7.30 | 20.00 |
| tblVehicleTrips | CC_TTP | 0.00 | 100.00 |
| tblVehicleTrips | CNW_TL | 7.30 | 0.00 |
| tblVehicleTrips | CW_TL | 9.50 | 0.00 |
| tblVehicleTrips | PR_TP | 0.00 | 100.00 |
| tblVehicleTrips | WD_TR | 0.00 | 1.60 |

## 2.0 Emissions Summary

### 2.2 Overall Operational

**Unmitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 1.0000e-005 | 0.0000 | 1.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Mobile | 0.0130 | 0.4505 | 0.0647 | 1.2600e-003 | 0.0280 | 1.5600e-003 | 0.0295 | 7.6700e-003 | 1.4900e-003 | 9.1600e-003 | | | | | | |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total** | **0.0130** | **0.4505** | **0.0648** | **1.2600e-003** | **0.0280** | **1.5600e-003** | **0.0295** | **7.6700e-003** | **1.4900e-003** | **9.1600e-003** | | | | | | |

**Mitigated Operational**

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Area | 1.0000e-005 | 0.0000 | 1.0000e-004 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Energy | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | 0.0000 | 0.0000 | | | | | | |
| Mobile | 0.0130 | 0.4505 | 0.0647 | 1.2600e-003 | 0.0280 | 1.5600e-003 | 0.0295 | 7.6700e-003 | 1.4900e-003 | 9.1600e-003 | | | | | | |
| **Total** | **0.0130** | **0.4505** | **0.0648** | **1.2600e-003** | **0.0280** | **1.5600e-003** | **0.0295** | **7.6700e-003** | **1.4900e-003** | **9.1600e-003** | | | | | | |

| | **ROG** | **NOx** | **CO** | **SO2** | **Fugitive PM10** | **Exhaust PM10** | **PM10 Total** | **Fugitive PM2.5** | **Exhaust PM2.5** | **PM2.5 Total** | **Bio- CO2** | **NBio-CO2** | **Total CO2** | **CH4** | **N20** | **CO2e** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Percent Reduction** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** | **0.00** |

# 4.0 Operational Detail - Mobile

## 4.1 Mitigation Measures Mobile

| | ROG | NOx | CO | SO2 | Fugitive PM10 | Exhaust PM10 | PM10 Total | Fugitive PM2.5 | Exhaust PM2.5 | PM2.5 Total | Bio- CO2 | NBio- CO2 | Total CO2 | CH4 | N2O | CO2e |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Category | lb/day | | | | | | | | | | lb/day | | | | | |
| Mitigated | 0.0130 | 0.4505 | 0.0647 | 1.2600e-003 | 0.0280 | 1.5600e-003 | 0.0295 | 7.6700e-003 | 1.4900e-003 | 9.1600e-003 | | | | | | |
| Unmitigated | 0.0130 | 0.4505 | 0.0647 | 1.2600e-003 | 0.0280 | 1.5600e-003 | 0.0295 | 7.6700e-003 | 1.4900e-003 | 9.1600e-003 | | | | | | |

## 4.2 Trip Summary Information

| | Average Daily Trip Rate | | | Unmitigated | Mitigated |
|---|---|---|---|---|---|
| Land Use | Weekday | Saturday | Sunday | Annual VMT | Annual VMT |
| User Defined Industrial | 1.60 | 0.00 | 0.00 | 8,320 | 8,320 |
| Total | 1.60 | 0.00 | 0.00 | 8,320 | 8,320 |

## 4.3 Trip Type Information

| | Miles | | | Trip % | | | Trip Purpose % | | |
|---|---|---|---|---|---|---|---|---|---|
| Land Use | H-W or C-W | H-S or C-C | H-O or C-NW | H-W or C- | H-S or C-C | H-O or C-NW | Primary | Diverted | Pass-by |
| User Defined Industrial | 0.00 | 20.00 | 0.00 | 0.00 | 100.00 | 0.00 | 100 | 0 | 0 |

## 4.4 Fleet Mix

| Land Use | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| User Defined Industrial | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 1.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |

# REVISED FLEET MIXES

# 7-11 Project Fleet Mix

**Land Use Assumptions**

| LandUseType | SubType | Unit Amount | Size Metric |
|---|---|---|---|
| Recreational | Conv. Mkt w/ gas pumps | 12 | pumps |

**Project Trip Generation**

| VehicleTripsLandUse SubType | SizeMetric | WD_TR | ST_TR | SU_TR | Daily Avg | Pumps | Trip Gen | LHD2 Frac | LHD Trips | MHD Frac | MHD Trips | HHD Frac | HHD Trips | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fast Food Restaurant | 1000sqft | 205.36 | 204.47 | 166.88 | 199.74 | 12 | 2396.828571 | 0.004997 | 11.9770 | 0.032622 | 78.2 | 0.122881 | 294.5 | |
| Total Trips | | | | | | | 2396.828571 | | 11.9770 | | 78.2 | | 294.5 | |
| 7-11 Estimated Trips by Vehicle Type | | | | | | | | | 0.0000 | | 2.0 | | 2.0 | |
| Adjusted Fleet Mix for Trucks | | | | | | | | | 0.0000 | | 0.000834 | | 0.000834 | 0.001669 |
| Default Fleet Mix | | | | | | | | | 0.0050 | | 0.032622 | | 0.122881 | 0.160500 |
| Difference to be allocated | | | | | | | | | 0.004997 | | 0.031788 | | 0.122047 | 0.158831 |

| | LDA | LDT1 | LDT2 | Total |
|---|---|---|---|---|
| Default Light Duty Fleet Mix | 0.481390 | 0.032808 | 0.168621 | 0.682819 |
| Revised Light Duty Fleet Mix | 0.593367 | 0.040439 | 0.207844 | 0.841650 |
| | | | | 0.158831 |

**Default Fleet Mix**

| | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Default Fleet Mix | **0.481390** | **0.032808** | **0.168621** | 0.127212 | 0.018382 | **0.004997** | **0.032622** | **0.122881** | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000670 | 1.000 |
| Revised Fleet Mix | **0.593367** | **0.040439** | **0.207844** | 0.127212 | 0.018382 | **0.000000** | **0.000834** | **0.000834** | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000670 | 1.000 |

**Lifestyle Center Restaurant Truck Trips**

| Store | sq Ft | # of Deliveries per Week | Semi (large) | MHD (Medium) | LHD Van/Car (small) |
|---|---|---|---|---|---|
| Seven Eleven Store | 12 | 7 | 7 | 7 | |
| Totals | 12 | 7 | 7 | 7 | 0 |
| Deliveries per day | | 1.00 | 1.00 | 1.00 | 0.00 |
| RT Trips/Day | | 2.00 | 2.00 | 2.00 | 0.00 |
| Trips/pump | 12 | 0.17 | 0.17 | 0.17 | 0.00 |
| Truck Fleet Fraction | 199.74 | 0.0008 | 0.0008 | 0.0008 | 0.0000 |

# Panda Express Restaurant Project Fleet Mix

**Land Use Assumptions**

| LandUseType | SubType | Unit Amount | Size Metric |
|---|---|---|---|
| Recreational | Fast Food Restaurant w Drive Thru | 2.227 | 1000sqft |

**Project Trip Generation**

| VehicleTripsLandUse SubType | SizeMetric | WD_TR | ST_TR | SU_TR | Daily Avg | LU SF x1,000 | Trip Gen | LHD2 Frac | LHD Trips | MHD Frac | MHD Trips | HHD Frac | HHD Trips | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fast Food Restaurant | 1000sqft | 346.23 | 722.03 | 542.72 | 427.99 | 2.227 | 953.1241857 | 0.004997 | 4.7628 | 0.032622 | 31.1 | 0.122881 | 117.1 | |
| Total Trips | | | | | | | 953.1241857 | | 4.7628 | | 31.1 | | 117.1 | |
| Panda Express Estimated Trips by Vehicle Type | | | | | | | | | 0.1636 | | 0.9 | | 0.2 | |
| Adjusted Fleet Mix for Trucks | | | | | | | | | 0.0002 | | 0.000944 | | 0.000257 | 0.001373 |
| 2020 Default Fleet Mix | | | | | | | | | 0.0050 | | 0.032622 | | 0.122881 | 0.160500 |
| Difference to be allocated | | | | | | | | | 0.004825 | | 0.031678 | | 0.122624 | 0.159127 |

| | LDA | LDT1 | LDT2 | Total |
|---|---|---|---|---|
| 2020 Default Light Duty Fleet Mix | 0.481390 | 0.032808 | 0.168621 | 0.682819 |
| Revised Light Duty Fleet Mix | 0.593575 | 0.040454 | 0.207917 | 0.841946 |
| | | | | 0.159127 |

**2020 Default Fleet Mix**

| | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2020 Default Fleet Mix | **0.481390** | **0.032808** | **0.168621** | 0.127212 | 0.018382 | **0.004997** | **0.032622** | **0.122881** | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000670 | 1.000 |
| Revised Fleet Mix | **0.593575** | **0.040454** | **0.207917** | 0.127212 | 0.018382 | **0.000172** | **0.000944** | **0.000257** | 0.002369 | 0.001675 | 0.005261 | 0.001115 | 0.000670 | 1.000 |

**Lifestyle Center Restaurant Truck Trips**

| Store | sq Ft | # of Deliveries per Week | Semi (large) | MHD (Medium) | LHD Van/Car (small) |
|---|---|---|---|---|---|
| Five Guys Burgers & Fries | 2400 | 7 | 2 | 5 | |
| Panera Bread | 4205 | 5 | 1 | 4 | 1 |
| Subway | 1175 | 3 | | 2 | 1 |
| Totals | 7780 | 15 | 3 | 11 | 2 |
| Deliveries per day | | 2.14 | 0.43 | 1.57 | 0.29 |
| RT Trips/Day | | 4.29 | 0.86 | 3.14 | 0.57 |
| Trips/1,000 sf | 7.78 | 0.55 | 0.11 | 0.40 | 0.07 |
| Truck Fleet Fraction | 427.99 | 0.0013 | 0.0003 | 0.0009 | 0.0002 |

Riverpark Lifestyle Center, Fresno, CA
Survey of shop managers 2/6/2013

# Fast Food Restaurant Project Fleet Mix

**Land Use Assumptions**

| LandUseType | SubType | Unit Amount | Size Metric |
|---|---|---|---|
| Recreational | Fast Food Restaurant w Drive Thru | 3 | 1000sqft |

**Project Trip Generation**

| VehicleTripsLandUse SubType | SizeMetric | WD_TR | ST_TR | SU_TR | Daily Avg | LU SF x1,000 | Trip Gen | LHD2 Frac | LHD Trips | MHD Frac | MHD Trips | HHD Frac | HHD Trips | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fast Food Restaurant | 1000sqft | 346.23 | 722.03 | 542.72 | 427.99 | 3 | 1283.957143 | 0.003929 | 5.0447 | 0.033727 | 43.3 | 0.128026 | 164.4 | |
| Total Trips | | | | | | | 1283.957143 | | 5.0447 | | 43.3 | | 164.4 | |
| Fast Food Restaurant Estimated Trips by Vehicle Type | | | | | | | | | 0.3427 | | 1.5 | | 0.5 | |
| Adjusted Fleet Mix for Trucks | | | | | | | | | 0.0003 | | 0.001201 | | 0.000400 | 0.001869 |
| 2025 Default Fleet Mix | | | | | | | | | 0.0039 | | 0.033727 | | 0.128026 | 0.165682 |
| Difference to be allocated | | | | | | | | | 0.003662 | | 0.032526 | | 0.127626 | 0.163813 |

| | LDA | LDT1 | LDT2 | Total |
|---|---|---|---|---|
| 2025 Default Light Duty Fleet Mix | 0.505528 | 0.029619 | 0.172275 | 0.707422 |
| Revised Light Duty Fleet Mix | 0.622590 | 0.036478 | 0.212168 | 0.871235 |
| | | | | 0.163813 |

**2025 Default Fleet Mix**

| | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2025 Default Fleet Mix | **0.505528** | **0.029619** | **0.172275** | 0.104063 | 0.012782 | **0.003929** | **0.033727** | **0.128026** | 0.002328 | 0.001354 | 0.004810 | 0.001048 | 0.000512 | 1.000 |
| Revised Fleet Mix | **0.622590** | **0.036478** | **0.212168** | 0.104063 | 0.012782 | **0.000267** | **0.001201** | **0.000400** | 0.002328 | 0.001354 | 0.004810 | 0.001048 | 0.000512 | 1.000 |

**Lifestyle Center Restaurant Truck Trips**

| Store | sq Ft | # of Deliveries per Week | Semi (large) | MHD (Medium) | LHD Van/Car (small) |
|---|---|---|---|---|---|
| Five Guys Burgers & Fries | 2400 | 7 | 2 | 5 | |
| Starbucks I | 1500 | 7 | | 7 | |
| Starbucks II | 2025 | 9 | | 7 | 2 |
| Rubio's Fresh Mexican Grill | 2310 | 7 | 4 | 2 | 1 |
| Yogurtland | 1390 | 3 | 2 | | 1 |
| Panera Bread | 4205 | 5 | 1 | 4 | 1 |
| Subway | 1175 | 3 | | 2 | 1 |
| Totals | 15005 | 41 | 9 | 27 | 6 |
| Deliveries per day | | 5.86 | 1.29 | 3.86 | 0.86 |
| RT Trips/Day | | 11.71 | 2.57 | 7.71 | 1.71 |
| Trips/1,000 sf | 15.005 | 0.78 | 0.17 | 0.51 | 0.11 |

| | | | | | |
|---|---|---|---|---|---|
| Truck Fleet Fraction | 427.99 | 0.0018 | 0.0004 | 0.0012 | 0.0003 |

Riverpark Lifestyle Center, Fresno, CA
Survey of shop managers 2/6/2013

# Fast Food Restaurant Project Fleet Mix

**Land Use Assumptions**

| LandUseType | SubType | Unit Amount | Size Metric |
|---|---|---|---|
| Recreational | Fast Food Restaurant w Drive Thru | 5 | 1000sqft |

**Project Trip Generation**

| VehicleTripsLandUse SubType | SizeMetric | WD_TR | ST_TR | SU_TR | Daily Avg | LU SF x1,000 | Trip Gen | LHD2 Frac | LHD Trips | MHD Frac | MHD Trips | HHD Frac | HHD Trips | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Fast Food Restaurant | 1000sqft | 346.23 | 722.03 | 542.72 | 427.99 | 5 | 2139.928571 | 0.004502 | 9.6340 | 0.033398 | 71.5 | 0.126328 | 270.3 | |
| Total Trips | | | | | | | 2139.928571 | | 9.6340 | | 71.5 | | 270.3 | |
| | | | | | | | | | | | | | | |
| Panda Express Estimated Trips by Vehicle Type | | | | | | | | | 0.5712 | | 2.6 | | 0.9 | |
| Adjusted Fleet Mix for Trucks | | | | | | | | | 0.0003 | | 0.001201 | | 0.000400 | 0.001869 |
| Default Fleet Mix | | | | | | | | | 0.0045 | | 0.033398 | | 0.126328 | 0.164228 |
| Difference to be allocated | | | | | | | | | 0.004235 | | 0.032197 | | 0.125928 | 0.162359 |

| | LDA | LDT1 | LDT2 | Total |
|---|---|---|---|---|
| 2022 Default Light Duty Fleet Mix | 0.492212 | 0.031147 | 0.16982 | 0.693179 |
| Revised Light Duty Fleet Mix | 0.607500 | 0.038442 | 0.209596 | 0.855538 |
| | | | | 0.162359 |

**2022 Default Fleet Mix**

| | LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2022 Default Fleet Mix | **0.492212** | **0.031147** | **0.169820** | 0.116157 | 0.015815 | **0.004502** | **0.033398** | **0.126328** | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 | 1.000 |
| Revised Fleet Mix | **0.607500** | **0.038442** | **0.209596** | 0.116157 | 0.015815 | **0.000267** | **0.001201** | **0.000400** | 0.002363 | 0.001519 | 0.005062 | 0.001083 | 0.000594 | 1.000 |

**Lifestyle Center Restaurant Truck Trips**

| Store | sq Ft | # of Deliveries per Week | Semi (large) | MHD (Medium) | LHD Van/Car (small) |
|---|---|---|---|---|---|
| Five Guys Burgers & Fries | 2400 | 7 | 2 | 5 | |
| Starbucks I | 1500 | 7 | | 7 | |
| Starbucks II | 2025 | 9 | | 7 | 2 |
| Rubio's Fresh Mexican Grill | 2310 | 7 | 4 | 2 | 1 |
| Yogurtland | 1390 | 3 | 2 | | 1 |
| Panera Bread | 4205 | 5 | 1 | 4 | 1 |
| Subway | 1175 | 3 | | 2 | 1 |
| Totals | 15005 | 41 | 9 | 27 | 6 |
| Deliveries per day | | 5.86 | 1.29 | 3.86 | 0.86 |
| RT Trips/Day | | 11.71 | 2.57 | 7.71 | 1.71 |
| Trips/1,000 sf | 15.005 | 0.78 | 0.17 | 0.51 | 0.11 |
| Truck Fleet Fraction | 427.99 | 0.0018 | 0.0004 | 0.0012 | 0.0003 |

Riverpark Lifestyle Center, Fresno, CA
Survey of shop managers 2/6/2013

# DISTRICT PRIORITIZATION

## Health Risk Screening Analysis

| Name | Prioritization Calculator | | |
|---|---|---|---|
| Applicability | Use to provide a Prioritization score based on the emission potency method. Entries required in yellow areas, output in grey areas. | | |
| *Author or updater* | Matthew Cegielski | *Last Update* | August 20, 2018 |
| **Facility:**<br>**ID#:**<br>**Project #:**<br>**Unit and Process#** | Convenience Market with Gas Station | | |

| **Operating Hours hr/yr** | 8,760.00 | | | |
|---|---|---|---|---|
| Receptor Proximity and Proximity Factors | **Cancer Score** | **Chronic Score** | **Acute Score** | **Max Score** |
| **0< R<100 1.000** | 1.30E+00 | 2.94E-02 | 2.58E-01 | 1.30E+00 |
| **100≤R<250 0.250** | 3.24E-01 | 7.36E-03 | 6.44E-02 | 3.24E-01 |
| **250≤R<500 0.040** | 5.18E-02 | 1.18E-03 | 1.03E-02 | 5.18E-02 |
| **500≤R<1000 0.011** | 1.43E-02 | 3.24E-04 | 2.83E-03 | 1.43E-02 |
| **1000≤R<1500 0.003** | 3.89E-03 | 8.83E-05 | 7.73E-04 | 3.89E-03 |
| **1500≤R<2000 0.002** | 2.59E-03 | 5.88E-05 | 5.15E-04 | 2.59E-03 |
| **2000<R 0.001** | 1.30E-03 | 2.94E-05 | 2.58E-04 | 1.30E-03 |

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

**Convenience Market with Gas Station**

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

| **Substance** | **CAS#** | **Annual Emissions (lbs/yr)** | **Maximum Hourly (lbs/hr)** | **Average Hourly (lbs/hr)** | **Cancer** | **Chronic** | **Acute** |
|---|---|---|---|---|---|---|---|
| **Benzene** | **71432** | 3.99E+00 | 4.55E-03 | 4.55E-04 | 8.90E-01 | 2.28E-02 | 2.53E-01 |
| **Toluene** | **108883** | 1.06E+02 | 1.21E-01 | 1.21E-02 | 0.00E+00 | 6.07E-03 | 4.92E-03 |
| **Xylene** | **1330207** | 3.19E+01 | 3.00E-03 | 3.64E-03 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| **Diesel engine exhaust, particulate matter (Diesel PM)** | **9901** | 1.76E-01 | 5.00E-03 | 2.00E-05 | 4.06E-01 | 6.01E-04 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | **Totals** | **1.30E+00** | **2.94E-02** | **2.58E-01** |

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

| Substance | CAS# Finder |
|---|---|
| Diesel engine exhaust, particulate matter (Diesel PM) | 9901 |

| Unit and Process# | Panda Express |
|---|---|
| Operating Hours hr/yr | 4,380.00 |

| Receptor Proximity and Proximity Factors | | Cancer Score | Chronic Score | Acute Score | Max Score |
|---|---|---|---|---|---|
| 0< R<100 | 1.000 | 4.06E-01 | 1.20E-03 | 0.00E+00 | 4.06E-01 |
| 100≤R<250 | 0.250 | 1.01E-01 | 3.01E-04 | 0.00E+00 | 1.01E-01 |
| 250≤R<500 | 0.040 | 1.62E-02 | 4.81E-05 | 0.00E+00 | 1.62E-02 |
| 500≤R<1000 | 0.011 | 4.46E-03 | 1.32E-05 | 0.00E+00 | 4.46E-03 |
| 1000≤R<1500 | 0.003 | 1.22E-03 | 3.61E-06 | 0.00E+00 | 1.22E-03 |
| 1500≤R<2000 | 0.002 | 8.11E-04 | 2.41E-06 | 0.00E+00 | 8.11E-04 |
| 2000<R | 0.001 | 4.06E-04 | 1.20E-06 | 0.00E+00 | 4.06E-04 |

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

| Panda Express | | | | | | | |
|---|---|---|---|---|---|---|---|
| Substance | CAS# | Annual Emissions (lbs/yr) | Maximum Hourly (lbs/hr) | Average Hourly (lbs/hr) | Cancer | Chronic | Acute |
| PAHs | 1151 | 2.55E-03 | 1.27E-03 | 5.82E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Napthalene | 91203 | 1.50E-01 | 7.58E-02 | 3.42E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Diesel engine exhaust, particulate matter (Diesel PM) | 9901 | 1.76E-01 | 5.00E-03 | 4.01E-05 | 4.06E-01 | 1.20E-03 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | Totals | 4.06E-01 | 1.20E-03 | 0.00E+00 |

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

| Substance | CAS# Finder |
|---|---|
| Zinc | 7440666 |

| Unit and Process# | Unknown Restaurant 1 |
|---|---|
| Operating Hours hr/yr | 4,380.00 |

| Receptor Proximity and Proximity Factors | | Cancer Score | Chronic Score | Acute Score | Max Score |
|---|---|---|---|---|---|
| 0< R<100 | 1.000 | 4.06E-01 | 1.20E-03 | 0.00E+00 | 4.06E-01 |
| 100≤R<250 | 0.250 | 1.01E-01 | 3.01E-04 | 0.00E+00 | 1.01E-01 |
| 250≤R<500 | 0.040 | 1.62E-02 | 4.81E-05 | 0.00E+00 | 1.62E-02 |
| 500≤R<1000 | 0.011 | 4.46E-03 | 1.32E-05 | 0.00E+00 | 4.46E-03 |
| 1000≤R<1500 | 0.003 | 1.22E-03 | 3.61E-06 | 0.00E+00 | 1.22E-03 |
| 1500≤R<2000 | 0.002 | 8.11E-04 | 2.41E-06 | 0.00E+00 | 8.11E-04 |
| 2000<R | 0.001 | 4.06E-04 | 1.20E-06 | 0.00E+00 | 4.06E-04 |

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

| Unknown Restaurant 1 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Substance | CAS# | Annual Emissions (lbs/yr) | Maximum Hourly (lbs/hr) | Average Hourly (lbs/hr) | Cancer | Chronic | Acute |
| PAHs | 1151 | 7.57E-04 | 3.78E-04 | 1.73E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Napthalene | 91203 | 1.70E-01 | 8.50E-02 | 3.88E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Diesel engine exhaust, particulate matter (Diesel PM) | 9901 | 1.76E-01 | 5.00E-03 | 4.01E-05 | 4.06E-01 | 1.20E-03 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | Totals | 4.06E-01 | 1.20E-03 | 0.00E+00 |

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

| Substance | CAS# Finder |
|---|---|
| Hexane | 110543 |

| Unit and Process# | Unknown Restaurant 2 |
|---|---|
| Operating Hours hr/yr | 4,380.00 |

| Receptor Proximity and Proximity Factors | | Cancer Score | Chronic Score | Acute Score | Max Score |
|---|---|---|---|---|---|
| 0< R<100 | 1.000 | 4.06E-01 | 1.20E-03 | 0.00E+00 | 4.06E-01 |
| 100≤R<250 | 0.250 | 1.01E-01 | 3.01E-04 | 0.00E+00 | 1.01E-01 |
| 250≤R<500 | 0.040 | 1.62E-02 | 4.81E-05 | 0.00E+00 | 1.62E-02 |
| 500≤R<1000 | 0.011 | 4.46E-03 | 1.32E-05 | 0.00E+00 | 4.46E-03 |
| 1000≤R<1500 | 0.003 | 1.22E-03 | 3.61E-06 | 0.00E+00 | 1.22E-03 |
| 1500≤R<2000 | 0.002 | 8.11E-04 | 2.41E-06 | 0.00E+00 | 8.11E-04 |
| 2000<R | 0.001 | 4.06E-04 | 1.20E-06 | 0.00E+00 | 4.06E-04 |

Receptor proximity is in meters. Priortization scores are calculated by multiplying the total scores summed below by the proximity factors. Record the Max score for your receptor distance. If the substance list for the unit is longer than the number of rows here or if there are multiple processes use additional worksheets and sum the totals of the Max Scores.

Unknown Restaurant 2

Enter the unit's CAS# of the substances emitted and their amounts.

Prioritzation score for each substance generated below. Totals on last row.

| Substance | CAS# | Annual Emissions (lbs/yr) | Maximum Hourly (lbs/hr) | Average Hourly (lbs/hr) | Cancer | Chronic | Acute |
|---|---|---|---|---|---|---|---|
| PAHs | 1151 | 7.57E-04 | 3.78E-04 | 1.73E-07 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Napthalene | 91203 | 1.70E-01 | 8.50E-02 | 3.88E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Diesel engine exhaust, particulate matter (Diesel PM) | 9901 | 1.76E-01 | 5.00E-03 | 4.01E-05 | 4.06E-01 | 1.20E-03 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | | | | Totals | 4.06E-01 | 1.20E-03 | 0.00E+00 |

Use the substance dropdown list in the CAS# Finder to locate CAS# of substances.

| Substance | CAS# Finder |
|---|---|
| Barium | 7440393 |

| Receptor Proximity and Proximity Factors | | Convenience Market with Gas Station | Panda Express | Unknown Restaurant 1 | Unknown Restaurant 2 | |
|---|---|---|---|---|---|---|
| | | **Max Score** | **Max Score** | **Max Score** | **Max Score** | **Total Max Score** |
| **0< R<100** | **1.000** | 1.30E+00 | 4.06E-01 | 4.06E-01 | 4.06E-01 | 2.51E+00 |
| **100≤R<250** | **0.250** | 3.24E-01 | 1.01E-01 | 1.01E-01 | 1.01E-01 | 6.28E-01 |
| **250≤R<500** | **0.040** | 5.18E-02 | 1.62E-02 | 1.62E-02 | 1.62E-02 | 1.01E-01 |
| **500≤R<1000** | **0.011** | 1.43E-02 | 4.46E-03 | 4.46E-03 | 4.46E-03 | 2.76E-02 |
| **1000≤R<1500** | **0.003** | 3.89E-03 | 1.22E-03 | 1.22E-03 | 1.22E-03 | 7.54E-03 |
| **1500≤R<2000** | **0.002** | 2.59E-03 | 8.11E-04 | 8.11E-04 | 8.11E-04 | 5.03E-03 |
| **2000<R** | **0.001** | 1.30E-03 | 4.06E-04 | 4.06E-04 | 4.06E-04 | 2.51E-03 |

# GASOLINE SPECIATION

| VOC Emissions Calculations | | | Gallons / | Lbs/ Yr | | | |
|---|---|---|---|---|---|---|---|
| Scenario | Type | Description | Year | Loading | Breathing | Refueling | Spillage |
| 1 | Aboveground | No Controls | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | Aboveground | Pahse I Only | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3A | Aboveground | Phase I & II w/o Vent Values (90% Controls Breathing & Refueling) | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3B | Aboveground | Phase I & II w/ Vent Values (90% Controls Breathing & Refueling) | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4 | Underground | No Controls | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5A | Underground | Phase I Only | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5B | Underground | Phase I w/ Vent Values | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6A | Underground | Phase I & II w/o Vent Values (90% Controls Breathing & Refueling) | | 0.00 | 0.00 | 0.00 | 0.00 |
| 6B | Underground | Phase I & II w/ Vent Values (90% Controls Breathing & Refueling) | 1,400,000 | 117.60 | 35.00 | 588.00 | 588.00 |

| Toxic Emissions | | Loading (Lb/Yr) | | | Breathing (Lb/Yr) | | | Refueling (Lb/Yr) | | | Spillage (Lb/Yr) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Scenario | Type | Benzene | Toluene | Xylene | Benzene | Toluene | Xylene | Benzene | Toluene | Xylene | Benzene | Toluene | Xylene |
| 1 | Aboveground | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2 | Aboveground | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3A | Aboveground | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3B | Aboveground | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4 | Underground | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5A | Underground | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5B | Underground | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6A | Underground | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 6B | Underground | 0.3528 | 9.408 | 2.8224 | 0.105 | 2.8 | 0.84 | 1.764 | 47.04 | 14.112 | 1.764 | 47.04 | 14.112 |

# FRESNO METROPOLITAN FLOOD CONTROL DISTRICT
## NOTICE OF REQUIREMENTS

File No. 210.413



**PUBLIC AGENCY**

JARRED OLSEN
DEVELOPMENT SERVICES/PLANNING
CITY OF FRESNO
2600 FRESNO STREET, THIRD FLOOR
FRESNO, CA 93721

**DEVELOPER**

GEORGE GRIM, CENTERLINE DESIGN LLC.
1508 TOLLHOUSE RD., SUITE C
CLOVIS, CA 93611

FR CUP No. 2018-02233

PROJECT NO: **2018-02233**
ADDRESS: **2999 S ORANGE AVE.**
APN: **487-140-32**

SENT: 10/30/18

| Drainage Area(s) | Preliminary Fee(s) | Development Review Service Charge(s) | Fee(s) | |
|---|---|---|---|---|
| AW1 | $0.00 | NOR Review | $128.00 | To be paid prior to release of District comments to Public Agency and Developer. |
| | | Grading Plan Review | $653.00 | Amount to be submitted with first grading plan submittal. |
| | **Total Drainage Fee: $0.00** | **Total Service Charge: $781.00** | | |

The proposed development will generate storm runoff which produces potentially significant environmental impacts and which must be properly discharged and mitigated pursuant to the California Environmental Quality Act and the National Environmental Policy Act. The District in cooperation with the City and County has developed and adopted the Storm Drainage and Flood Control Master Plan. Compliance with and implementation of this Master Plan by this development project will satisfy the drainage related CEQA/NEPA impact of the project mitigation requirements.

Pursuant to the District's Development Review Fee Policy, the subject project shall pay review fees for issuance of this Notice of Requirements (NOR) and any plan submittals requiring the District's reviews. The NOR fee shall be paid to the District by Developer before the Notice of Requirement will be submitted to the City. The Grading Plan fee shall be paid upon first submittal. The Storm Drain Plan fee shall be paid prior to return/pick up of first submittal.

The proposed development shall pay drainage fees pursuant to the Drainage Fee Ordinance prior to issuance of a building permit at the rates in effect at the time of such issuance. The fee indicated above is valid through 2/28/19 based on the site plan submitted to the District on 10/18/18 Contact FMFCD for a revised fee in cases where changes are made in the proposed site plan which materially alter the proposed impervious area.

Considerations which may affect the fee obligation(s) or the timing or form of fee payment:

a.) Fees related to undeveloped or phased portions of the project may be deferrable.

b.) Fees may be calculated based on the actual percentage of runoff if different than that typical for the zone district under which the development is being undertaken and if permanent provisions are made to assure that the site remains in that configuration.

c.) Master Plan storm drainage facilities may be constructed, or required to be constructed in lieu of paying fees.

d.) The actual cost incurred in constructing Master Plan drainage system facilities is credited against the drainage fee obligation.

e.) When the actual costs incurred in constructing Master Plan facilities exceeds the drainage fee obligation, reimbursement will be made for the excess costs from future fees collected by the District from other development.

f.) Any request for a drainage fee refund requires the entitlement cancellation and a written request addressed to the General Manager of the District within 60 days from payment of the fee. A non refundable $300 Administration fee or 5% of the refund whichever is less will be retained without fee credit.

**Approval of this development shall be conditioned upon compliance with these District Requirements.**

1. _X_ **a.** Drainage from the site shall BE DIRECTED TO ORANGE AND/OR NORTH AVENUE.

   ___ **b.** Grading and drainage patterns shall be as identified on Exhibit No.

   ___ **c.** The grading and drainage patterns shown on the site plan conform to the adopted Storm Drainage and Flood Control Master Plan.

2. The proposed development shall construct and/or dedicate Storm Drainage and Flood Control Master Plan facilities located within the development or necessitated by any off-site improvements required by the approving agency:

   ___ Developer shall construct facilities as shown on Exhibit No. 1 as

   _X_ None required.

3. The following final improvement plans and information shall be submitted to the District for review prior to final development approval:

   _X_ Grading Plan

   _X_ Street Plan

   ___ Storm Drain Plan

   ___ Water & Sewer Plan

   ___ Final Map

   ___ Drainage Report (to be submitted with tentative map)

   ___ Other

   ___ None Required

4. Availability of drainage facilities:

   _X_ **a.** Permanent drainage service is available provided the developer can verify to the satisfaction of the City that runoff can be safely conveyed to the Master Plan inlet(s).

   ___ **b.** The construction of facilities required by Paragraph No. 2 hereof will provide permanent drainage service.

   ___ **c.** Permanent drainage service will not be available. The District recommends temporary facilities until permanent service is available.

   ___ **d.** See Exhibit No. 2.

5. The proposed development:

   ___ Appears to be located within a 100 year flood prone area as designated on the latest Flood Insurance Rate Maps available to the District, necessitating appropriate floodplain management action. (See attached Floodplain Policy.)

   _X_ Does not appear to be located within a flood prone area.

6. ___ The subject site contains a portion of a canal or pipeline that is used to manage recharge, storm water, and/or flood flows. The existing capacity must be preserved as part of site development. Additionally, site development may not interfere with the ability to operate and maintain the canal or pipeline.

FR CUP No. 2018-02233

**7.** The Federal Clean Water Act and the State General Permits for Storm Water Discharges Associated with Construction and Industrial Activities (State General Permits) require developers of construction projects disturbing one or more acres, and discharges associated with industrial activity not otherwise exempt from National Pollutant Discharge Elimination System (NPDES) permitting, to implement controls to reduce pollutants, prohibit the discharge of waters other than storm water to the municipal storm drain system, and meet water quality standards. These requirements apply both to pollutants generated during construction, and to those which may be generated by operations at the development after construction.

**a.** State General Permit for Storm Water Discharges Associated with Construction Activities, effective July 1, 2010, as amended. A State General Construction Permit is required for all clearing, grading, and disturbances to the ground that result in soil disturbance of at least one acre (or less than one acre) if part of a larger common plan of development or sale). Permittees are required to: submit a Notice of Intent and Permit Registration Documents to be covered and must pay a permit fee to the State Water Resources Control Board (State Board), develop and implement a storm water pollution prevention plan, eliminate non-storm water discharges, conduct routine site inspections, train employees in permit compliance, and complete an annual certification of compliance.

**b.** State General Permit for Storm Water Discharges Associated with Industrial Activities, April, 2014 (available at the District Office). A State General Industrial Permit is required for specific types of industries described in the NPDES regulations or by Standard Industrial Classification (SIC) code. The following categories of industries are generally required to secure an industrial permit: manufacturing; trucking; recycling; and waste and hazardous waste management. Specific exemptions exist for manufacturing activities which occur entirely indoors. Permittees are required to: submit a Notice of Intent to be covered and must pay a permit fee to the State Water Resources Control Board, develop and implement a storm water pollution prevention plan, eliminate non-storm water discharges, conduct routine site inspections, train employees in permit compliance, sample storm water runoff and test it for pollutant indicators, and annually submit a report to the State Board.

**c.** The proposed development is encouraged to select and implement storm water quality controls recommended in the Fresno-Clovis Storm Water Quality Management Construction and Post-Construction Guidelines (available at the District Office) to meet the requirements of the State General Permits, eliminate the potential for non-storm water to enter the municipal storm drain system, and where possible minimize contact with materials which may contaminate storm water runoff.

**8.** A requirement of the District may be appealed by filing a written notice of appeal with the Secretary of the District within ten days of the date of this Notice of Requirements.

**9.** The District reserves the right to modify, reduce or add to these requirements, or revise fees, as necessary to accommodate changes made in the proposed development by the developer or requirements made by other agencies.

**10.** X See Exhibit No. 2 for additional comments, recommendations and requirements.

FOR

Debbie Campbell
Design Engineer

Gary Chapman

Gary W. Chapman
Project Engineer

FR CUP No. 2018-02233

CC:

NEIL ANGELILLO, KETTLEMAN 99 PL.

1155 W. SHAW AVE., SUITE 104

FRESNO, CA 93711

JOE PEHANICK, NORNGE, LLC

2200 HUNTINGTON DR., SUITE C

FAIRFIELD, CA 94533

FR CUP No. 2018-02233

**OTHER REQUIREMENTS**
**EXHIBIT NO. 2**

There is an existing twenty-foot (20') wide storm drain easement near the east property line of CUP 2018-02233. No encroachments into the easement shall be permitted including, but not limited to, foundations, roof overhangs, swimming pools, and trees.

In an effort to improve storm runoff quality, outdoor storage areas shall be constructed and maintained such that material that may generate contaminants will be prevented from contact with rainfall and runoff and thereby prevent the conveyance of contaminants in runoff into the storm drain system.

The District encourages, but does not require that roof drains from non-residential development be constructed such that they are directed onto and through a landscaped grassy swale area to filter out pollutants from roof runoff.

Runoff from areas where industrial activities, product, or merchandise come into contact with and may contaminate storm water must be treated before discharging it off-site or into a storm drain. Roofs covering such areas are recommended. Cleaning of such areas by sweeping instead of washing is to be required unless such wash water can be directed to the sanitary sewer system. Storm drains receiving untreated runoff from such areas shall not be connected to the District's system. Loading docks, depressed areas, and areas servicing or fueling vehicles are specifically subject to these requirements. The District's policy governing said industrial site NPDES program requirements is available on the District's website at: www.fresnofloodcontrol.org or contact the District's Environmental Department, Daniel Rourke, for further information regarding these policies related to industrial site requirements.

Development No. CUP 2018-02233

**DPU Water**

1. On-site water facilities shall remain private.
2. The water supply requirements for this project are as follows:
    a. The existing property is currently served with six 2-inch water meters.
    b. If the total domestic, commercial, industrial and irrigation water demands for the applicant's proposed project can be accommodated with the existing six 2-inch water meters, then the applicant shall not be required to pay a Water Capacity Fee Charge.
    c. If the total domestic, commercial, industrial and irrigation water demands for the applicant's proposed project cannot be accommodated with the six 2-inch water meters, and an additional water meter or a larger water meter is required, then the applicant shall be required to pay a Water Capacity Fee Charge.
    d. If a larger water meter or fire service is required to accommodate the new, larger water demands, then the Water Capacity Fee Charge shall be calculated by subtracting the Water Capacity Fee Charge associated with the existing water meter size from the Water Capacity Fee Charge associated with the larger water meter size required for the applicant's project. The Water Capacity Fee Charges for different meter sizes are published in the City's Master Fee Schedule.
    e. The City reserves the right to require an applicant to increase or decrease the size of a water meter for a project or a property to ensure that the meter is properly sized to accommodate fire protection requirements, and to allow for accurate volumetric flow measurements at low- and high-flow conditions.
    f. The Water Capacity Fee Charge for any new or expanded service connection shall be payable prior to the issuance of a building permit at the fee level in effect on the date such permit is issued.
3. The project applicant shall be required to pay all other water-related fees and charges in accordance with the City's Master Fee Schedule and Municipal Code.

**DPU Sewer**

The nearest sanitary sewer main to serve the proposed project is an 8-inch sewer main located in South Orange Avenue. Sanitary sewer facilities are available to provide service to the site subject to the following requirements:

1. Street easements and/or deeds shall be recorded prior to approval of improvement plans.
2. Installation of sewer house branch(s) shall be required.
3. Separate sewer house branches are required for each lot.
4. Connection to the existing 66-inch and 57-inch sewer trunk in E. North Avenue shall not be allowed.
5. Street work permit is required for any work in the Right-of-Way.
6. On-site sanitary sewer facilities shall be private.
7. A cross access agreement is required for sewer service(s) crossing parcels
8. Abandon any existing on-site private septic systems.
9. The Project Developer shall contact Wastewater Management Division/Environmental Services at (559) 621-5100 prior to pulling building permits regarding conditions of service for special users.

Sanitary Sewer Fees

The following Sewer Connection Charges are due and shall be paid for the Project:

1. Sewer Lateral Charge.
2. Sewer Oversize Area.
3. Sewer Facility Charge (Non-Residential)

4. Upon connection of this Project to the City Sewer System the owner shall be subject to payment of Sewer Facility charges per Fresno Municipal Code Sections 6-304 and 6-305. Sewer Facility Charges consist of two components, a Wastewater Facilities Charge and Trunk Sewer Charge where applicable.
5. Sewer Facility Charges are collected after occupancy on a monthly basis over time based on metered (water or sewer effluent) usage. The developer may contact the Department of Public Utilities/Wastewater-Environmental Control at (559) 621-5153 to receive an estimated cost of the Sewer Facility Charges applicable to the project (based on a constant sewer discharge and loading (Biochemical Oxygen Demand [BOD] and Total Suspended Solids [TSS] levels anticipated) at the current rates in effect, at that time, per Fresno's Master Fee Resolution. The developer shall provide data regarding estimated sewer discharge rates [flow] and loading [BOD/TSS levels] required for calculating the estimated charges.

**Fresno County Department of Public Health**

Recommended Conditions of Approval For Proposed Phase 1 Project:

1. Prior to issuance of building permits, the applicants will be required to submit complete food facility plans and specifications to the Fresno County Department of Public Health, Environmental Health Division, for review and approval. Contact the Consumer Food Protection Program at (559) 600-3357 for more information.
2. Prior to operation, the applicants shall apply for and obtain permits to operate a food facility from the Fresno County Department of Public Health, Environmental Health Division. A permit, once issued, is nontransferable. Contact the Consumer Food Protection Program at (559) 600-3357 for more information.
3. Should alcohol sales be proposed, the applicant(s) shall first obtain their license to sell alcoholic beverages. Contact the California Alcoholic Beverage Control Department at (559) 225-6334 for more information.
4. Facilities that use and/or store hazardous materials and/or hazardous wastes shall meet the requirements set forth in the California Health and Safety Code (HSC), Division 20, Chapter 6.95, and the California Code of Regulations (CCR), Title 22, Division 4.5. Your proposed business will handle hazardous materials and/or hazardous waste and will be required to submit a Hazardous Materials Business Plan pursuant to the HSC, Division 20, Chapter 6.95 (http://cers.calepa.ca.gov/) For more information please contact the local Certified Unified Program Agency (CUPA) at (559) 600-3271.
5. Prior to the issuance of building permits, the applicant shall submit three (3) sets of complete plans and specifications regarding the installation of any underground storage tanks to the Fresno County Department of Public Health, Environmental Health Division. Contact the Certified Unified Program Agency (CUPA), at (559) 600-3271 for more information.
6. Prior to operations, the fuel facility applicant shall apply for and secure a Permit to Operate an Underground Storage Tank System from the Fresno County Department of Public Health, Environmental Health Division. Contact the Certified Unified Program Agency at (559) 600-3271 for more information.
7. The proposed construction project has the potential to expose nearby residents to elevated noise levels. Consideration should be given to your City's municipal code.

Comments/Concerns:

1. Since specific retail/commercial tenants for this application have not been identified, the full range of 'IH' zoning uses for Phase 2 must be considered. The potential adverse impacts could include (but are not limited to) storage of hazardous materials and/or wastes, medical waste, solid waste, water quality degradation, excessive noise, and odors.

Recommended Conditions of Approval for Retail Uses:

1. If retail food establishments are proposed, then prior to issuance of building permits. The tenant shall submit complete food facility plans and specifications to the Fresno County Department of Public Health, Environmental Health Division, for review and approval. Prior to operation, the applicant(s) shall apply for and obtain a permit to operate a food facility from the Fresno County Department of Public Health, Environmental Health Division. A permit, once issued, is nontransferable. Contact the Consumer Food Protection Program at (559) 600-3357 for more information.
2. Prior to operation, future tenants may be required to apply for and obtain a license to sell alcoholic beverages. Contact the California Alcoholic Beverage Control Department at (559) 225-6334 for more information.
3. If the applicant(s) propose to use and/or store hazardous materials and/or hazardous wastes, they shall meet the requirements set forth in the California Health and Safety Code (HSC), Division 20, Chapter 6.95, and the California Code of Regulations (CCR), Title 22, Division 4.5. Any business that handles a hazardous material or hazardous waste may be required to submit a Hazardous Materials Business Plan.

# Appendix B

## Energy Calculations

## On-road Mobile (Operational) Energy Usage

Note: For the sake of simplicity, it was assumed that passenger vehicles, light duty trucks, motorcycles, and mobile homes use gasoline, and all medium-duty trucks, heavy-duty trucks, and buses use diesel fuel.

## Site preparation, and grading energy were used as the basis of this calculation.

**Unmitigated:**

Step 1: **Total Net Daily Trips (provided by Fehr & Peers)**

7,965

| *C-W* | *C-C* | *C-NW* | |
|---|---|---|---|
| **Trip Length (miles) (provided by CalEEMod)** | | | |
| 9.5 | 3 | 7.3 | |
| **Trip %** | | | |
| 2.20% | 78.80% | 19.00% | Fast Food , Convenience Market w/ Gas (6,326 daily trips) |
| 16.60% | 64.40% | 19.00% | Strip Mall (1,639 daily trips) |
| 5.16% | 75.84% | 19.00% | These are weighted averages of the above land uses based on the trip generation |

**Average Trip Length (weighted average)**

**4.1526**

Therefore:

**Average Daily VMT:**

**33,076**

Step 2: Given:

**Fleet Mix (provided by CalEEMod v2016.3.2)**

| LDA | LDT1 | LDT2 | MDV | LHD1 | LHD2 | MHD | HHD | OBUS | UBUS | MCY | SBUS | MH | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 59.3% | 4.0% | 20.8% | 12.7% | 1.8% | 0.0% | 0.0% | 0.0% | 0.2% | 0.2% | 0.5% | 0.1% | 0.0% | Fast Food , Convenience Market w/ Gas (6,326 daily trips) |
| 62.3% | 3.6% | 21.2% | 10.4% | 1.3% | 0.0% | 0.1% | 0.0% | 0.2% | 0.1% | 0.5% | 0.1% | 0.0% | Strip Mall (1,639 daily trips) |
| 59.9% | 3.9% | 20.9% | 12.2% | 1.7% | 0.0% | 0.0% | 0.0% | 0.2% | 0.2% | 0.5% | 0.1% | 0.0% | These are weighted averages of the above land uses based on the trip generation |

And:

**Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020**

| LDA | LDT1 | LDT2 | MDV | MCY | MH | OBUS |
|---|---|---|---|---|---|---|
| 29.6 | 24.46 | 21.75 | 15.67 | 37.84 | 6.56 | 6.49 |

**Diesel MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020**

| LHD1 | LHD2 | MHD | HHD | UBUS | SBUS |
|---|---|---|---|---|---|
| 17.22 | 15.55 | 8.05 | 5.47 | 4.65 | 7.22 |

Therefore:

**Weighted Average MPG Factors**

Gasoline: **26.0** Diesel: **15.5**

Step 3: **Therefore:**

**1,242 daily gallons of gasoline** **47 daily gallons of diesel**

**or**

| | |
|---|---|
| **453,189 annual gallons of gasoline** | **17,118 annual gallons of diesel** |

# On-road Mobile (Construction) Energy Usage - Site Preparation

Site preparation, and grading energy were used as the basis of this calculation.

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

48

**Worker Trip Length (miles) (provided by CalEEMod)**

10.8

Therefore:

**Average Worker Daily VMT:**

**518**

Step 2: Given:

**Assumed Fleet Mix for Workers**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 0.3333333 | 0.3333333 | 0.3333333 |

And:

**Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 29.6 | 24.46 | 21.75 |

Therefore:

**Weighted Average Worker MPG Factor**

**25.3**

Step 3: **Therefore:**

**20.5 Worker daily gallons of gasoline**

Step 4: 6 **# of Days (see CalEEMod)**

Therefore:

**Result:** **123 Total gallons of gasoline**

# On-road Mobile (Construction) Energy Usage - Grading

Site preparation, and grading energy were used as the basis of this calculation.

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

48

**Worker Trip Length (miles) (provided by CalEEMod)**

10.8

Therefore:

**Average Worker Daily VMT:**

**518**

Step 2: Given:

**Assumed Fleet Mix for Workers**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 0.3333333 | 0.3333333 | 0.3333333 |

And:

**Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 29.6 | 24.46 | 21.75 |

Therefore:

**Weighted Average Worker MPG Factor**

**25.3**

Step 3: **Therefore:**

**20.5 Worker daily gallons of gasoline**

Step 4: 12 **# of Days (see CalEEMod)**

Therefore:

**Result:** **246 Total gallons of gasoline**

## On-road Mobile (Construction) Energy Usage - Building Construction

Site preparation, and grading energy were used as the basis of this calculation.

Step 1:

| Total Daily Worker Trips (provided by CalEEMod) | Total Daily Vendor Trips (provided by CalEEMod) | Total Daily Hauler Trips (provided by CalEEMod) |
|---|---|---|
| 145 | 63 | 0 |

| Worker Trip Length (miles) (provided by CalEEMod) | Vendor Trip Length (miles) (provided by CalEEMod) | Hauling Trip Length (miles) (provided by CalEEMod) |
|---|---|---|
| 10.8 | 7.3 | 0 |

Therefore:

| Average Worker Daily VMT: | Average Vendor Daily VMT: | Average Hauling Daily VMT: |
|---|---|---|
| 1,566.00 | 460 | - |

Step 2:

Given:

**Assumed Fleet Mix for Workers**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 0.33333333 | 0.333333 | 0.333333 |

**Assumed Fleet Mix for Vendors**

| MHD | HHD |
|---|---|
| 0.5 | 0.5 |

And:

**MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020**

**Gasoline:**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 29.6 | 24.46 | 21.75 |

**Diesel:**

| MHD | HHD |
|---|---|
| 8.05 | 5.47 |

Therefore:

| Weighted Average Worker (Gasoline) MPG Factor | Weighted Average Vendor (Diesel) MPG Factor | Weighted Average Hauling MPG Factor |
|---|---|---|
| 25.3 | 6.8 | 0.0 |

Step 3:

**Therefore:**

62 **Worker daily gallons of gasoline**

**Therefore:**

68 **Vendor daily gallons of diesel**

Step 4:

600 **# of Days (see CalEEMod)**

Therefore:

37,182 **Total gallons of gasoline**

Therefore:

40,820 **Total gallons of diesel**

# On-road Mobile (Construction) Energy Usage - Paving

Site preparation, and grading energy were used as the basis of this calculation.

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

75

**Worker Trip Length (miles) (provided by CalEEMod)**

10.8

Therefore:

**Average Worker Daily VMT:**

**810**

Step 2: Given:

**Assumed Fleet Mix for Workers**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 0.3333333 | 0.3333333 | 0.3333333 |

And:

**Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 29.6 | 24.46 | 21.75 |

Therefore:

**Weighted Average Worker MPG Factor**

**25.3**

Step 3: **Therefore:**

**32.1 Worker daily gallons of gasoline**

Step 4: 30 **# of Days (see CalEEMod)**

Therefore:

**Result:** **962 Total gallons of gasoline**

# On-road Mobile (Construction) Energy Usage - Architectural Coating

Site preparation, and grading energy were used as the basis of this calculation.

Step 1: **Total Daily Worker Trips (provided by CalEEMod)**

28

**Worker Trip Length (miles) (provided by CalEEMod)**

10.8

Therefore:

**Average Worker Daily VMT:**

**302**

Step 2: Given:

**Assumed Fleet Mix for Workers**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 0.3333333 | 0.3333333 | 0.3333333 |

And:

**Gasoline MPG Factors for each Vehicle Class (from EMFAC2014) - Year 2020**

| LDA | LDT1 | LDT2 |
|---|---|---|
| 29.6 | 24.46 | 21.75 |

Therefore:

**Weighted Average Worker MPG Factor**

**25.3**

Step 3: **Therefore:**

**12.0 Worker daily gallons of gasoline**

Step 4: 30 **# of Days (see CalEEMod)**

Therefore:

**Result:** **359 Total gallons of gasoline**

# Appendix C

## Traffic Impact Analysis

# Draft Traffic Impact Analysis

## Commercial Development

**At the Northeast Corner of**
**North Avenue and Orange Avenue**

**In the City of Fresno, CA**

***Prepared For:***
True North Properties
1155 W. Shaw Ave., Ste. 104
Fresno, CA 93711

January 12, 2018

Project No.: 004-051


JLB Traffic Engineering, Inc.

*Traffic Engineering, Transportation Planning, & Parking Solutions*
1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Phone: (559) 570-8991
www.JLBtraffic.com

Traffic Engineering, Inc.

*Traffic Engineering, Transportation Planning, & Parking Solutions*

# Draft Traffic Impact Analysis

## Commercial Development at the Northeast Corner of North Avenue and Orange Avenue

In the City of Fresno, CA

January 12, 2018

This Traffic Impact Analysis Report has been prepared under the direction of a licensed Traffic Engineer. The licensed Traffic Engineer attests to the technical information contained therein, and has judged the qualifications of any technical specialists providing engineering data from which recommendations, conclusions, and decisions are based.

Prepared By:

_____

Jose Luis Benavides, P.E., T.E.

President

Traffic Engineering, Inc.

*Traffic Engineering, Transportation Planning, & Parking Solutions*
1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Phone: (559) 570-8991
www.JLBtraffic.com

# Table of Contents

Introduction and Summary ..... 1
Introduction ..... 1
Summary ..... 1
Existing Traffic Conditions ..... 1
Existing plus Project Traffic Conditions ..... 1
Near Term plus Project Traffic Conditions ..... 2
Cumulative Year 2035 No Project Traffic Conditions ..... 3
Cumulative Year 2035 plus Project Traffic Conditions ..... 3
Queuing Analysis ..... 3
Project Equitable Fair Share Impact Analysis ..... 3
TIA Scope of Work ..... 4
Study Facilities ..... 4
Study Intersections ..... 4
Study Scenarios ..... 4
Existing Traffic Conditions ..... 4
Existing plus Project Traffic Conditions ..... 4
Near Term plus Project Traffic Conditions ..... 5
Cumulative Year 2035 No Project Traffic Conditions ..... 5
Cumulative Year 2035 plus Project Traffic Conditions ..... 5
Level of Service Analysis Methodology ..... 5
Criteria of Significance ..... 5
Operational Analysis Assumptions and Defaults ..... 6
Existing Traffic Conditions ..... 7
Roadway Network ..... 7
Results of Existing Level of Service Analysis ..... 9
Traffic Signal Warrants ..... 9
Existing plus Project Traffic Conditions ..... 11
Project Description ..... 11
Project Access ..... 11
Bikeways ..... 11

Transit ..... 11
Trip Generation ..... 12
Trip Distribution ..... 12
Results of Existing plus Project Level of Service Analysis ..... 12
Traffic Signal Warrants ..... 13
Near Term plus Project Traffic Conditions ..... 17
Description of Approved and Pipeline Projects ..... 17
Results of Near Term plus Project Level of Service Analysis ..... 19
Traffic Signal Warrants ..... 20
Cumulative Year 2035 No Project Traffic Conditions ..... 22
Results of Cumulative Year 2035 No Project Level of Service Analysis ..... 22
Traffic Signal Warrants ..... 23
Cumulative Year 2035 plus Project Traffic Conditions ..... 25
Results of Cumulative Year 2035 plus Project Level of Service Analysis ..... 25
Traffic Signal Warrants ..... 25
Queuing Analysis ..... 28
Project's Pro-Rata Fair Share of Future Transportation Improvements ..... 31
Conclusions and Recommendations ..... 32
Existing Traffic Conditions ..... 32
Existing plus Project Traffic Conditions ..... 32
Near Term plus Project Traffic Conditions ..... 32
Cumulative Year 2035 No Project Traffic Conditions ..... 33
Cumulative Year 2035 plus Project Traffic Conditions ..... 33
Queuing Analysis ..... 33
Project Equitable Fair Share Impact Analysis ..... 33
Study Participants ..... 34
References ..... 34

# List of Figures

**Figure 1: Vicinity Map** ..... 8
**Figure 2: Existing - Traffic Volumes, Geometrics and Controls** ..... 10
**Figure 3: Project Site Plan** ..... 14
**Figure 4: 2017 Project Only Trips** ..... 15
**Figure 5: Existing plus Project - Traffic Volumes, Geometrics and Controls** ..... 16
**Figure 6: Near Term Projects' Trip Assignment** ..... 18
**Figure 7: Near Term plus Project - Traffic Volumes, Geometrics and Controls** ..... 21
**Figure 8: Cumulative Year 2035 No Project - Traffic Volumes, Geometrics and Controls** ..... 24
**Figure 9: 2035 Project Only Trips** ..... 26
**Figure 10: Cumulative Year 2035 plus Project - Traffic Volumes, Geometrics and Controls** ..... 27

# List of Tables

**Table I: Existing Intersection LOS Results** ..... 9
**Table II: Project Only Trip Generation** ..... 12
**Table III: Existing plus Project Intersection LOS Results** ..... 13
**Table IV: Near Term Projects' Trip Generation** ..... 17
**Table V: Near Term plus Project Intersection LOS Results** ..... 20
**Table VI: Cumulative Year 2035 No Project Intersection LOS Results** ..... 23
**Table VII: Cumulative Year 2035 plus Project Intersection LOS Results** ..... 25
**Table VIII: Queuing Analysis** ..... 28
**Table IX: Project's Fair of Share of Future Roadway Improvements** ..... 31

# List of Appendices

**Appendix A: Scope of Work**
**Appendix B: Traffic Counts**
**Appendix C: Traffic Modeling**
**Appendix D: Methodology**
**Appendix E: Existing Traffic Conditions**
**Appendix F: Existing plus Project Traffic Conditions**
**Appendix G: Near Term plus Project Traffic Conditions**
**Appendix H: State Route 99 at North and Cedar Concept and Funding**
**Appendix I: Cumulative Year 2035 No Project Traffic Conditions**
**Appendix J: Cumulative Year 2035 plus Project Traffic Conditions**
**Appendix K: Signal Warrants**

# Introduction and Summary

## Introduction

This report describes a Traffic Impact Analysis (TIA) prepared by JLB Traffic Engineering, Inc. (JLB) for the Commercial Development (Project) located on a 3.92-acre property at the northeast corner of North Avenue and Orange Avenue in the City of Fresno. The Project proposes to construct a gasoline/service station (12 fueling positions) with convenience market, a 1,998 square-foot coffee/donut shop with drive-through window, 2,992 square feet of fast-food restaurant without drive-through window, and 6,000 square feet of fast-food restaurant with drive-through window. Per information provided to JLB, the Project is consistent with the City of Fresno General Plan. Figure 1 shows the proposed Project relative to the surrounding roadway network.

The purpose of this TIA is to evaluate the potential traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures, and identify any critical traffic issues that should be addressed in the ongoing planning process. The study primarily focused on evaluating traffic conditions at study intersections that may be impacted by the proposed Project. The scope of work was prepared via consultation with the City of Fresno, County of Fresno, and Caltrans staff.

## Summary

The potential impacts of the proposed Project were evaluated in accordance with the standards set forth by the level of service (LOS) policies of the City of Fresno, County of Fresno, and Caltrans.

### *Existing Traffic Conditions*

- At present, all study intersections operate at an acceptable LOS during the AM and PM peak periods.

### *Existing plus Project Traffic Conditions*

- A review of the existing Project site property lines and the Project driveways to be constructed indicate that the proposed access driveways are located at points that minimize traffic operational impacts to the existing roadway network.
- It is recommended that the Project implement Class II bike lanes along its frontage to North Avenue.
- At build-out, the Project is estimated to generate a maximum of 7,965 daily trips, 644 AM peak hour trips and 536 PM peak hour trips.
- Under this scenario, the intersection of North Avenue and State Route 99 SB Off-Ramp is projected to exceed its LOS threshold during the AM peak period. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.
    - Add a southbound left-turn lane
    - Modify the southbound left-through lane to a through lane
    - Lengthen the short southbound flared right-turn lane to create a standard length right-turn lane
    - Signalize the intersection with protected left-turn phasing in the northbound and southbound directions and split phasing in the eastbound and westbound directions

### *Near Term plus Project Traffic Conditions*

- The total trip generation for the Near Term Projects is 28,023 daily trips, 3,648 AM peak hour trips, and 3,780 PM peak hour trips.
- Under this scenario, the intersections of North Avenue and Orange Avenue, North Avenue and State Route 99 SB Off-Ramp, and North Avenue and Cedar Avenue are projected to exceed their respective LOS threshold during one or both peak periods. To improve the LOS at each of the intersections projected to exceed its LOS threshold, it is recommended that the following improvements be implemented.
  - North Avenue and Orange Avenue
    - Implement the improvements per the approved City of Fresno Street improvement plans as prepared for the Amazon Project.
  - North Avenue and State Route 99 SB Off-Ramp
    - Add a second eastbound through lane
    - Add a westbound left-turn lane
    - Modify the westbound left-through lane to a through lane
    - Add southbound dual left-turn lanes
    - Modify the southbound left-through lane to a through lane
    - Lengthen the southbound flared right-turn lane to create a standard length right-turn lane
    - Signalize the intersection with protected left-turn phasing in all directions
  - North Avenue and State Route 99 NB On-Ramp (improvements needed to improve queuing)
    - Add eastbound dual left-turn lanes
    - Modify the eastbound left-through lane to a through lane
    - Add a second eastbound through lane
    - Add a second westbound through lane
    - Signalize the intersection with protected left-turn phasing in all directions
  - North Avenue and Cedar Avenue
    - Convert the eastbound right-turn lane to a through-right lane
    - Add a second westbound through lane
    - Add a second northbound left-turn lane
    - Modify the traffic signal to accommodate the added lane geometrics

### *Cumulative Year 2035 No Project Traffic Conditions*

- Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.
  - North Avenue at Chestnut Avenue
    - Add an eastbound left-turn lane
    - Change the eastbound left-through-right lane to a through lane
    - Add an eastbound right-turn lane
    - Add a westbound left-turn lane
    - Change the westbound left-through-right lane to a through lane
    - Add a westbound right-turn lane
    - Modify the traffic signal to accommodate the added lane geometrics

### *Cumulative Year 2035 plus Project Traffic Conditions*

- Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the same improvements presented in the Cumulative Year 2035 No Project Traffic Conditions scenario be implemented.

### *Queuing Analysis*

- It is recommended that the City consider left- and right-turn lane storage lengths as indicated in the Queuing Analysis.

### *Project Equitable Fair Share Impact Analysis*

- It is recommended that the Project contribute its equitable fair share as presented in Table IX.

# TIA Scope of Work

The study focused on evaluating traffic conditions at study intersections that may potentially be impacted by the proposed Project. On October 31, 2017, a draft scope of work for the preparation of a TIA for this Project was provided to the City of Fresno, County of Fresno, and Caltrans for their review and comment. On November 21, 2017, the County of Fresno requested that the TIA include in its analysis a Cumulative Year 2035 No Project scenario and that the intersection of North Avenue and Chestnut Avenue be added to the Scope of Work. On November 28, 2017, Caltrans approved the scope of work as presented. On December 8, 2017, the City of Fresno requested that the intersection of North Avenue and Cedar Avenue be added to the Scope of Work. Based on the comments received, this study includes the analysis of the additional scenario and intersections requested by the County of Fresno and City of Fresno. The TIA Draft Scope of Work and the comments received from the lead agency and responsible agencies are included in Appendix A.

# Study Facilities

The study focused on evaluating traffic conditions at the existing study intersections that may potentially be impacted by the Project. Traffic counts were collected for the study intersections in April and May of 2016, with the exception of one count that was collected in December 2017. All counts were collected while schools in the vicinity of the proposed Project were in session. The traffic counts for the existing study facilities are contained in Appendix B. The existing intersection turning movement volumes, intersection geometrics, and traffic controls are illustrated in Figure 2.

## *Study Intersections*

1. North Avenue / Orange Avenue
2. North Avenue / Project Driveway (limited right in, and right out access)
3. North Avenue / State Route 99 Southbound (SB) Off-Ramp
4. North Avenue / State Route 99 Northbound (NB) On-Ramp
5. North Avenue / Cedar Avenue
6. North Avenue / Chestnut Avenue
7. State Route 99 Northbound (NB) Off-Ramp / Cedar Avenue
8. Parkway Drive / Cedar Avenue

# Study Scenarios

## *Existing Traffic Conditions*

This scenario evaluates the Existing Traffic Conditions based on existing traffic volumes and roadway conditions from traffic counts and field surveys conducted in the base year 2017.

## *Existing plus Project Traffic Conditions*

This scenario evaluates total traffic volumes and roadway conditions based on the Existing plus Project Traffic Conditions. The Existing plus Project traffic volumes were obtained by adding the 2017 Project Only trips to the previous scenario. The 2017 Project Only trips were based on the Project Select Zone, communication with Caltrans, City of Fresno and County of Fresno staff, the existing roadway network and engineering judgment. The Fresno COG Modeling and Select Zone are contained in Appendix C.

### *Near Term plus Project Traffic Conditions*

This scenario evaluates total traffic volumes and roadway conditions based on the Near Term plus Project Traffic Conditions. The Near Term plus Project traffic volumes were obtained by adding the Near Term related trips to the Existing plus Project Traffic Conditions scenario.

### *Cumulative Year 2035 No Project Traffic Conditions*

This scenario evaluates total traffic volumes and roadway conditions based on the Cumulative Year 2035 No Project Traffic Conditions. The Cumulative Year 2035 No Project traffic volumes were obtained from the Fresno COG traffic model runs (Base Year 2016 and Cumulative Year 2035 No Project) and existing 2017 traffic counts. Under this scenario, the increment method, as recommended by the Model Steering Committee was utilized to determine the Cumulative Year 2035 No Project traffic volumes. JLB's conservative approach of upward volume balancing the 2035 increment resulted in a higher projection of volumes at the intersections adjacent to the interchange of State Route 99 with North Avenue. The Fresno COG traffic model runs are contained in Appendix C. It should be noted that, by year 2035, it is assumed that the interchange of North Avenue and State Route 99 has been reconstructed and that this will result in changes in travel patterns and volumes.

### *Cumulative Year 2035 plus Project Traffic Conditions*

This scenario evaluates total traffic volumes and roadway conditions based on the Cumulative Year 2035 plus Project Traffic Conditions. The Cumulative Year 2035 plus Project traffic volumes were obtained by adding the 2035 Project Only trips to the Cumulative Year 2035 No Project Traffic Conditions scenario.

## Level of Service Analysis Methodology

Level of Service (LOS) is a qualitative index of the performance of an element of the transportation system. LOS is a rating scale running from "A" to "F", with "A" indicating no congestion of any kind, and "F" indicating unacceptable congestion and delays. LOS in this study describes the operating conditions for signalized and unsignalized intersections.

The 2010 Highway Capacity Manual (HCM) is the standard reference published by the Transportation Research Board, and contains the specific criteria and methods to be used in assessing LOS. Synchro software was used to define LOS in this study. Details regarding these calculations are in Appendix D.

## Criteria of Significance

The 2035 Fresno City General Plan has established various degrees of acceptable level of traffic congestion on its major streets and these are dependent on the four (4) Traffic Impact Zones (TIZ) within the City. The standard LOS threshold for TIZ I is LOS F, that for TIZ II is LOS E, that for TIZ III is LOS D and that for TIZ IV is LOS E. Additionally, the 2035 MEIR made findings of overriding consideration to allow a lower LOS threshold than that established by the underlying TIZ zone. For those cases in which a LOS criterion for a roadway segment differs from that of the underlying TIZ zone, such criteria are identified in the roadway description. All study facilities within the City of Fresno SOI fall within TIZ IV, and therefore LOS E is used to evaluate the potential significance of LOS impacts to intersections and segments within the City of Fresno's jurisdiction pursuant to the City of Fresno 2035 General Plan.

The County of Fresno has established LOS C as the acceptable level of traffic congestion on county roads and streets that fall entirely outside the Sphere of Influence (SOI) of a City. For those areas that fall within the SOI of a City, the LOS criteria of the City are the criteria of significance used in this report. LOS C is used to evaluate the potential significance of LOS impacts to Fresno County intersections and segments that fall outside the City of Fresno SOI. However, LOS D is used to evaluate the potential significance of LOS impacts to Fresno County intersections and segments within the SOI of the City of Fresno pursuant to the County of Fresno General Plan Policy TR-A.2.

Caltrans endeavors to maintain a target LOS at the transition between LOS C and D on State highway facilities consistent with the Caltrans Guide for the Preparation of Traffic Impact Studies, dated December 2002. However, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS. In this case, LOS D was utilized for study intersections or segments within Caltrans jurisdiction.

## Operational Analysis Assumptions and Defaults

The following operational analysis values, assumptions and defaults were used in this study. These default values ensured a consistent analysis of LOS among the various scenarios.

- Yellow time of 3.2 seconds for left-turn phases;
- Yellow time consistent with the California Manual of Uniform Traffic Control Devices (CA MUTCD) based on approach speeds;
- All-red clearance intervals of 1.0 second for all phases;
- Walk intervals of 7.0 seconds;
- Flashing Don't Walk based on 3.5 feet/second walking speed with yellow plus all-red clearance subtracted and 2.0 seconds added
- An average of 3 pedestrian calls per hour at signalized intersections;
- All new or modified signals utilize protected left-turn phasing;
- The heavy vehicle percentage factors utilized in this study varied from location to location based on actual count data. The heavy vehicle factors were three (3) percent of traffic entering or exiting the Project Driveway. These heavy vehicle factors for the study intersections can be found within the traffic count data and generally range from eight (8) to fifty (50) percent;
- At existing intersections, the observed approach Peak Hour Factor (PHF) is utilized in the Existing, Existing plus Project, and Near Term plus Project scenarios;
- A PHF of 0.92 (or the Existing PHF if higher) is utilized for all study intersections in both Cumulative Year 2035 scenarios; and
- New proposed study facilities utilize a PHF of 0.92 as recommended by the Highway Capacity Manual for rural and rural to urban transitions.

# Existing Traffic Conditions

## Roadway Network

The Project site and surrounding study area are illustrated in Figure 1. Important roadways serving the Project site are discussed below.

***North Avenue*** is an existing east-west major arterial adjacent to the proposed Project. North Avenue extends through the southern part of the City of Fresno and is a four-lane divided arterial between State Route 41 and Orange Avenue and a two-lane divided arterial east of Orange Avenue in the vicinity of the Project. The 2035 General Plan Circulation Element designates North Avenue as a two-lane divided arterial west of Fig Avenue, a four-lane divided arterial between Fig Avenue and Clovis Avenue, and a two-lane collector east of Clovis Avenue.

***Orange Avenue*** is an existing north-south two-lane undivided collector adjacent to the proposed Project. In this area, Orange Avenue extends from Golden State Boulevard to the north and beyond the City of Fresno limits to the south. The 2035 General Plan Circulation Element designates Orange Avenue as a two-lane undivided collector south of Golden State Boulevard.

***Parkway Drive*** is a northwest-southeast (diagonal) two-lane industrial collector in the vicinity of the proposed Project. In this area, Parkway Drive exists between North Avenue and Cedar Avenue and provides a direct connection to State Route 99. The 2035 General Plan Circulation Element designates this segment of Parkway Drive as a one-lane (one-way) collector. However, Caltrans has prepared some options for the reconfiguration of the interchange of North Avenue at State Route 99 that will likely retain Parkway Drive as a two-lane two-way collector.

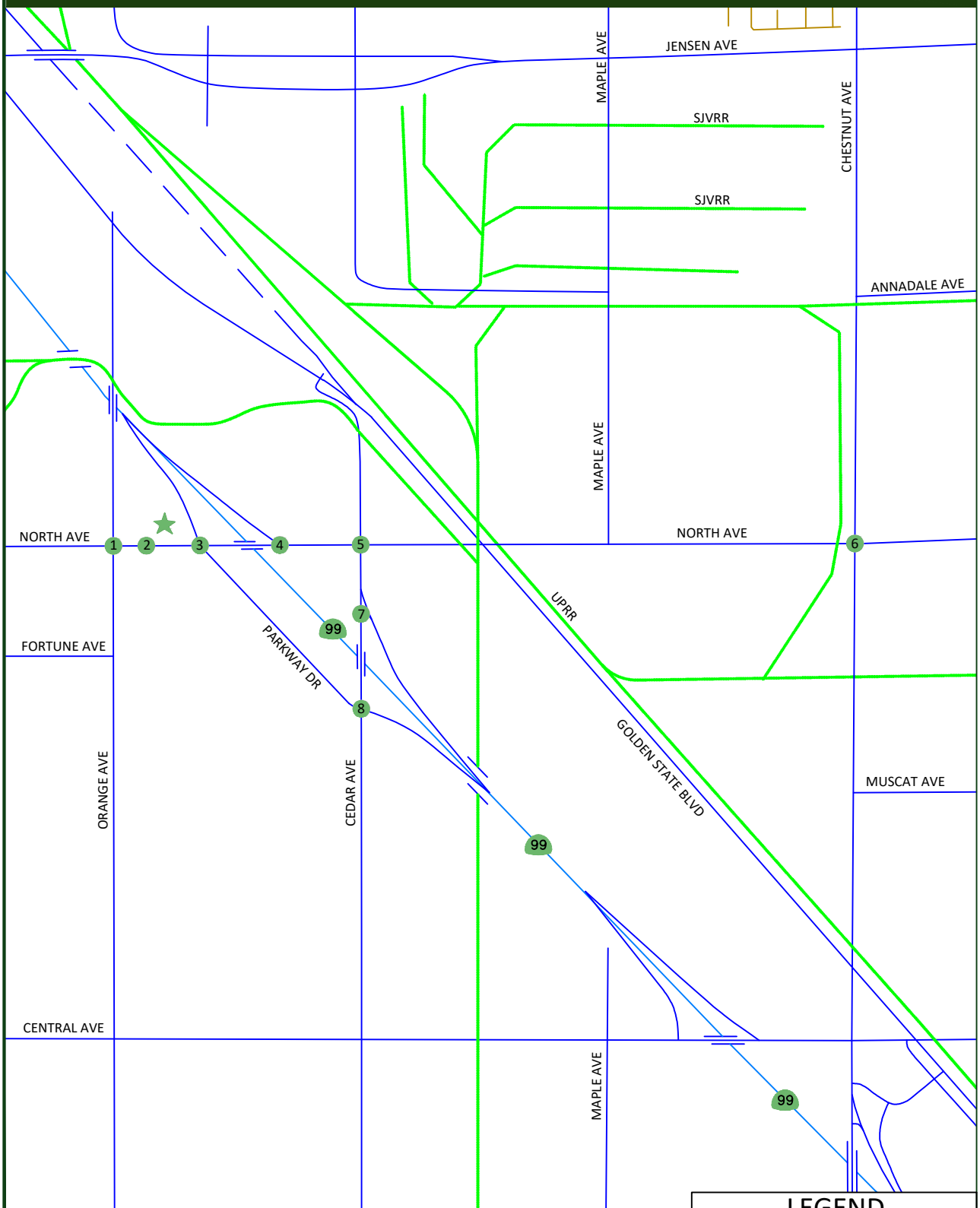
***Cedar Avenue*** is an existing north-south two-lane undivided collector near the vicinity of the proposed Project. In this area, Cedar Avenue extends south of Golden State Boulevard beyond the City of Fresno limits. The 2035 Fresno General Plan Circulation Element designates Cedar Avenue as a two-lane collector south of Golden State Boulevard.

***Chestnut Avenue*** is predominantly an existing four-lane arterial. South of North Avenue, Chestnut Avenue falls outside the Sphere of Influence of the City of Fresno. The County of Fresno General Plan Circulation element designates Chestnut Avenue as an arterial north of Golden State Boulevard and as a collector south of Golden State Boulevard.

***State Route (SR) 99*** is an existing six-lane freeway near the vicinity of the proposed Project. SR 99 traverses the City of Fresno in a northwest-southeast direction and serves as the principal connection to various metropolitan areas within the Central San Joaquin Valley.

# City of Fresno - North and Orange TIA
# Vicinity Map

Figure 1




## LEGEND

★ = PROJECT LOCATION

# = STUDY INTERSECTION

N

Not To Scale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004-051 - 12/12/17 - JR

## Results of Existing Level of Service Analysis

Figure 2 illustrates the Existing turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Existing Traffic Conditions scenario are provided in Appendix E. Table I presents a summary of the Existing peak hour LOS at the study intersections.

At present, all study intersections operate at an acceptable LOS during the AM and PM peak periods.

### Table I: Existing Intersection LOS Results

| *ID* | *Intersection* | *Intersection Control* | *AM Peak Hour* | | *PM Peak Hour* | |
|---|---|---|---|---|---|---|
| | | | *Average Delay (sec/veh)* | *LOS* | *Average Delay (sec/veh)* | *LOS* |
| 1 | North Avenue / Orange Avenue | Signalized | 14.5 | B | 18.5 | B |
| 2 | North Avenue / Project Driveway | Does Not Exist | N/A | N/A | N/A | N/A |
| 3 | North Avenue / State Route 99 SB Off-Ramp | Two-Way STOP | 18.9 | C | 16.2 | C |
| 4 | North Avenue / State Route 99 NB On-Ramp | Unsignalized | 1.7 | A | 4.6 | A |
| 5 | North Avenue / Cedar Avenue | Signalized | 23.9 | C | 22.4 | C |
| 6 | North Avenue / Chestnut Avenue | Signalized | 15.1 | B | 13.8 | B |
| 7 | State Route 99 NB Off-Ramp / Cedar Avenue | Two-Way STOP | 10.5 | B | 10.0 | B |
| 8 | Parkway Drive / Cedar Avenue | Two-Way STOP | 10.9 | B | 11.5 | B |

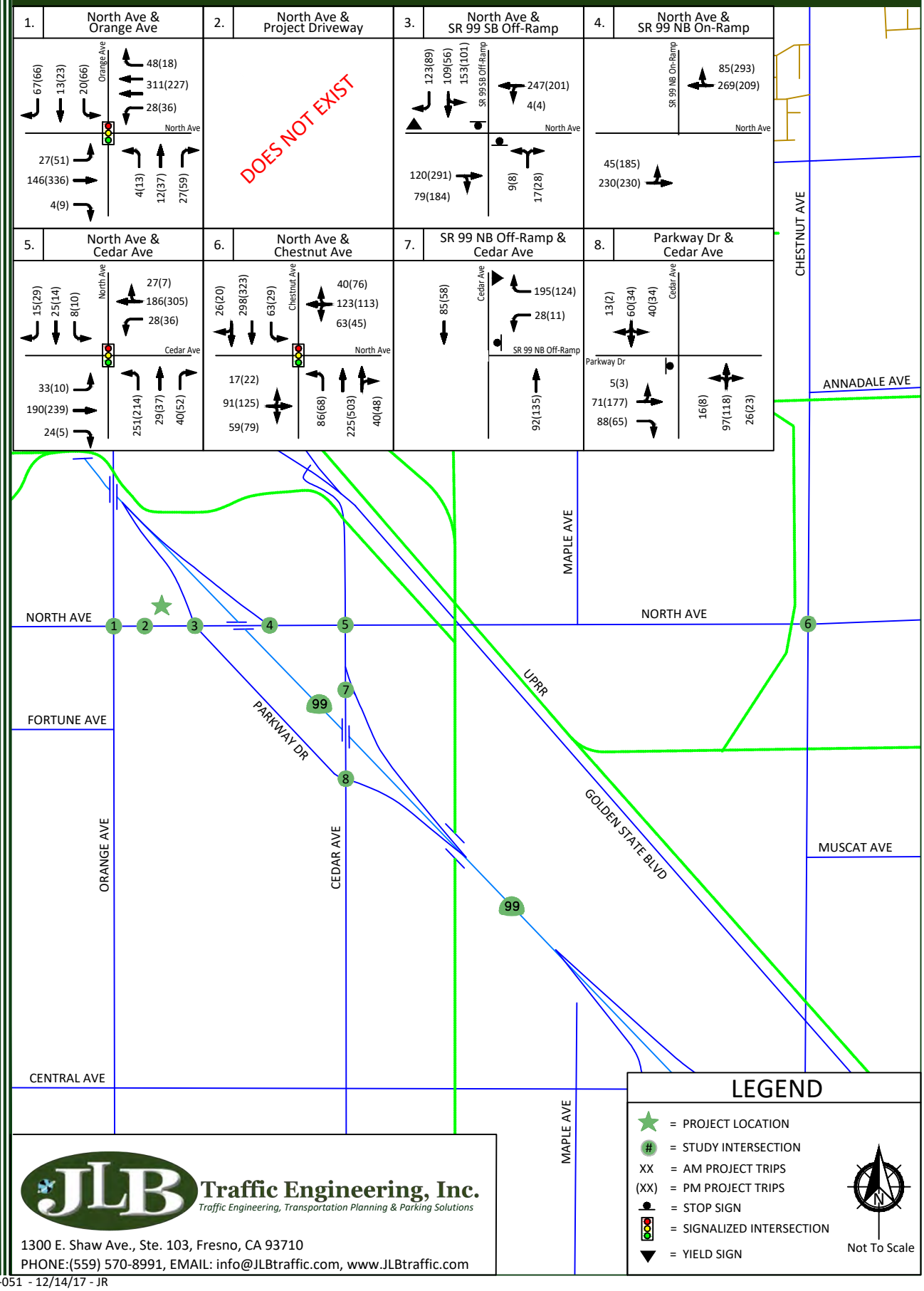
Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for two-way and one-way STOP controlled intersections are based on the worst approach/movement of the minor street.

## Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the unsignalized study intersections in the Existing Traffic Conditions scenario. These warrants are found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersection of North Avenue and State Route 99 SB Off-Ramp satisfies peak hour signal warrants during the AM and PM peak. Based on the signal warrants and engineering judgment, signalization of the intersection of North Avenue and State Route 99 SB Off-Ramp is not recommended at this time. It is worth noting that CA MUTCD states “satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic signal.” Therefore, it is recommended that prior to the installation of a traffic signal, investigation of CA MUTCD warrants 1, 4, and 7, as applicable, be conducted for the intersection of North Avenue and State Route 99 SB Off-Ramp.

# City of Fresno - North and Orange TIA
# Existing - Traffic Volumes, Geometrics and Controls

Figure 2





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004-051 - 12/14/17 - JR

# Existing plus Project Traffic Conditions

## Project Description

The Project proposes to build a gasoline/service station (12 fueling positions) with convenience market, a 1,998 square-foot coffee/donut shop with drive-through window, 2,992 square feet of fast-food restaurant without drive-through window, and 6,000 square feet of fast-food restaurant with drive-through windows at the northeast corner of North Avenue and Orange Avenue in the City of Fresno. Per information provided to JLB, the Project is consistent with the City of Fresno General Plan. Figure 3 illustrates the latest Project Site Plan.

## Project Access

Access to and from the Project site is from two (2) points. One of the access points is an existing, full access point located along the east side of Orange Avenue at a point approximately 250 feet north of North Avenue. The second access point is a proposed access located on the north side of North Avenue at a point approximately 350 feet east of Orange Avenue and is proposed as a right-in, right-out only access.

JLB analyzed the location of the proposed access points relative to the existing local roads and driveways in the Project's vicinity. A review of the existing Project site property lines and the Project driveways to be constructed indicate that the proposed access driveways are located at points that minimize traffic operational impacts to the existing roadway network.

## Bikeways

Currently, bike lanes exist in the vicinity of the proposed Project. Class II bike lanes exist along North Avenue between Cherry Avenue and Orange Avenue and along Orange Avenue south of the State Route 99 Over Crossing and approximately 650 feet south of Fortune Avenue. The City of Fresno "Bicycle, Pedestrian & Trails Master Plan" recommends that Class II bike lanes be implemented on 1) North Avenue west of Cherry Avenue and east of Orange Avenue, 2) Orange Avenue between Golden State Boulevard and American Avenue, 3) Cedar Avenue between North Avenue and American Avenue, and 4) Chestnut Avenue north of North Avenue. Therefore, it is recommended that the Project implement Class II bike lanes along its frontage to North Avenue.

## Transit

Fresno Area Express (FAX) is the transit operator in the City of Fresno. At present, there are no FAX transit routes that operate in the vicinity of the proposed Project. The closest is FAX Route 41 and runs on Maple Avenue and North Avenue, approximately 1.05 miles to the east of the proposed Project. Route 41 operates at 30-minute intervals on weekdays and 50-minute intervals on weekends. Its nearest stop to the Project site is located at the northeast corner of Maple Avenue and North Avenue. This route provides a direct connection to Manchester Transit Center, Duncan Polytech High School, Cedar/Clinton Library, California Christian College, Mosqueda Community Center, Fresno Pacific University, and Senior Citizen Village. Retention of the existing and expansion of future transit routes is dependent on transit ridership demand and available funding.

## Trip Generation

Table II presents the trip generation for the proposed Project pursuant to the 10th Edition of the Trip Generation Manual with trip generation rates for a Gasoline/Service Station with Convenience Market, Coffee/Donut Shop with Drive-Through Window, Fast-Food Restaurant without Drive-Through Window, and Fast-Food Restaurant with Drive-Through Window. At build-out, the Project is estimated to generate a maximum of 7,965 daily trips, 644 AM peak hour trips and 536 PM peak hour trips.

### Table II: Project Only Trip Generation

| *Land Use (ITE Code)* | *Size* | *Unit* | *Daily* | | *AM Peak Hour* | | | | | | *PM Peak Hour* | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | *Rate* | *Total* | *Trip Rate* | *In* | *Out* | *In* | *Out* | *Total* | *Trip Rate* | *In* | *Out* | *In* | *Out* | *Total* |
| | | | | | | *%* | | | | | | *%* | | | | |
| Gasoline/Service Station with Convenience Market (945) | 12 | f.p. | 205.36 | 2,464 | 12.47 | 51 | 49 | 77 | 74 | 150 | 13.99 | 51 | 49 | 86 | 82 | 168 |
| Coffee/Donut Shop with Drive-Through Window (937) | 1.998 | k.s.f. | 820.38 | 1,639 | 88.99 | 51 | 49 | 91 | 87 | 178 | 43.38 | 50 | 50 | 44 | 43 | 87 |
| Fast-Food Restaurant without Drive-Through Window (934) | 2.992 | k.s.f. | 346.23 | 1,036 | 25.10 | 60 | 40 | 45 | 30 | 75 | 28.34 | 50 | 50 | 43 | 42 | 85 |
| Fast-Food Restaurant with Drive-Through Window (934) | 6.000 | k.s.f. | 470.95 | 2,826 | 40.19 | 51 | 49 | 123 | 118 | 241 | 32.67 | 52 | 48 | 102 | 94 | 196 |
| ***Total Project Trips*** | | | | **7,965** | | | | **336** | **309** | **644** | | | | **275** | **261** | **536** |

Note: f.p. = Fueling Positions
k.s.f. = Thousand Square Feet

## Trip Distribution

The trip distribution assumptions were developed based on existing travel patterns, data provided by the developer, knowledge of the study area, the Fresno COG Select Zone Analysis, communication with the City of Fresno, County of Fresno and Caltrans, and knowledge of the City of Fresno and County of Fresno Circulation Elements. Figure 4 illustrates the 2017 Project Only Trips to the study intersections.

## Results of Existing plus Project Level of Service Analysis

The Existing plus Project Traffic Conditions scenario assumes that the existing roadway geometrics and traffic controls will remain in place. Figure 5 illustrates the Existing plus Project turning movement volumes, intersection geometrics, and traffic controls. This scenario assumes that the existing roadway geometrics and traffic controls will remain in place with the exception that the Project's frontage to North Avenue would be developed to City of Fresno standards. LOS worksheets for the Existing plus Project Traffic Conditions scenario are provided in Appendix F. Table III presents a summary of the Existing plus Project peak hour LOS at the study intersections.

Under this scenario, the intersection of North Avenue and State Route 99 SB Off-Ramp is projected to exceed its LOS threshold during the AM peak period. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.

- Add a southbound left-turn lane
- Modify the southbound left-through lane to a through lane
- Lengthen the short southbound flared right-turn lane to create a standard length right-turn lane
- Signalize the intersection with protected left-turn phasing in the northbound and southbound directions and split phasing in the eastbound and westbound directions

### Table III: Existing plus Project Intersection LOS Results

| ID | Intersection | Intersection Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| | | | Average Delay (sec/veh) | LOS | Average Delay (sec/veh) | LOS |
| 1 | North Avenue / Orange Avenue | Signalized | 24.0 | C | 37.6 | D |
| 2 | North Avenue / Project Driveway | Two-Way STOP | 11.6 | B | 10.6 | B |
| 3 | North Avenue / State Route 99 SB Off-Ramp | Two-Way STOP | **53.1** | **F** | 22.9 | C |
| | | Signalized (Mitigated) | 51.2 | D | 32.1 | C |
| 4 | North Avenue / State Route 99 NB On-Ramp | Unsignalized | 5.3 | A | 6.4 | A |
| 5 | North Avenue / Cedar Avenue | Signalized | 25.8 | C | 29.3 | C |
| 6 | North Avenue / Chestnut Avenue | Signalized | 15.7 | B | 14.6 | B |
| 7 | State Route 99 NB Off-Ramp / Cedar Avenue | Two-Way STOP | 10.6 | B | 10.2 | B |
| 8 | Parkway Drive / Cedar Avenue | Two-Way STOP | 11.3 | B | 12.0 | B |

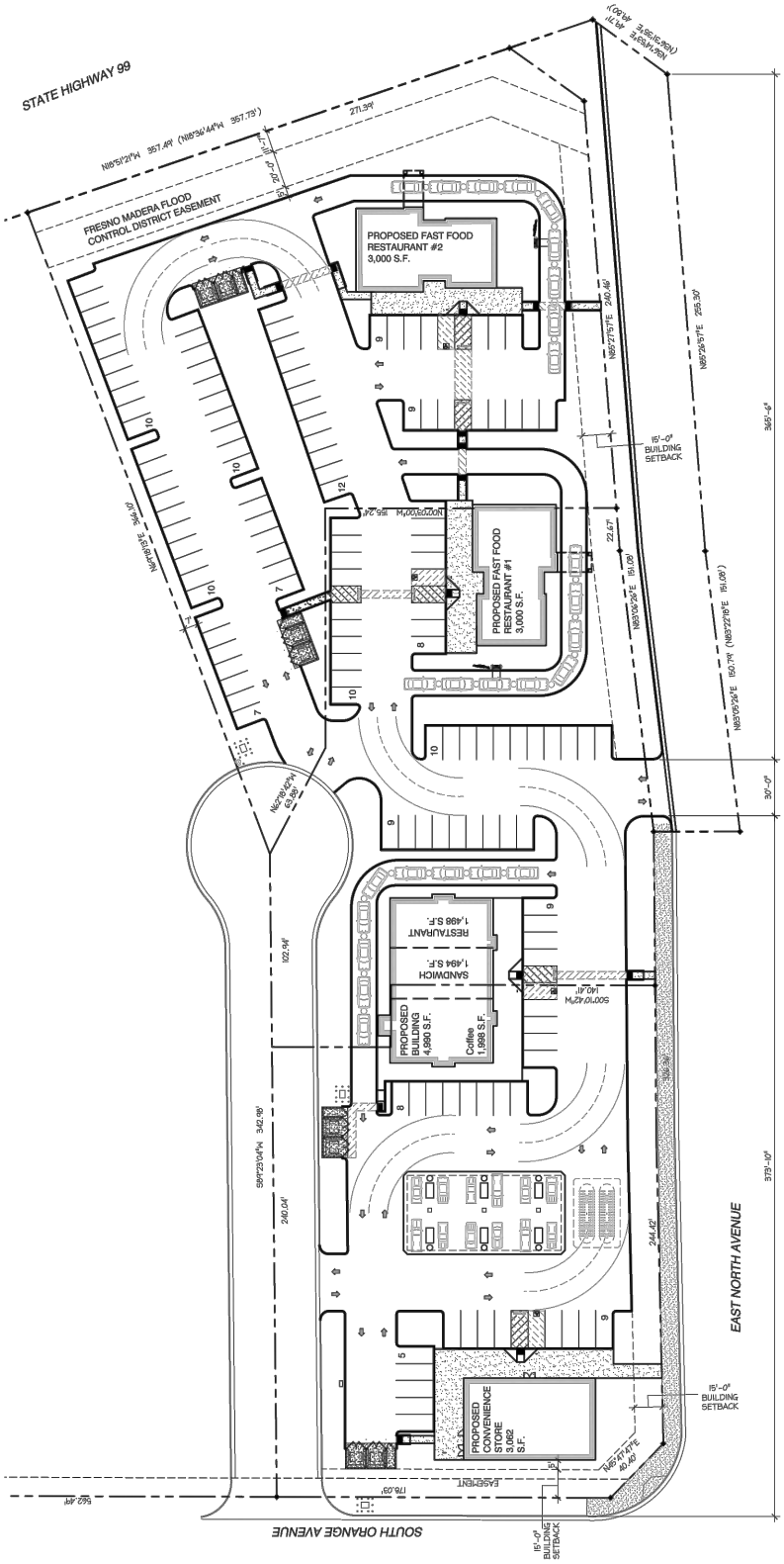
Note: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for Two-Way and One-Way STOP controlled intersections are based on the worst approach/movement of the minor street.

## Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the unsignalized study intersections in the Existing plus Project Traffic Conditions scenario. These warrants are found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersection of North Avenue and State Route 99 SB Off-Ramp satisfies peak hour signal warrants during the AM and PM peaks, while North Avenue and State Route 99 NB On-Ramp satisfies the PM peak hour signal warrant. Based on the signal warrants and engineering judgment, signalization of the intersection of North Avenue and State Route 99 SB Off-Ramp is recommended while that of North Avenue and State Route 99 NB On-Ramp is not. It is worth noting that CA MUTCD states "satisfaction of a signal warrant or warrants shall not in itself require the installation of a traffic signal." Therefore, it is recommended that prior to the installation of a traffic signal, investigation of CA MUTCD warrants 1, 4, and 7, as applicable, be conducted for the intersection of North Avenue and State Route 99 NB On-Ramp.

# City of Fresno - North and Orange TIA
# Project Site Plan

Figure 3





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Not To Scale

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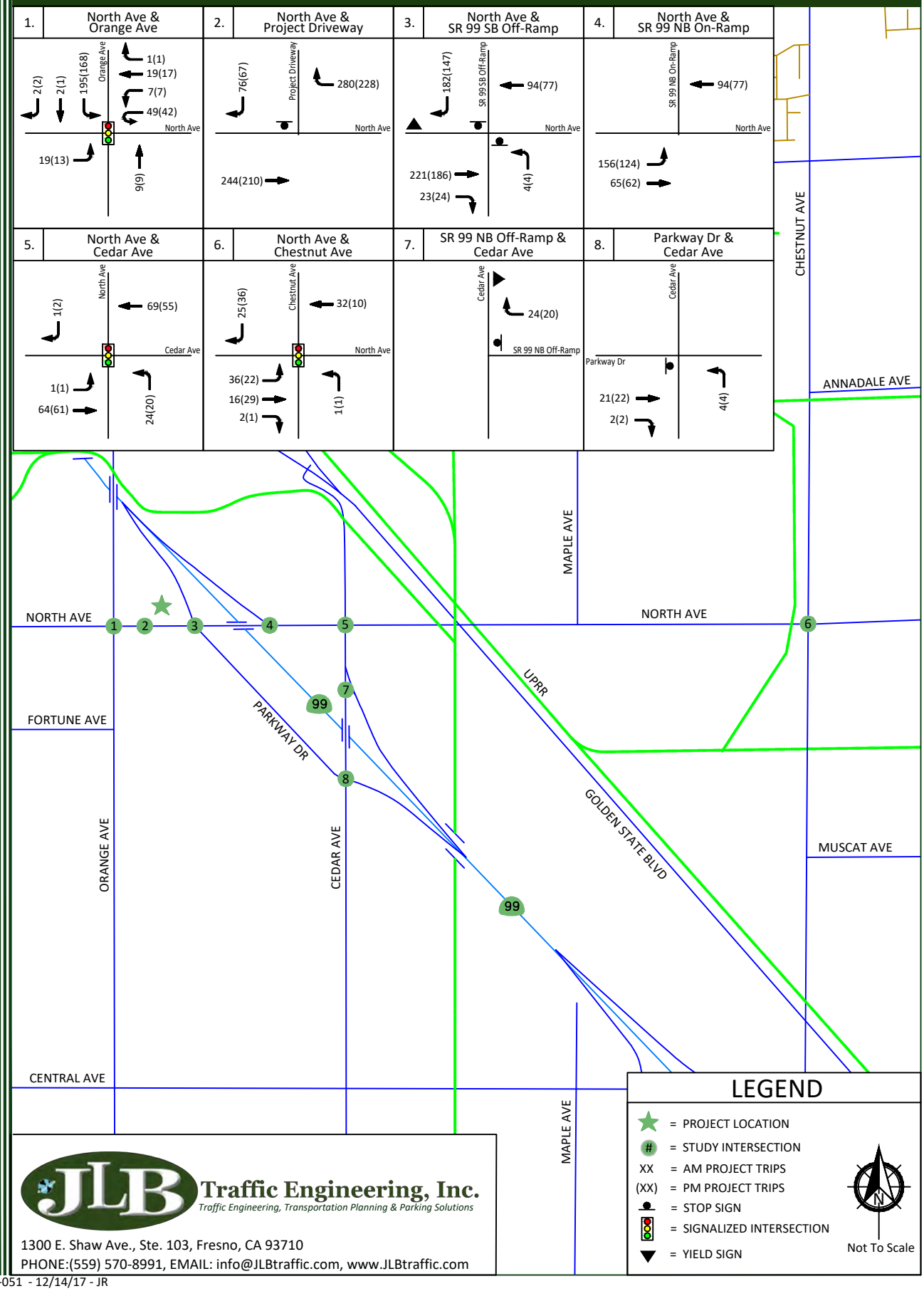
# City of Fresno - North and Orange TIA
## 2017 Project Only Trips

Figure 4





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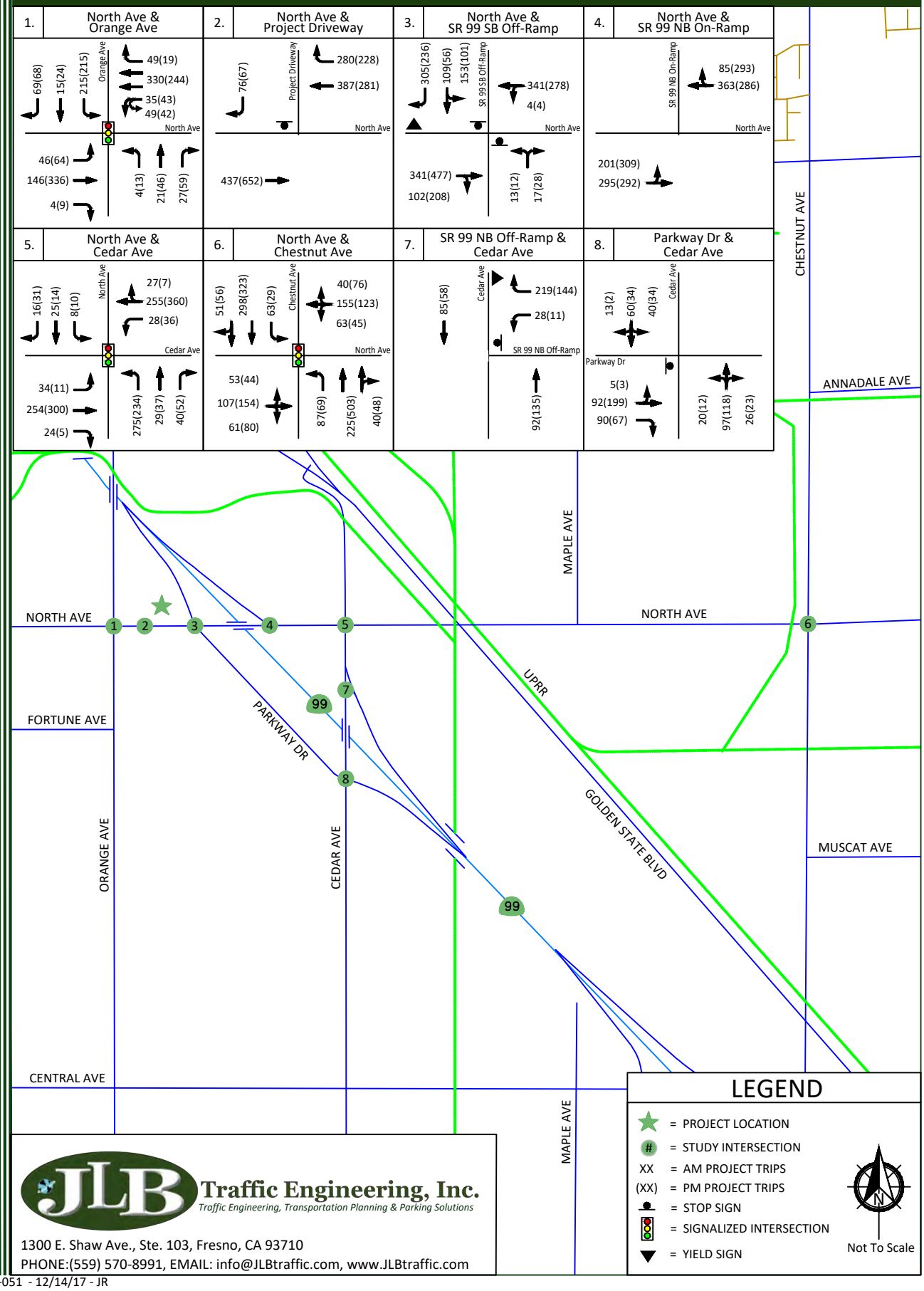
# City of Fresno - North and Orange TIA
# Exisitng + Project - Traffic Volumes, Geometrics and Controls

Figure 5





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# Near Term plus Project Traffic Conditions

## Description of Approved and Pipeline Projects

Approved and Pipeline Projects consist of developments that are either under construction, built but not fully occupied, are not built but have final site development review (SDR) approval, or for which the lead agency or responsible agencies have knowledge of. City of Fresno and County of Fresno staff were consulted throughout the preparation of this TIA regarding approved and/or known of projects that could potentially impact the study intersections.

On December 13, 2017, JLB staff conducted a reconnaissance of the surrounding area to confirm the near term projects listed in Table IV were the only projects that could potentially impact the study intersections analyzed in the Near Term plus Project Traffic Conditions. Therefore, it was agreed that the projects listed in Table IV were approved, near approval, or in the pipeline within the proximity of the Project site.

The trip generation listed in Table IV is that which is anticipated to be added to the streets and highways by these projects between the time of the preparation of this report and five (5) years after build-out of the Project. As shown in Table IV, the total trip generation for the Near Term Projects is 28,023 daily trips, 3,648 AM peak hour trips, and 3,780 PM peak hour trips. Figure 6 illustrates the location of the approved, near approval, or pipeline projects and their combined trip assignment to the study intersections under the Near Term plus Project Traffic Conditions scenario.

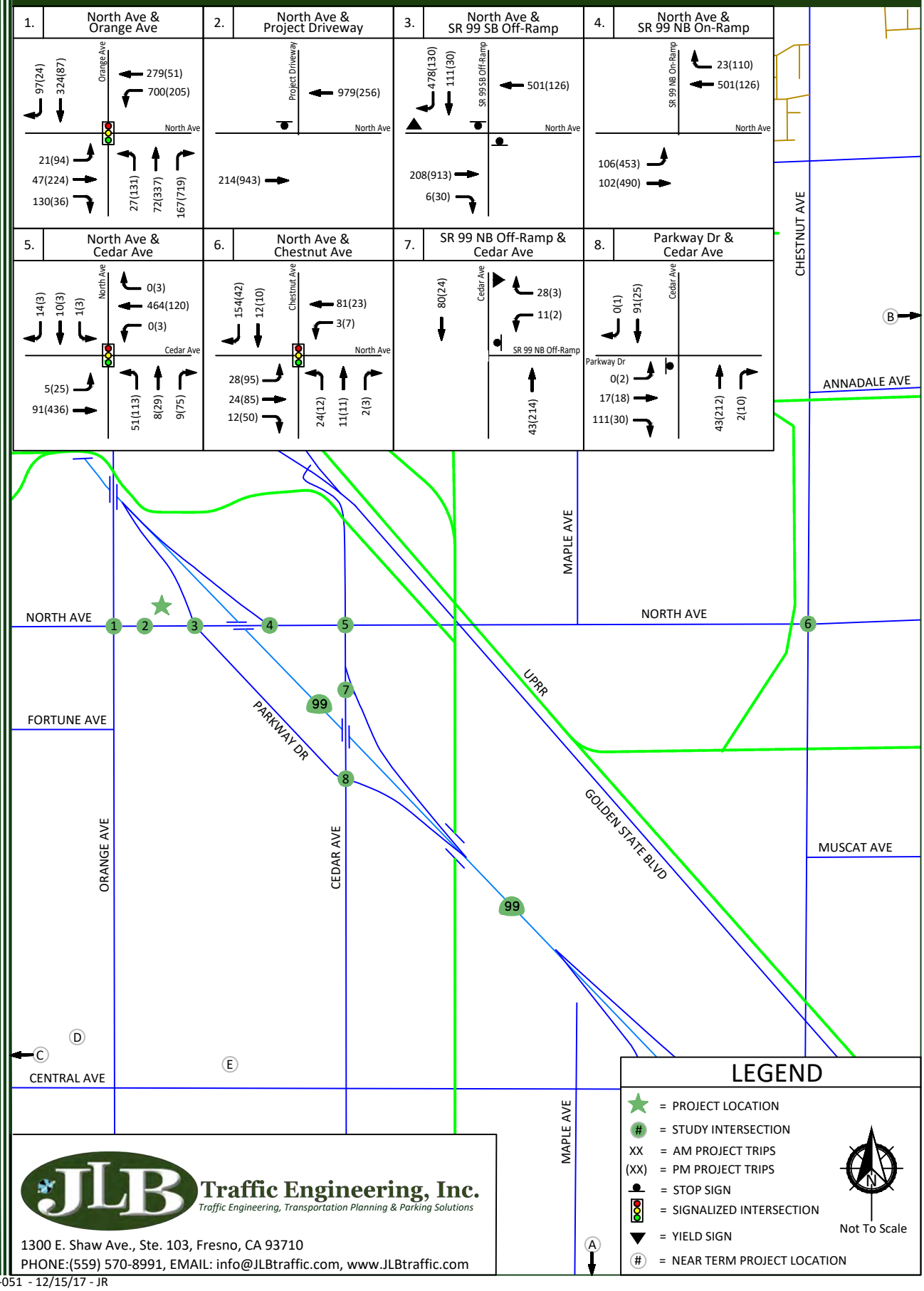
### Table IV: Near Term Projects' Trip Generation

| *Approved Project Location* | *Approved or Pipeline Project Name* | *Daily Trips* | *AM Peak Hour* | *PM Peak Hour* |
|---|---|---|---|---|
| A | 4780 S Maple Ave Rezone[1] | 1,036 | 150 | 145 |
| B | 2778 S Willow Ave Rezone[1] | 1,547 | 261 | 301 |
| C | G3 Development (Ulta)[2] | 2,932 | 426 | 411 |
| D | TPM 2012-06 (Amazon)[3] | 14,519 | 1,744 | 1,807 |
| E | Orange Industrial[3] | 6,260 | 839 | 873 |
| F | North Pointe[4] (Portion of) | 1,729 | 228 | 243 |
| **Total Approved and Pipeline Project Trips** | | **28,023** | **3,648** | **3,780** |

Note: [1] = Trip Generation based on JLB Traffic Engineering, Inc. Traffic Impact Analysis Report
[2] = Trip Generation based on Yamabe & Horn Engineering, Inc. Traffic Impact Study Report
[3] = Trip Generation based on Precision Civil Engineering Traffic Impact Study Report
[4] = Trip Generation based on TJKM Transportation Consultants Traffic Impact Analysis Report

# City of Fresno - North and Orange TIA
# Near Term Projects' Trip Assignment

Figure 6





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## Results of Near Term plus Project Level of Service Analysis

The Near Term plus Project Traffic Conditions scenario assumes that the existing plus Project roadway geometrics and traffic controls will remain in place. Figure 7 illustrates the Near Term plus Project turning movement volumes, intersection geometrics and traffic controls. At present, developers of the Amazon Project have finalized street improvement plans to modify the intersection of North Avenue and Orange Avenue to include the following: 1) the modification of the eastbound trap right-turn lane into a through lane, 2) the striping of an eastbound right-turn lane, 3) the addition of a second westbound left-turn lane, and 4) the modification of the traffic signal to accommodate the modified lane geometrics. Based on information provided to JLB, these improvements will be built in 2018. However, to be conservative this TIA assumes that the baseline would remain in place under this study scenario. LOS worksheets from the Near Term plus Project Traffic Conditions scenario are provided n the Appendix G. Table V presents a summary of the Near Term plus Project peak hour LOS at the study intersections.

Under this scenario, the intersections of North Avenue and Orange Avenue, North Avenue and State Route 99 SB Off-Ramp, and North Avenue and Cedar Avenue are projected to exceed their respective LOS threshold during one or both peak periods. To improve the LOS at each of the intersections projected to exceed its LOS threshold, it is recommended that the following improvements be implemented.

- North Avenue and Orange Avenue
  - Implement the improvements per the approved City of Fresno Street improvement plans as prepared for the Amazon Project.
- North Avenue and State Route 99 SB Off-Ramp
  - Add a second eastbound through lane
  - Add a westbound left-turn lane
  - Modify the westbound left-through lane to a through lane
  - Add southbound dual left-turn lanes
  - Modify the southbound left-through lane to a through lane
  - Lengthen the southbound flared right-turn lane to create a standard length right-turn lane
  - Signalize the intersection with protected left-turn phasing in all directions
- North Avenue and State Route 99 NB On-Ramp (improvements needed to improve queuing)
  - Add eastbound dual left-turn lanes
  - Modify the eastbound left-through lane to a through lane
  - Add a second eastbound through lane
  - Add a second westbound through lane
  - Signalize the intersection with protected left-turn phasing in all directions
- North Avenue and Cedar Avenue
  - Convert the eastbound right-turn lane to a through-right lane
  - Add a second westbound through lane
  - Add a second northbound left-turn lane
  - Modify the traffic signal to accommodate the added lane geometrics

Between the Existing Traffic Conditions scenario and the Near Term plus Project Traffic Conditions scenario, the Project accounts for 22.1 percent of the daily trips, 15.0 percent of the AM peak hour trips, and 12.4 percent of the PM peak hour trips of growth in traffic, while the rest of the growth is attributable to the near term projects. Therefore, one can deduce that the mitigation measures presented under this scenario may not be necessary immediately upon completion of the proposed Project. However, if all of the near term projects are developed close to the completion date of the proposed Project, the detailed recommended improvements presented above may be necessary in order to improve the LOS to an acceptable threshold.

### Table V: Near Term plus Project Intersection LOS Results

| *ID* | *Intersection* | *Intersection Control* | *AM Peak Hour* | | *PM Peak Hour* | |
|---|---|---|---|---|---|---|
| | | | *Average Delay (sec/veh)* | *LOS* | *Average Delay (sec/veh)* | *LOS* |
| 1 | North Avenue / Orange Avenue | Signalized | **>120.0** | **F** | **>120.0** | **F** |
| | | Signalized (Mitigated) | 42.4 | D | 59.01 | E |
| 2 | North Avenue / Project Driveway | Two-Way STOP | 22.9 | C | 12.0 | B |
| 3 | North Avenue / State Route 99 SB Off-Ramp | Two-Way STOP | **>120.0** | **F** | **>120.0** | **F** |
| | | Signalized (Mitigated) | 38.2 | D | 30.7 | C |
| 4 | North Avenue / State Route 99 NB On-Ramp | Unsignalized | 18.3 | C | 20.8 | C |
| | | Signalized (Mitigated) | 6.2 | A | 9.1 | A |
| 5 | North Avenue / Cedar Avenue | Signalized | **>120.0** | **F** | 79.2 | E |
| | | Signalized (Mitigated) | 25.6 | C | 41.7 | D |
| 6 | North Avenue / Chestnut Avenue | Signalized | 19.9 | B | 19.5 | B |
| 7 | State Route 99 NB Off-Ramp / Cedar Avenue | Two-Way STOP | 11.6 | B | 12.7 | B |
| 8 | Parkway Drive / Cedar Avenue | Two-Way STOP | 13.0 | B | 17.0 | C |

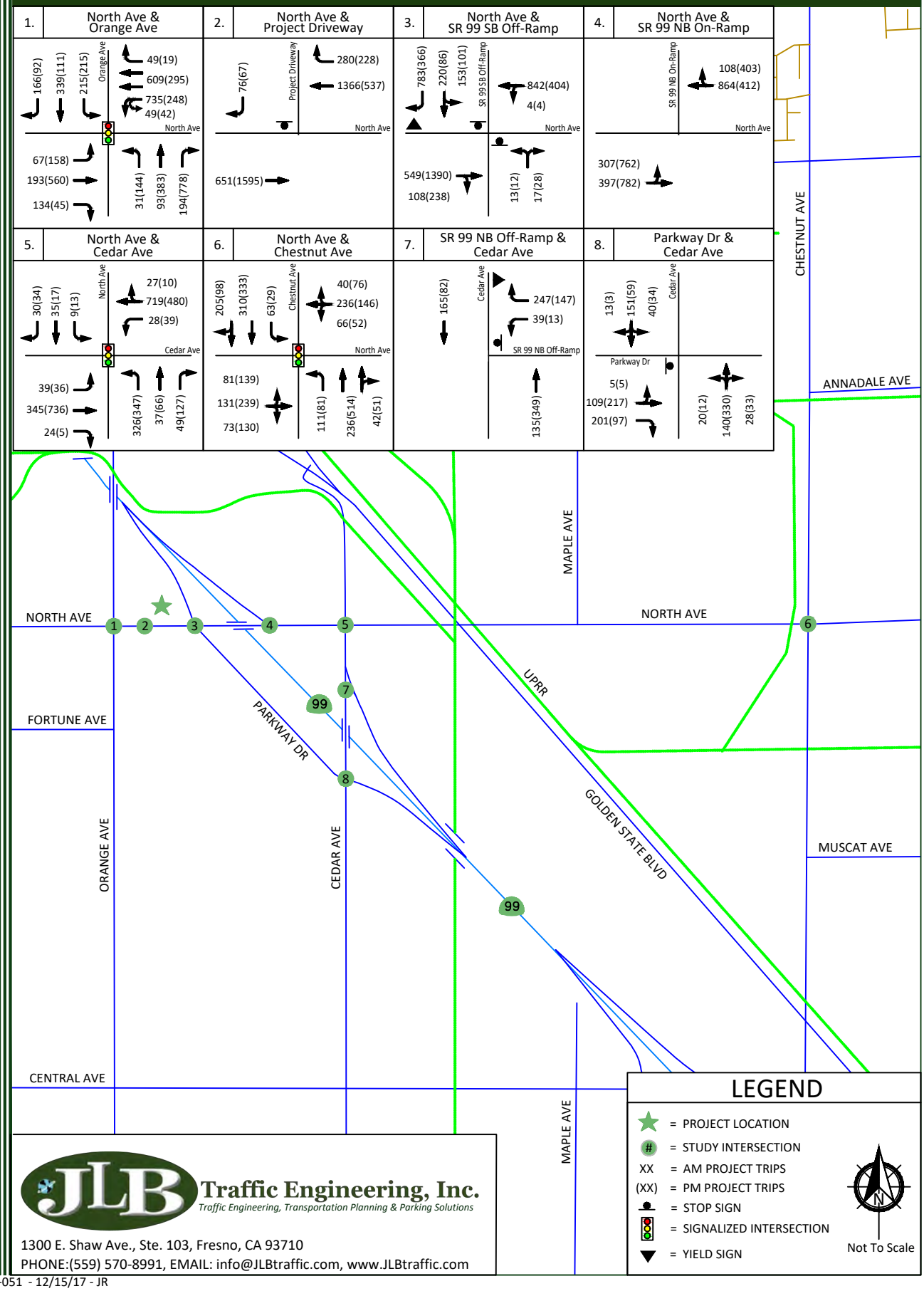
Notes: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for Two-Way and One-Way STOP controlled intersections are based on the worst approach/movement of the minor street.

## Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the unsignalized study intersections in the Near Term plus Project Traffic Conditions scenario. These warrants are found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, the intersections of North Avenue and State Route 99 SB Off-Ramp and North Avenue and State Route 99 NB On-Ramp satisfy peak hour signal warrants during the AM and PM peaks. Based on the signal warrants and engineering judgment, signalization of these intersections is recommended.

# City of Fresno - North and Orange TIA
## Near Term + Project - Traffic Volumes, Geometrics and Controls

Figure 7





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## Cumulative Year 2035 No Project Traffic Conditions

The Cumulative Year 2035 No Project Traffic Conditions scenario assumes that the existing roadway geometrics and traffic controls will remain in place with a few exceptions. By the year 2035, the baseline geometrics assume that the interchange of State Route 99 with North Avenue will be reconstructed and that the interchange of State Route 99 with Cedar Avenue will be removed. Furthermore, on December 6, 2016, Caltrans completed the preparation of a Project Study Report-Project Development Support (PSR-PDS) to request programming for funding for the Project Approval and Environmental Document Phase. The PSR-PDS contained four (4) interchange project alternatives. All four alternatives would remove the connection of Parkway Drive to North Avenue by redirecting it west towards Orange Avenue.

At the time of preparation of this TIA, a preferred project alternative had not been selected. For purposes of this study, it was assumed that Alternative 3: Spread Diamond would be implemented. Measure C has the reconstruction of the interchange of State Route 99 with North Avenue and Cedar Avenue as an Urban Tier 1, Project M. A total of $47.14 million has been programmed in Measure C, while the Fresno COG Regional Transportation Program (RTP) has programmed $12.50 million towards the North Avenue and Cedar Avenue interchange reconstruction. Therefore, a total of $59.64 million are being allocated for this project. Appendix H includes excerpts from the Measure C and Fresno COG RTP programs as well as the Alternative 3: Spread Diamond Interchange concept.

## Results of Cumulative Year 2035 No Project Level of Service Analysis

Figure 8 illustrates the Cumulative Year 2035 No Project total turning movement volumes, assumed intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2035 No Project Traffic Conditions scenario are provided in Appendix I. Table VI presents a summary of the Cumulative Year 2035 No Project peak hour LOS at the study intersections.

Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.

- North Avenue and Chestnut Avenue
  - Add an eastbound left-turn lane
  - Change the eastbound left-through-right lane to a through lane
  - Add an eastbound right-turn lane
  - Add a westbound left-turn lane
  - Change the westbound left-through-right lane to a through lane
  - Add a westbound right-turn lane
  - Modify the traffic signal to accommodate the added lane geometrics

**Table VI: Cumulative Year 2035 No Project Intersection LOS Results**

| ID | Intersection | Intersection Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| | | | Average Delay (sec/veh) | LOS | Average Delay (sec/veh) | LOS |
| 1 | North Avenue / Orange Avenue | Signalized | 37.3 | D | 55.8 | E |
| 2 | North Avenue / Project Driveway | Would Not Exist | N/A | N/A | N/A | N/A |
| 3 | North Avenue / State Route 99 SB Off-Ramp | Signalized | 23.9 | C | 13.4 | B |
| 4 | North Avenue / State Route 99 NB On-Ramp | Signalized | 15.2 | B | 22.9 | C |
| 5 | North Avenue / Cedar Avenue | Signalized | 18.5 | B | 42.2 | D |
| 6 | North Avenue / Chestnut Avenue | Signalized | **80.9** | **F** | **96.2** | **F** |
| | | Signalized (Mitigated) | 40.2 | D | 47.5 | D |
| 7 | State Route 99 NB Off-Ramp/ Cedar Avenue | Would Not Exist | N/A | N/A | N/A | N/A |
| 8 | Parkway Drive / Cedar Avenue | Two-Way STOP | 11.8 | B | 10.4 | B |

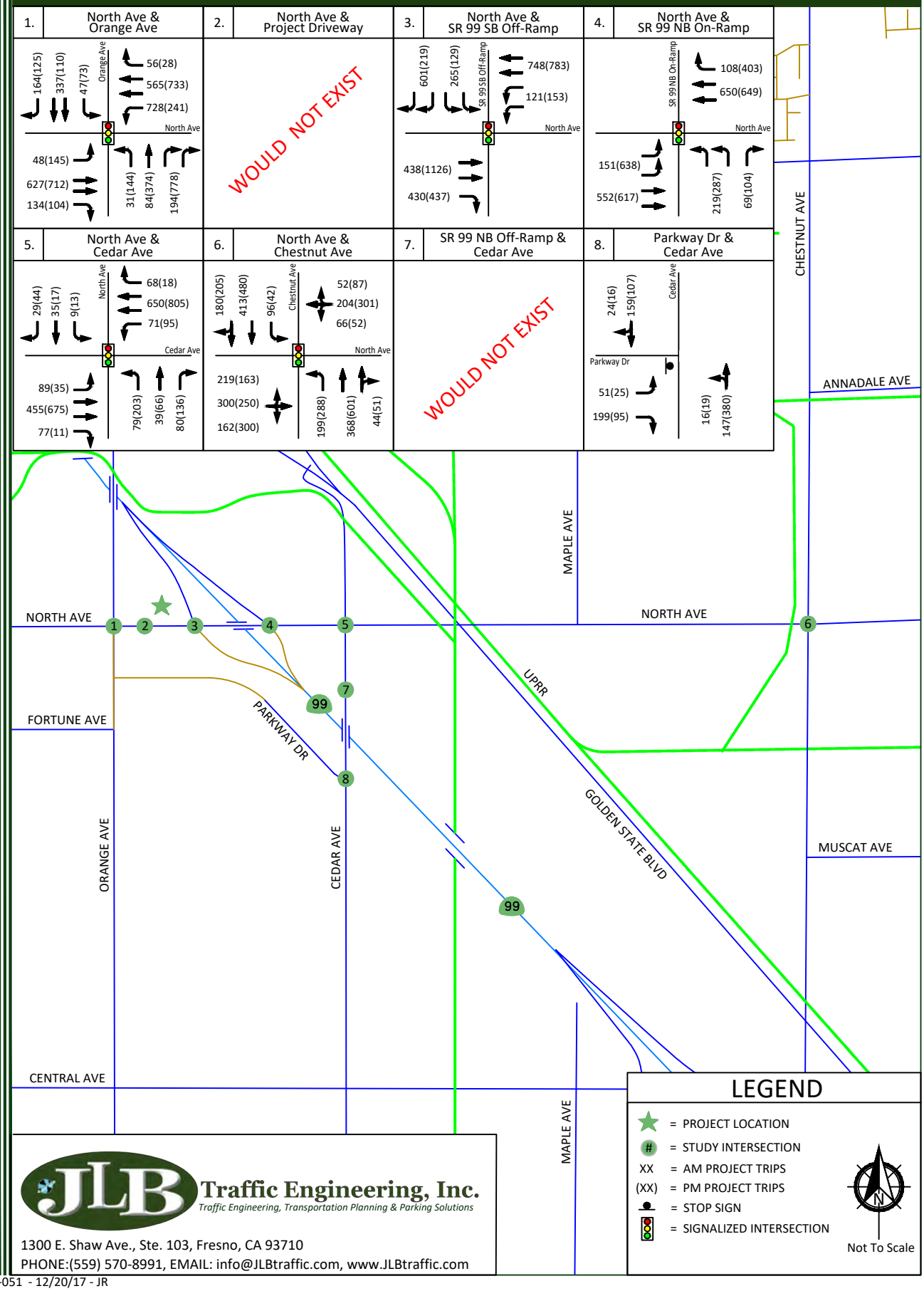
Notes: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for Two-Way and One-Way STOP controlled intersections are based on the worst approach/movement of the minor street.

## Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the unsignalized study intersections in the Cumulative Year 2035 No Project Traffic Conditions scenario. These warrants are found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, none of the unsignalized intersections satisfy peak hour signal warrants.

# City of Fresno - North and Orange TIA
# Cumulative Year 2035 No Project - Traffic Volumes, Geometrics and Controls

Figure 8





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## Cumulative Year 2035 plus Project Traffic Conditions

The Cumulative Year 2035 plus Project Traffic Conditions scenario assumes the same roadway geometrics and traffic controls as presented in the Cumulative Year 2035 No Project Traffic Conditions scenario. With these changes in the roadway network, it is projected that travel patterns may differ from what is anticipated for the immediate Project build-out. Figure 9 illustrates the 2035 Project Only Trips to the study intersections.

## Results of Cumulative Year 2035 plus Project Level of Service Analysis

Figure 10 illustrates the Cumulative Year 2035 plus Project turning movement volumes, intersection geometrics and traffic controls. LOS worksheets for the Cumulative Year 2035 plus Project Traffic Conditions scenario are provided in Appendix J. Table VII presents a summary of the Cumulative Year 2035 plus Project peak hour LOS at the study intersections.

Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the same improvements presented in the Cumulative Year 2035 No Project Traffic Conditions scenario be implemented.

### Table VII: Cumulative Year 2035 plus Project Intersection LOS Results

| ID | Intersection | Intersection Control | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|---|
| | | | Average Delay (sec/veh) | LOS | Average Delay (sec/veh) | LOS |
| 1 | North Avenue / Orange Avenue | Signalized | 62.2 | E | 62.4 | E |
| 2 | North Avenue / Project Driveway | Two-Way STOP | 23.6 | C | 16.7 | C |
| 3 | North Avenue / State Route 99 SB Off-Ramp | Signalized | 38.2 | D | 28.5 | C |
| 4 | North Avenue / State Route 99 NB On-Ramp | Signalized | 15.2 | B | 19.6 | B |
| 5 | North Avenue / Cedar Avenue | Signalized | 18.9 | B | 35.0 | C |
| 6 | North Avenue / Chestnut Avenue | Signalized | **103.3** | **F** | **116.5** | **F** |
| | | Signalized (Mitigated) | 47.0 | D | 53.5 | D |
| 7 | State Route 99 NB Off-Ramp / Cedar Avenue | Would Not Exist | N/A | N/A | N/A | N/A |
| 8 | Parkway Drive / Cedar Avenue | Two-Way STOP | 11.8 | B | 10.4 | B |

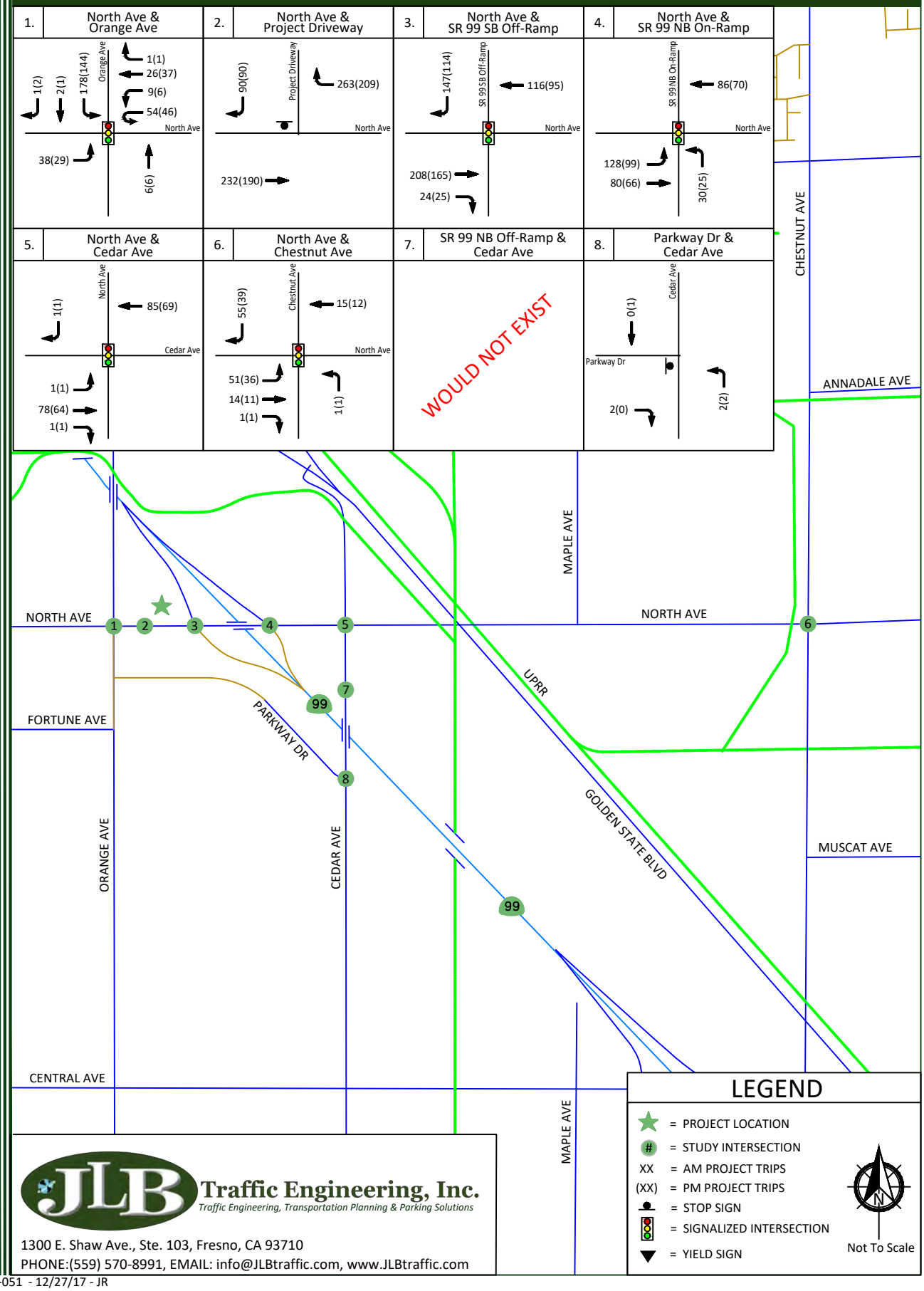
Notes: LOS = Level of Service based on average delay on signalized intersections and All-Way STOP Controls
LOS for Two-Way and One-Way STOP controlled intersections are based on the worst approach/movement of the minor street.

## Traffic Signal Warrants

Peak hour traffic signal warrants, as appropriate, were prepared for the unsignalized study intersections in the Cumulative Year 2035 plus Project Traffic Conditions scenario. These warrants are found in Appendix K. The effects of right-turning traffic from the minor approach onto the major approach were considered using engineering judgment pursuant to CA MUTCD guidelines for the preparation of traffic signal warrants. Under this scenario, none of the unsignalized intersections satisfy peak hour signal warrants.

# City of Fresno - North and Orange TIA
# 2035 Project Only Trips

Figure 9





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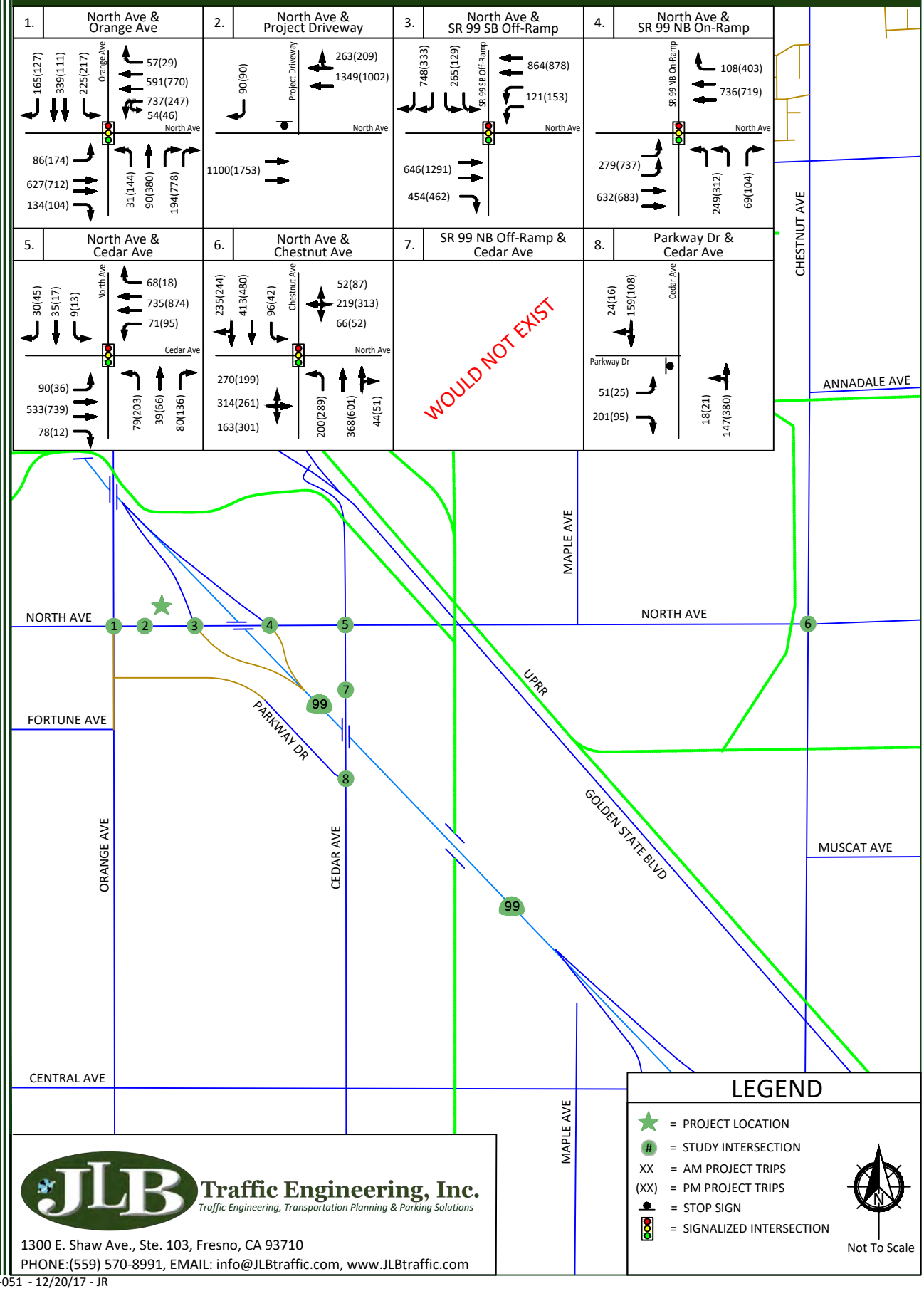
# City of Fresno - North and Orange TIA
# Cumulative Year 2035 + Project - Traffic Volumes, Geometrics and Controls

Figure 10





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# Queuing Analysis

Table VIII provides a queue length summary for left- and right-turn lanes at all study scenarios. The queuing analyses for the study intersections are contained in the LOS worksheets for the respective scenarios. Appendix A contains the methodologies used to evaluate these intersections.

Queuing analyses were completed using Sim Traffic output information. Synchro provides both 50th and 95th percentile maximum queue lengths in feet. Per the Synchro manual, "the 50th percentile maximum queue is the maximum back of queue on a typical cycle and the 95th percentile queue is the maximum back of queue with 95th percentile volumes." The queues shown on Table VIII are the 95th percentile queue lengths for the respective lane movements.

The Highway Design Manual (HDM) provides guidance for determining deceleration lengths for the left- and right-turn lanes based on design speeds. Per the HDM criteria, "tapers for right-turn lanes are usually unnecessary since the main line traffic need not be shifted laterally to provide space for the right-turn lane. If, in some rare instances, a lateral shift were needed, the approach taper would use the same formula as for a left-turn lane." Therefore, a bay taper length pursuant to the Caltrans HDM would need to be added, as necessary, to the recommended storage lengths presented below.

## Table VIII: Queuing Analysis

| ID | Intersection | Existing Queue Storage Length (ft.) | | Existing | | Existing plus Project | | Near Term plus Project | | Cumulative 2035 No Project | | Cumulative 2035 plus Project | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| 1 | Orange Avenue / North Avenue | EB Left | 250 | 49 | 79 | 84 | 123 | 124 | 304 | 79 | 269 | 186 | 273 |
| | | EB Right | * | 9 | 12 | 6 | 11 | 130 | 58 | 104 | 148 | 109 | 82 |
| | | WB Left | 185 | 77 | 57 | 121 | 122 | * | * | * | * | * | * |
| | | WB Dual Lefts | * | * | * | * | * | 262 | 186 | 377 | 152 | 345 | 224 |
| | | WB Right | 100 | 48 | 24 | 45 | 20 | 110 | 24 | 35 | 82 | 94 | 84 |
| | | NB Left | 150 | 25 | 26 | 13 | 25 | 64 | 252 | 69 | 231 | 43 | 288 |
| | | NB Right | 150 | 34 | 59 | 37 | 46 | * | * | * | * | * | * |
| | | NB Dual Rights | * | * | * | * | * | 78 | 300 | 84 | 331 | 99 | 320 |
| | | SB Left | 100 | 32 | 74 | 198 | 175 | 212 | 185 | 84 | 125 | 209 | 203 |
| | | SB Right | 130 | 41 | 39 | 105 | 131 | 207 | 293 | 105 | 76 | 151 | 98 |
| 2 | North Avenue / Driveway | SB Right | * | * | * | 58 | 59 | 142 | 52 | * | * | 264 | 81 |
| 3 | North Avenue / SR 99 SB Off-Ramp | EB Right | * | 60 | 89 | 183 | 377 | 81 | 119 | 232 | 168 | 225 | 144 |
| | | WB Left | * | * | * | * | * | 3 | 2 | * | * | * | * |
| | | WB Dual Lefts | * | * | * | * | * | * | * | 83 | 95 | 70 | 97 |
| | | NB Left | * | 13 | 9 | 54 | 24 | 50 | 63 | * | * | * | * |
| | | NB Right | * | 34 | 47 | 38 | 63 | 53 | 71 | * | * | * | * |
| | | SB Left | * | * | * | 229 | 166 | 156 | 149 | * | * | * | * |
| | | SB Dual Lefts | * | * | * | * | * | * | * | 115 | 77 | 138 | 94 |
| | | SB Right | * | * | * | 134 | 88 | * | * | * | * | * | * |
| | | SB Dual Rights | * | * | * | * | * | 390 | 95 | 238 | 88 | 387 | 172 |
| 4 | North Avenue / SR 99 NB On-Ramp | EB Dual Lefts | * | * | * | * | * | 148 | 300 | 123 | 167 | 164 | 206 |
| | | WB Right | 85 | * | 60 | 36 | 50 | 40 | 247 | 88 | 157 | 64 | 185 |
| | | NB Dual Lefts | * | * | * | * | * | * | * | 133 | 158 | 136 | 146 |
| | | NB Right | * | * | * | * | * | * | * | 84 | 86 | 78 | 84 |

## Table VIII: Queuing Analysis (cont.)

| ID | Intersection | Existing Queue Storage Length (ft.) | | Existing | | Existing plus Project | | Near Term plus Project | | Cumulative 2035 No Project | | Cumulative 2035 plus Project | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | AM | PM | AM | PM | AM | PM | AM | PM | AM | PM |
| 5 | Cedar Avenue / North Avenue | EB Left | 150 | 78 | 46 | 67 | 50 | 89 | 68 | 133 | 101 | 127 | 68 |
| | | EB Right | 100 | 46 | 7 | 32 | 7 | * | * | 54 | 26 | 72 | 19 |
| | | WB Left | 150 | 69 | 58 | 70 | 105 | 91 | 85 | 102 | 162 | 120 | 161 |
| | | WB Right | * | * | * | * | * | * | * | 51 | 33 | 53 | 17 |
| | | NB Left | 180 | 167 | 169 | 242 | 254 | * | * | 120 | 258 | 126 | 337 |
| | | NB Dual Lefts | * | * | * | * | * | 182 | 250 | * | * | * | * |
| | | NB Right | 180 | 36 | 50 | 41 | 53 | 71 | 90 | 43 | 124 | 69 | 118 |
| | | SB Left | 155 | 31 | 32 | 32 | 62 | 31 | 71 | 30 | 56 | 29 | 41 |
| | | SB Right | 355 | 49 | 63 | 41 | 93 | 68 | 53 | 46 | 53 | 37 | 80 |
| 6 | Chestnut Avenue / North Avenue | EB Left | * | * | * | * | * | * | * | 247 | 370 | 242 | 343 |
| | | EB Right | * | * | * | * | * | * | * | 76 | 193 | 94 | 244 |
| | | WB Left | * | * | * | * | * | * | * | 122 | 116 | 83 | 107 |
| | | WB Right | * | * | * | * | * | * | * | 71 | 85 | 66 | 197 |
| | | NB Left | 245 | 101 | 76 | 97 | 106 | 126 | 124 | 276 | 365 | 365 | 322 |
| | | SB Left | 150 | 89 | 56 | 86 | 76 | 82 | 51 | 125 | 57 | 151 | 95 |
| 7 | Cedar Avenue / SR 99 NB Off-Ramp | WB Left | >300 | 40 | 27 | 38 | 45 | 56 | 26 | * | * | * | * |
| | | WB Right | * | * | * | * | 31 | 149 | 53 | * | * | * | * |
| 8 | Cedar Avenue / Parkway Drive | EB Left | * | * | * | * | * | * | * | 92 | 20 | 56 | 23 |
| | | EB Right | 100 | 60 | 22 | 42 | 12 | 141 | 41 | 123 | 37 | 80 | 23 |

Note: * = Does not exist or is not projected to exist

Based on the Synchro output files and traffic engineering judgement, it is recommended that the storage capacity for the following be considered for the Cumulative Year 2035 plus Project Traffic Conditions.

- Orange Avenue and North Avenue
  - Consider increasing the storage capacity of the eastbound left-turn lane to 275 feet.
  - Consider setting the storage capacity of the eastbound right-turn lane to 150 feet.
  - Consider setting the storage capacity of the westbound dual left-turn lanes to 375 feet.
  - Consider increasing the storage capacity of the westbound right-turn lane to 125 feet.
  - Consider increasing the storage capacity of the northbound left-turn lane to 300 feet.
  - Consider increasing the storage capacity of the northbound dual right-turn lanes to 325 feet.
  - Consider increasing the storage capacity of the southbound left-turn lane to 200 feet.
  - Consider increasing the storage capacity of the southbound right-turn lane to 150 feet.
- North Avenue and State Route 99 SB Off-Ramp
  - Consider setting the storage capacity of the eastbound right-turn lane to 225 feet.
  - Consider setting the storage capacity of the westbound dual left-turn lanes to 100 feet.
  - Consider setting the storage capacity of the southbound dual left-turn lanes to 150 feet.
  - Consider setting the storage capacity of the southbound dual right-turn lanes to 400 feet.

- North Avenue and State Route 99 NB On-Ramp
  - Consider setting the storage capacity of the eastbound dual left-turn lanes to 225 feet.
  - Consider increasing the storage capacity of the westbound right-turn lane to 200 feet.
  - Consider setting the storage capacity of the northbound dual left-turn lanes to 175 feet.
  - Consider setting the storage capacity of the northbound right-turn lane to 100 feet.
- Cedar Avenue and North Avenue
  - Consider increasing the storage capacity of the westbound left-turn lane to 175 feet.
  - Consider setting the storage capacity of the westbound right-turn lane to 75 feet.
  - Consider increasing the storage capacity of the northbound left-turn lane to 350 feet.
- Chestnut Avenue and North Avenue
  - Consider setting the storage capacity of the eastbound left-turn lane to 375 feet.
  - Consider setting the storage capacity of the eastbound right-turn lane to 250 feet.
  - Consider setting the storage capacity of the westbound left-turn lane to 125 feet.
  - Consider setting the storage capacity of the westbound right-turn lane to 200 feet.
  - Consider increasing the storage capacity of the northbound left-turn lane to 375 feet
- Cedar Avenue and Parkway Drive
  - Consider setting the storage capacity of the eastbound left-turn lane to 100 feet.
  - Consider setting the storage capacity of the eastbound right-turn lane to 125 feet.

At the remaining approaches to the study intersections, the existing or planned storage capacity will be sufficient to accommodate the maximum queue.

## Project's Pro-Rata Fair Share of Future Transportation Improvements

The Project's fair share percentage impacts to the future improvements which are not fully funded by existing impact fee programs are provided in Table IX. Caltrans guidelines for the Preparation of Traffic Impact Studies. The Project's pro-rata fair shares were calculated utilizing the Existing volumes, 2035 Project Only Trips, and the Cumulative Year 2035 plus Project volumes. Figure 2 illustrates the Existing volumes, Figure 9 illustrates the 2035 Project Only Trips, and Figure 10 illustrates the Cumulative Year 2035 plus Project traffic volumes. Since the critical peak period for the study facilities was determined to be during the AM peak, the AM peak volumes are utilized to determine the Project's pro-rata fair share.

It is recommended that the Project contribute its equitable fair share as listed in Table IX for the future improvements necessary to maintain an acceptable LOS or turn lane storage capacity. However, fair share contributions should only be made for those facilities or portion thereof currently not funded by the responsible agency roadway impact fee program(s), as appropriate. For those improvements not presently covered by local and regional roadway impact fee programs, it is recommended that the Project contribute its equitable fair share. Payment of the Project's equitable fair share in addition to the local and regional impact fee programs would satisfy the Project's traffic mitigation measures.

This study does not provide construction costs for the recommended mitigation measures; therefore, if the recommended mitigation measures are implemented, it is recommended that the developer work with the City of Fresno to develop the estimated construction cost.

### Table IX: Project's Fair of Share of Future Roadway Improvements

| *ID* | *Intersection* | *Existing Traffic Volumes (AM Peak)* | *Cumulative Year 2035 + Project Traffic Volumes (AM Peak)* | *2035 Project Only Trips (AM Peak)* | *Project's Fair Share (%)* |
|---|---|---|---|---|---|
| 3 | North Avenue / SR 99 SB Off-Ramp | 861 | 3,098 | 495 | 22.13% |
| 4 | North Avenue / SR 99 NB Off-Ramp | 629 | 2,073 | 324 | 22.44% |
| 5 | North Avenue / Cedar Avenue | 856 | 1,847 | 166 | 16.75% |
| 6 | North Avenue / Chestnut Avenue | 1,131 | 2,440 | 137 | 10.47% |

Note: Project Fair Share = ((2035 Project Only Trips) / (Cumulative Year 2035 + Project Traffic Volumes - Existing Traffic Volumes)) x 100

# Conclusions and Recommendations

Conclusions and recommendations regarding the proposed Project are provided below.

## *Existing Traffic Conditions*

- At present, all study intersections operate at an acceptable LOS during the AM and PM peak periods.

## *Existing plus Project Traffic Conditions*

- A review of the existing Project site property lines and the Project driveways to be constructed indicate that the proposed access driveways are located at points that minimize traffic operational impacts to the existing roadway network.
- It is recommended that the Project implement Class II bike lanes along its frontage to North Avenue.
- At build-out, the Project is estimated to generate a maximum of 7,965 daily trips, 644 AM peak hour trips and 536 PM peak hour trips.
- Under this scenario, the intersection of North Avenue and State Route 99 SB Off-Ramp is projected to exceed its LOS threshold during the AM peak period. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.
  - Add a southbound left-turn lane
  - Modify the southbound left-through lane to a through lane
  - Lengthen the short southbound flared right-turn lane to create a standard length right-turn lane
  - Signalize the intersection with protected left-turn phasing in the northbound and southbound directions and split phasing in the eastbound and westbound directions

## *Near Term plus Project Traffic Conditions*

- The total trip generation for the Near Term Projects is 28,023 daily trips, 3,648 AM peak hour trips, and 3,780 PM peak hour trips.
- The Project accounts for 22.1 percent of the daily trips, 15.0 percent of the AM peak hour trips, and 12.4 percent of the PM peak hour trips of growth in traffic, while the rest of the growth is attributable to the near term projects. Therefore, one can deduce that the mitigation measures presented under this scenario may not be necessary immediately upon completion of the proposed Project.
- Under this scenario, the intersections of North Avenue and Orange Avenue, North Avenue and State Route 99 SB Off-Ramp, and North Avenue and Cedar Avenue are projected to exceed their respective LOS threshold during one or both peak periods. To improve the LOS at each of the intersections projected to exceed its LOS threshold, it is recommended that the following improvements be implemented.
  - North Avenue and Orange Avenue
    - Implement the improvements per the approved City of Fresno Street improvement plans as prepared for the Amazon Project.
  - North Avenue and State Route 99 SB Off-Ramp
    - Add a second eastbound through lane
    - Add a westbound left-turn lane
    - Modify the westbound left-through lane to a through lane
    - Add southbound dual left-turn lanes

    - Modify the southbound left-through lane to a through lane
    - Lengthen the southbound flared right-turn lane to create a standard length right-turn lane
    - Signalize the intersection with protected left-turn phasing in all directions
  - North Avenue and State Route 99 NB On-Ramp (improvements needed to improve queuing)
    - Add eastbound dual left-turn lanes
    - Modify the eastbound left-through lane to a through lane
    - Add a second eastbound through lane
    - Add a second westbound through lane
    - Signalize the intersection with protected left-turn phasing in all directions
  - North Avenue and Cedar Avenue
    - Convert the eastbound right-turn lane to a through-right lane
    - Add a second westbound through lane
    - Add a second northbound left-turn lane
    - Modify the traffic signal to accommodate the added lane geometrics

### *Cumulative Year 2035 No Project Traffic Conditions*

- Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the following improvements be implemented.
  - North Avenue at Chestnut Avenue
    - Add an eastbound left-turn lane
    - Change the eastbound left-through-right lane to a through lane
    - Add an eastbound right-turn lane
    - Add a westbound left-turn lane
    - Change the westbound left-through-right lane to a through lane
    - Add a westbound right-turn lane
    - Modify the traffic signal to accommodate the added lane geometrics

### *Cumulative Year 2035 plus Project Traffic Conditions*

- Under this scenario, the intersection of North Avenue and Chestnut Avenue is projected to operate at an unacceptable LOS during the AM and PM peak periods. To improve the LOS at this intersection, it is recommended that the same improvements presented in the Cumulative Year 2035 No Project Traffic Conditions scenario be implemented.

### *Queuing Analysis*

- It is recommended that the City consider left- and right-turn lane storage lengths as indicated in the Queuing Analysis.

### *Project Equitable Fair Share Impact Analysis*

- It is recommended that the Project contribute its equitable fair share as presented in Table IX.

# Study Participants

**JLB Traffic Engineering, Inc. Personnel:**

| | |
|---|---|
| Jose Luis Benavides, P.E., T.E. | Project Manager |
| Susana Maciel, E.I.T. | Engineering I/II |
| Alan Miao, E.I.T. | Engineer I/II |
| Jove Alcazar | Engineer I/II |
| Javier Rios | Engineer I/II |
| Veronica Benavides | Clerical |

**Persons Consulted:**

| | |
|---|---|
| Jill Gormley, P.E. | City of Fresno |
| Harpreet Kooner | County of Fresno |
| Tong Xiong | County of Fresno |
| David Padilla | Caltrans |
| Kai Han, T.E. | Fresno COG |
| Neil Angelillo | True North properties |

# References

1. *Trip Generation,* 10th Edition, Washington D.C., Institute of Transportation Engineers, 2017
2. City of Fresno, *2035 General Plan*
3. *County of Fresno, 2000 General Plan*
4. *2014 California Manual on Uniform Traffic Control Devices*, Caltrans, November 7, 2014
5. Guide for the Preparation of Traffic Impact Studies, Caltrans, dated December 2002.
6. Final 2006 Measure "C" Extension Expenditure Plan
7. Fresno COG 2014 Regional Transportation Plan

# Appendix A: Scope of Work

October 31, 2017

Mrs. Jill Gormley, PE
Traffic Engineer
City of Fresno
2600 Fresno Street
Fresno, CA 93721-3616

Via Email Only: Jill.Gormley@fresno.gov

***Subject:*** ***Proposed Draft Scope of Work for the Preparation of a Traffic Impact Analysis for the Proposed Commercial Development at the Northeast Corner of North Avenue and Orange Avenue in the City of Fresno (JLB Project 004-051)***

Dear Mrs. Gormley,

JLB Traffic Engineering, Inc. (JLB) hereby submits this Draft Scope of Work for the preparation of a Traffic Impact Analysis (TIA) for the proposed commercial development (Project) described below. The Project proposes to build a gasoline station with convenience market, and two fast food restaurants with drive-through windows on 3.92 acres at the northeast corner of North Avenue and Orange Avenue in the City of Fresno. Per information provided to JLB, the Project is consistent with the City of Fresno General Plan. An aerial of the Project vicinity and the Project site plan can be found in Exhibit A and Exhibit B respectively.

The purpose of this TIA is to evaluate the potential on- and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures, and identify any critical traffic issues that should be addressed in the on-going planning process. In order to evaluate the on and off-site traffic impacts of the proposed project, JLB proposes the following draft scope of work.

## *Scope of Work*

- Request a Fresno Council of Governments (Fresno COG) traffic forecast model run for the Project (Select Zone Analysis), which will include the Project and the streets to be analyzed. The Fresno COG traffic forecasting model will be used to forecast traffic volumes for the Base Year 2017 and Cumulative Year 2035 plus Project scenarios.
- JLB will evaluate existing and forecast levels of service (LOS) at the study intersection(s). JLB will use HCM 2010 methodologies within Synchro to perform this analysis for the AM and PM peak hours. JLB will identify the causes of poor LOS.
- Evaluate on-site circulation and provide recommendations as necessary to improve circulation to the site and within the Project site.
- As necessary, obtain recent (less than two years) or schedule and conduct new traffic counts at the study facility(ies).

- Perform a site visit to observe existing traffic conditions, especially during the AM and PM peak hours. Existing roadway conditions, including geometrics and traffic controls, will be verified.
- Forecast trip distribution based on turn count information, input from Fresno COG staff and knowledge of the existing and planned circulation network in the vicinity of the Project.
- Prepare California Manual on Uniform Traffic Control Devices (CA MUTCD) peak hour signal warrants for un-signalized study intersections.
- JLB will qualitatively analyze existing and planned transit routes in the Project's vicinity.
- JLB will qualitatively analyze existing and planned bikeways in the Project's vicinity.

***Study Scenarios:***

1. Existing traffic conditions with needed improvements (if any);
2. Existing plus Project traffic conditions with proposed improvement measures (if any);
3. Near Term plus Project traffic conditions with proposed mitigation measures (if any); and
4. Cumulative Year 2035 plus Project traffic conditions with proposed mitigation measures (if any).

***Weekday peak hours to be analyzed:***

1. 7 - 9 AM peak hour
2. 4 - 6 PM peak hour

***Study Intersections:***

1. North Avenue / Orange Avenue
2. North Avenue / Project Driveway (limited right in, and right out access)
3. North Avenue / SR 99 SB Off-Ramp
4. North Avenue / SR 99 NB On-Ramp
5. Cedar Avenue / SR 99 NB Off-Ramp
6. Cedar Avenue / SR 99 SB On-Ramp

Queuing analysis is included in the proposed scope of work for the study intersection(s) listed above under all study scenarios. This analysis will be utilized to recommend minimum storage lengths for left-turn and right-turn lanes at all study intersections.

***Study Segments:***

1. None

***Project Only Trip Assignment to the Following State Facilities:***

1. None

***Trip Generation***

Table I presents the trip generation for the proposed Project pursuant to the 9th Edition of the Trip Generation Manual with trip generation rates for a Gasoline/Service Station with Convenience Market, and the Fast-Food Restaurants with Drive-Through Windows. At build-out, the Project is estimated to generate a maximum of 5,907 daily trips, 456 AM peak hour trips and 439 PM peak hour trips.

**Table I: Project Only Trip Generation**

| Land Use (ITE Code) | Size | Unit | Daily | | AM Peak Hour | | | | | | PM Peak Hour | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rate | Total | Trip Rate | In % | Out % | In | Out | Total | Trip Rate | In % | Out % | In | Out | Total |
| Gasoline/Service Station with Convenience Market (945) | 18 | f.p. | 162.78 | 2,930 | 10.16 | 50 | 50 | 92 | 92 | 183 | 13.51 | 50 | 50 | 122 | 122 | 243 |
| Fast-Food Restaurant with Drive-Through Window (934) | 6.000 | k.s.f. | 496.12 | 2,977 | 45.42 | 51 | 49 | 139 | 134 | 273 | 32.65 | 52 | 48 | 102 | 94 | 196 |
| ***Total Project Trips*** | | | | **5,907** | | | | **231** | **226** | **456** | | | | **224** | **216** | **439** |

Note: f.p. = Fueling Positions
k.s.f. = Thousand Square Feet

## *Access to the Project*

Access to and from the Project site is from three points. One of the proposed access points is located along the north side of North Avenue at a point approximately 360 feet east of Orange Avenue and is proposed to be limited to right-in, and right-out access. The second and third proposed access points are located on the south side of a private street approximately 180 feet north of North Avenue. These two driveways are to be located approximately 120 and 270 feet east of Orange Avenue. The site plan, which can be found in Exhibit B, illustrates the proposed access points.

## *Near Term Projects to be Included*

Based on our local knowledge of the study area, JLB proposes to include projects in the vicinity of the proposed Project under the Near Term plus Project Analysis. The projects proposed to be included in the Near Term Scenario are:

| Project Name | General Location |
|---|---|
| 1. 4780 South Maple Avenue Rezone | NE corner of Maple/American |
| 2. 2778 South Willow Avenue | NW corner of Annandale/Willow |
| 3. G3 Development | NW corner of Central/East |
| 4. Amazon | NW corner of Central/Orange |
| 5. Orange Avenue Industrial Park | North side of Central between Orange/Cedar |

Other Near Term Projects the City of Fresno, County of Fresno or Caltrans has knowledge of and for which it is anticipated that said project(s) is/are projected to be whole or partially built by the Near Term Project Year 2022, the City of Fresno, County of Fresno or Caltrans, as appropriate, would need to provide JLB with near term project details. Near term project details include project description, location, proposed land uses with breakdowns and type of residential units and amount of square footages for non-residential uses.

The above scope of work is based on our understanding of this Project and our experience with similar Traffic Impact Analysis Projects. In the absence of comments by November 21, 2017, it will be assumed that the above scope of work is acceptable to the agency(ies) that have not submitted any comments to the proposed TIA Draft Scope of Work.

If you have any questions or require additional information, please contact me by phone at (559) 570-8991 or by e-mail at jbenavides@jlbtraffic.com.

Sincerely,

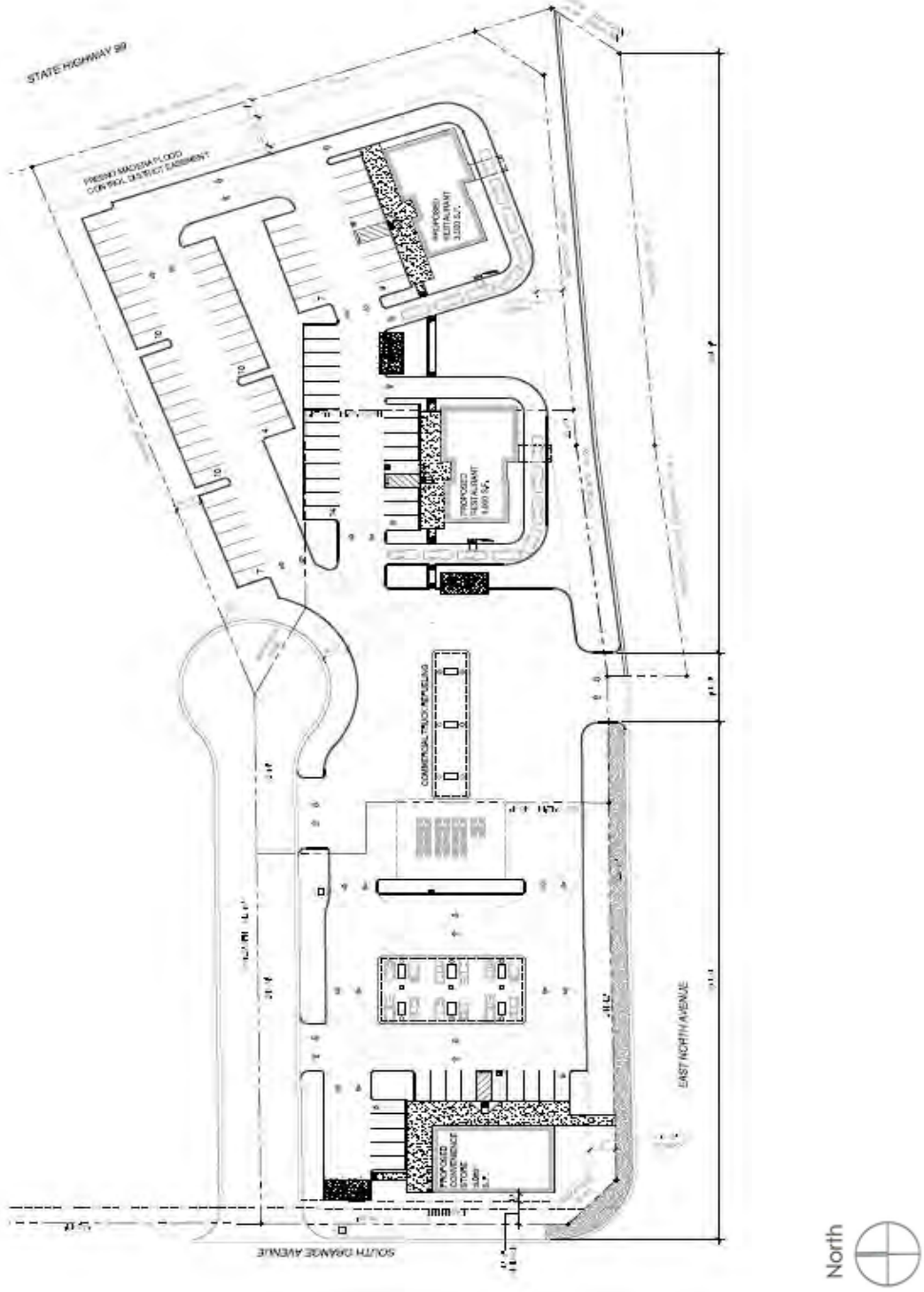
Jose Luis Benavides, P.E., T.E.
President

cc: Tong Xiong, County of Fresno
Harpreet Kooner, County of Fresno
David Padilla, Caltrans

*Z:\01 Projects\004 Fresno\004-051 North & Orange TIA\Draft Scope of Work\L10312017 Draft Scope of Work.docx*

# Exhibit A – Aerial

# Exhibit B – Site Plan



## Jose Benavides

**From:** Xiong, Tong (PWP) <tonxiong@co.fresno.ca.us>
**Sent:** Tuesday, November 21, 2017 2:42 PM
**To:** Jose Benavides
**Cc:** Kooner, Harpreet; Daniele, Frank
**Subject:** RE: North and Orange Avenue TIA

Good afternoon Jose,

Thanks for giving us the opportunity to review the scoping document for the gas station project located at the northeast corner of Orange Avenue and North Avenue. Fresno County Transportation Planning is in agreement with the content of the scope of work and requests the intersection of North Avenue and Chestnut Avenue and the study scenario Cumulative Year 2035 No Project be included in the study. Please be advised that Fresno County Transportation planning may request additional intersections to be studied once we have received a trip distribution figure for review.

Regards,

**Tong Xiong**

Design Division
Department of Public Works and Planning
2220 Tulare Street, 7th Floor
Fresno, CA 93721
Tel: (559) 600-4532
E-mail: tonxiong@co.fresno.ca.us

Please consider the environment before printing this e-mail

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**From:** Jose Benavides [mailto:jbenavides@jlbtraffic.com]
**Sent:** Tuesday, October 31, 2017 5:27 PM
**To:** Jill Gormley (Jill.Gormley@fresno.gov) <Jill.Gormley@fresno.gov>
**Cc:** Xiong, Tong (PWP) <tonxiong@co.fresno.ca.us>; Kooner, Harpreet <HKooner@co.fresno.ca.us>; David Padilla (dave_padilla@dot.ca.gov) <dave_padilla@dot.ca.gov>; Javier Rios <jrios@jlbtraffic.com>; Susana Maciel <smaciel@jlbtraffic.com>
**Subject:** North and Orange Avenue TIA

**County of Fresno**

**Internal Services Department (ISD) - IT Services**

Service Desk 600-5900 (Help Desk)

**CAUTION!!!**

**This email has been flagged as containing one or more attachments from an outside source.**

Please check the senders email address carefully.

If you were not expecting to receive an email with attachments, please **DO NOT** open the file.

Forward the email to SPAM "SPAM@co.fresno.ca.us" and delete it.

Good afternoon,

Attached you will find a proposed scope of work for a project in the City of Fresno for your review and comment. If your agency has no comments let us know as well.

Sincerely,

Jose Luis Benavides, P.E., T.E.
President

JLB Traffic Engineering, Inc.

*Traffic Engineering, Transportation Planning and Parking Solutions*
**Certified Disadvantaged Business Enterprise (DBE) and Small Business Enterprise (SBE)**

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Office: (559) 570-8991
Cell: (559) 694-6000
www.JLBtraffic.com

## Jose Benavides

**From:** Padilla, Dave@DOT <dave.padilla@dot.ca.gov>
**Sent:** Tuesday, November 28, 2017 8:08 AM
**To:** Jose Benavides; Jill Gormley (Jill.Gormley@fresno.gov)
**Cc:** Javier Rios; Susana Maciel; Navarro, Michael@DOT
**Subject:** RE: North and Orange Avenue TIA-Correction

Good Morning Jose,

The proposed scope of work for the traffic study appears to be satisfactory. Caltrans HDM Topic 504.8 indicates that driveways with right-in and right-out access can be permitted beyond 200 feet from a ramp intersection; however, further analysis will be needed in order to determine whether this is viable for existing conditions. In the future conditions the proposed driveway location may not meet access spacing. For the purpose of your analysis, I will forward you the PSR for this location in a separate email. It is also my understanding that access control may be purchased.

Thank you

David Padilla, Associate Transportation Planner
Office of Planning & Local Assistance
1352 W. Olive Avenue
Fresno, CA 93778-2616
Office: (559) 444-2493, Fax: (559) 445-5875
District 6

---

**From:** Jose Benavides [mailto:jbenavides@jlbtraffic.com]
**Sent:** Monday, November 27, 2017 11:26 AM
**To:** Jill Gormley (Jill.Gormley@fresno.gov) <Jill.Gormley@fresno.gov>
**Cc:** Padilla, Dave@DOT <dave.padilla@dot.ca.gov>; Javier Rios <jrios@jlbtraffic.com>; Susana Maciel <smaciel@jlbtraffic.com>
**Subject:** RE: North and Orange Avenue TIA

Good afternoon Jill and David,

I am following up with the two of you to inquire if you had any comments to the draft scope of work that we submitted on October 31. We would like to move forward with the analysis for submittal in the next few weeks. We already have comments from the County and they have requested that we add the intersection of North and Orange and that a 2035 No Project Scenario be added.

Sincerely,

Jose Luis Benavides, P.E., T.E.
President

JLB Traffic Engineering, Inc.

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**From:** Jose Benavides
**Sent:** Tuesday, October 31, 2017 5:27 PM
**To:** Jill Gormley (Jill.Gormley@fresno.gov) <Jill.Gormley@fresno.gov>
**Cc:** 'Xiong, Tong (PWP)' <tonxiong@co.fresno.ca.us>; Harpreet Kooner (HKooner@co.fresno.ca.us) <HKooner@co.fresno.ca.us>; David Padilla (dave_padilla@dot.ca.gov) <dave_padilla@dot.ca.gov>; Javier Rios <jrios@jlbtraffic.com>; Susana Maciel <smaciel@jlbtraffic.com>
**Subject:** North and Orange Avenue TIA

Good afternoon,

Attached you will find a proposed scope of work for a project in the City of Fresno for your review and comment. If your agency has no comments let us know as well.

Sincerely,

Jose Luis Benavides, P.E., T.E.
President

JLB Traffic Engineering, Inc.

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1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
Office: (559) 570-8991
Cell: (559) 694-6000
www.JLBtraffic.com

## Jose Benavides

**From:** Jill Gormley <Jill.Gormley@fresno.gov>
**Sent:** Friday, December 8, 2017 9:26 AM
**To:** Jose Benavides
**Cc:** David Padilla (dave_padilla@dot.ca.gov); Javier Rios; Susana Maciel
**Subject:** RE: North and Orange Avenue TIA

Please add the intersection of Cedar/North to the analysis.

jmg

# Appendix B: Traffic Counts

**Metro Traffic Data Inc.**
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

# Turning Movement Report

Prepared For:
**Precision Civil Engineering, Inc.**
1234 "O" Street
Fresno, CA 93721

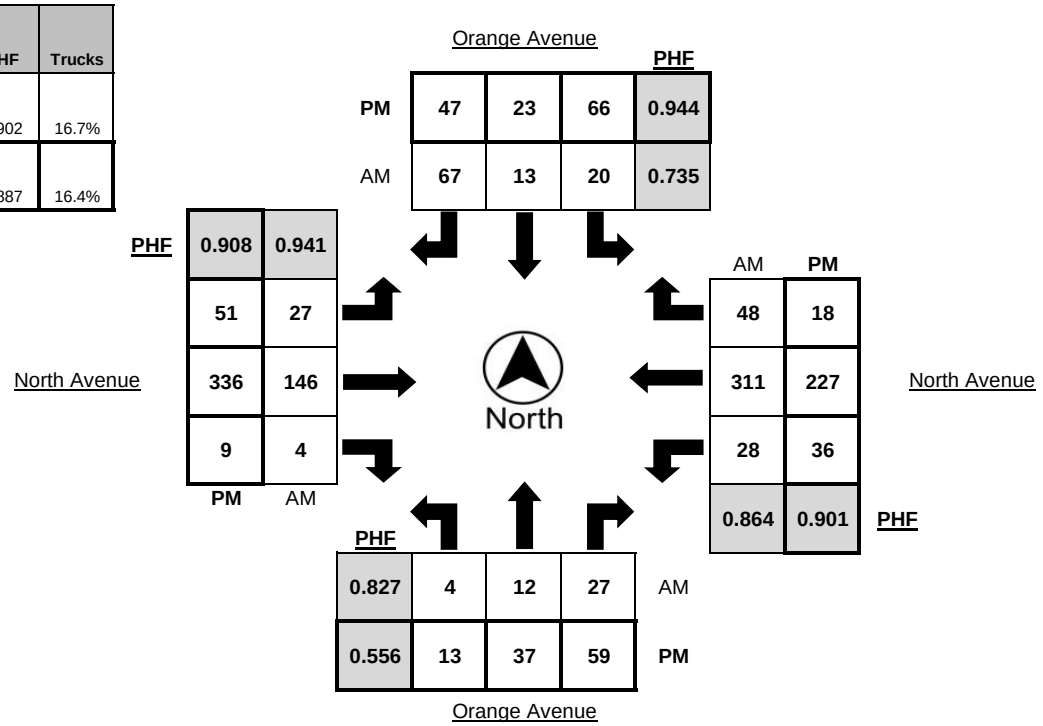
**LOCATION** Orange Avenue @ North Avenue
**LATITUDE** 36.692431°
**COUNTY** Fresno
**LONGITUDE** -119.763730°
**COLLECTION DATE** Thursday, April 28, 2016
**WEATHER** Clear

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Time** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **7:00 AM - 7:15 AM** | 0 | 2 | 2 | 1 | 7 | 2 | 11 | 1 | 11 | 34 | 0 | 14 | 12 | 75 | 14 | 13 |
| **7:15 AM - 7:30 AM** | 2 | 4 | 7 | 0 | 3 | 2 | 15 | 1 | 9 | 34 | 0 | 8 | 4 | 78 | 13 | 13 |
| **7:30 AM - 7:45 AM** | 0 | 3 | 5 | 1 | 8 | 4 | 10 | 5 | 4 | 39 | 1 | 13 | 8 | 78 | 8 | 17 |
| **7:45 AM - 8:00 AM** | 1 | 3 | 9 | 2 | 4 | 3 | 17 | 2 | 4 | 42 | 1 | 9 | 11 | 89 | 12 | 16 |
| **8:00 AM - 8:15 AM** | 1 | 2 | 6 | 2 | 5 | 4 | 25 | 5 | 10 | 31 | 2 | 10 | 5 | 66 | 15 | 14 |
| **8:15 AM - 8:30 AM** | 2 | 2 | 7 | 6 | 6 | 6 | 16 | 8 | 6 | 40 | 2 | 13 | 5 | 70 | 9 | 16 |
| **8:30 AM - 8:45 AM** | 0 | 6 | 4 | 1 | 8 | 5 | 7 | 4 | 8 | 50 | 1 | 11 | 2 | 52 | 9 | 21 |
| **8:45 AM - 9:00 AM** | 0 | 8 | 7 | 2 | 8 | 2 | 7 | 2 | 16 | 53 | 2 | 9 | 6 | 49 | 11 | 12 |
| **TOTAL** | **6** | **30** | **47** | **15** | **49** | **28** | **108** | **28** | **68** | **323** | **9** | **87** | **53** | **557** | **91** | **122** |

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Time** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **4:00 PM - 4:15 PM** | 5 | 4 | 7 | 1 | 19 | 4 | 9 | 4 | 15 | 92 | 2 | 17 | 6 | 68 | 4 | 23 |
| **4:15 PM - 4:30 PM** | 3 | 4 | 5 | 0 | 12 | 10 | 14 | 7 | 8 | 77 | 2 | 13 | 20 | 53 | 5 | 20 |
| **4:30 PM - 4:45 PM** | 1 | 20 | 28 | 1 | 18 | 3 | 13 | 4 | 17 | 86 | 4 | 14 | 8 | 56 | 6 | 21 |
| **4:45 PM - 5:00 PM** | 4 | 9 | 19 | 0 | 17 | 6 | 11 | 4 | 11 | 81 | 1 | 8 | 2 | 50 | 3 | 14 |
| **5:00 PM - 5:15 PM** | 1 | 13 | 17 | 1 | 19 | 4 | 16 | 4 | 22 | 77 | 1 | 15 | 7 | 46 | 4 | 14 |
| **5:15 PM - 5:30 PM** | 2 | 4 | 7 | 0 | 17 | 6 | 17 | 3 | 14 | 65 | 5 | 8 | 2 | 52 | 5 | 9 |
| **5:30 PM - 5:45 PM** | 1 | 1 | 9 | 0 | 13 | 5 | 10 | 2 | 8 | 50 | 2 | 12 | 7 | 49 | 2 | 15 |
| **5:45 PM - 6:00 PM** | 0 | 2 | 7 | 0 | 7 | 4 | 11 | 3 | 7 | 50 | 1 | 6 | 3 | 25 | 3 | 7 |
| **TOTAL** | **17** | **57** | **99** | **3** | **122** | **42** | **101** | **31** | **102** | **578** | **18** | **93** | **55** | **399** | **32** | **123** |

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PEAK HOUR** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **7:15 AM - 8:15 AM** | 4 | 12 | 27 | 5 | 20 | 13 | 67 | 13 | 27 | 146 | 4 | 40 | 28 | 311 | 48 | 60 |
| **4:00 PM - 5:00 PM** | 13 | 37 | 59 | 2 | 66 | 23 | 47 | 19 | 51 | 336 | 9 | 52 | 36 | 227 | 18 | 78 |

| | PHF | Trucks |
|---|---|---|
| **AM** | 0.902 | 16.7% |
| **PM** | 0.887 | 16.4% |



**Metro Traffic Data Inc.**
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

# Turning Movement Report

Prepared For:
**Precision Civil Engineering, Inc.**
1234 "O" Street
Fresno, CA 93721

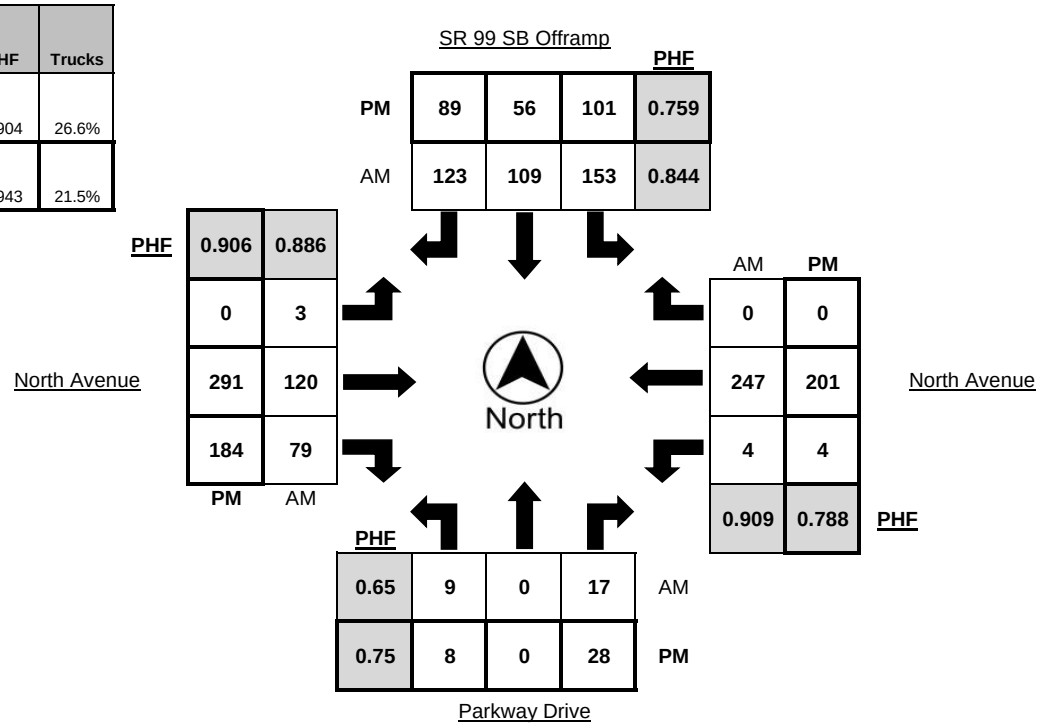
**LOCATION** North Avenue @ SR 99 SB Offramp / Parkway Dr
**LATITUDE** 36.692375°
**COUNTY** Fresno
**LONGITUDE** -119.760721°
**COLLECTION DATE** Thursday, April 28, 2016
**WEATHER** Clear

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Time** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **7:00 AM - 7:15 AM** | 4 | 0 | 3 | 3 | 47 | 21 | 30 | 21 | 0 | 15 | 26 | 17 | 0 | 66 | 0 | 12 |
| **7:15 AM - 7:30 AM** | 0 | 0 | 2 | 2 | 32 | 17 | 25 | 14 | 0 | 30 | 17 | 11 | 1 | 69 | 0 | 11 |
| **7:30 AM - 7:45 AM** | 2 | 0 | 1 | 2 | 41 | 25 | 26 | 11 | 0 | 31 | 19 | 18 | 0 | 69 | 0 | 17 |
| **7:45 AM - 8:00 AM** | 3 | 0 | 3 | 2 | 44 | 28 | 42 | 28 | 0 | 32 | 21 | 16 | 0 | 66 | 0 | 9 |
| **8:00 AM - 8:15 AM** | 1 | 0 | 6 | 4 | 32 | 37 | 29 | 23 | 0 | 22 | 20 | 15 | 3 | 57 | 0 | 19 |
| **8:15 AM - 8:30 AM** | 3 | 0 | 7 | 3 | 36 | 19 | 26 | 24 | 3 | 35 | 19 | 24 | 1 | 55 | 0 | 15 |
| **8:30 AM - 8:45 AM** | 5 | 0 | 5 | 5 | 39 | 16 | 16 | 20 | 0 | 39 | 23 | 16 | 1 | 38 | 0 | 17 |
| **8:45 AM - 9:00 AM** | 2 | 0 | 5 | 4 | 44 | 23 | 28 | 24 | 0 | 46 | 23 | 14 | 1 | 39 | 0 | 8 |
| **TOTAL** | **20** | **0** | **32** | **25** | **315** | **186** | **222** | **165** | **3** | **250** | **168** | **131** | **7** | **459** | **0** | **108** |

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Time** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **4:00 PM - 4:15 PM** | 3 | 0 | 5 | 0 | 29 | 15 | 19 | 17 | 0 | 63 | 56 | 19 | 3 | 62 | 0 | 19 |
| **4:15 PM - 4:30 PM** | 1 | 0 | 7 | 1 | 31 | 19 | 31 | 23 | 0 | 66 | 36 | 14 | 0 | 54 | 0 | 24 |
| **4:30 PM - 4:45 PM** | 0 | 0 | 8 | 1 | 21 | 7 | 24 | 20 | 0 | 87 | 44 | 12 | 1 | 43 | 0 | 13 |
| **4:45 PM - 5:00 PM** | 4 | 0 | 8 | 1 | 20 | 15 | 15 | 18 | 0 | 75 | 48 | 16 | 0 | 42 | 0 | 9 |
| **5:00 PM - 5:15 PM** | 5 | 0 | 14 | 2 | 18 | 8 | 12 | 17 | 0 | 68 | 47 | 21 | 1 | 35 | 0 | 13 |
| **5:15 PM - 5:30 PM** | 1 | 0 | 7 | 2 | 16 | 8 | 12 | 9 | 0 | 57 | 33 | 7 | 0 | 47 | 0 | 13 |
| **5:30 PM - 5:45 PM** | 0 | 0 | 1 | 0 | 14 | 7 | 11 | 6 | 0 | 40 | 29 | 12 | 0 | 47 | 0 | 17 |
| **5:45 PM - 6:00 PM** | 2 | 0 | 7 | 2 | 15 | 6 | 7 | 4 | 0 | 46 | 20 | 8 | 0 | 20 | 0 | 5 |
| **TOTAL** | **16** | **0** | **57** | **9** | **164** | **85** | **131** | **114** | **0** | **502** | **313** | **109** | **5** | **350** | **0** | **113** |

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PEAK HOUR** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **7:30 AM - 8:30 AM** | 9 | 0 | 17 | 11 | 153 | 109 | 123 | 86 | 3 | 120 | 79 | 73 | 4 | 247 | 0 | 60 |
| **4:00 PM - 5:00 PM** | 8 | 0 | 28 | 3 | 101 | 56 | 89 | 78 | 0 | 291 | 184 | 61 | 4 | 201 | 0 | 65 |

| | PHF | Trucks |
|---|---|---|
| **AM** | 0.904 | 26.6% |
| **PM** | 0.943 | 21.5% |



**Metro Traffic Data Inc.**
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800-975-6938 Phone/Fax
www.metrotrafficdata.com

# Turning Movement Report

Prepared For:
**Precision Civil Engineering, Inc.**
1234 "O" Street
Fresno, CA 93721

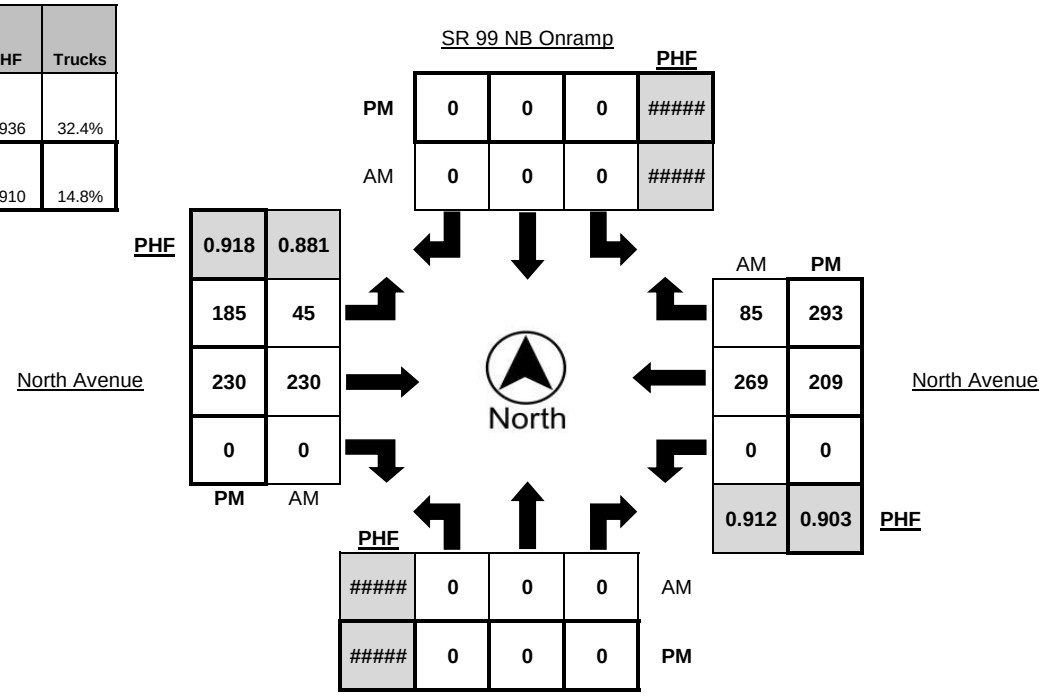
**LOCATION** North Avenue @ SR 99 NB Onramp
**LATITUDE** 36.692391°
**COUNTY** Fresno
**LONGITUDE** -119.757932°
**COLLECTION DATE** Thursday, April 28, 2016
**WEATHER** Clear

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Time** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **7:00 AM - 7:15 AM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 44 | 0 | 10 | 0 | 64 | 13 | 22 |
| **7:15 AM - 7:30 AM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 56 | 0 | 20 | 0 | 68 | 22 | 26 |
| **7:30 AM - 7:45 AM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 57 | 0 | 22 | 0 | 71 | 26 | 26 |
| **7:45 AM - 8:00 AM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 69 | 0 | 24 | 0 | 68 | 18 | 26 |
| **8:00 AM - 8:15 AM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 48 | 0 | 28 | 0 | 62 | 19 | 32 |
| **8:15 AM - 8:30 AM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 69 | 0 | 31 | 0 | 54 | 17 | 31 |
| **8:30 AM - 8:45 AM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 | 68 | 0 | 22 | 0 | 41 | 24 | 32 |
| **8:45 AM - 9:00 AM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 | 78 | 0 | 25 | 0 | 42 | 21 | 45 |
| **TOTAL** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **104** | **489** | **0** | **182** | **0** | **470** | **160** | **240** |

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Time** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **4:00 PM - 4:15 PM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 48 | 0 | 16 | 0 | 58 | 62 | 14 |
| **4:15 PM - 4:30 PM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 | 53 | 0 | 15 | 0 | 53 | 71 | 18 |
| **4:30 PM - 4:45 PM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 | 61 | 0 | 18 | 0 | 53 | 86 | 22 |
| **4:45 PM - 5:00 PM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 | 68 | 0 | 12 | 0 | 45 | 74 | 21 |
| **5:00 PM - 5:15 PM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 | 52 | 0 | 18 | 0 | 35 | 77 | 11 |
| **5:15 PM - 5:30 PM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 | 58 | 0 | 12 | 0 | 46 | 50 | 15 |
| **5:30 PM - 5:45 PM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 | 41 | 0 | 15 | 0 | 44 | 46 | 19 |
| **5:45 PM - 6:00 PM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 39 | 0 | 11 | 0 | 24 | 33 | 5 |
| **TOTAL** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **308** | **420** | **0** | **117** | **0** | **358** | **499** | **125** |

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PEAK HOUR** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **7:15 AM - 8:15 AM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 | 230 | 0 | 94 | 0 | 269 | 85 | 110 |
| **4:00 PM - 5:00 PM** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 185 | 230 | 0 | 61 | 0 | 209 | 293 | 75 |

| | PHF | Trucks |
|---|---|---|
| **AM** | 0.936 | 32.4% |
| **PM** | 0.910 | 14.8% |



# JLB Traffic Engineering, Inc.

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
(559) 570-8991
*Traffic Engineering, Transportation Planning & Parking Solutions*
www.JLBtraffic.com

File Name : North at Cedar 12132017
Site Code : 00121317
Start Date : 12/13/2017
Page No : 1

**Groups Printed- Unshifted**

| | Cedar Ave Southbound | | | | | North Ave Westbound | | | | | Cedar Ave Northbound | | | | | North Ave Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| 07:00 AM | 1 | 9 | 4 | 0 | 14 | 6 | 30 | 3 | 0 | 39 | 52 | 7 | 7 | 0 | 66 | 6 | 43 | 3 | 0 | 52 | 171 |
| 07:15 AM | 1 | 5 | 6 | 0 | 12 | 7 | 38 | 1 | 0 | 46 | 59 | 5 | 3 | 0 | 67 | 6 | 45 | 1 | 0 | 52 | 177 |
| 07:30 AM | 0 | 6 | 2 | 0 | 8 | 10 | 59 | 2 | 0 | 71 | 50 | 5 | 11 | 0 | 66 | 3 | 53 | 1 | 0 | 57 | 202 |
| 07:45 AM | 1 | 7 | 1 | 0 | 9 | 5 | 63 | 1 | 0 | 69 | 93 | 9 | 11 | 0 | 113 | 4 | 66 | 5 | 0 | 75 | 266 |
| Total | 3 | 27 | 13 | 0 | 43 | 28 | 190 | 7 | 0 | 225 | 254 | 26 | 32 | 0 | 312 | 19 | 207 | 10 | 0 | 236 | 816 |
| 08:00 AM | 3 | 7 | 5 | 0 | 15 | 5 | 15 | 12 | 0 | 32 | 56 | 6 | 14 | 0 | 76 | 16 | 41 | 9 | 0 | 66 | 189 |
| 08:15 AM | 1 | 6 | 6 | 0 | 13 | 12 | 36 | 10 | 0 | 58 | 52 | 7 | 5 | 0 | 64 | 6 | 43 | 7 | 0 | 56 | 191 |
| 08:30 AM | 3 | 5 | 3 | 0 | 11 | 6 | 72 | 4 | 0 | 82 | 50 | 7 | 10 | 0 | 67 | 7 | 40 | 3 | 0 | 50 | 210 |
| 08:45 AM | 1 | 7 | 3 | 0 | 11 | 7 | 51 | 2 | 0 | 60 | 45 | 5 | 8 | 0 | 58 | 4 | 52 | 5 | 0 | 61 | 190 |
| Total | 8 | 25 | 17 | 0 | 50 | 30 | 174 | 28 | 0 | 232 | 203 | 25 | 37 | 0 | 265 | 33 | 176 | 24 | 0 | 233 | 780 |
| ****** | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 1 | 5 | 9 | 0 | 15 | 10 | 79 | 2 | 0 | 91 | 69 | 11 | 13 | 0 | 93 | 0 | 55 | 3 | 0 | 58 | 257 |
| 04:15 PM | 5 | 3 | 10 | 0 | 18 | 13 | 66 | 0 | 0 | 79 | 55 | 12 | 9 | 0 | 76 | 5 | 68 | 1 | 0 | 74 | 247 |
| 04:30 PM | 1 | 3 | 5 | 0 | 9 | 8 | 89 | 3 | 0 | 100 | 58 | 11 | 21 | 0 | 90 | 2 | 61 | 1 | 0 | 64 | 263 |
| 04:45 PM | 3 | 3 | 5 | 0 | 11 | 5 | 71 | 2 | 0 | 78 | 32 | 3 | 9 | 0 | 44 | 3 | 55 | 0 | 0 | 58 | 191 |
| Total | 10 | 14 | 29 | 0 | 53 | 36 | 305 | 7 | 0 | 348 | 214 | 37 | 52 | 0 | 303 | 10 | 239 | 5 | 0 | 254 | 958 |
| 05:00 PM | 7 | 6 | 2 | 0 | 15 | 12 | 73 | 1 | 0 | 86 | 35 | 6 | 13 | 0 | 54 | 0 | 72 | 0 | 0 | 72 | 227 |
| 05:15 PM | 1 | 1 | 6 | 0 | 8 | 9 | 42 | 5 | 0 | 56 | 34 | 8 | 6 | 0 | 48 | 7 | 46 | 3 | 0 | 56 | 168 |
| 05:30 PM | 3 | 3 | 4 | 0 | 10 | 9 | 49 | 4 | 0 | 62 | 36 | 12 | 9 | 0 | 57 | 3 | 44 | 4 | 0 | 51 | 180 |
| 05:45 PM | 4 | 2 | 3 | 0 | 9 | 4 | 50 | 3 | 0 | 57 | 25 | 4 | 10 | 0 | 39 | 3 | 34 | 0 | 0 | 37 | 142 |
| Total | 15 | 12 | 15 | 0 | 42 | 34 | 214 | 13 | 0 | 261 | 130 | 30 | 38 | 0 | 198 | 13 | 196 | 7 | 0 | 216 | 717 |
| Grand Total | 36 | 78 | 74 | 0 | 188 | 128 | 883 | 55 | 0 | 1066 | 801 | 118 | 159 | 0 | 1078 | 75 | 818 | 46 | 0 | 939 | 3271 |
| Apprch % | 19.1 | 41.5 | 39.4 | 0 | | 12 | 82.8 | 5.2 | 0 | | 74.3 | 10.9 | 14.7 | 0 | | 8 | 87.1 | 4.9 | 0 | | |
| Total % | 1.1 | 2.4 | 2.3 | 0 | 5.7 | 3.9 | 27 | 1.7 | 0 | 32.6 | 24.5 | 3.6 | 4.9 | 0 | 33 | 2.3 | 25 | 1.4 | 0 | 28.7 | |

# JLB Traffic Engineering, Inc.

1300 E. Shaw Ave., Ste. 103
Fresno, CA 93710
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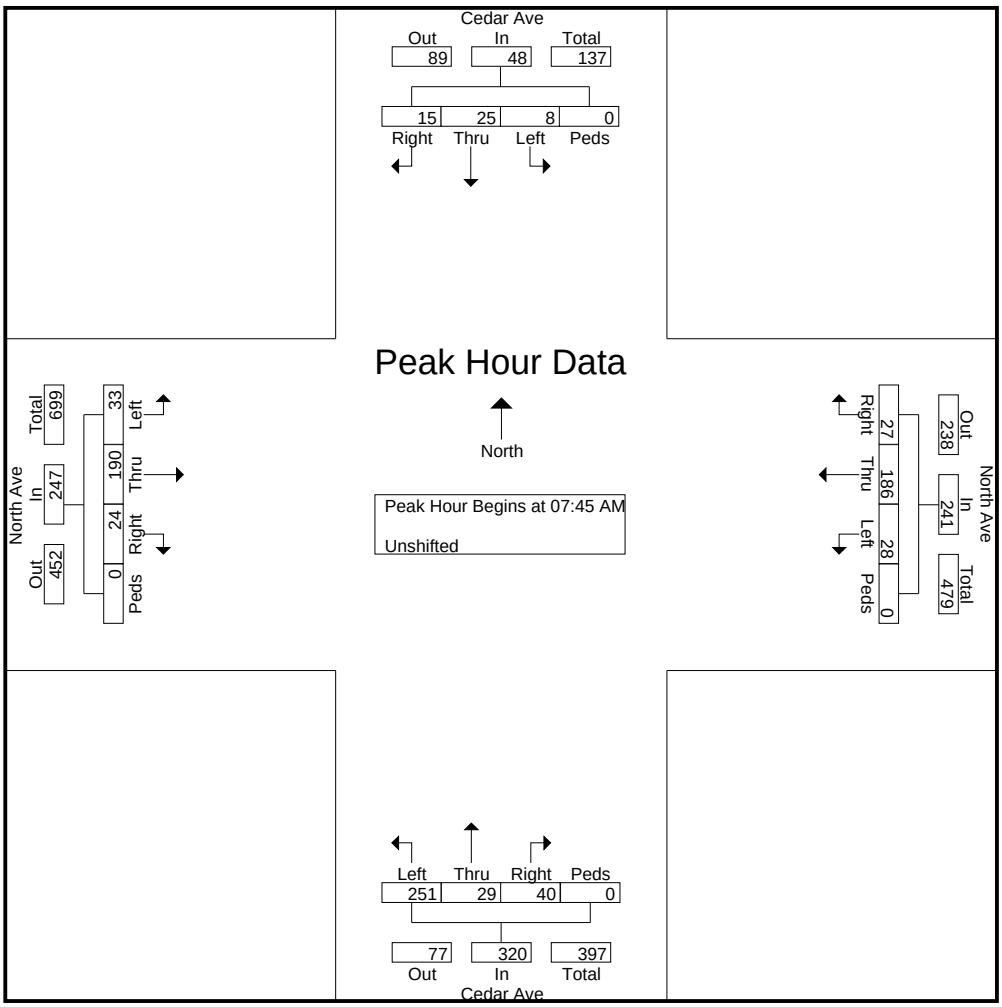
*Traffic Engineering, Transportation Planning & Parking Solutions*
www.JLBtraffic.com


File Name : North at Cedar 12132017
Site Code : 00121317
Start Date : 12/13/2017
Page No : 2

| | Cedar Ave Southbound | | | | | North Ave Westbound | | | | | Cedar Ave Northbound | | | | | North Ave Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:45 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:45 AM | 1 | **7** | 1 | 0 | 9 | 5 | 63 | 1 | 0 | 69 | **93** | **9** | 11 | 0 | **113** | 4 | **66** | 5 | 0 | **75** | **266** |
| 08:00 AM | **3** | 7 | 5 | 0 | **15** | 5 | 15 | **12** | 0 | 32 | 56 | 6 | **14** | 0 | 76 | **16** | 41 | **9** | 0 | 66 | 189 |
| 08:15 AM | 1 | 6 | **6** | 0 | 13 | **12** | 36 | 10 | 0 | 58 | 52 | 7 | 5 | 0 | 64 | 6 | 43 | 7 | 0 | 56 | 191 |
| 08:30 AM | 3 | 5 | 3 | 0 | 11 | 6 | **72** | 4 | 0 | **82** | 50 | 7 | 10 | 0 | 67 | 7 | 40 | 3 | 0 | 50 | 210 |
| Total Volume | 8 | 25 | 15 | 0 | 48 | 28 | 186 | 27 | 0 | 241 | 251 | 29 | 40 | 0 | 320 | 33 | 190 | 24 | 0 | 247 | 856 |
| % App. Total | 16.7 | 52.1 | 31.2 | 0 | | 11.6 | 77.2 | 11.2 | 0 | | 78.4 | 9.1 | 12.5 | 0 | | 13.4 | 76.9 | 9.7 | 0 | | |
| PHF | .667 | .893 | .625 | .000 | .800 | .583 | .646 | .563 | .000 | .735 | .675 | .806 | .714 | .000 | .708 | .516 | .720 | .667 | .000 | .823 | .805 |



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(559) 570-8991
*Traffic Engineering, Transportation Planning & Parking Solutions*
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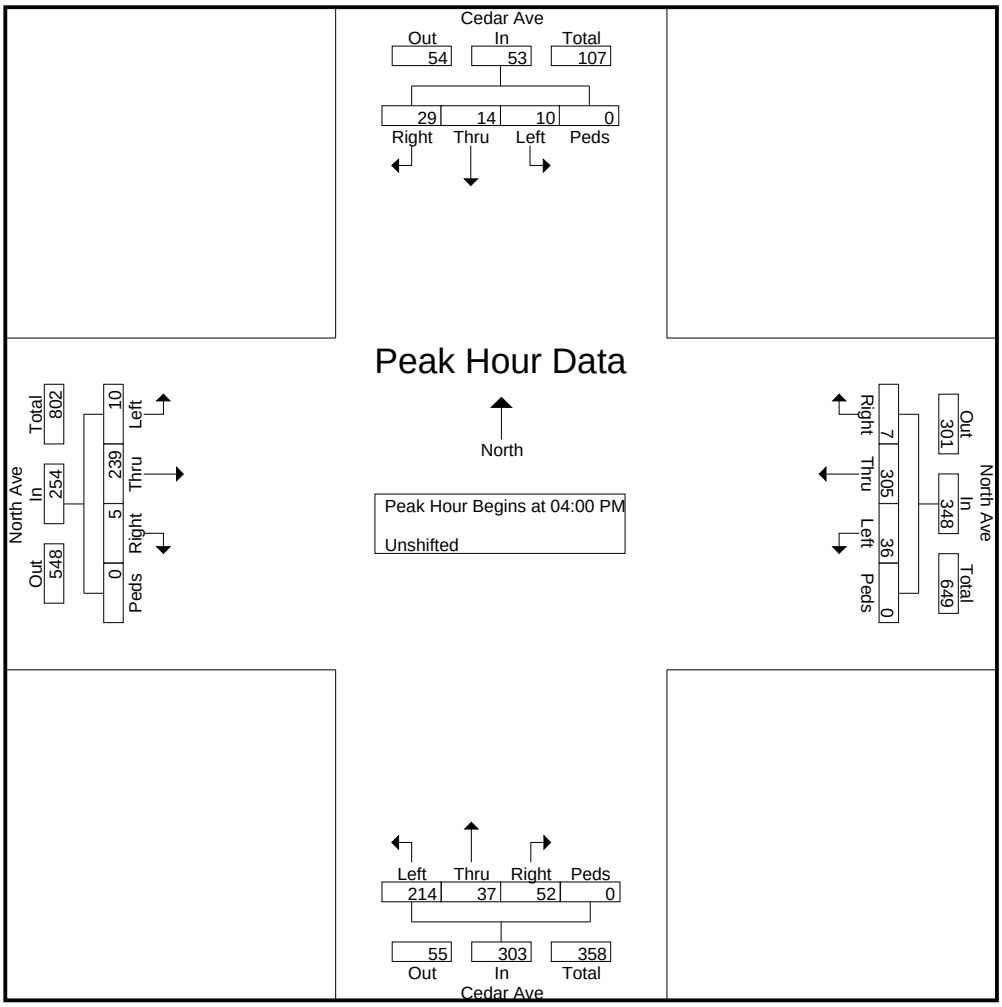
File Name : North at Cedar 12132017
Site Code : 00121317
Start Date : 12/13/2017
Page No : 3

| | Cedar Ave Southbound | | | | | North Ave Westbound | | | | | Cedar Ave Northbound | | | | | North Ave Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 1 | **5** | 9 | 0 | 15 | 10 | 79 | 2 | 0 | 91 | **69** | 11 | 13 | 0 | **93** | 0 | 55 | **3** | 0 | 58 | 257 |
| 04:15 PM | **5** | 3 | **10** | 0 | **18** | **13** | 66 | 0 | 0 | 79 | 55 | **12** | 9 | 0 | 76 | **5** | **68** | 1 | 0 | **74** | 247 |
| 04:30 PM | 1 | 3 | 5 | 0 | 9 | 8 | **89** | **3** | 0 | **100** | 58 | 11 | **21** | 0 | 90 | 2 | 61 | 1 | 0 | 64 | **263** |
| 04:45 PM | 3 | 3 | 5 | 0 | 11 | 5 | 71 | 2 | 0 | 78 | 32 | 3 | 9 | 0 | 44 | 3 | 55 | 0 | 0 | 58 | 191 |
| Total Volume | 10 | 14 | 29 | 0 | 53 | 36 | 305 | 7 | 0 | 348 | 214 | 37 | 52 | 0 | 303 | 10 | 239 | 5 | 0 | 254 | 958 |
| % App. Total | 18.9 | 26.4 | 54.7 | 0 | | 10.3 | 87.6 | 2 | 0 | | 70.6 | 12.2 | 17.2 | 0 | | 3.9 | 94.1 | 2 | 0 | | |
| PHF | .500 | .700 | .725 | .000 | .736 | .692 | .857 | .583 | .000 | .870 | .775 | .771 | .619 | .000 | .815 | .500 | .879 | .417 | .000 | .858 | .911 |



# JLB Traffic Engineering, Inc.

516 W. Shaw Ave., Ste. 200
Fresno, CA 93704
(559) 570-8991
*Traffic Engineering, Transportation Planning & Parking Solutions*
www.JLBtraffic.com

File Name : 5 North at Chestnut
Site Code : 00000000
Start Date : 5/18/2016
Page No : 1

**Groups Printed- Unshifted**

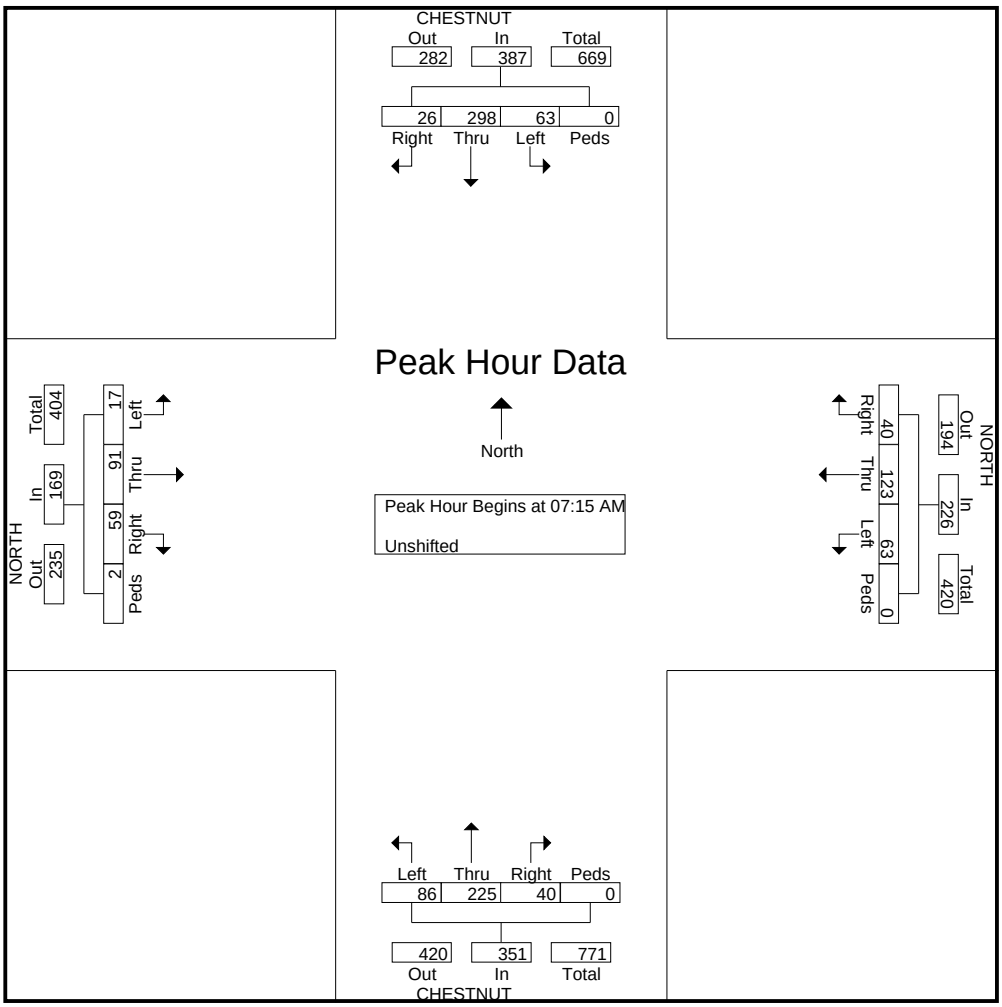
| | CHESTNUT Southbound | | | | | NORTH Westbound | | | | | CHESTNUT Northbound | | | | | NORTH Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| 07:00 AM | 8 | 42 | 2 | 0 | 52 | 10 | 24 | 2 | 0 | 36 | 25 | 34 | 3 | 0 | 62 | 4 | 20 | 10 | 0 | 34 | 184 |
| 07:15 AM | 10 | 69 | 8 | 0 | 87 | 9 | 25 | 10 | 0 | 44 | 27 | 45 | 9 | 0 | 81 | 3 | 19 | 12 | 0 | 34 | 246 |
| 07:30 AM | 18 | 69 | 6 | 0 | 93 | 12 | 29 | 6 | 0 | 47 | 12 | 63 | 8 | 0 | 83 | 7 | 24 | 23 | 0 | 54 | 277 |
| 07:45 AM | 20 | 89 | 8 | 0 | 117 | 24 | 39 | 10 | 0 | 73 | 28 | 72 | 13 | 0 | 113 | 1 | 23 | 10 | 2 | 36 | 339 |
| Total | 56 | 269 | 24 | 0 | 349 | 55 | 117 | 28 | 0 | 200 | 92 | 214 | 33 | 0 | 339 | 15 | 86 | 55 | 2 | 158 | 1046 |
| 08:00 AM | 15 | 71 | 4 | 0 | 90 | 18 | 30 | 14 | 0 | 62 | 19 | 45 | 10 | 0 | 74 | 6 | 25 | 14 | 0 | 45 | 271 |
| 08:15 AM | 11 | 55 | 6 | 0 | 72 | 11 | 25 | 7 | 0 | 43 | 20 | 62 | 6 | 0 | 88 | 4 | 20 | 12 | 0 | 36 | 239 |
| 08:30 AM | 10 | 43 | 8 | 0 | 61 | 8 | 28 | 5 | 0 | 41 | 22 | 56 | 2 | 0 | 80 | 1 | 20 | 12 | 0 | 33 | 215 |
| 08:45 AM | 10 | 66 | 5 | 0 | 81 | 6 | 33 | 7 | 0 | 46 | 21 | 48 | 6 | 0 | 75 | 8 | 21 | 14 | 0 | 43 | 245 |
| Total | 46 | 235 | 23 | 0 | 304 | 43 | 116 | 33 | 0 | 192 | 82 | 211 | 24 | 0 | 317 | 19 | 86 | 52 | 0 | 157 | 970 |
| ****** | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 6 | 63 | 9 | 0 | 78 | 10 | 31 | 16 | 0 | 57 | 29 | 112 | 14 | 0 | 155 | 10 | 33 | 18 | 0 | 61 | 351 |
| 04:15 PM | 7 | 88 | 7 | 0 | 102 | 10 | 26 | 17 | 1 | 54 | 22 | 126 | 7 | 2 | 157 | 2 | 23 | 13 | 0 | 38 | 351 |
| 04:30 PM | 8 | 79 | 1 | 0 | 88 | 13 | 20 | 24 | 1 | 58 | 11 | 124 | 16 | 0 | 151 | 4 | 34 | 22 | 1 | 61 | 358 |
| 04:45 PM | 9 | 77 | 6 | 0 | 92 | 11 | 30 | 15 | 0 | 56 | 17 | 137 | 17 | 0 | 171 | 10 | 31 | 21 | 0 | 62 | 381 |
| Total | 30 | 307 | 23 | 0 | 360 | 44 | 107 | 72 | 2 | 225 | 79 | 499 | 54 | 2 | 634 | 26 | 121 | 74 | 1 | 222 | 1441 |
| 05:00 PM | 5 | 79 | 6 | 0 | 90 | 11 | 37 | 20 | 0 | 68 | 18 | 116 | 8 | 0 | 142 | 6 | 37 | 23 | 1 | 67 | 367 |
| 05:15 PM | 6 | 107 | 2 | 0 | 115 | 12 | 26 | 9 | 0 | 47 | 5 | 87 | 7 | 0 | 99 | 7 | 32 | 19 | 0 | 58 | 319 |
| 05:30 PM | 8 | 68 | 3 | 0 | 79 | 13 | 29 | 20 | 1 | 63 | 12 | 75 | 10 | 0 | 97 | 9 | 27 | 9 | 0 | 45 | 284 |
| 05:45 PM | 3 | 63 | 1 | 0 | 67 | 6 | 16 | 9 | 0 | 31 | 6 | 73 | 5 | 0 | 84 | 7 | 23 | 16 | 0 | 46 | 228 |
| Total | 22 | 317 | 12 | 0 | 351 | 42 | 108 | 58 | 1 | 209 | 41 | 351 | 30 | 0 | 422 | 29 | 119 | 67 | 1 | 216 | 1198 |
| Grand Total | 154 | 1128 | 82 | 0 | 1364 | 184 | 448 | 191 | 3 | 826 | 294 | 1275 | 141 | 2 | 1712 | 89 | 412 | 248 | 4 | 753 | 4655 |
| Apprch % | 11.3 | 82.7 | 6 | 0 | | 22.3 | 54.2 | 23.1 | 0.4 | | 17.2 | 74.5 | 8.2 | 0.1 | | 11.8 | 54.7 | 32.9 | 0.5 | | |
| Total % | 3.3 | 24.2 | 1.8 | 0 | 29.3 | 4 | 9.6 | 4.1 | 0.1 | 17.7 | 6.3 | 27.4 | 3 | 0 | 36.8 | 1.9 | 8.9 | 5.3 | 0.1 | 16.2 | |

# JLB Traffic Engineering, Inc.

516 W. Shaw Ave., Ste. 200
Fresno, CA 93704
(559) 570-8991
*Traffic Engineering, Transportation Planning & Parking Solutions*
www.JLBtraffic.com


File Name : 5 North at Chestnut
Site Code : 00000000
Start Date : 5/18/2016
Page No : 2

| | CHESTNUT Southbound | | | | | NORTH Westbound | | | | | CHESTNUT Northbound | | | | | NORTH Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:15 AM | 10 | 69 | **8** | 0 | 87 | 9 | 25 | 10 | 0 | 44 | 27 | 45 | 9 | 0 | 81 | 3 | 19 | 12 | 0 | 34 | 246 |
| 07:30 AM | 18 | 69 | 6 | 0 | 93 | 12 | 29 | 6 | 0 | 47 | 12 | 63 | 8 | 0 | 83 | **7** | 24 | **23** | 0 | **54** | 277 |
| 07:45 AM | **20** | **89** | 8 | 0 | **117** | **24** | **39** | 10 | 0 | **73** | **28** | **72** | **13** | 0 | **113** | 1 | 23 | 10 | **2** | 36 | **339** |
| 08:00 AM | 15 | 71 | 4 | 0 | 90 | 18 | 30 | **14** | 0 | 62 | 19 | 45 | 10 | 0 | 74 | 6 | **25** | 14 | 0 | 45 | 271 |
| Total Volume | 63 | 298 | 26 | 0 | 387 | 63 | 123 | 40 | 0 | 226 | 86 | 225 | 40 | 0 | 351 | 17 | 91 | 59 | 2 | 169 | 1133 |
| % App. Total | 16.3 | 77 | 6.7 | 0 | | 27.9 | 54.4 | 17.7 | 0 | | 24.5 | 64.1 | 11.4 | 0 | | 10.1 | 53.8 | 34.9 | 1.2 | | |
| PHF | .788 | .837 | .813 | .000 | .827 | .656 | .788 | .714 | .000 | .774 | .768 | .781 | .769 | .000 | .777 | .607 | .910 | .641 | .250 | .782 | .836 |



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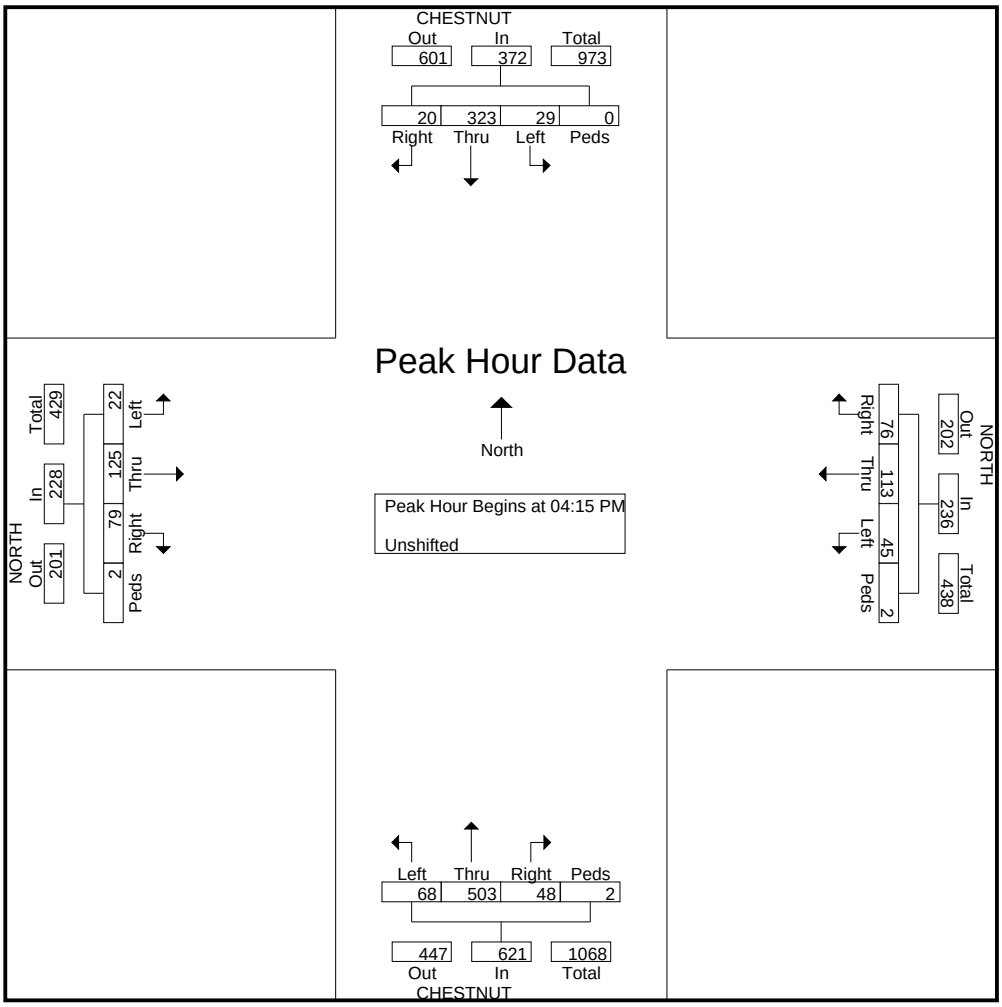
File Name : 5 North at Chestnut
Site Code : 00000000
Start Date : 5/18/2016
Page No : 3

| | CHESTNUT Southbound | | | | | NORTH Westbound | | | | | CHESTNUT Northbound | | | | | NORTH Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Left | Thru | Right | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:15 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:15 PM | 7 | **88** | **7** | 0 | **102** | 10 | 26 | 17 | **1** | 54 | **22** | 126 | 7 | **2** | 157 | 2 | 23 | 13 | 0 | 38 | 351 |
| 04:30 PM | 8 | 79 | 1 | 0 | 88 | **13** | 20 | **24** | 1 | 58 | 11 | 124 | 16 | 0 | 151 | 4 | 34 | 22 | **1** | 61 | 358 |
| 04:45 PM | **9** | 77 | 6 | 0 | 92 | 11 | 30 | 15 | 0 | 56 | 17 | **137** | **17** | 0 | **171** | **10** | 31 | 21 | 0 | 62 | **381** |
| 05:00 PM | 5 | 79 | 6 | 0 | 90 | 11 | **37** | 20 | 0 | **68** | 18 | 116 | 8 | 0 | 142 | 6 | **37** | **23** | 1 | **67** | 367 |
| Total Volume | 29 | 323 | 20 | 0 | 372 | 45 | 113 | 76 | 2 | 236 | 68 | 503 | 48 | 2 | 621 | 22 | 125 | 79 | 2 | 228 | 1457 |
| % App. Total | 7.8 | 86.8 | 5.4 | 0 | | 19.1 | 47.9 | 32.2 | 0.8 | | 11 | 81 | 7.7 | 0.3 | | 9.6 | 54.8 | 34.6 | 0.9 | | |
| PHF | .806 | .918 | .714 | .000 | .912 | .865 | .764 | .792 | .500 | .868 | .773 | .918 | .706 | .250 | .908 | .550 | .845 | .859 | .500 | .851 | .956 |



**Metro Traffic Data Inc.**
310 N. Irwin Street - Suite 20
Hanford, CA 93230

800-975-6938 Phone/Fax
www.metrotrafficdata.com

# Turning Movement Report

Prepared For:
**Precision Civil Engineering, Inc.**
1234 "O" Street
Fresno, CA 93721

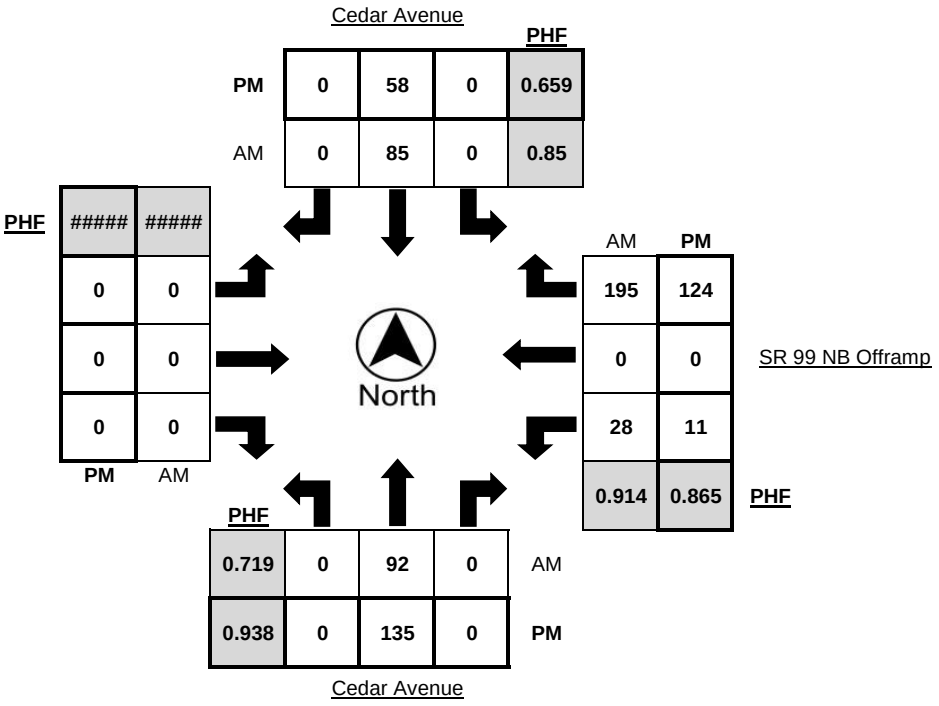
**LOCATION** Cedar Avenue @ SR 99 NB Offramp
**LATITUDE** 36.690605°
**COUNTY** Fresno
**LONGITUDE** -119.754691°
**COLLECTION DATE** Thursday, April 28, 2016
**WEATHER** Clear

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Time** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **7:00 AM - 7:15 AM** | 0 | 18 | 0 | 7 | 0 | 11 | 0 | 3 | 0 | 0 | 0 | 0 | 6 | 0 | 50 | 12 |
| **7:15 AM - 7:30 AM** | 0 | 8 | 0 | 2 | 0 | 11 | 0 | 5 | 0 | 0 | 0 | 0 | 10 | 0 | 47 | 16 |
| **7:30 AM - 7:45 AM** | 0 | 15 | 0 | 3 | 0 | 23 | 0 | 7 | 0 | 0 | 0 | 0 | 6 | 0 | 47 | 12 |
| **7:45 AM - 8:00 AM** | 0 | 26 | 0 | 6 | 0 | 25 | 0 | 3 | 0 | 0 | 0 | 0 | 6 | 0 | 55 | 13 |
| **8:00 AM - 8:15 AM** | 0 | 19 | 0 | 11 | 0 | 15 | 0 | 8 | 0 | 0 | 0 | 0 | 8 | 0 | 47 | 23 |
| **8:15 AM - 8:30 AM** | 0 | 32 | 0 | 18 | 0 | 22 | 0 | 8 | 0 | 0 | 0 | 0 | 8 | 0 | 46 | 19 |
| **8:30 AM - 8:45 AM** | 0 | 22 | 0 | 10 | 0 | 18 | 0 | 4 | 0 | 0 | 0 | 0 | 6 | 0 | 28 | 16 |
| **8:45 AM - 9:00 AM** | 0 | 28 | 0 | 12 | 0 | 19 | 0 | 9 | 0 | 0 | 0 | 0 | 9 | 0 | 31 | 13 |
| **TOTAL** | **0** | **168** | **0** | **69** | **0** | **144** | **0** | **47** | **0** | **0** | **0** | **0** | **59** | **0** | **351** | **124** |

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Time** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **4:00 PM - 4:15 PM** | 0 | 20 | 0 | 3 | 0 | 15 | 0 | 4 | 0 | 0 | 0 | 0 | 3 | 0 | 32 | 14 |
| **4:15 PM - 4:30 PM** | 0 | 32 | 0 | 4 | 0 | 22 | 0 | 8 | 0 | 0 | 0 | 0 | 3 | 0 | 29 | 15 |
| **4:30 PM - 4:45 PM** | 0 | 36 | 0 | 5 | 0 | 15 | 0 | 3 | 0 | 0 | 0 | 0 | 4 | 0 | 33 | 13 |
| **4:45 PM - 5:00 PM** | 0 | 35 | 0 | 3 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 36 | 13 |
| **5:00 PM - 5:15 PM** | 0 | 32 | 0 | 1 | 0 | 12 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 26 | 11 |
| **5:15 PM - 5:30 PM** | 0 | 30 | 0 | 1 | 0 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 24 | 12 |
| **5:30 PM - 5:45 PM** | 0 | 21 | 0 | 3 | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 0 | 23 | 11 |
| **5:45 PM - 6:00 PM** | 0 | 17 | 0 | 0 | 0 | 8 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 15 | 5 |
| **TOTAL** | **0** | **223** | **0** | **20** | **0** | **98** | **0** | **20** | **0** | **0** | **0** | **0** | **20** | **0** | **218** | **94** |

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PEAK HOUR** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **7:30 AM - 8:30 AM** | 0 | 92 | 0 | 38 | 0 | 85 | 0 | 26 | 0 | 0 | 0 | 0 | 28 | 0 | 195 | 67 |
| **4:15 PM - 5:15 PM** | 0 | 135 | 0 | 13 | 0 | 58 | 0 | 12 | 0 | 0 | 0 | 0 | 11 | 0 | 124 | 52 |

| | PHF | Trucks |
|---|---|---|
| **AM** | 0.893 | 32.8% |
| **PM** | 0.932 | 23.5% |



**Metro Traffic Data Inc.**
310 N. Irwin Street - Suite 20
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800-975-6938 Phone/Fax
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# Turning Movement Report

Prepared For:
**Precision Civil Engineering, Inc.**
1234 "O" Street
Fresno, CA 93721

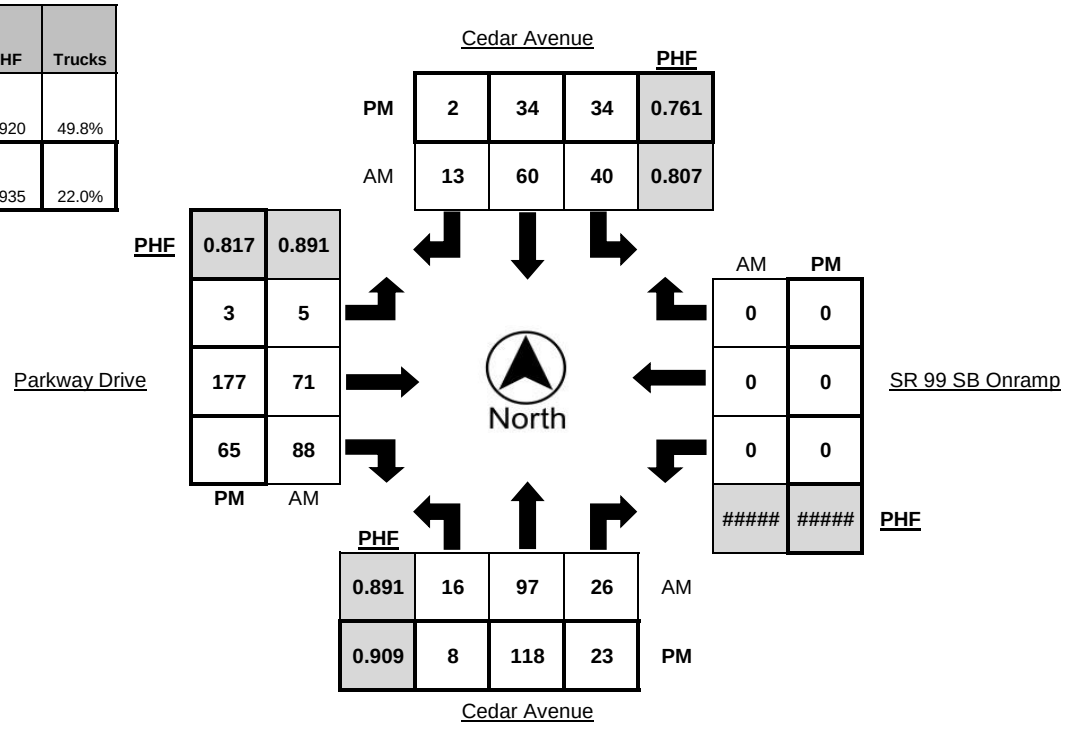
**LOCATION** Cedar Ave @ Parkway Drive / SR 99 SB Onramp
**LATITUDE** 36.687401°
**COUNTY** Fresno
**LONGITUDE** -119.754700°
**COLLECTION DATE** Thursday, April 28, 2016
**WEATHER** Clear

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Time** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **7:00 AM - 7:15 AM** | 2 | 21 | 3 | 12 | 4 | 9 | 4 | 7 | 0 | 32 | 35 | 30 | 0 | 0 | 0 | 0 |
| **7:15 AM - 7:30 AM** | 0 | 9 | 4 | 6 | 6 | 14 | 1 | 10 | 0 | 13 | 18 | 13 | 0 | 0 | 0 | 0 |
| **7:30 AM - 7:45 AM** | 1 | 13 | 6 | 11 | 11 | 17 | 1 | 10 | 0 | 19 | 21 | 10 | 0 | 0 | 0 | 0 |
| **7:45 AM - 8:00 AM** | 2 | 31 | 6 | 15 | 13 | 14 | 2 | 7 | 0 | 20 | 25 | 16 | 0 | 0 | 0 | 0 |
| **8:00 AM - 8:15 AM** | 5 | 15 | 7 | 13 | 11 | 11 | 3 | 12 | 0 | 20 | 26 | 23 | 0 | 0 | 0 | 0 |
| **8:15 AM - 8:30 AM** | 4 | 28 | 7 | 30 | 10 | 19 | 6 | 22 | 3 | 12 | 20 | 19 | 0 | 0 | 0 | 0 |
| **8:30 AM - 8:45 AM** | 5 | 23 | 6 | 21 | 6 | 16 | 2 | 11 | 2 | 19 | 17 | 18 | 0 | 0 | 0 | 0 |
| **8:45 AM - 9:00 AM** | 6 | 26 | 1 | 17 | 12 | 10 | 1 | 13 | 0 | 22 | 20 | 24 | 0 | 0 | 0 | 0 |
| **TOTAL** | **25** | **166** | **40** | **125** | **73** | **110** | **20** | **92** | **5** | **157** | **182** | **153** | **0** | **0** | **0** | **0** |

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Time** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **4:00 PM - 4:15 PM** | 2 | 22 | 6 | 6 | 7 | 10 | 1 | 5 | 0 | 58 | 17 | 18 | 0 | 0 | 0 | 0 |
| **4:15 PM - 4:30 PM** | 2 | 30 | 5 | 9 | 13 | 6 | 1 | 6 | 0 | 33 | 21 | 12 | 0 | 0 | 0 | 0 |
| **4:30 PM - 4:45 PM** | 2 | 35 | 4 | 7 | 11 | 12 | 0 | 9 | 3 | 42 | 15 | 8 | 0 | 0 | 0 | 0 |
| **4:45 PM - 5:00 PM** | 2 | 31 | 8 | 9 | 3 | 6 | 0 | 2 | 0 | 44 | 12 | 11 | 0 | 0 | 0 | 0 |
| **5:00 PM - 5:15 PM** | 3 | 35 | 1 | 1 | 9 | 4 | 0 | 1 | 0 | 44 | 12 | 16 | 0 | 0 | 0 | 0 |
| **5:15 PM - 5:30 PM** | 2 | 28 | 4 | 2 | 2 | 6 | 2 | 3 | 1 | 26 | 10 | 4 | 0 | 0 | 0 | 0 |
| **5:30 PM - 5:45 PM** | 2 | 14 | 2 | 4 | 4 | 7 | 1 | 3 | 1 | 33 | 9 | 8 | 0 | 0 | 0 | 0 |
| **5:45 PM - 6:00 PM** | 2 | 17 | 1 | 1 | 5 | 4 | 1 | 3 | 1 | 18 | 7 | 7 | 0 | 0 | 0 | 0 |
| **TOTAL** | **17** | **212** | **31** | **39** | **54** | **55** | **6** | **32** | **6** | **298** | **103** | **84** | **0** | **0** | **0** | **0** |

| | Northbound | | | | Southbound | | | | Eastbound | | | | Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **PEAK HOUR** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** | **Left** | **Thru** | **Right** | **Trucks** |
| **7:45 AM - 8:45 AM** | 16 | 97 | 26 | 79 | 40 | 60 | 13 | 52 | 5 | 71 | 88 | 76 | 0 | 0 | 0 | 0 |
| **4:00 PM - 5:00 PM** | 8 | 118 | 23 | 31 | 34 | 34 | 2 | 22 | 3 | 177 | 65 | 49 | 0 | 0 | 0 | 0 |

| | PHF | Trucks |
|---|---|---|
| **AM** | 0.920 | 49.8% |
| **PM** | 0.935 | 22.0% |



# Appendix C: Traffic Modeling

November ~~9~~13, 2017

Kai Han, TE
Council of Fresno County Governments
2035 Tulare Street, Suite 201
Fresno, CA 93721

Via E-mail Only: khan@fresnocog.org

***Subject:*** ***Revised Traffic Modeling Request for the Preparation of a Traffic Impact Analysis for a Commercial Development at the Northeast Corner of North Avenue and Orange Avenue in the City of Fresno (JLB Project 004-051)***

Dear Mr. Han,

JLB Traffic Engineering, Inc. (JLB) hereby requests traffic modeling for the Project described below. This modeling request is hereby revised to account for the change in the Project's proposed land use. The commercial development (Project) proposes to construct a gasoline/service station (12 fueling positions) with convenience market, a 2,000 square-foot coffee/donut shop with drive-through window, ~~a 1,500~~3,000 ~~square-foot~~square feet of fast-food restaurant without drive-through window, ~~a 1,500 square-foot high-turnover (sit-down) restaurant,~~ and 6,000 square feet of fast-food restaurant with drive-through windows at the northeast corner of North Avenue and Orange Avenue in the City of Fresno. Per information provided to JLB, the Project is consistent with the City of Fresno General Plan. An aerial of the Project vicinity is shown in Exhibit A.

The purpose of this TIA is to evaluate the potential on- and off-site traffic impacts, identify short-term roadway and circulation needs, determine potential mitigation measures and identify any critical traffic issues that should be addressed in the on-going planning process.

### *Scenarios*

The following scenarios are requested:

1. Base Year ~~2017~~ 2016 (with Link and TAZ modifications)
2. Base Year ~~2017~~ 2016 plus Project Select Zone (with Link and TAZ modifications)
3. Cumulative Year 2035 plus Project Select Zone (with Link and TAZ modifications)
4. Differences between model runs 3 and 1 above

### *Changes and/or additions to the Model Network or TAZ's*

JLB reviewed the Fresno COG model network for the Base Year ~~2017~~ 2016 and Cumulative Year 2035. Based on this review, JLB requests the following link and TAZ network modifications. Details on the requested Link and TAZ modifications for Base Year ~~2017~~ 2016 and Cumulative Year 2035 are illustrated in Exhibit B.

***LINK and TAZ ZONE MODIFICATIONS (For Base Year ~~2017~~ 2016 and Base Year ~~2017~~ 2016 plus Project Select Zone Scenarios)***

1. Modify North Avenue to increase the westbound lanes between Nodes 2951 and 5294 to two lanes.

***LINK and TAZ MODIFICATIONS (For Base Year ~~2017~~2016, Base Year ~~2017~~ 2016 plus Project Select Zone and Cumulative Year 2035 plus Project Select Zone Scenarios)***

1. Modify TAZ 1493 as follows:
    a. Eliminate TAZ Connectors to Nodes 5295 and 5294.
    b. Create TAZ Connector to Orange Avenue (west).
2. Modify TAZ 1601 as follows:
    a. Relocate TAZ 1601
    b. Eliminate TAZ Connectors to Nodes 8102, 5294 and 8100.
    c. Create TAZ Connector to Orange Avenue (west).
    d. Create TAZ Connector to Parkway Drive (northeast).
3. Reduce the speed limit on Parkway Drive to 45 mph.

***LINK and TAZ MODIFICATIONS (For Base Year ~~2017~~ 2016 plus Project Select Zone and Cumulative Year 2035 plus Project Select Zone Scenarios)***

1. Create TAZ A bounded by Orange Avenue (west) and North Avenue (south). TAZ A shall have TAZ Connectors to Orange Avenue (north) and North Avenue (south).

***LINK and TAZ ZONE MODIFICATIONS (For Cumulative Year 2035 plus Project Select Zone Scenario Only)***

1. Modify Orange Avenue to reduce the ~~northbound~~ lanes ~~between Nodes 5295 and 3528~~south of Jensen Avenue to one lane in each direction.
2. Modify Cedar Avenue to reduce the lanes ~~between Nodes 2940 and 2962~~south of Golden State Boulevard to one lane in each direction.
3. Modify Parkway Drive as follows:
    a. Eliminate the roadway segment connection to North Avenue at Node 3692 approximately 1,000 feet southeast of North Avenue.
    b. Create a roadway segment connection to Orange Avenue (west) approximately 675 feet south of North Avenue.
        i. Name: Parkway Drive
        ii. Lanes: One in each direction
        iii. Speed: 45 mph
4. Eliminate the Cedar Avenue and State Route 99 ramps. These include the roadway segments between Nodes 3693 and 4529 and between Nodes 3695 and 3694.
5. Create North Avenue and State Route 99 ramps. These include the roadway segments extending from Node 3692 to Node 7026 and from Node 3690 to Node 7025.

### *TAZ A Project Only Trip Generation (For Base Year ~~2017~~ 2016 plus Project Select Zone and Cumulative Year 2035 plus Project Select Zone Scenarios)*

Table I presents the trip generation for the proposed Project pursuant to the 10th Edition of the Trip Generation Manual with trip generation rates for a Gasoline/Service Station with Convenience Market, Coffee/Donut Shop with Drive-Through Window, Fast-Food Restaurant without Drive-Through Window~~, High-Turnover (Sit-Down) Restaurant~~, and Fast-Food Restaurant with Drive-Through Window. At build-out, the Project is estimated to generate a maximum of ~~7,618~~7,970 daily trips, ~~622~~ 644 AM peak hour trips and ~~509~~ 536 PM peak hour trips.

**Table I: TAZ A Project Only Trip Generation**

| *Land Use (ITE Code)* | *Size* | *Unit* | *Daily* | | *AM Peak Hour* | | | | | | *PM Peak Hour* | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | *Rate* | *Total* | *Trip Rate* | *In* | *Out* | *In* | *Out* | *Total* | *Trip Rate* | *In* | *Out* | *In* | *Out* | *Total* |
| | | | | | | *%* | | | | | | *%* | | | | |
| Gasoline/Service Station with Convenience Market (945) | 12 | f.p. | 205.36 | 2,464 | 12.47 | 51 | 49 | 77 | 74 | 150 | 13.99 | 51 | 49 | 86 | 82 | 168 |
| Coffee/Donut Shop with Drive-Through Window (937) | 2.000 | k.s.f. | 820.38 | 1,641 | 88.99 | 51 | 49 | 91 | 87 | 178 | 43.38 | 50 | 50 | 44 | 43 | 87 |
| Fast-Food Restaurant without Drive-Through Window (934) | ~~1.500~~ 3.000 | k.s.f. | 346.23 | ~~519~~ 1,039 | 25.10 | 60 | 40 | ~~23~~ 45 | ~~15~~ 30 | ~~38~~ 75 | 28.34 | 50 | 50 | ~~22~~ 43 | ~~21~~ 42 | ~~43~~ 85 |
| ~~High-Turnover (Sit-Down) Restaurant (932)~~ | ~~1.500~~ | ~~k.s.f.~~ | ~~112.18~~ | ~~168~~ | ~~9.94~~ | ~~55~~ | ~~45~~ | ~~8~~ | ~~7~~ | ~~15~~ | ~~9.77~~ | ~~62~~ | ~~38~~ | ~~9~~ | ~~6~~ | ~~15~~ |
| Fast-Food Restaurant with Drive-Through Window (934) | 6.000 | k.s.f. | 470.95 | 2,826 | 40.19 | 51 | 49 | 123 | 118 | 241 | 32.67 | 52 | 48 | 102 | 94 | 196 |
| ***Total Project Trips*** | | | | ~~7,618~~ 7,970 | | | | ~~322~~ 336 | ~~301~~ 309 | ~~622~~ 644 | | | | ~~263~~ 275 | ~~246~~ 261 | ~~509~~ 536 |

Note: f.p. = Fueling Positions
k.s.f. = Thousand Square Feet

### *Access to the Project*

Access to and from the Project site is from two points. One of the access points is an existing access point located along the east side of Orange Avenue at a point approximately 250 feet north of North Avenue and is a full access. The second access point is a proposed access located on the north side of North Avenue at a point approximately 350 feet east of Orange Avenue and is proposed as a right-in, right-out only access.

Please invoice JLB Traffic Engineering, Inc. and reference JLB Project No. 004-051 on the invoice. If you have any questions or require additional information, please do not hesitate to contact me by phone at (559) 570-8991 or by e-mail at smaciel@JLBtraffic.com.

Sincerely,

Susana Maciel

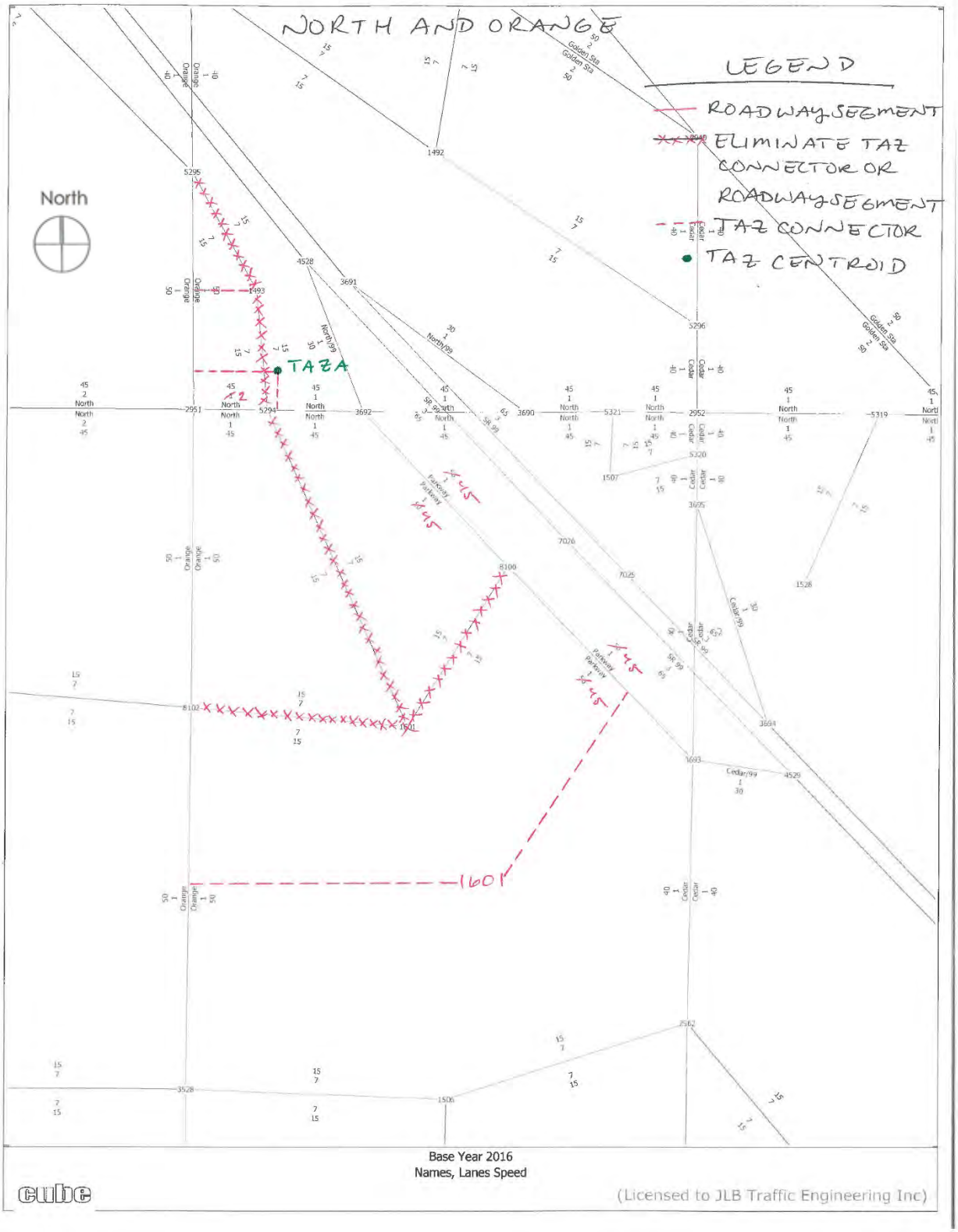
Susana Maciel, EIT
Engineer I/II

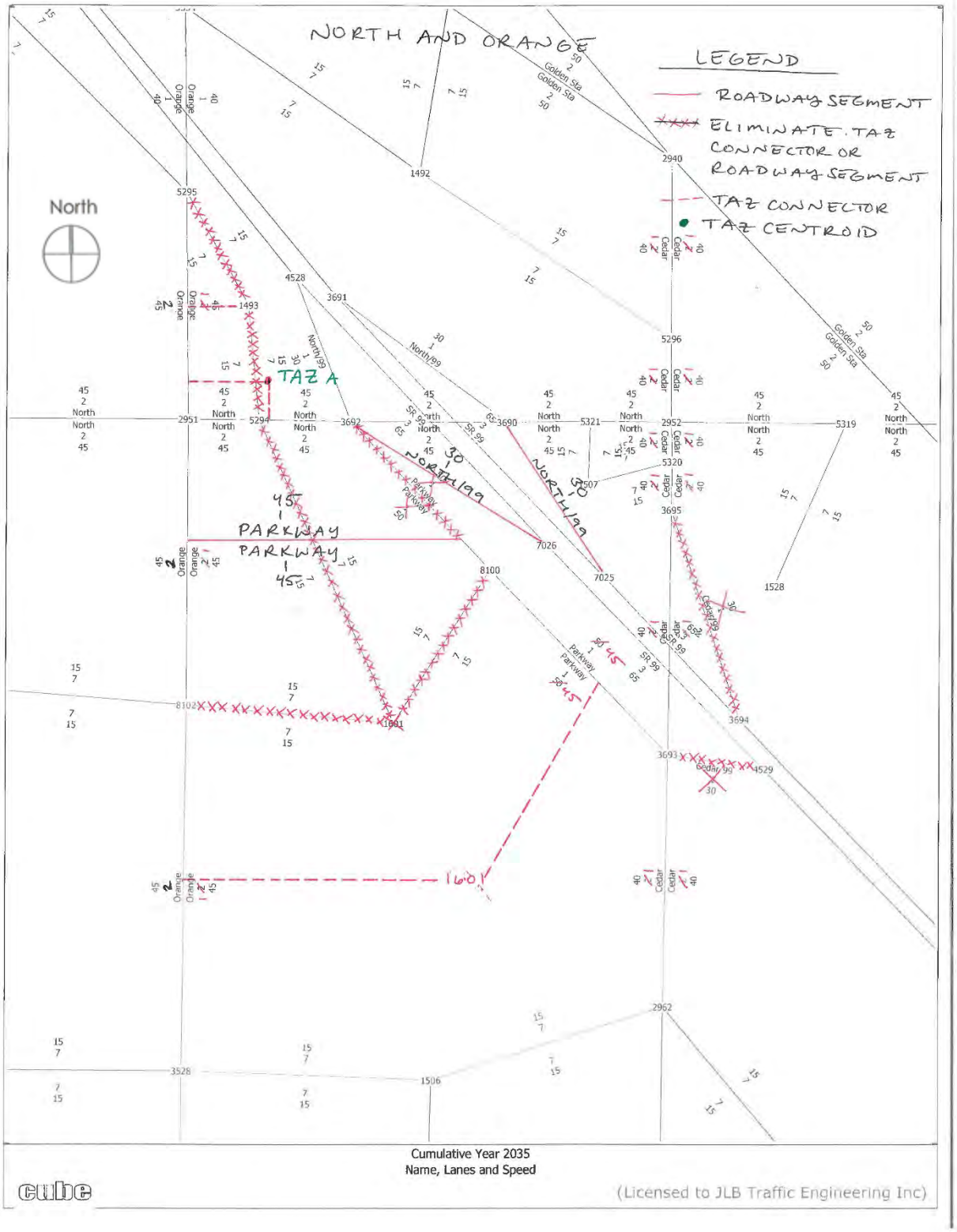
CC: Jose Benavides, PE, TE, President
Muyi Zhou, Regional Planner

*Z:\01 Projects\004 Fresno\004-051 North & Orange TIA\Model Request\L11132017 Revised Model Request.docx*

# Exhibit A – Aerial

# Exhibit B – Model Link and TAZ Modifications




NORTH AND ORANGE
LEGEND
ROADWAY SEGMENT
ELIMINATE TAZ CONNECTOR OR ROADWAY SEGMENT
TAZ CONNECTOR
TAZ CENTROID
North
TAZ A
PARKWAY
PARKWAY
NORTH/99
NORTH/99
160'
Cumulative Year 2035
Name, Lanes and Speed
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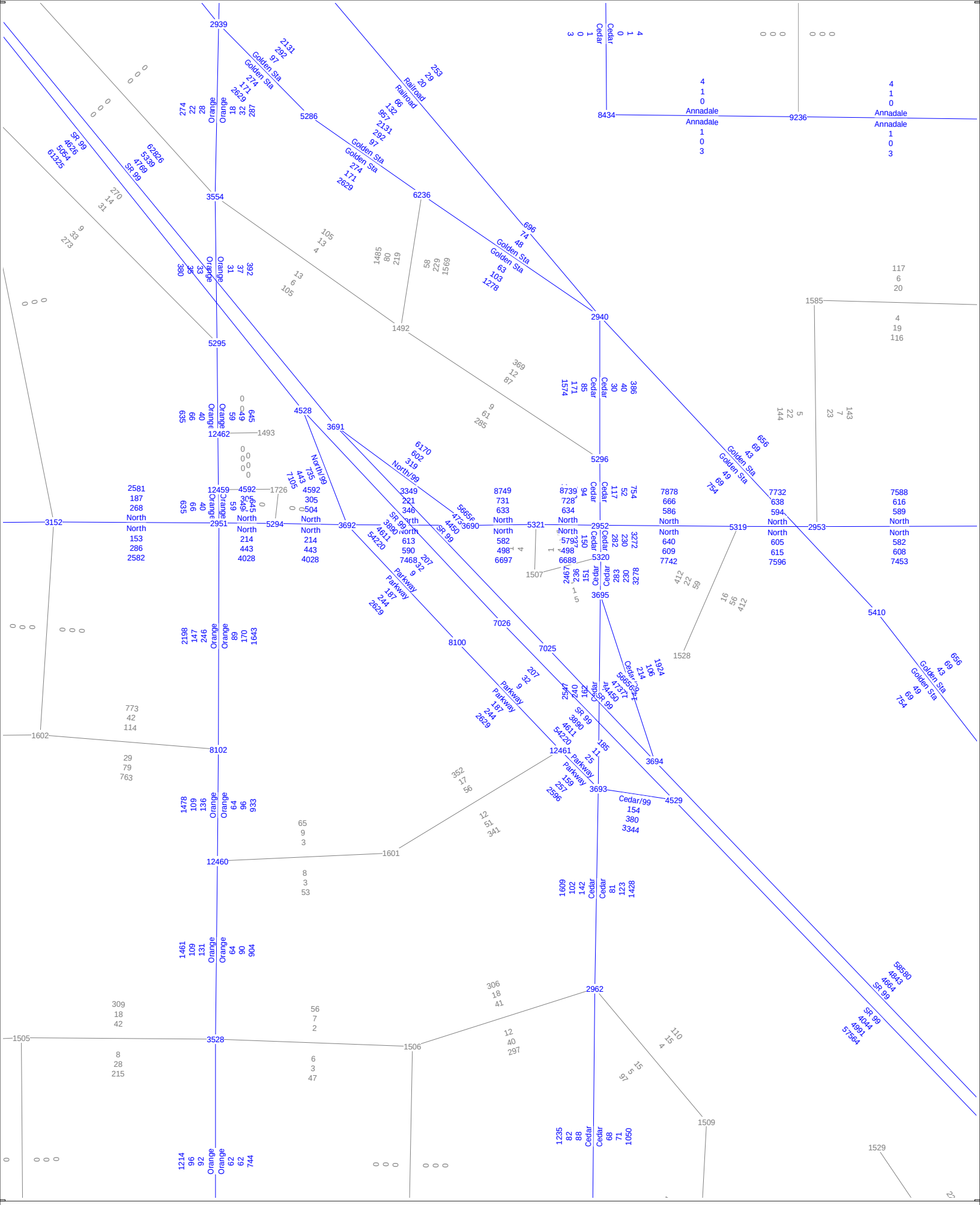


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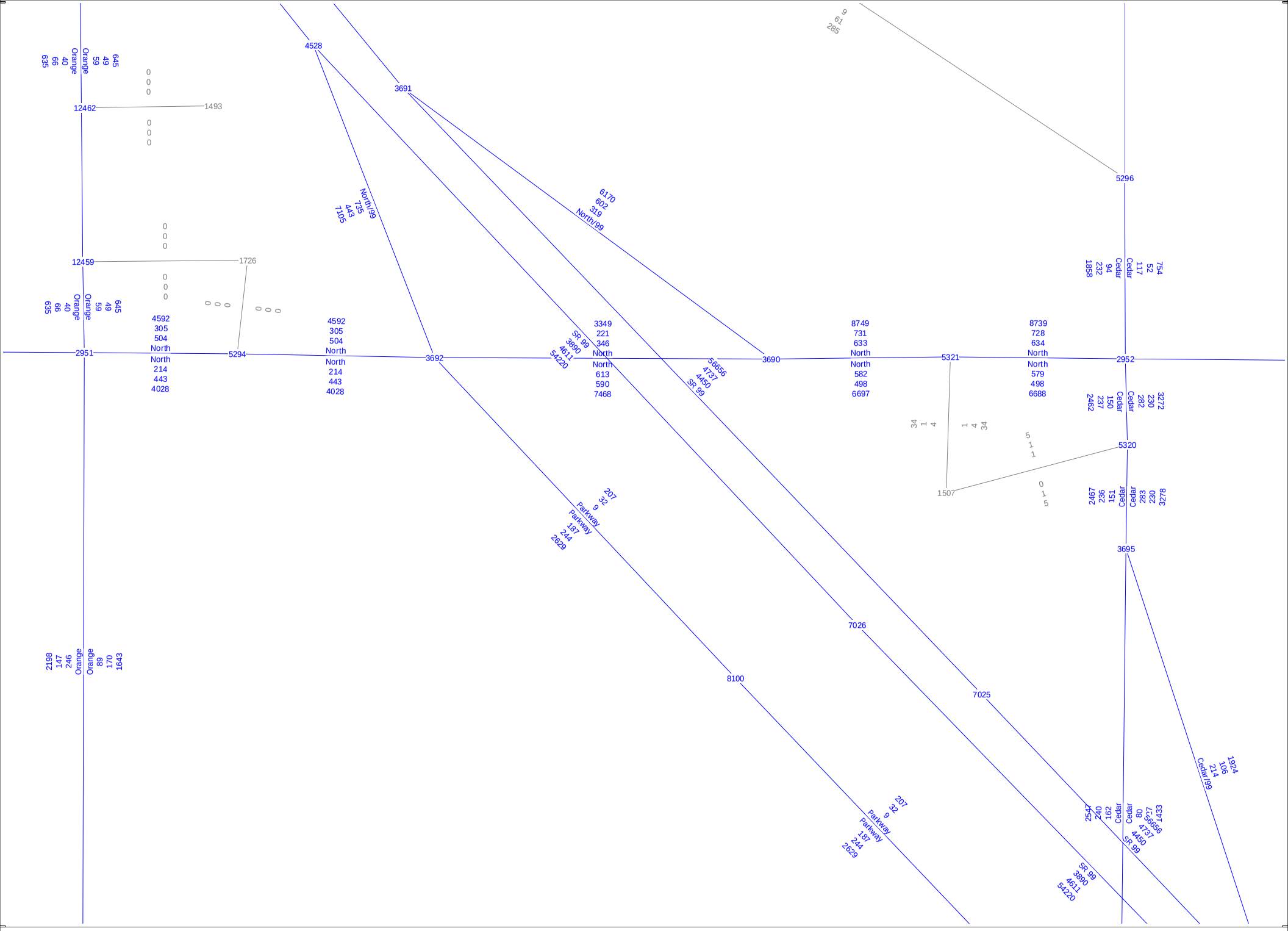


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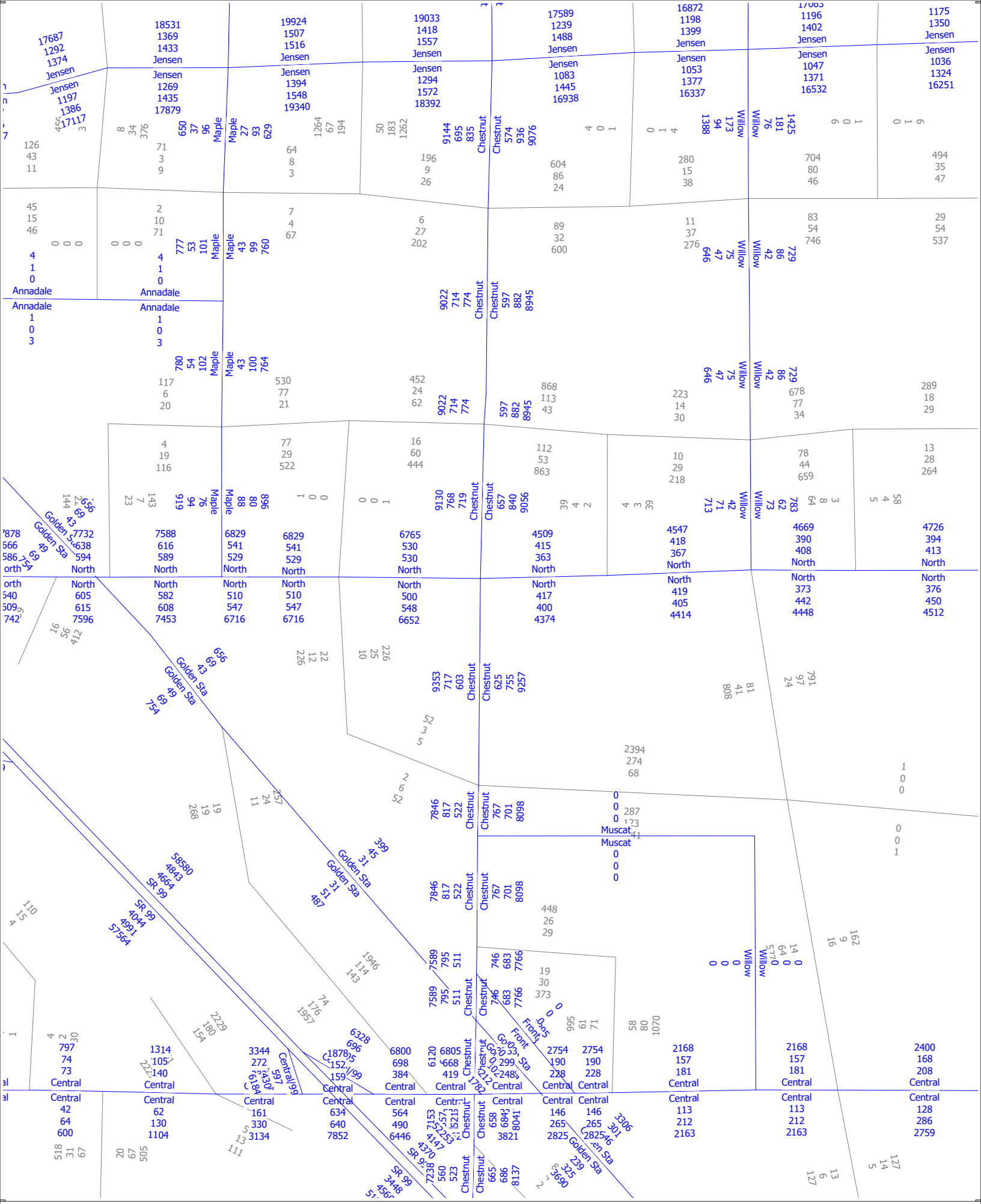


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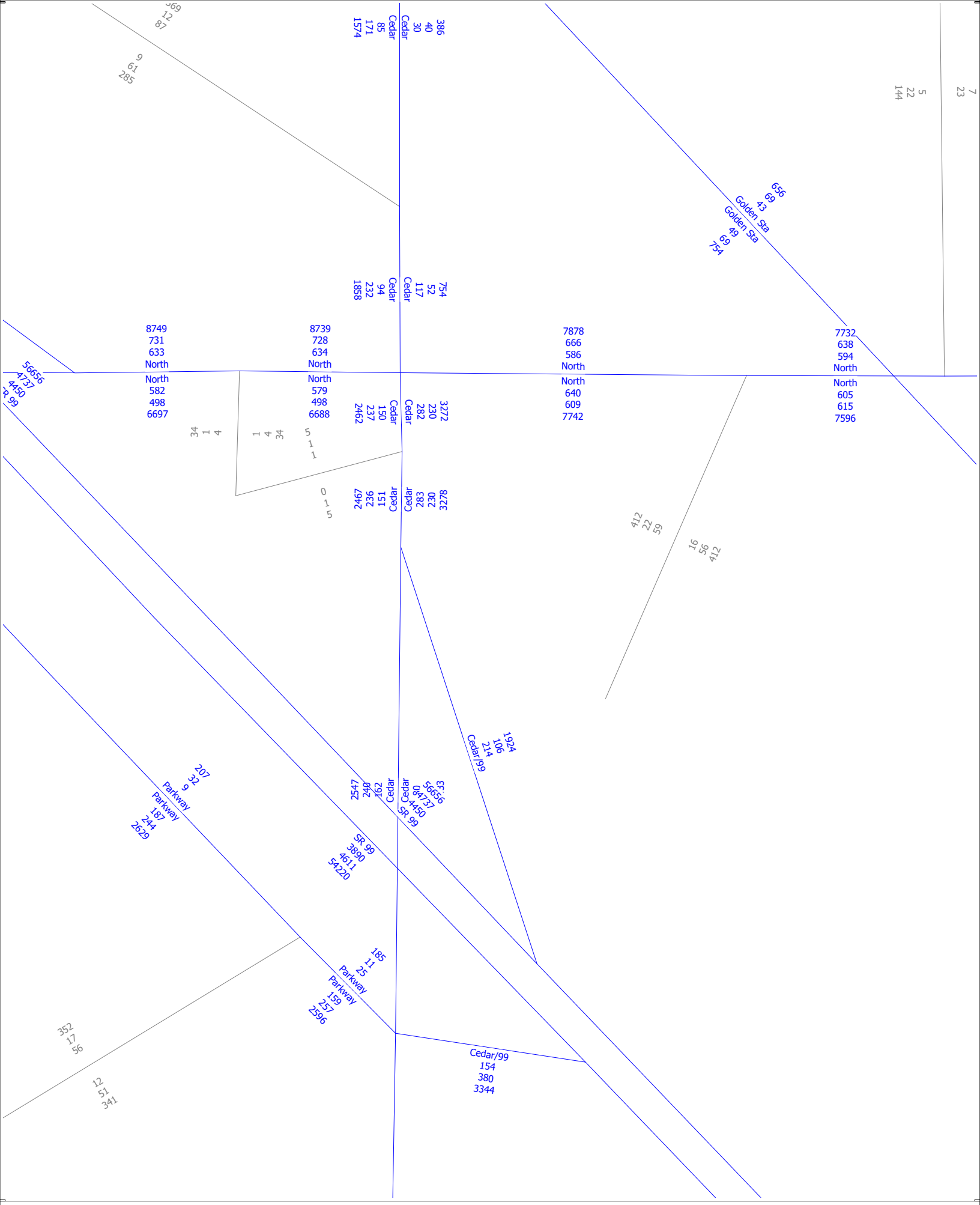


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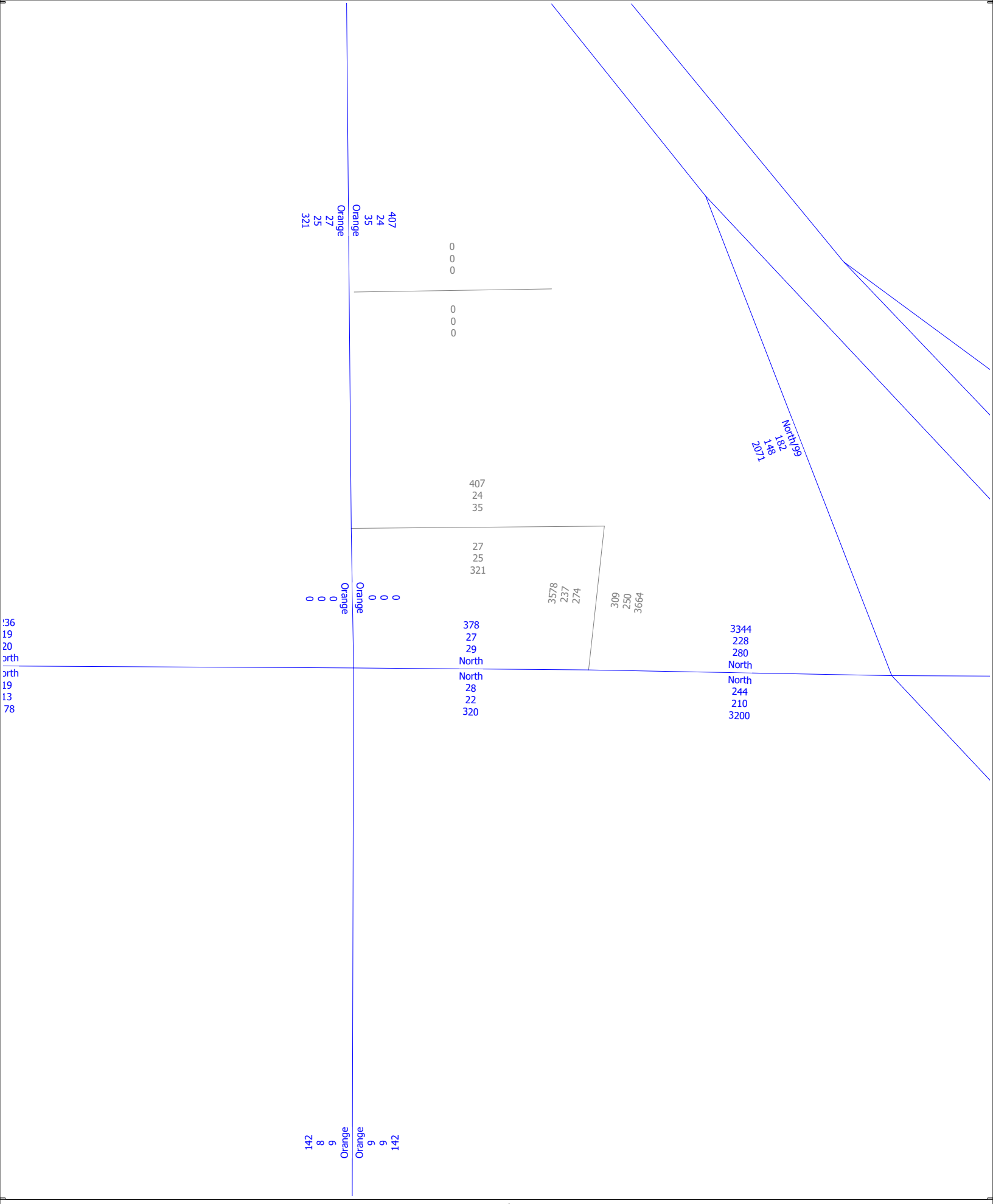


Base Year Select Zone
Project Only Trips
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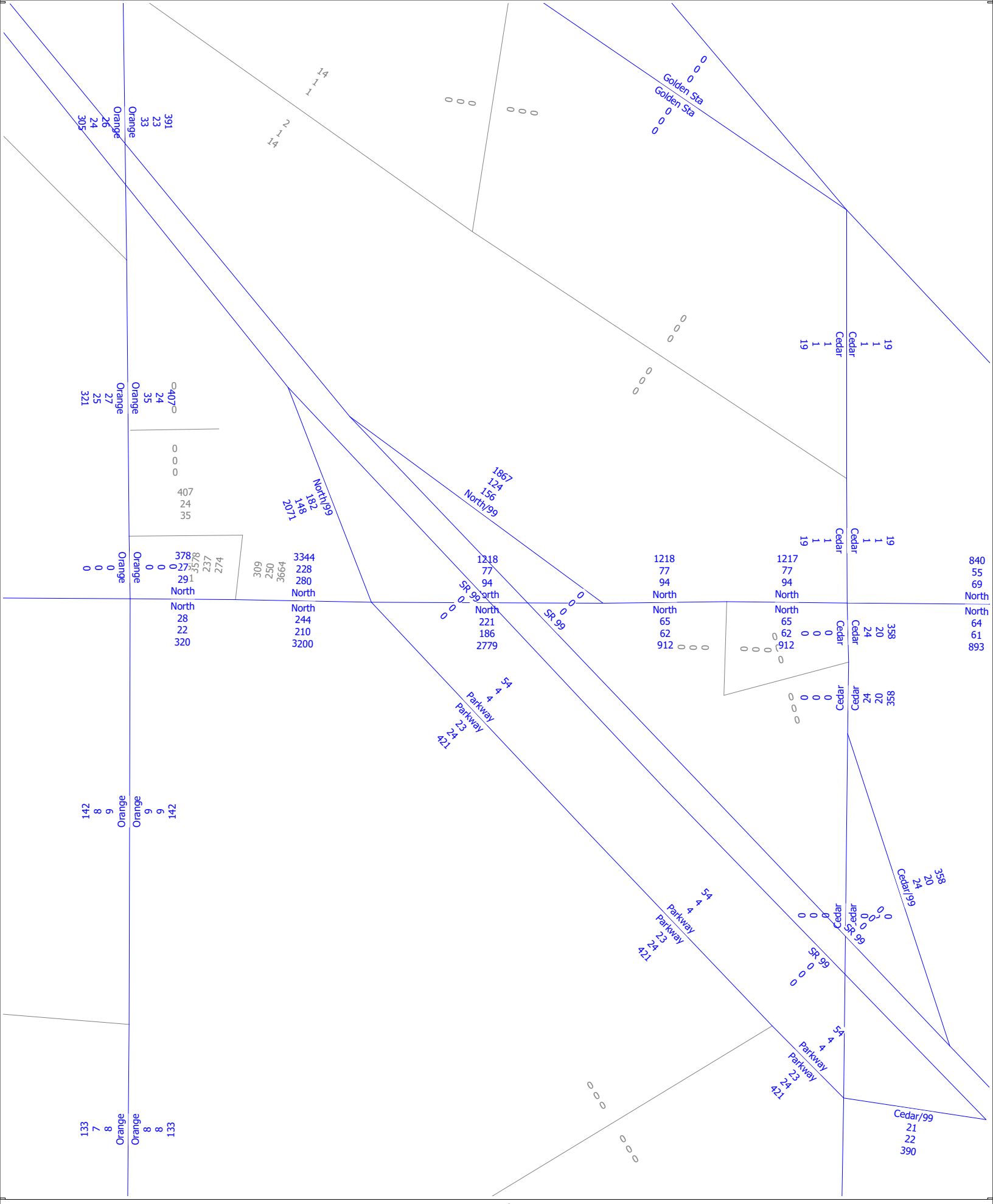


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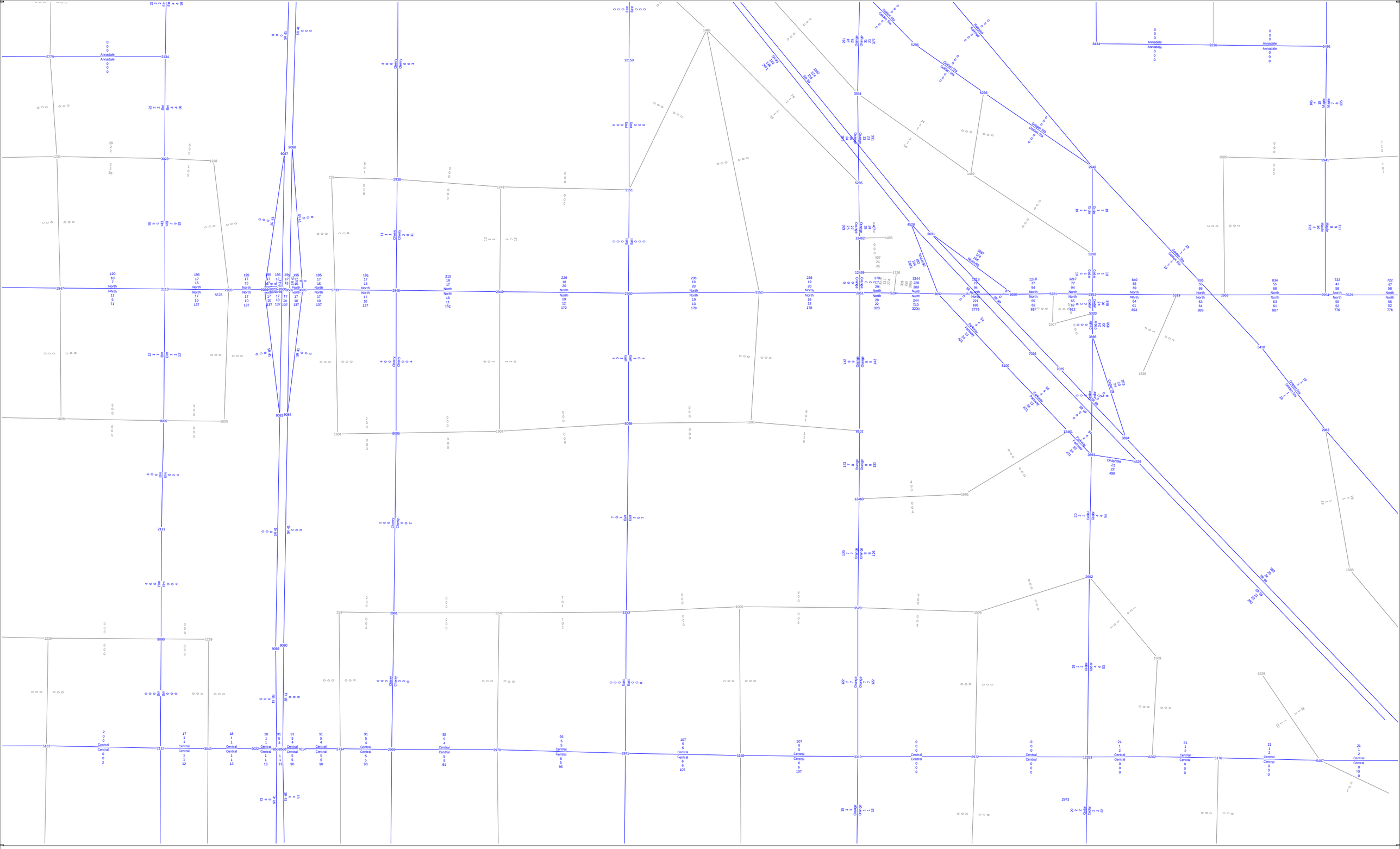

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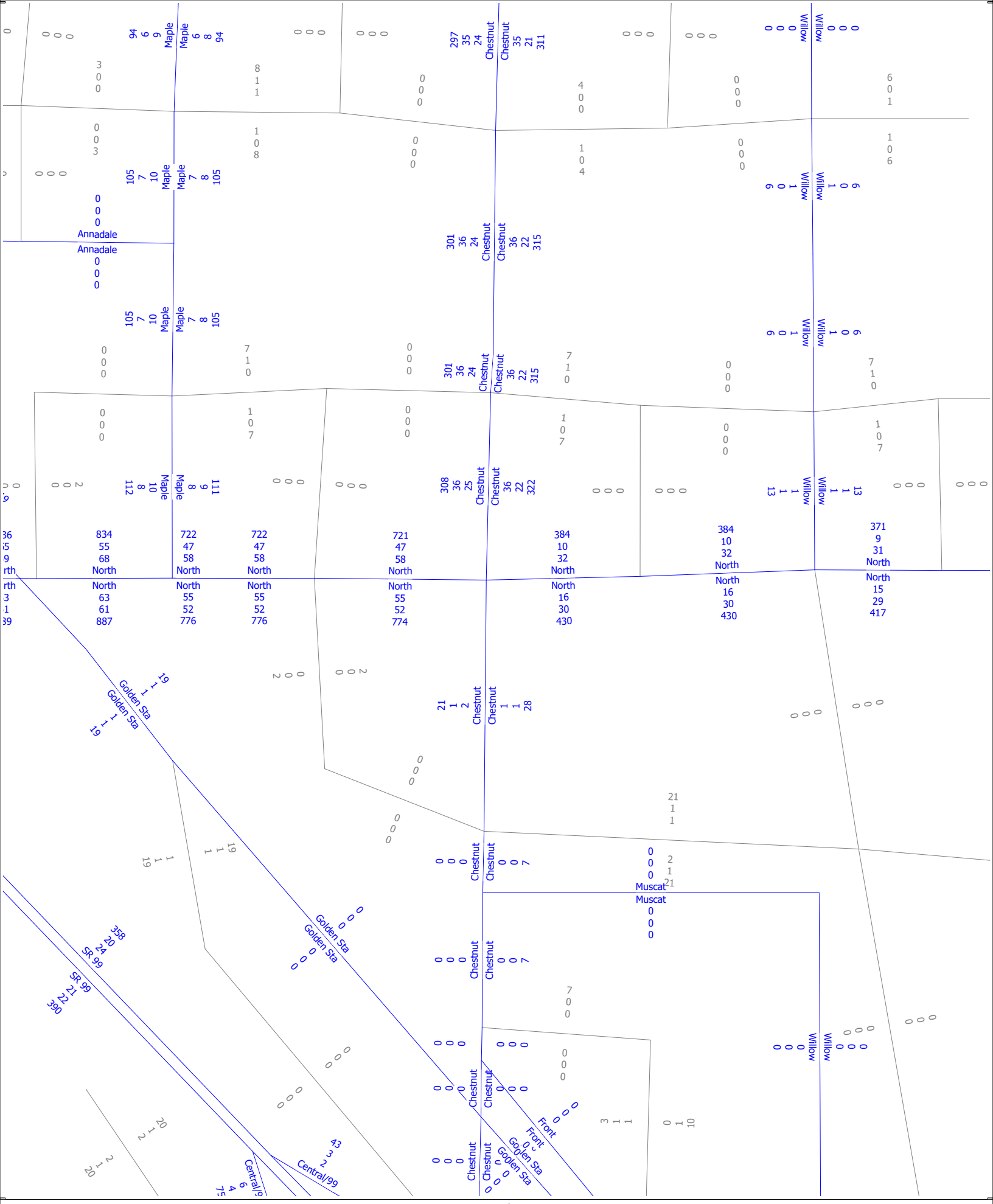


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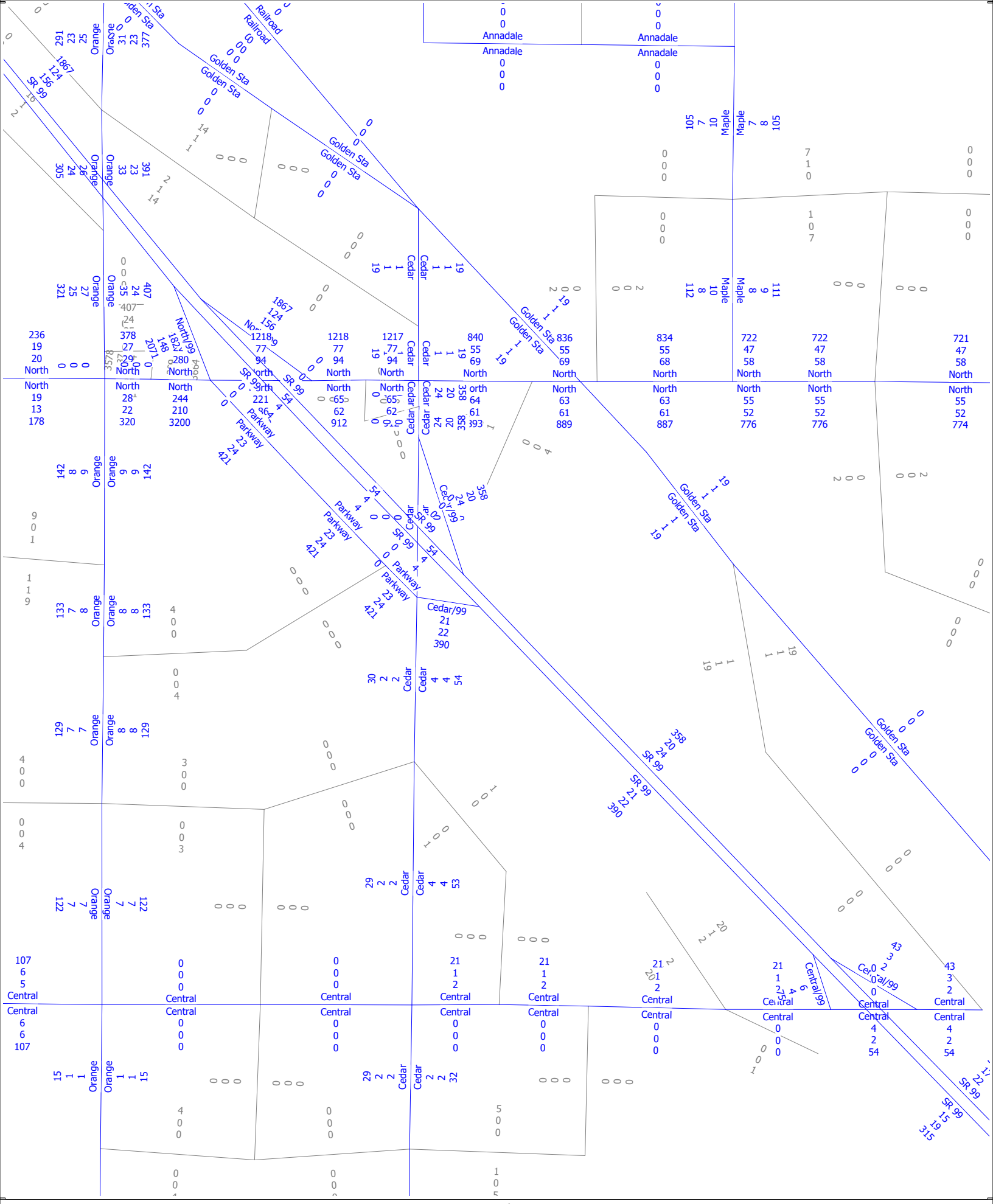


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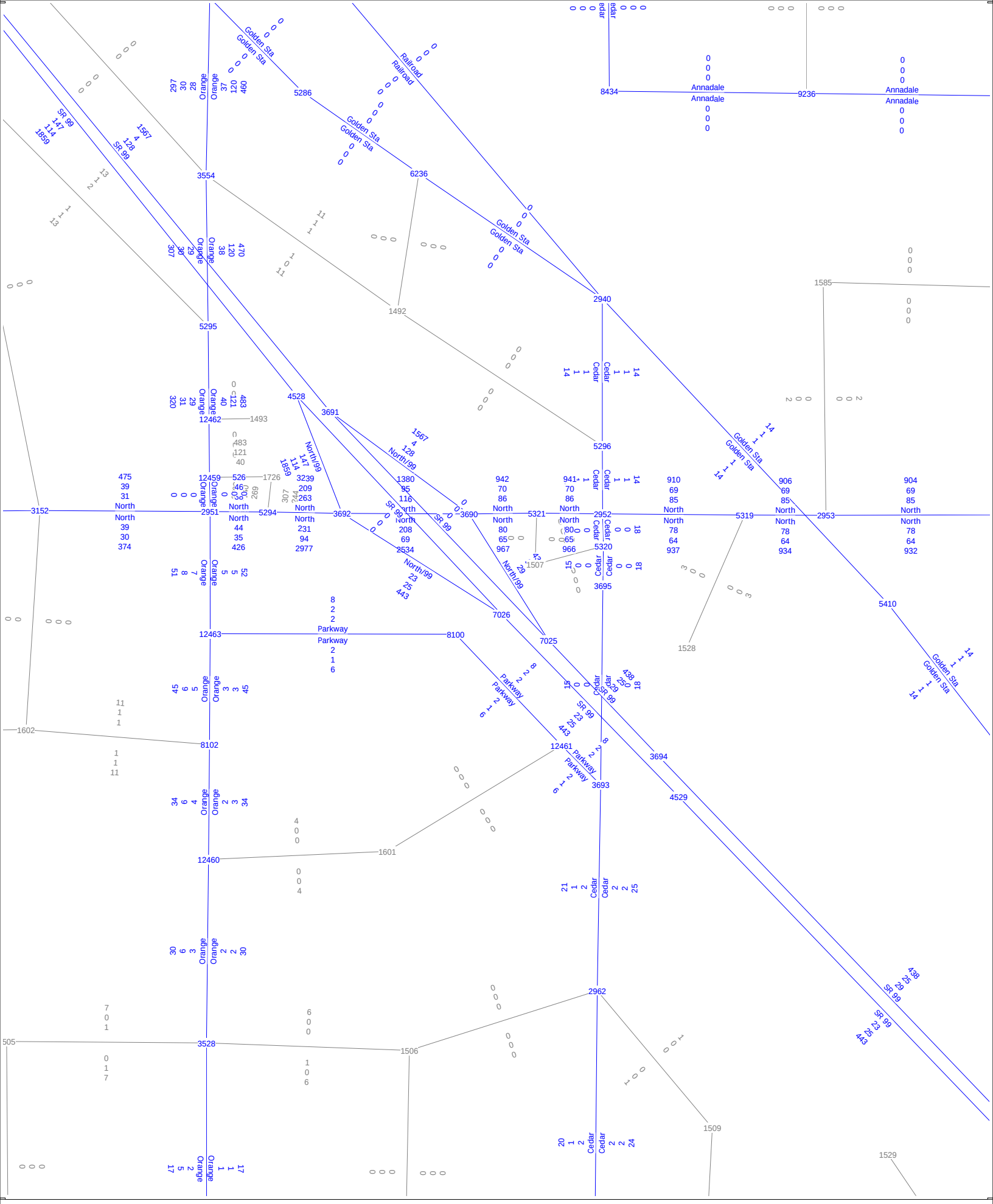


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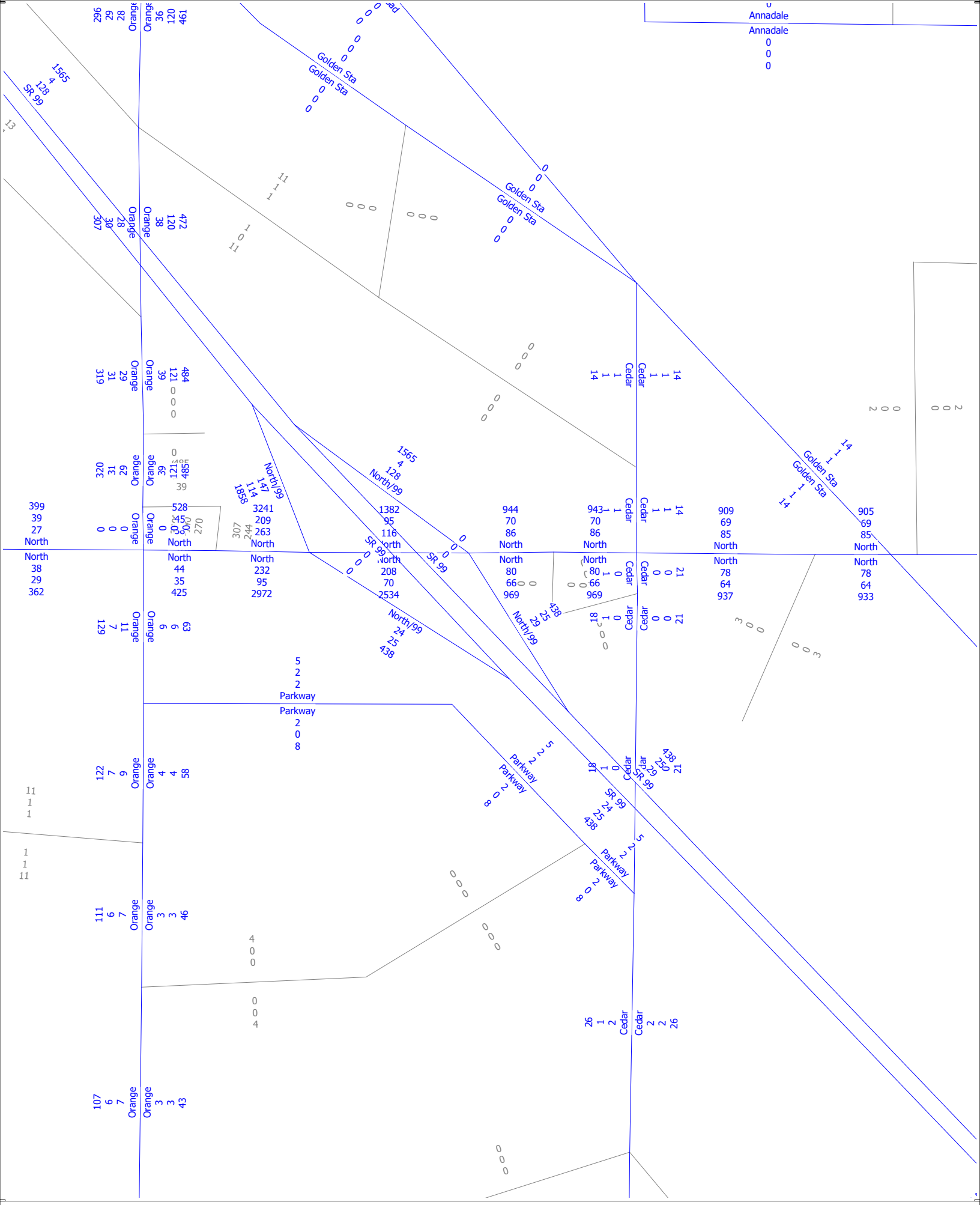


Cumulative 2035 plus Project
Select Zone
AM, PM and Daily Volumes

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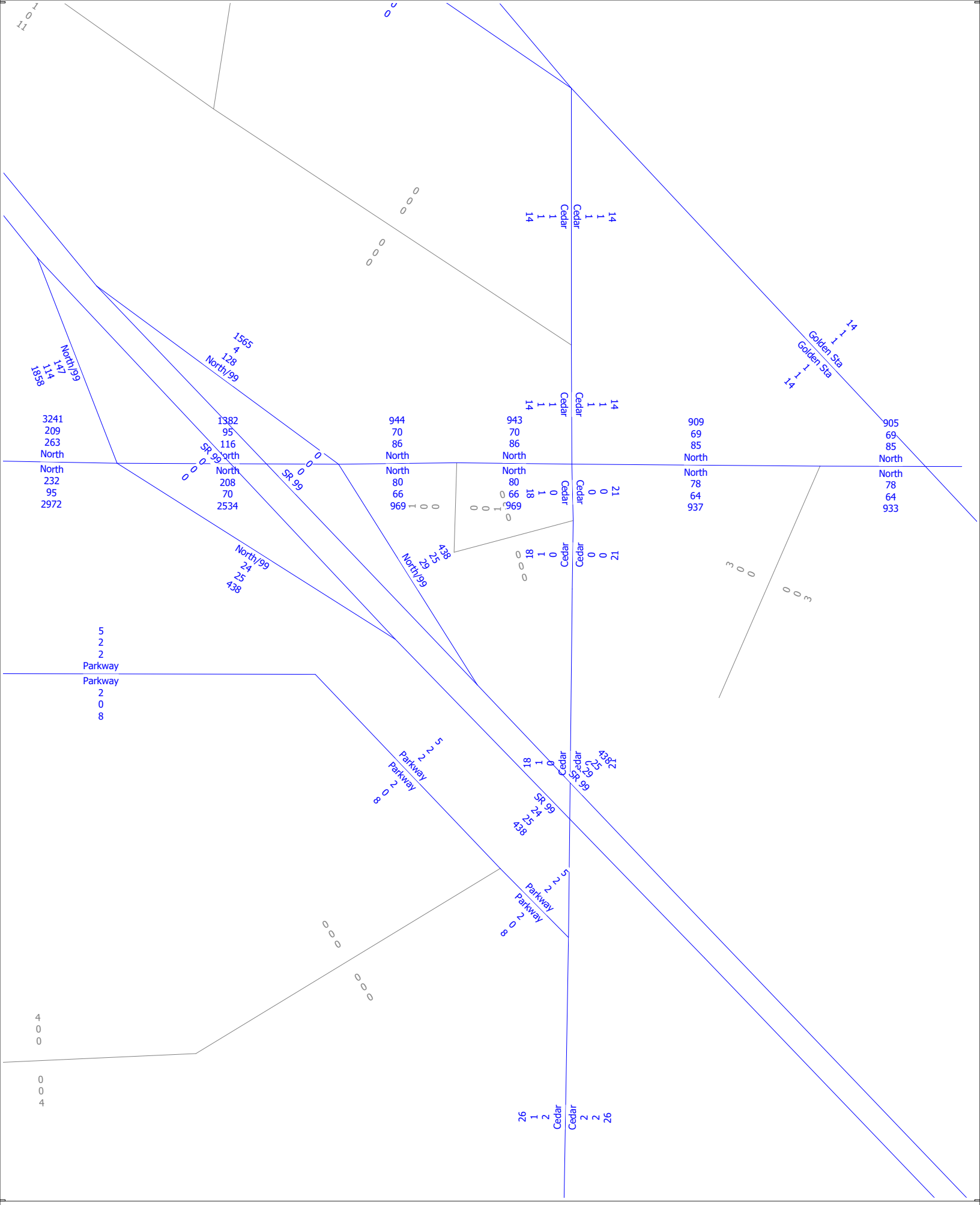


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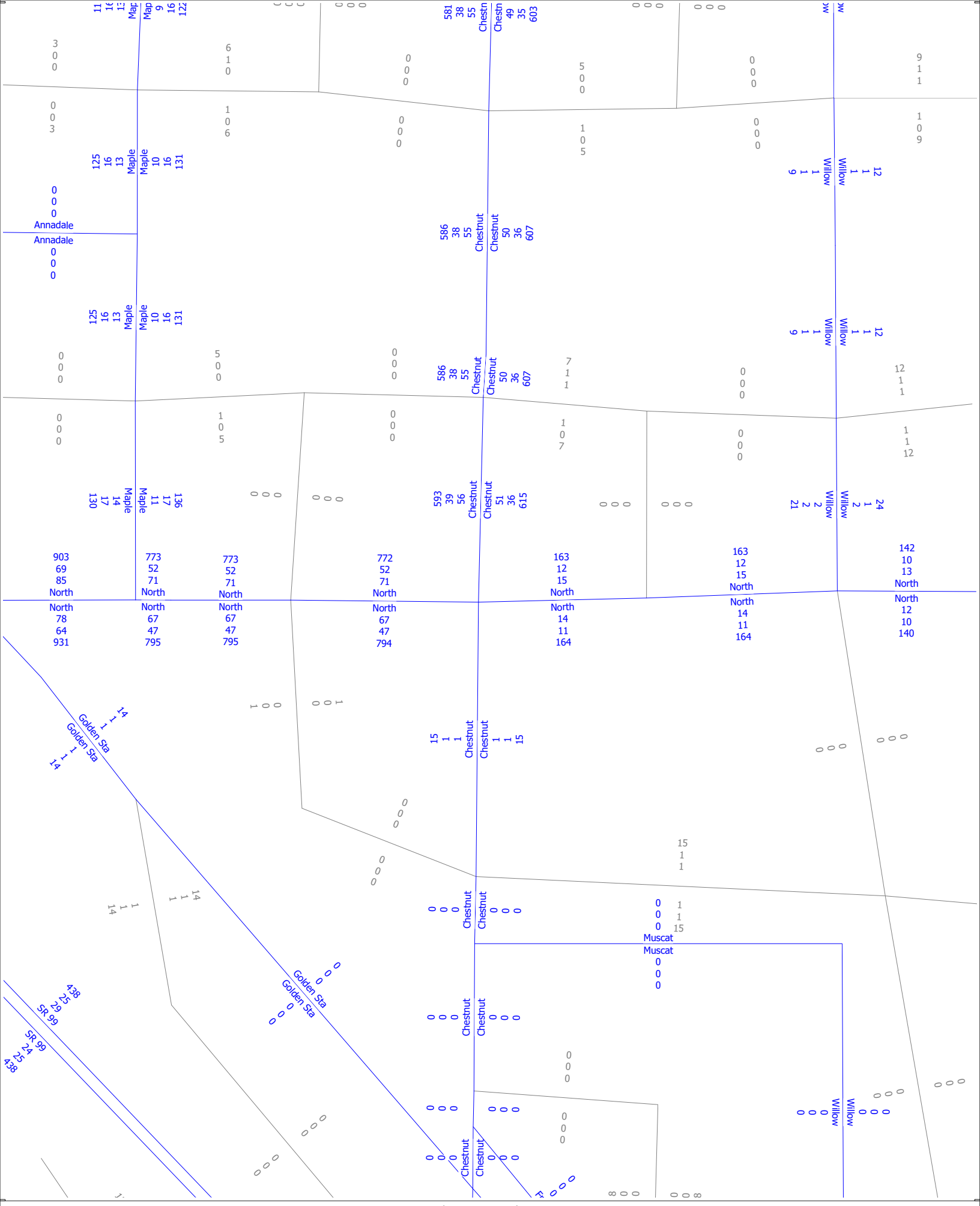


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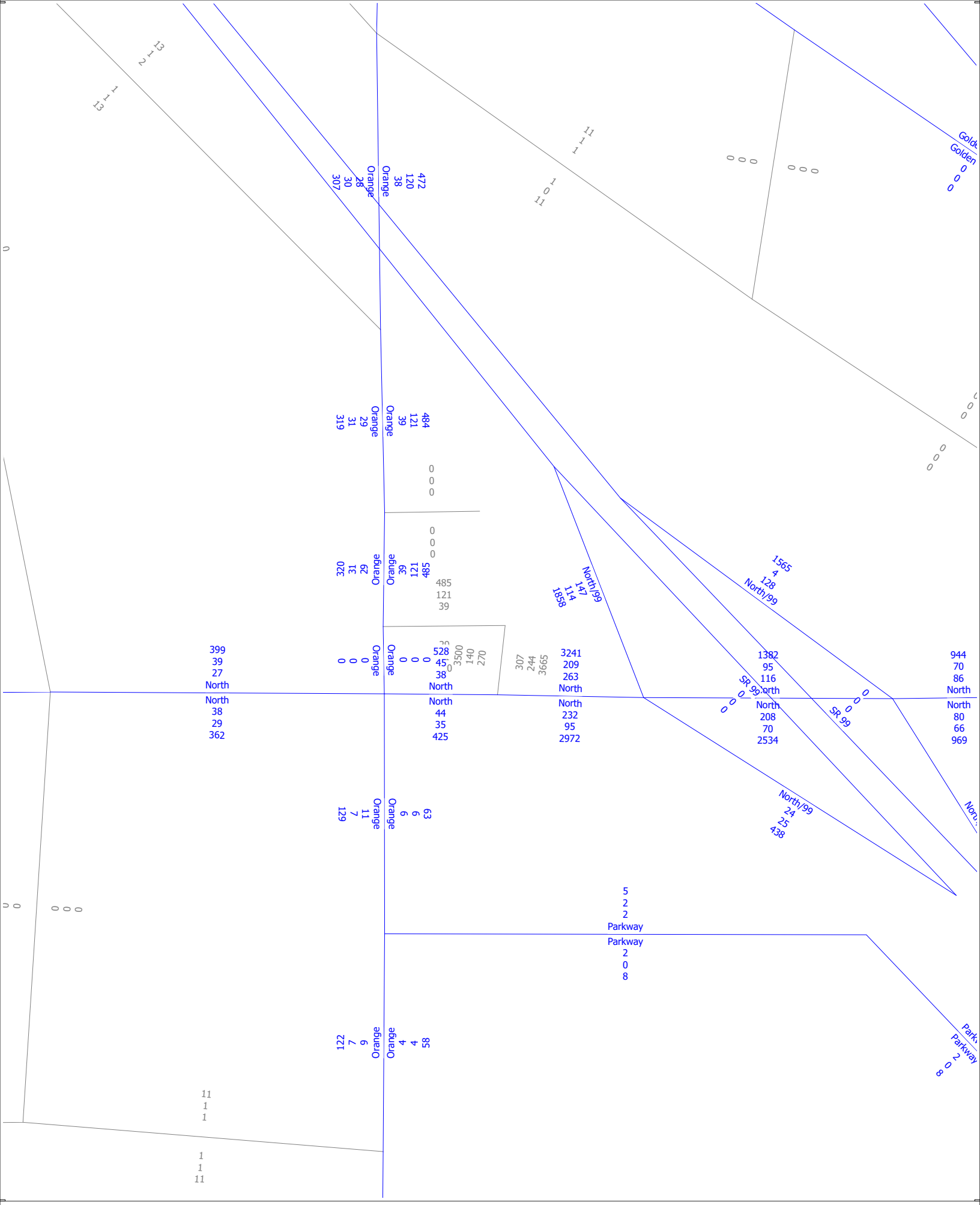


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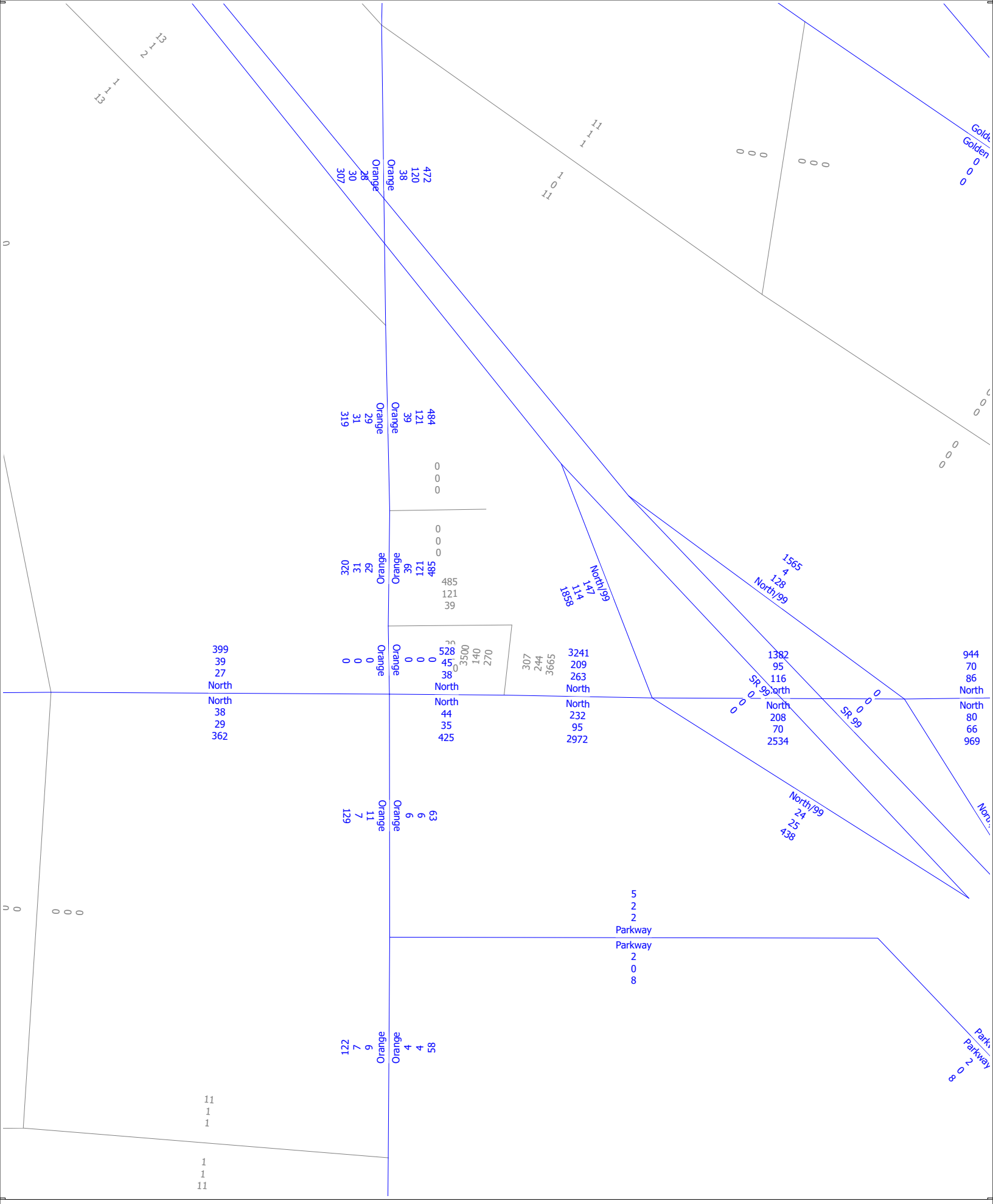


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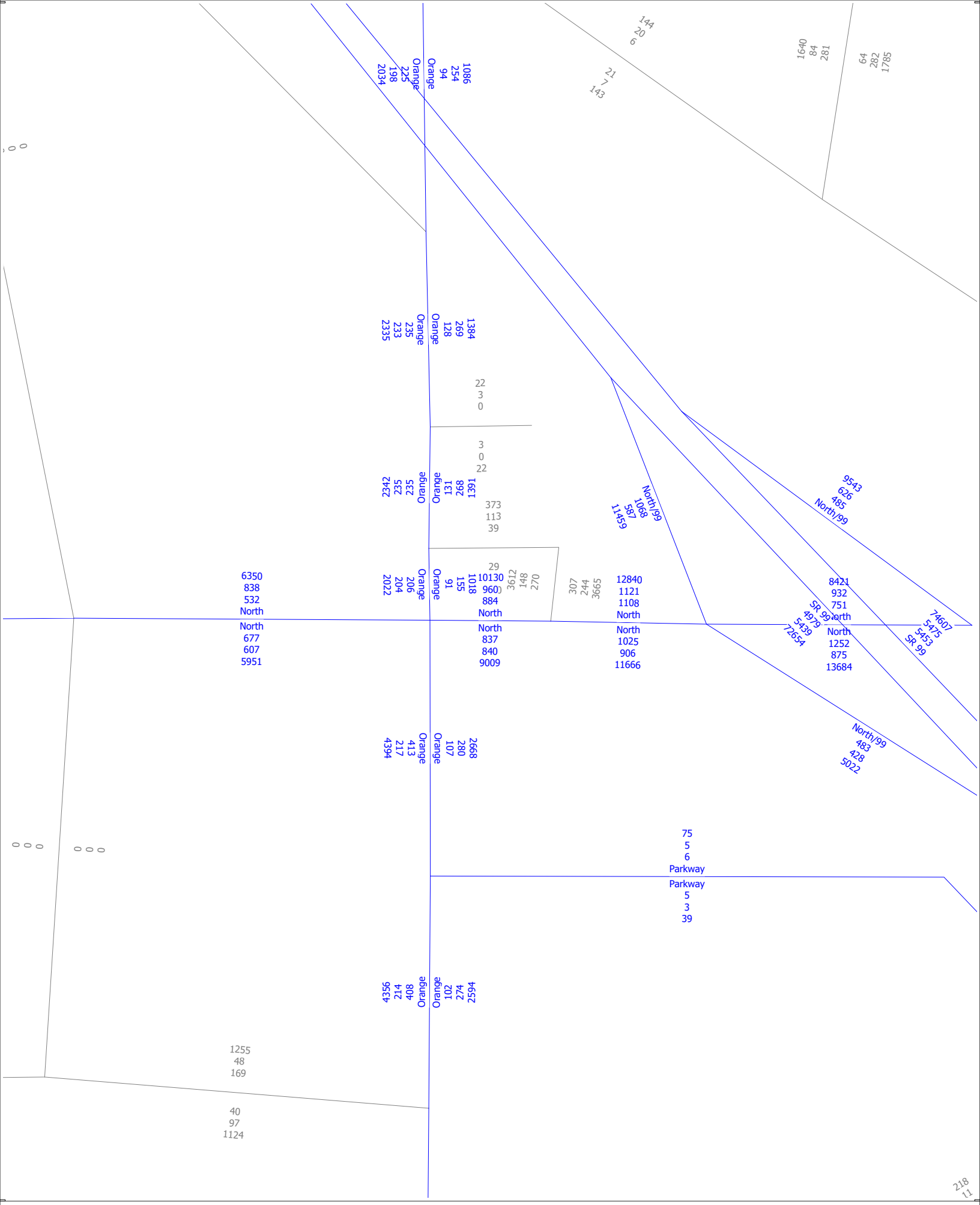


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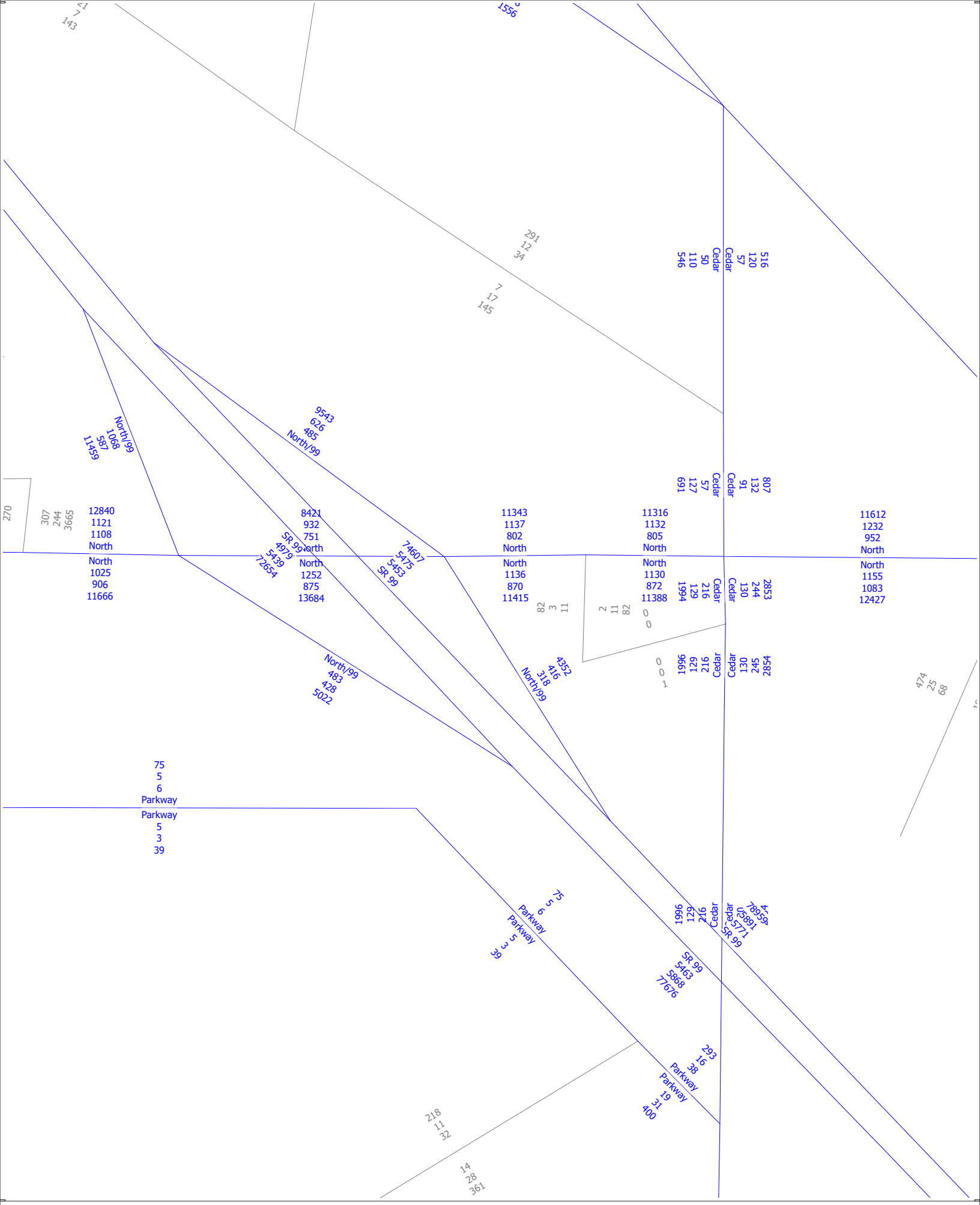


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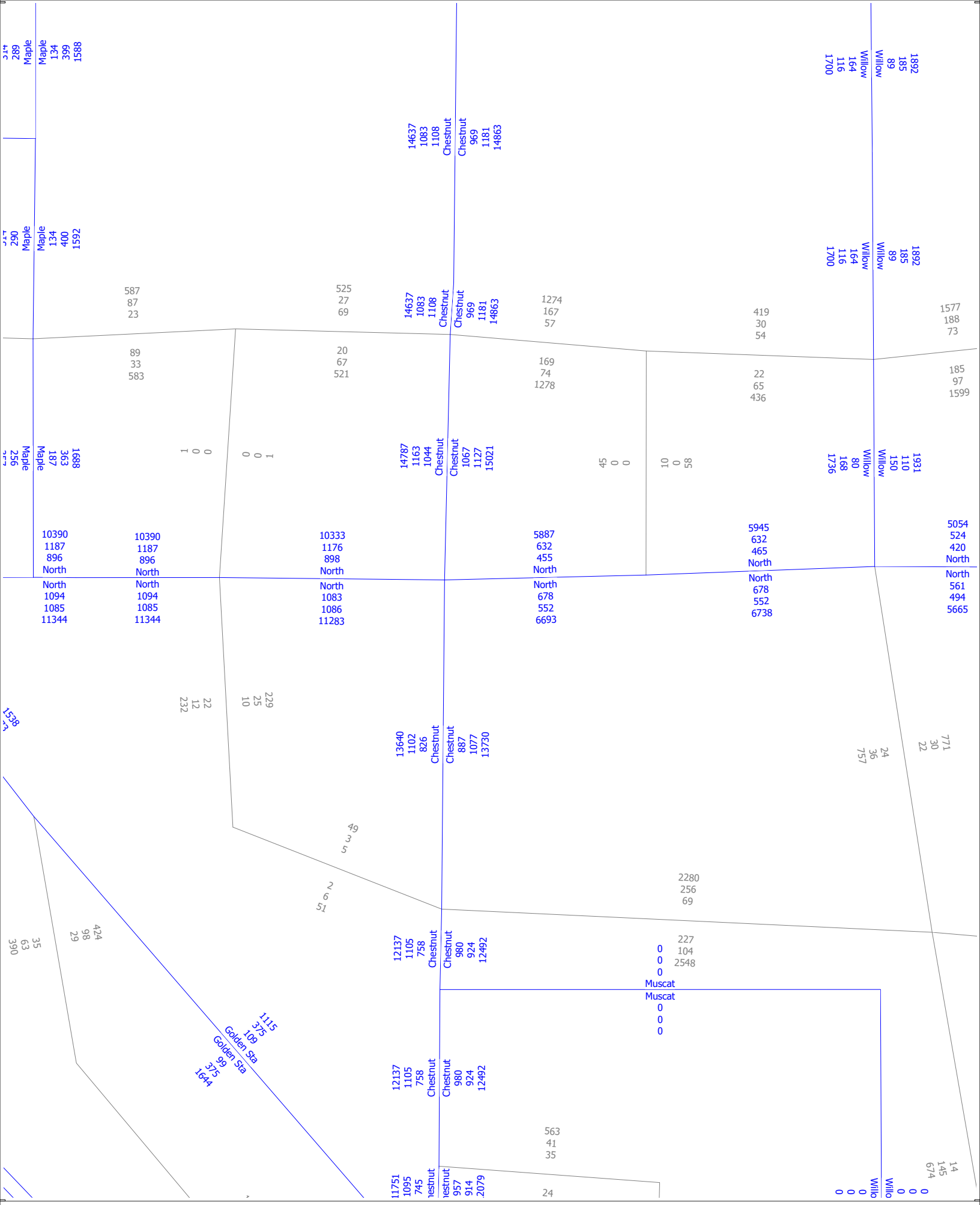


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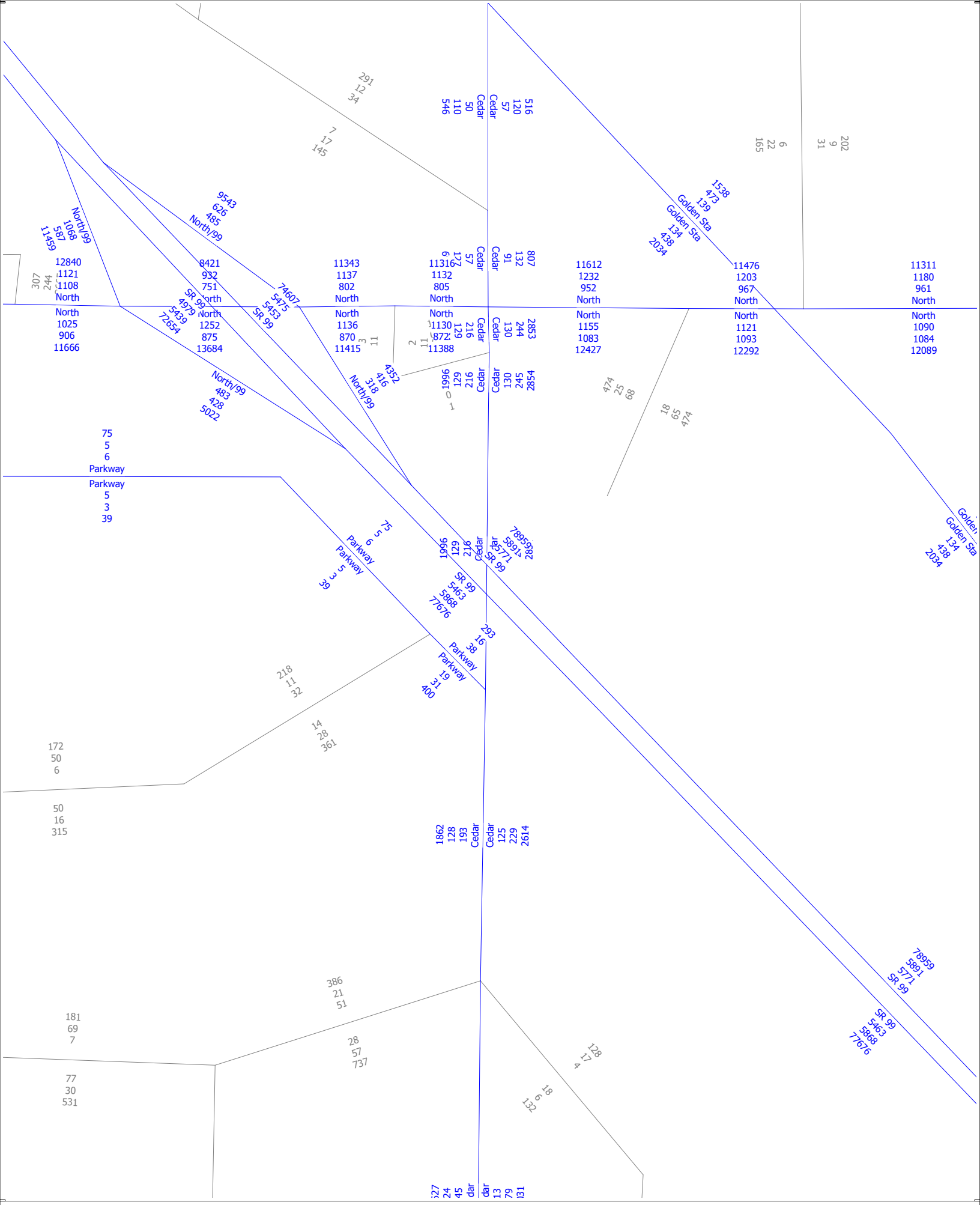


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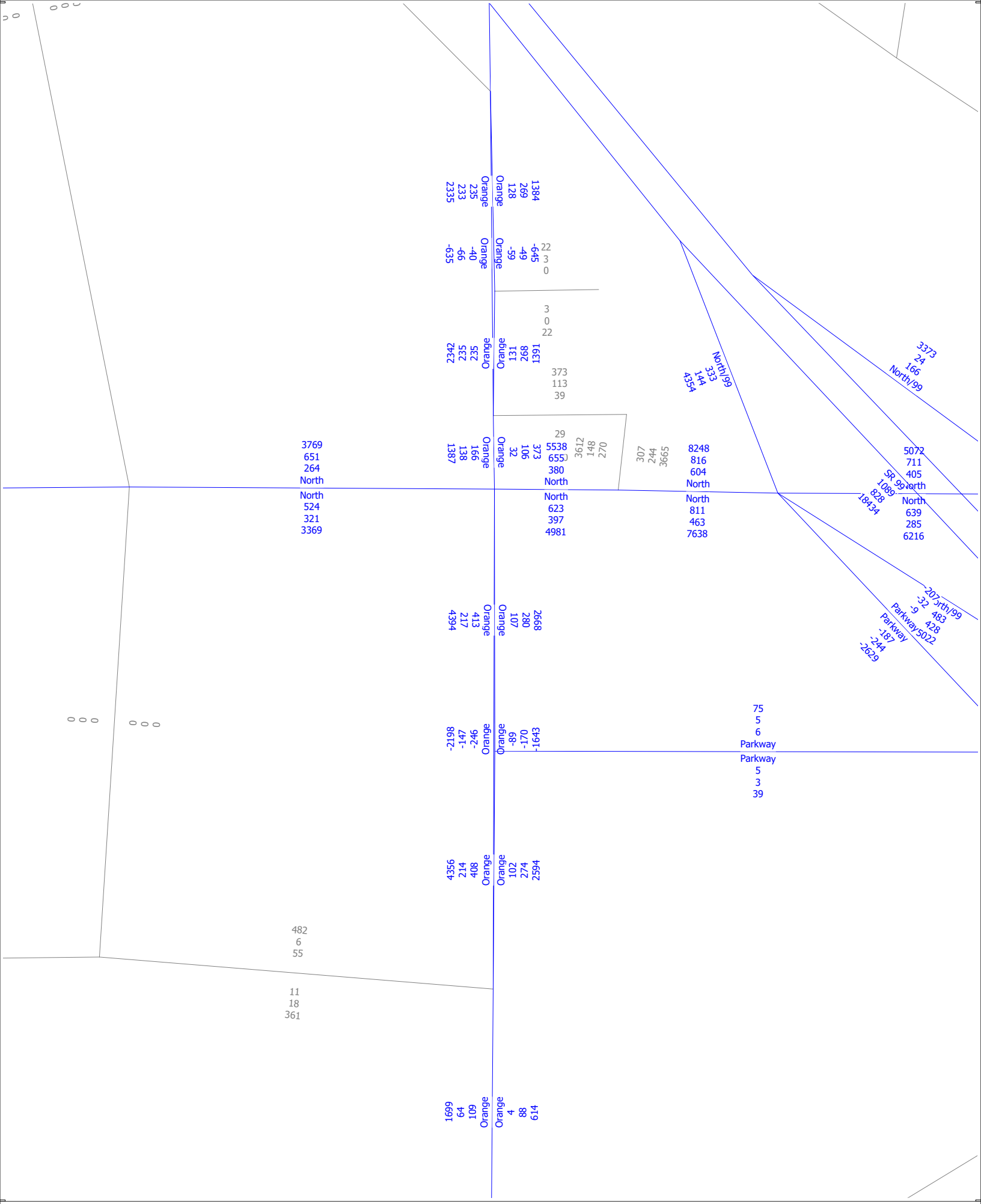


2035 Increment
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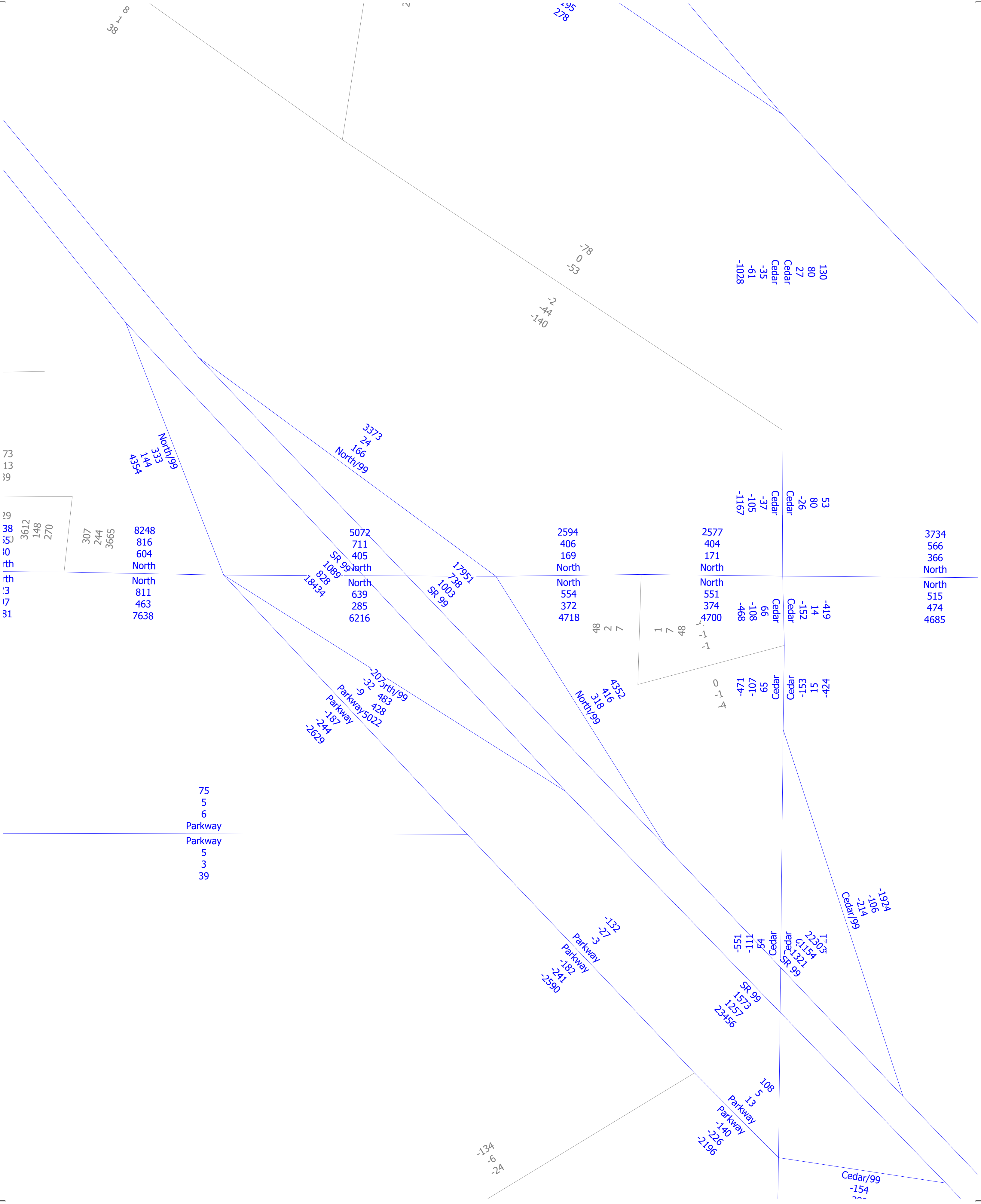


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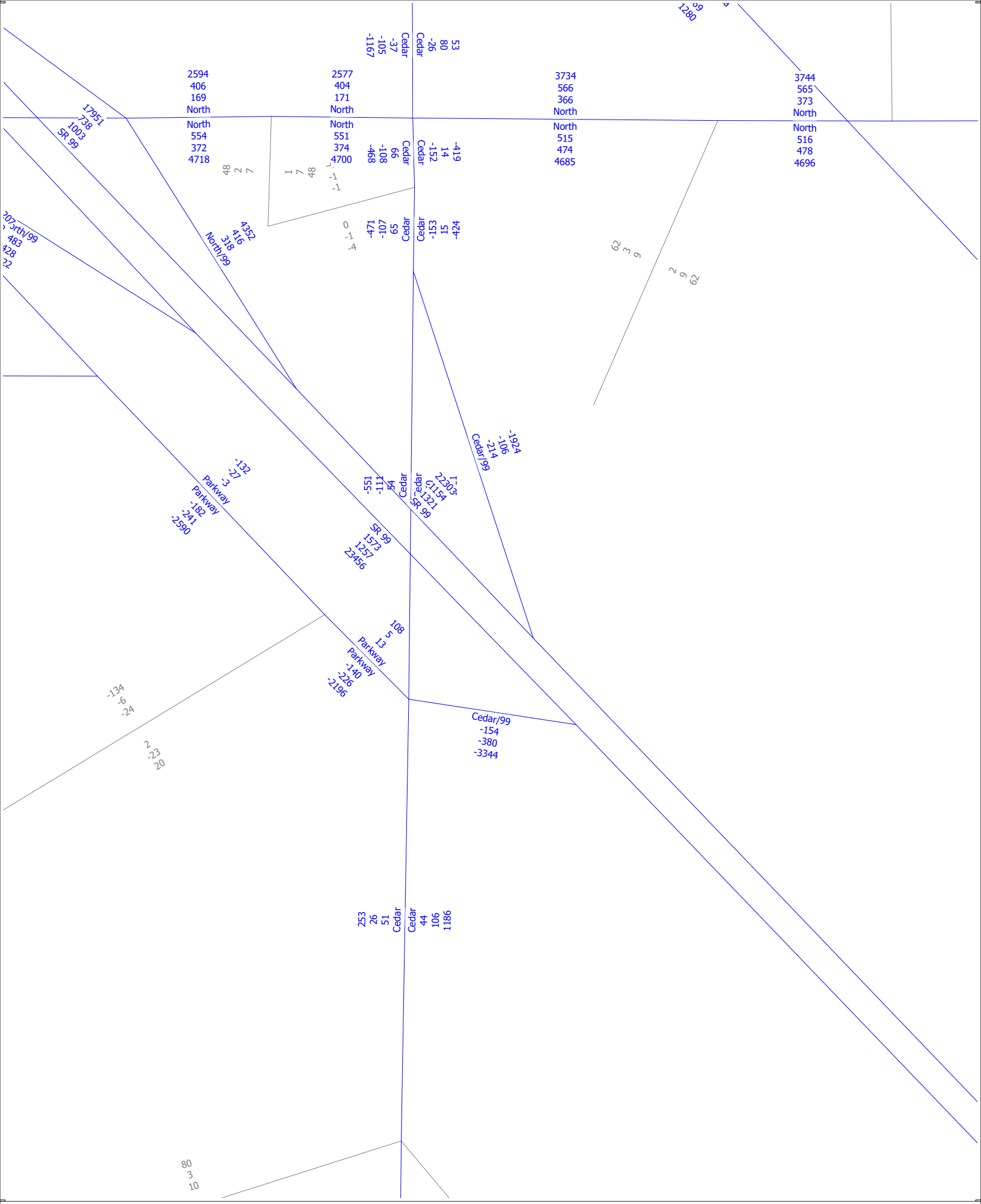


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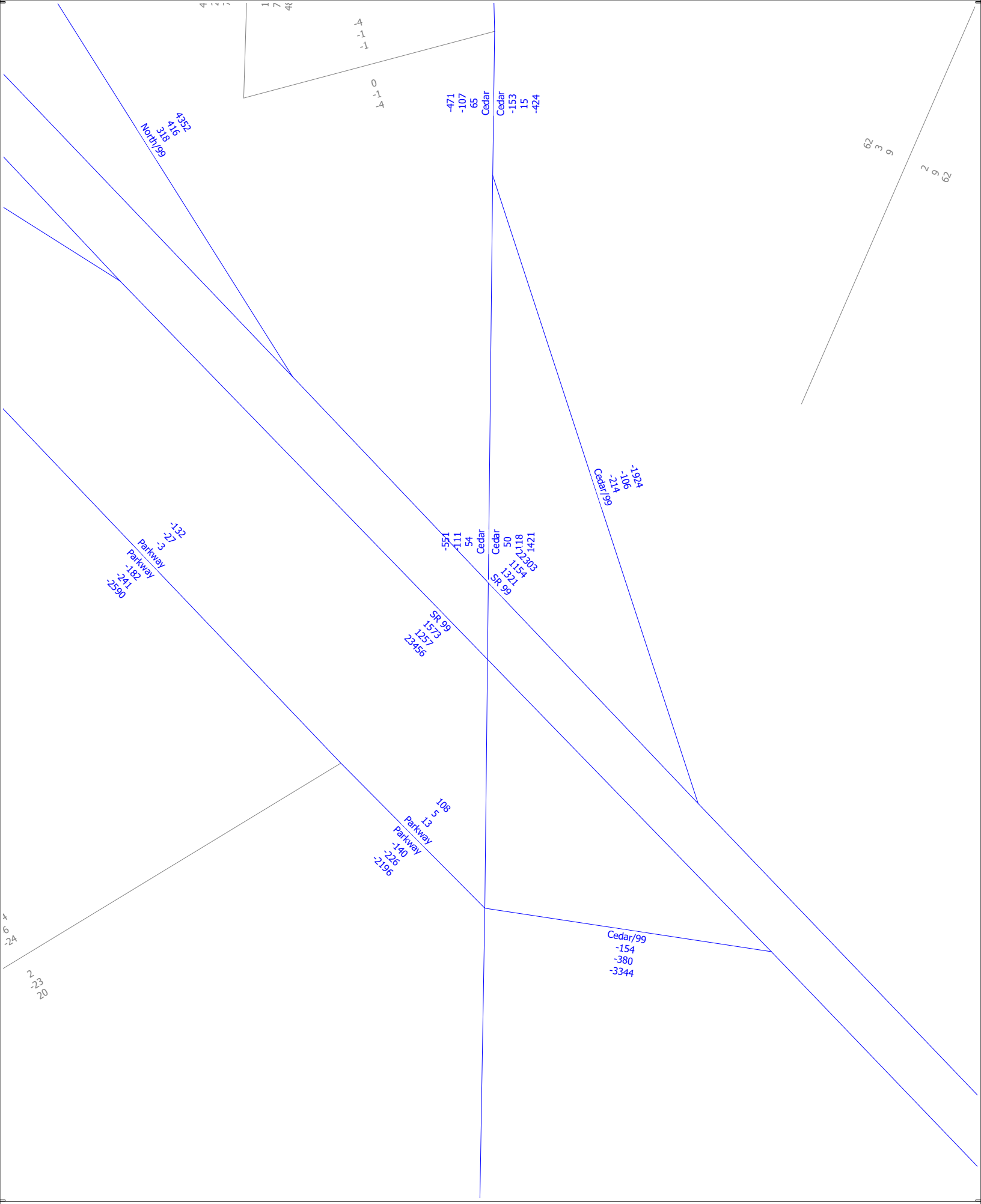


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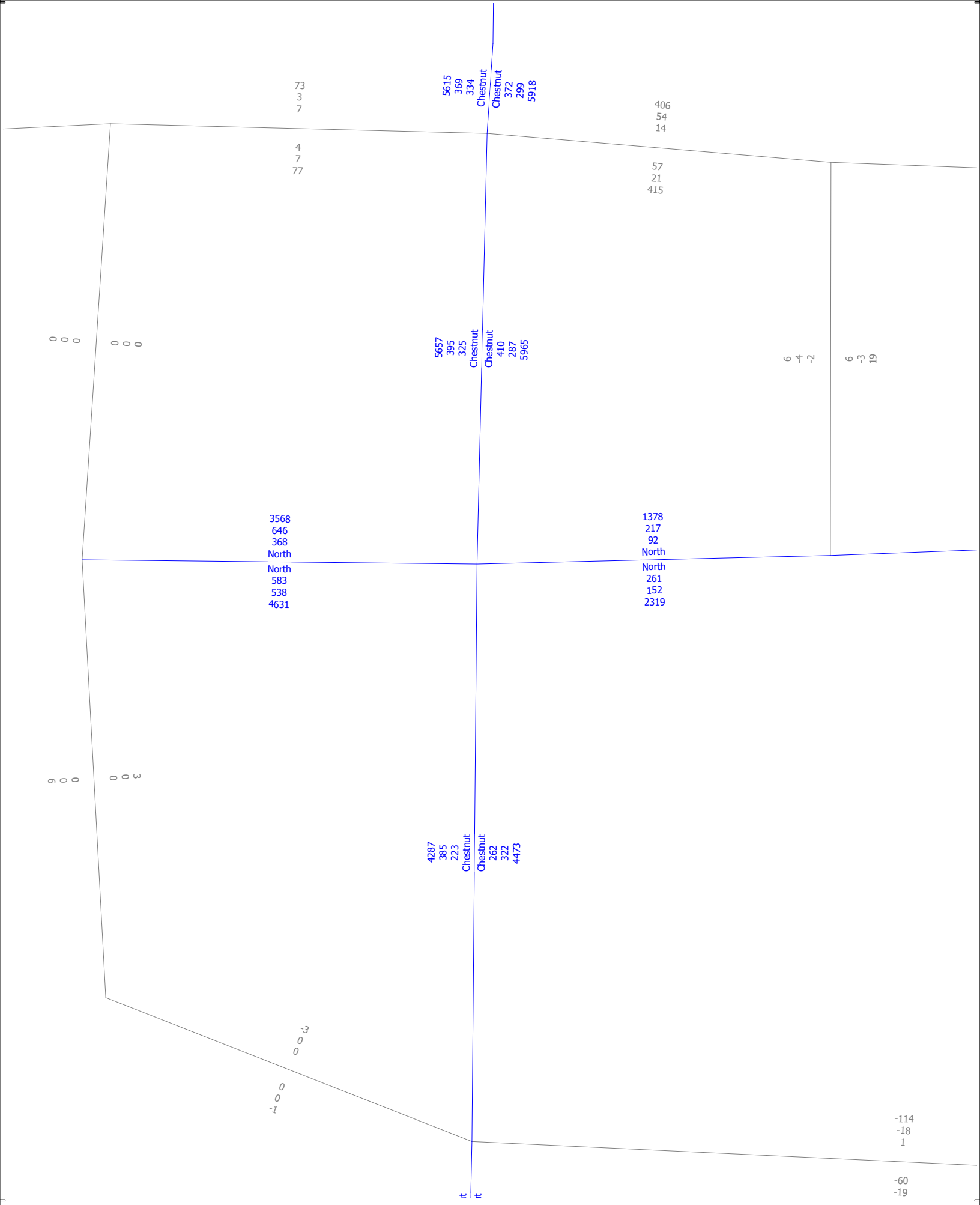


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(Licensed to JLB Traffic Engineering Inc)

# Appendix D: Methodology

## Levels of Service Methodology

The description and procedures for calculating capacity and level of service (LOS) are found in the Transportation Research Board, Highway Capacity Manual (HCM). The HCM 2010 represents the research on capacity and quality of service for transportation facilities.

Quality of service requires quantitative measures to characterize operational conditions within a traffic stream. Level of service is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, comfort and convenience.

Six levels of service are defined for each type of facility that has analysis procedures available. Letters designate each level of service (LOS), from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of these conditions. Safety is not included in the measures that establish a LOS.

## Urban Streets (Automobile Mode)

The term "urban streets" refers to urban arterials and collectors, including those in downtown areas. Arterial streets are roads that primarily serve longer through trips. However, providing access to abutting commercial and residential land uses is also an important function of arterials. Collector streets provide both land access and traffic circulation within residential, commercial and industrial areas. Their access function is more important than that of arterials, and unlike arterials their operation is not always dominated by traffic signals. Downtown streets are signalized facilities that often resemble arterials. They not only move through traffic but also provide access to local businesses for passenger cars, transit buses, and trucks. Pedestrian conflicts and lane obstructions created by stopping or standing taxicabs, buses, trucks and parking vehicles that cause turbulence in the traffic flow are typical of downtown streets.

### Flow Characteristics

The speed of vehicles on urban streets is influenced by three main factors, street environment, interaction among vehicles and traffic control.

The street environment includes the geometric characteristics of the facility, the character of roadside activity, and adjacent land uses. Thus, the environment reflects the number and width of lanes, type of median, driveway/access point density, spacing between signalized intersections, existence of parking, level of pedestrian and bicyclist activity and speed limit.

The interaction among vehicles is determined by traffic density, the proportion of trucks and buses, and turning movements. This interaction affects the operation of vehicles at intersections and, to a lesser extent, between signals.

Traffic controls (including signals and signs) forces a portion of all vehicles to slow or stop. The delays and speed changes caused by traffic control devices reduce vehicle speeds; however, such controls are needed to establish right-of-way.

## Levels of Service (automobile Mode)

The average travel speed for through vehicles along an urban street is the determinant of the operating level of service (LOS). The travel speed along a segment, section or entire length of an urban street is dependent on the running speed between signalized intersections and the amount of control delay incurred at signalized intersections.

**LOS A** describes primarily free-flow operation. Vehicles are completely unimpeded in their ability to maneuver within the traffic stream. Control delay at signalized intersections is minimal. Travel speeds exceed 85 of the base free flow speed (FFS).

**LOS B** describes reasonably unimpeded operation. The ability to maneuver within the traffic stream is only slightly restricted and control delay at the boundary intersections is not significant. The travel speed is between 67 and 85 percent of the base FFS.

**LOS C** describes stable operations. The ability to maneuver and change lanes in midblock location may be more restricted than at LOS B. Longer queues at the boundary intersections may contribute to lower travel speeds. The travel speed is between 50 and 67 percent of the base FFS.

**LOS D** indicates a less stable condition in which small increases in flow may cause substantial increases in delay and decreases in travel speed. This operation may be due to adverse signal progression, high volumes, inappropriate signal timing, at the boundary intersections. The travel speed is between 40 and 50 percent of the base FFS.

**LOS E** is characterized unstable operation and significant delay. Such operations may be due to some combination of adverse progression, high volume, and inappropriate signal timing at the boundary intersections. The travel speed is between 30 and 40 percent of the base FFS.

**LOS F** is characterized by street flow at extremely low speed. Congestion is likely occurring at the boundary intersections, as indicated by high delay and extensive queuing. The travel speed is 30 percent or less of the base FFS.

## Table A-1: Urban Street Levels of Service (Automobile Mode)

| Travel Speed as a Percentage of Base Free-Flow Speed (%) | LOS by Critical Volume-to-Capacity Ratio[a] | |
|---|---|---|
| | ≤1.0 | >1.0 |
| >85 | A | F |
| >67 to 85 | B | F |
| >50 to 67 | C | F |
| >40 to 50 | D | F |
| >30 to 40 | E | F |
| ≤30 | F | F |

*a = The Critical volume-to-capacity ratio is based on consideration of the through movement-to-capacity ratio at each boundary intersection in the subject direction of travel. The critical volume-to-capacity ratio is the largest ratio of those considered.*
*Source: Highway Capacity Manual 2010, Exhibit 16-4. Urban Street LOS Criteria (Automobile Mode)*

## Intersection Levels of Service

One of the more important elements limiting, and often interrupting the flow of traffic on a highway is the intersection. Flow on an interrupted facility is usually dominated by points of fixed operation such as traffic signals, stop and yield signs.

## Signalized Intersections – Performance Measures

For signalized intersections the performance measures include automobile volume-to-capacity ratio, automobile delay, queue storage length, ratio of pedestrian delay, pedestrian circulation area, pedestrian perception score, bicycle delay, and bicycle perception score. LOS is also considered a performance measure. For the automobile mode average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection. A LOS designation is given to the weighted average control delay to better describe the level of operation. A description of LOS for signalized intersections is found in Table A-2.

## Table A-2: Signalized Intersection Level of Service Description (Automobile Mode)

| Level of Service | Description | Average Control Delay (seconds per vehicle) |
|---|---|---|
| A | Operations with a control delay of 10 seconds/vehicle or less and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when volume-to-capacity ratio is and either progression is exceptionally favorable or the cycle length is very short. If it's due to favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping. | ≤10 |
| B | Operations with control delay between 10.1 to 20.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A. | >10.0 to 20.0 |
| C | Operations with average control delays between 20.1 to 35.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual cycle failures (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping. | >20 to 35 |
| D | Operations with control delay between 35.1 to 55.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop, and i ndividual cycle failures are noticeable. | >35 to 55 |
| E | Operations with control delay between 55.1 to 80.0 seconds/vehicle and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent. | >55 to 80 |
| F | Operations with unacceptable control delay exceeding 80.0 seconds/vehicle and a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue. | >80 |

*Source: Highway Capacity Manual 2010*

## Unsignalized Intersections

The HCM 2010 procedures use control delay as a measure of effectiveness to determine level of service. Delay is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, traffic and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions, i. e., in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Control delay is the increased time of travel for a vehicle approaching and passing through an unsignalized intersection, compared with a free-flow vehicle if it were not required to slow or stop at the intersection.

### *All-Way Stop Controlled Intersections*

All-way stop controlled intersections is a form of traffic controls in which all approaches to an intersection are required to stop. Similar to signalized intersections, at all-way stop controlled intersections the average control delay per vehicle per approach is determined for the peak hour. A weighted average of control delay per vehicle is then determined for the intersection as a whole. In other words the delay measured for all-way stop controlled intersections is a measure of the average delay for all vehicles passing through the intersection during the peak hour. A LOS designation is given to the weighted average control delay to better describe the level of operation.

### *Two-Way Stop Controlled Intersections*

Two-way stop controlled (TWSC) intersections in which stop signs are used to assign the right-of-way, are the most prevalent type of intersection in the United States. At TWSC intersections the stop-controlled approaches are referred as the minor street approaches and can be either public streets or private driveways. The approaches that are not controlled by stop signs are referred to as the major street approaches.

The capacity of movements subject to delay are determined using the "critical gap" method of capacity analysis. Expected average control delay based on movement volume and movement capacity is calculated. A LOS for TWSC intersection is determined by the computed or measured control delay for each minor movement. LOS is not defined for the intersection as a whole for three main reasons: (a) major-street through vehicles are assumed to experience zero delay; (b) the disproportionate number of major-street through vehicles at the typical TWSC intersection skews the weighted average of all movements, resulting in a very low overall average delay from all vehicles; and (c) the resulting low delay can mask important LOS deficiencies for minor movements. Table A-3 provides a description of LOS at unsignalized intersections.

### *Table A-3: Unsignalized Intersection Level of Service Description (Automobile Mode)*

| Control Delay (seconds per vehicle) | LOS by Volume-to-Capacity Ratio | |
|---|---|---|
| | **v/c ≤ 1.0** | **v/c > 1.0** |
| ≤10 | A | F |
| >10 to 15 | B | F |
| >15 to 25 | C | F |
| >25 to 35 | D | F |
| >35 to 50 | E | F |
| >50 | F | F |

*Source: HCM 2010 Exhibit 19-1.*

# Appendix E: Existing Traffic Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 27 | 146 | 4 | 28 | 311 | 48 | 4 | 12 | 27 | 20 | 13 | 67 |
| Future Volume (veh/h) | 27 | 146 | 4 | 28 | 311 | 48 | 4 | 12 | 27 | 20 | 13 | 67 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 |
| Adj Flow Rate, veh/h | 30 | 162 | 4 | 31 | 346 | 53 | 4 | 13 | 30 | 22 | 14 | 74 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Cap, veh/h | 43 | 405 | 344 | 44 | 772 | 345 | 6 | 174 | 148 | 33 | 202 | 171 |
| Arrive On Green | 0.03 | 0.25 | 0.25 | 0.03 | 0.25 | 0.25 | 0.00 | 0.11 | 0.11 | 0.02 | 0.12 | 0.12 |
| Sat Flow, veh/h | 1547 | 1624 | 1380 | 1547 | 3085 | 1380 | 1547 | 1624 | 1380 | 1547 | 1624 | 1380 |
| Grp Volume(v), veh/h | 30 | 162 | 4 | 31 | 346 | 53 | 4 | 13 | 30 | 22 | 14 | 74 |
| Grp Sat Flow(s),veh/h/ln | 1547 | 1624 | 1380 | 1547 | 1543 | 1380 | 1547 | 1624 | 1380 | 1547 | 1624 | 1380 |
| Q Serve(g_s), s | 0.6 | 2.8 | 0.1 | 0.7 | 3.1 | 1.0 | 0.1 | 0.2 | 0.7 | 0.5 | 0.3 | 1.6 |
| Cycle Q Clear(g_c), s | 0.6 | 2.8 | 0.1 | 0.7 | 3.1 | 1.0 | 0.1 | 0.2 | 0.7 | 0.5 | 0.3 | 1.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 43 | 405 | 344 | 44 | 772 | 345 | 6 | 174 | 148 | 33 | 202 | 171 |
| V/C Ratio(X) | 0.70 | 0.40 | 0.01 | 0.70 | 0.45 | 0.15 | 0.62 | 0.07 | 0.20 | 0.68 | 0.07 | 0.43 |
| Avail Cap(c_a), veh/h | 270 | 1552 | 1319 | 177 | 2762 | 1236 | 177 | 1762 | 1498 | 177 | 1762 | 1498 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 16.0 | 10.4 | 9.4 | 16.0 | 10.5 | 9.7 | 16.5 | 13.3 | 13.5 | 16.1 | 12.8 | 13.4 |
| Incr Delay (d2), s/veh | 18.7 | 0.6 | 0.0 | 18.5 | 0.4 | 0.2 | 70.9 | 0.2 | 0.7 | 21.8 | 0.1 | 1.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.5 | 1.3 | 0.0 | 0.5 | 1.3 | 0.4 | 0.2 | 0.1 | 0.3 | 0.4 | 0.1 | 0.7 |
| LnGrp Delay(d),s/veh | 34.7 | 11.0 | 9.4 | 34.4 | 10.9 | 9.9 | 87.4 | 13.5 | 14.2 | 37.9 | 13.0 | 15.2 |
| LnGrp LOS | C | B | A | C | B | A | F | B | B | D | B | B |
| Approach Vol, veh/h | | 196 | | | 430 | | | 47 | | | 110 | |
| Approach Delay, s/veh | | 14.6 | | | 12.5 | | | 20.2 | | | 19.4 | |
| Approach LOS | | B | | | B | | | C | | | B | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 4.9 | 9.6 | 5.1 | 13.6 | 4.3 | 10.1 | 5.1 | 13.6 |
| Change Period (Y+Rc), s | * 4.2 | 6.0 | * 4.2 | 5.3 | * 4.2 | 6.0 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 3.8 | 36.0 | * 3.8 | 31.7 | * 3.8 | 36.0 | * 5.8 | 29.7 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 2.7 | 2.7 | 4.8 | 2.1 | 3.6 | 2.6 | 5.1 |
| Green Ext Time (p_c), s | 0.0 | 0.4 | 0.0 | 3.2 | 0.0 | 0.4 | 0.0 | 3.2 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 14.5 |
| HCM 2010 LOS | B |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 9.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 120 | 79 | 4 | 247 | 0 | 9 | 0 | 17 | 153 | 109 | 123 |
| Future Vol, veh/h | 0 | 120 | 79 | 4 | 247 | 0 | 9 | 0 | 17 | 153 | 109 | 123 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Free | - | - | None | - | - | None | - | - | Yield |
| Storage Length | - | - | 60 | - | - | - | 0 | - | 45 | - | - | 55 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 0 | 27 | 27 | 27 | 27 | 0 | 27 | 0 | 27 | 27 | 27 | 27 |
| Mvmt Flow | 0 | 133 | 88 | 4 | 274 | 0 | 10 | 0 | 19 | 170 | 121 | 137 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 133 | 0 | 0 | 477 | - | 133 | 416 | 416 | 274 |
| Stage 1 | - | - | - | - | - | - | 133 | - | - | 283 | 283 | - |
| Stage 2 | - | - | - | - | - | - | 344 | - | - | 133 | 133 | - |
| Critical Hdwy | - | - | - | 4.37 | - | - | 7.37 | - | 6.47 | 7.37 | 6.77 | 6.47 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.37 | - | - | 6.37 | 5.77 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.37 | - | - | 6.37 | 5.77 | - |
| Follow-up Hdwy | - | - | - | 2.443 | - | - | 3.743 | - | 3.543 | 3.743 | 4.243 | 3.543 |
| Pot Cap-1 Maneuver | 0 | - | 0 | 1311 | - | 0 | 459 | 0 | 854 | 506 | 491 | 708 |
| Stage 1 | 0 | - | 0 | - | - | 0 | 814 | 0 | - | 673 | 634 | - |
| Stage 2 | 0 | - | 0 | - | - | 0 | 622 | 0 | - | 814 | 741 | - |
| Platoon blocked, % | | - | | | - | | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | 1311 | - | - | 299 | - | 854 | 493 | 489 | 708 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 299 | - | - | 493 | 489 | - |
| Stage 1 | - | - | - | - | - | - | 814 | - | - | 673 | 631 | - |
| Stage 2 | - | - | - | - | - | - | 404 | - | - | 796 | 741 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0.1 | 12.1 | 18.9 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | WBL | WBT | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 299 | 854 | - | 1311 | - | 491 | 708 |
| HCM Lane V/C Ratio | 0.033 | 0.022 | - | 0.003 | - | 0.593 | 0.193 |
| HCM Control Delay (s) | 17.5 | 9.3 | - | 7.8 | 0 | 22.5 | 11.3 |
| HCM Lane LOS | C | A | - | A | A | C | B |
| HCM 95th %tile Q(veh) | 0.1 | 0.1 | - | 0 | - | 3.8 | 0.7 |

| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 45 | 230 | 269 | 85 | 0 | 0 |
| Future Volume (Veh/h) | 45 | 230 | 269 | 85 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 48 | 245 | 286 | 90 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 947 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 286 | | | | 627 | 286 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 286 | | | | 627 | 286 |
| tC, single (s) | 4.4 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.5 | | | | 3.5 | 3.3 |
| p0 queue free % | 96 | | | | 100 | 100 |
| cM capacity (veh/h) | 1122 | | | | 431 | 758 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 293 | 286 | 90 |
| Volume Left | 48 | 0 | 0 |
| Volume Right | 0 | 0 | 90 |
| cSH | 1122 | 1700 | 1700 |
| Volume to Capacity | 0.04 | 0.17 | 0.05 |
| Queue Length 95th (ft) | 3 | 0 | 0 |
| Control Delay (s) | 1.7 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 1.7 | 0.0 | |
| Approach LOS | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.8 | | |
| Intersection Capacity Utilization | 35.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 33 | 190 | 24 | 28 | 186 | 27 | 251 | 29 | 40 | 8 | 25 | 15 |
| Future Volume (veh/h) | 33 | 190 | 24 | 28 | 186 | 27 | 251 | 29 | 40 | 8 | 25 | 15 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1439 | 1439 | 1439 | 1439 | 1439 | 1900 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 |
| Adj Flow Rate, veh/h | 41 | 235 | 30 | 35 | 230 | 33 | 310 | 36 | 49 | 10 | 31 | 19 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Percent Heavy Veh, % | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Cap, veh/h | 59 | 380 | 323 | 52 | 319 | 46 | 357 | 477 | 405 | 18 | 120 | 102 |
| Arrive On Green | 0.04 | 0.26 | 0.26 | 0.04 | 0.26 | 0.26 | 0.26 | 0.33 | 0.33 | 0.01 | 0.08 | 0.08 |
| Sat Flow, veh/h | 1371 | 1439 | 1223 | 1371 | 1232 | 177 | 1371 | 1439 | 1223 | 1371 | 1439 | 1223 |
| Grp Volume(v), veh/h | 41 | 235 | 30 | 35 | 0 | 263 | 310 | 36 | 49 | 10 | 31 | 19 |
| Grp Sat Flow(s),veh/h/ln | 1371 | 1439 | 1223 | 1371 | 0 | 1408 | 1371 | 1439 | 1223 | 1371 | 1439 | 1223 |
| Q Serve(g_s), s | 1.6 | 7.5 | 1.0 | 1.3 | 0.0 | 8.9 | 11.4 | 0.9 | 1.5 | 0.4 | 1.1 | 0.8 |
| Cycle Q Clear(g_c), s | 1.6 | 7.5 | 1.0 | 1.3 | 0.0 | 8.9 | 11.4 | 0.9 | 1.5 | 0.4 | 1.1 | 0.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.13 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 59 | 380 | 323 | 52 | 0 | 365 | 357 | 477 | 405 | 18 | 120 | 102 |
| V/C Ratio(X) | 0.70 | 0.62 | 0.09 | 0.67 | 0.00 | 0.72 | 0.87 | 0.08 | 0.12 | 0.56 | 0.26 | 0.19 |
| Avail Cap(c_a), veh/h | 156 | 838 | 712 | 130 | 0 | 793 | 490 | 1254 | 1066 | 130 | 876 | 745 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 24.8 | 17.0 | 14.6 | 25.0 | 0.0 | 17.7 | 18.6 | 12.1 | 12.3 | 25.8 | 22.6 | 22.4 |
| Incr Delay (d2), s/veh | 13.9 | 1.6 | 0.1 | 13.9 | 0.0 | 2.7 | 11.8 | 0.1 | 0.1 | 25.2 | 1.1 | 0.9 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.8 | 3.2 | 0.3 | 0.7 | 0.0 | 3.7 | 5.4 | 0.4 | 0.5 | 0.3 | 0.5 | 0.3 |
| LnGrp Delay(d),s/veh | 38.7 | 18.7 | 14.7 | 38.8 | 0.0 | 20.4 | 30.4 | 12.1 | 12.4 | 51.0 | 23.7 | 23.3 |
| LnGrp LOS | D | B | B | D | | C | C | B | B | D | C | C |
| Approach Vol, veh/h | | 306 | | | 298 | | | 395 | | | 60 | |
| Approach Delay, s/veh | | 21.0 | | | 22.6 | | | 26.5 | | | 28.1 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 4.9 | 22.3 | 6.2 | 19.2 | 17.9 | 9.3 | 6.5 | 18.9 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | * 4.2 | 5.3 | * 4.2 | 4.9 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 5 | 45.8 | * 5 | 30.6 | * 19 | 32.0 | * 6 | 29.6 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 3.5 | 3.3 | 9.5 | 13.4 | 3.1 | 3.6 | 10.9 |
| Green Ext Time (p_c), s | 0.0 | 0.6 | 0.0 | 2.8 | 0.5 | 0.5 | 0.0 | 2.7 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 23.9 |
| HCM 2010 LOS | C |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 17 | 91 | 59 | 63 | 123 | 40 | 86 | 225 | 40 | 63 | 298 | 26 |
| Future Volume (veh/h) | 17 | 91 | 59 | 63 | 123 | 40 | 86 | 225 | 40 | 63 | 298 | 26 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1652 | 1900 | 1900 | 1652 | 1900 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 20 | 108 | 70 | 75 | 146 | 48 | 102 | 268 | 48 | 75 | 355 | 31 |
| Adj No. of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 123 | 260 | 153 | 200 | 265 | 75 | 127 | 727 | 128 | 91 | 731 | 63 |
| Arrive On Green | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.29 | 0.08 | 0.26 | 0.26 | 0.05 | 0.23 | 0.23 |
| Sat Flow, veh/h | 69 | 912 | 536 | 280 | 928 | 263 | 1675 | 2840 | 502 | 1675 | 3112 | 270 |
| Grp Volume(v), veh/h | 198 | 0 | 0 | 269 | 0 | 0 | 102 | 156 | 160 | 75 | 190 | 196 |
| Grp Sat Flow(s),veh/h/ln | 1517 | 0 | 0 | 1471 | 0 | 0 | 1675 | 1671 | 1671 | 1675 | 1671 | 1712 |
| Q Serve(g_s), s | 0.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 2.3 | 2.9 | 3.0 | 1.7 | 3.8 | 3.8 |
| Cycle Q Clear(g_c), s | 4.0 | 0.0 | 0.0 | 5.8 | 0.0 | 0.0 | 2.3 | 2.9 | 3.0 | 1.7 | 3.8 | 3.8 |
| Prop In Lane | 0.10 | | 0.35 | 0.28 | | 0.18 | 1.00 | | 0.30 | 1.00 | | 0.16 |
| Lane Grp Cap(c), veh/h | 536 | 0 | 0 | 540 | 0 | 0 | 127 | 428 | 428 | 91 | 392 | 402 |
| V/C Ratio(X) | 0.37 | 0.00 | 0.00 | 0.50 | 0.00 | 0.00 | 0.80 | 0.37 | 0.37 | 0.82 | 0.48 | 0.49 |
| Avail Cap(c_a), veh/h | 1384 | 0 | 0 | 1342 | 0 | 0 | 428 | 1090 | 1090 | 297 | 946 | 969 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 11.2 | 0.0 | 0.0 | 11.8 | 0.0 | 0.0 | 17.4 | 11.7 | 11.7 | 17.9 | 12.7 | 12.7 |
| Incr Delay (d2), s/veh | 0.4 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 11.1 | 0.5 | 0.5 | 16.2 | 0.9 | 0.9 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.8 | 0.0 | 0.0 | 2.6 | 0.0 | 0.0 | 1.4 | 1.4 | 1.4 | 1.2 | 1.8 | 1.9 |
| LnGrp Delay(d),s/veh | 11.7 | 0.0 | 0.0 | 12.5 | 0.0 | 0.0 | 28.5 | 12.2 | 12.3 | 34.2 | 13.6 | 13.6 |
| LnGrp LOS | B | | | B | | | C | B | B | C | B | B |
| Approach Vol, veh/h | | 198 | | | 269 | | | 418 | | | 461 | |
| Approach Delay, s/veh | | 11.7 | | | 12.5 | | | 16.2 | | | 16.9 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 6.3 | 15.8 | | 16.2 | 7.1 | 15.0 | | 16.2 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | | 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | * 6.8 | * 25 | | 33.0 | * 9.8 | 21.7 | | 33.0 |
| Max Q Clear Time (g_c+I1), s | 3.7 | 5.0 | | 6.0 | 4.3 | 5.8 | | 7.8 |
| Green Ext Time (p_c), s | 0.0 | 3.4 | | 2.8 | 0.1 | 3.2 | | 2.7 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 15.1 |
| HCM 2010 LOS | B |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.9 |

| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
|---|---|---|---|---|---|---|
| Lane Configurations | ↑ | | | ↑ | ↖ | ↗ |
| Traffic Vol, veh/h | 92 | 0 | 0 | 85 | 28 | 195 |
| Future Vol, veh/h | 92 | 0 | 0 | 85 | 28 | 195 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | Yield |
| Storage Length | - | - | - | - | 85 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 33 | 0 | 0 | 33 | 33 | 33 |
| Mvmt Flow | 103 | 0 | 0 | 96 | 31 | 219 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | - | - | - | 199 | 103 |
| Stage 1 | - | - | - | - | 103 | - |
| Stage 2 | - | - | - | - | 96 | - |
| Critical Hdwy | - | - | - | - | 6.73 | 6.53 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.73 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.73 | - |
| Follow-up Hdwy | - | - | - | - | 3.797 | 3.597 |
| Pot Cap-1 Maneuver | - | 0 | 0 | - | 725 | 874 |
| Stage 1 | - | 0 | 0 | - | 849 | - |
| Stage 2 | - | 0 | 0 | - | 856 | - |
| Platoon blocked, % | - | | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | 725 | 874 |
| Mov Cap-2 Maneuver | - | - | - | - | 725 | - |
| Stage 1 | - | - | - | - | 849 | - |
| Stage 2 | - | - | - | - | 856 | - |

| Approach | NB | SB | NW |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 10.5 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBT | NWLn1 | NWLn2 | SBT |
|---|---|---|---|---|
| Capacity (veh/h) | - | 725 | 874 | - |
| HCM Lane V/C Ratio | - | 0.043 | 0.251 | - |
| HCM Control Delay (s) | - | 10.2 | 10.5 | - |
| HCM Lane LOS | - | B | B | - |
| HCM 95th %tile Q(veh) | - | 0.1 | 1 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 5 | 71 | 88 | 0 | 0 | 0 | 16 | 97 | 26 | 40 | 60 | 13 |
| Future Vol, veh/h | 5 | 71 | 88 | 0 | 0 | 0 | 16 | 97 | 26 | 40 | 60 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Stop | - | - | None | - | - | Free | - | - | Free |
| Storage Length | - | - | 100 | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 16979 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Mvmt Flow | 5 | 77 | 96 | 0 | 0 | 0 | 17 | 105 | 28 | 43 | 65 | 14 |

| Major/Minor | Minor2 | | | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 292 | 292 | 65 | | | 65 | 0 | - | 105 | 0 | 0 |
| Stage 1 | 152 | 152 | - | | | - | - | - | - | - | - |
| Stage 2 | 140 | 140 | - | | | - | - | - | - | - | - |
| Critical Hdwy | 6.9 | 7 | 6.7 | | | 4.6 | - | - | 4.6 | - | - |
| Critical Hdwy Stg 1 | 5.9 | 6 | - | | | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.9 | 6 | - | | | - | - | - | - | - | - |
| Follow-up Hdwy | 3.95 | 4.45 | 3.75 | | | 2.65 | - | - | 2.65 | - | - |
| Pot Cap-1 Maneuver | 609 | 546 | 880 | | | 1280 | - | 0 | 1234 | - | 0 |
| Stage 1 | 771 | 689 | - | | | - | - | 0 | - | - | 0 |
| Stage 2 | 782 | 698 | - | | | - | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | | | | - | | | - | |
| Mov Cap-1 Maneuver | 579 | 0 | 880 | | | 1280 | - | - | 1234 | - | - |
| Mov Cap-2 Maneuver | 579 | 0 | - | | | - | - | - | - | - | - |
| Stage 1 | 743 | 0 | - | | | - | - | - | - | - | - |
| Stage 2 | 771 | 0 | - | | | - | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 10.9 | 1.1 | 3.2 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1280 | - | 579 | 880 | 1234 | - |
| HCM Lane V/C Ratio | 0.014 | - | 0.143 | 0.109 | 0.035 | - |
| HCM Control Delay (s) | 7.9 | 0 | 12.3 | 9.6 | 8 | 0 |
| HCM Lane LOS | A | A | B | A | A | A |
| HCM 95th %tile Q(veh) | 0 | - | 0.5 | 0.4 | 0.1 | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 51 | 336 | 9 | 36 | 227 | 18 | 13 | 37 | 59 | 66 | 23 | 47 |
| Future Volume (veh/h) | 51 | 336 | 9 | 36 | 227 | 18 | 13 | 37 | 59 | 66 | 23 | 47 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 |
| Adj Flow Rate, veh/h | 57 | 378 | 10 | 40 | 255 | 20 | 15 | 42 | 66 | 74 | 26 | 53 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Percent Heavy Veh, % | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Cap, veh/h | 69 | 548 | 466 | 53 | 1009 | 452 | 23 | 177 | 150 | 86 | 243 | 206 |
| Arrive On Green | 0.04 | 0.33 | 0.33 | 0.03 | 0.32 | 0.32 | 0.01 | 0.11 | 0.11 | 0.05 | 0.15 | 0.15 |
| Sat Flow, veh/h | 1560 | 1638 | 1392 | 1560 | 3112 | 1392 | 1560 | 1638 | 1392 | 1560 | 1638 | 1392 |
| Grp Volume(v), veh/h | 57 | 378 | 10 | 40 | 255 | 20 | 15 | 42 | 66 | 74 | 26 | 53 |
| Grp Sat Flow(s),veh/h/ln | 1560 | 1638 | 1392 | 1560 | 1556 | 1392 | 1560 | 1638 | 1392 | 1560 | 1638 | 1392 |
| Q Serve(g_s), s | 1.5 | 8.4 | 0.2 | 1.1 | 2.5 | 0.4 | 0.4 | 1.0 | 1.9 | 2.0 | 0.6 | 1.4 |
| Cycle Q Clear(g_c), s | 1.5 | 8.4 | 0.2 | 1.1 | 2.5 | 0.4 | 0.4 | 1.0 | 1.9 | 2.0 | 0.6 | 1.4 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 69 | 548 | 466 | 53 | 1009 | 452 | 23 | 177 | 150 | 86 | 243 | 206 |
| V/C Ratio(X) | 0.83 | 0.69 | 0.02 | 0.76 | 0.25 | 0.04 | 0.66 | 0.24 | 0.44 | 0.86 | 0.11 | 0.26 |
| Avail Cap(c_a), veh/h | 215 | 1197 | 1018 | 141 | 2127 | 951 | 141 | 1404 | 1193 | 178 | 1443 | 1227 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 19.9 | 12.1 | 9.4 | 20.1 | 10.4 | 9.7 | 20.6 | 17.2 | 17.5 | 19.7 | 15.5 | 15.8 |
| Incr Delay (d2), s/veh | 21.7 | 1.6 | 0.0 | 19.8 | 0.1 | 0.0 | 28.3 | 0.7 | 2.0 | 21.4 | 0.2 | 0.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.1 | 4.0 | 0.1 | 0.7 | 1.1 | 0.2 | 0.3 | 0.5 | 0.8 | 1.4 | 0.3 | 0.6 |
| LnGrp Delay(d),s/veh | 41.7 | 13.6 | 9.4 | 39.9 | 10.6 | 9.8 | 48.9 | 17.8 | 19.6 | 41.1 | 15.7 | 16.5 |
| LnGrp LOS | D | B | A | D | B | A | D | B | B | D | B | B |
| Approach Vol, veh/h | | 445 | | | 315 | | | 123 | | | 153 | |
| Approach Delay, s/veh | | 17.1 | | | 14.2 | | | 22.6 | | | 28.3 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 6.5 | 10.5 | 5.6 | 19.4 | 4.8 | 12.2 | 6.0 | 18.9 |
| Change Period (Y+Rc), s | * 4.2 | 6.0 | * 4.2 | 5.3 | * 4.2 | 6.0 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 4.8 | 36.0 | * 3.8 | 30.7 | * 3.8 | 37.0 | * 5.8 | 28.7 |
| Max Q Clear Time (g_c+I1), s | 4.0 | 3.9 | 3.1 | 10.4 | 2.4 | 3.4 | 3.5 | 4.5 |
| Green Ext Time (p_c), s | 0.0 | 0.7 | 0.0 | 3.7 | 0.0 | 0.7 | 0.0 | 3.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 18.5 |
| HCM 2010 LOS | B |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 291 | 184 | 4 | 201 | 0 | 8 | 0 | 28 | 101 | 56 | 89 |
| Future Vol, veh/h | 0 | 291 | 184 | 4 | 201 | 0 | 8 | 0 | 28 | 101 | 56 | 89 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Free | - | - | None | - | - | None | - | - | Yield |
| Storage Length | - | - | 60 | - | - | - | 0 | - | 45 | - | - | 55 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 0 | 22 | 22 | 22 | 22 | 0 | 22 | 0 | 22 | 22 | 22 | 22 |
| Mvmt Flow | 0 | 310 | 196 | 4 | 214 | 0 | 9 | 0 | 30 | 107 | 60 | 95 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 310 | 0 | 0 | 562 | - | 310 | 532 | 532 | 214 |
| Stage 1 | - | - | - | - | - | - | 310 | - | - | 222 | 222 | - |
| Stage 2 | - | - | - | - | - | - | 252 | - | - | 310 | 310 | - |
| Critical Hdwy | - | - | - | 4.32 | - | - | 7.32 | - | 6.42 | 7.32 | 6.72 | 6.42 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.32 | - | - | 6.32 | 5.72 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.32 | - | - | 6.32 | 5.72 | - |
| Follow-up Hdwy | - | - | - | 2.398 | - | - | 3.698 | - | 3.498 | 3.698 | 4.198 | 3.498 |
| Pot Cap-1 Maneuver | 0 | - | 0 | 1145 | - | 0 | 409 | 0 | 686 | 428 | 426 | 778 |
| Stage 1 | 0 | - | 0 | - | - | 0 | 660 | 0 | - | 737 | 684 | - |
| Stage 2 | 0 | - | 0 | - | - | 0 | 710 | 0 | - | 660 | 624 | - |
| Platoon blocked, % | | - | | | - | | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | 1145 | - | - | 320 | - | 686 | 408 | 424 | 778 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 320 | - | - | 408 | 424 | - |
| Stage 1 | - | - | - | - | - | - | 660 | - | - | 737 | 681 | - |
| Stage 2 | - | - | - | - | - | - | 567 | - | - | 631 | 624 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0.2 | 11.9 | 16.2 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | WBL | WBT | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 320 | 686 | - | 1145 | - | 414 | 778 |
| HCM Lane V/C Ratio | 0.027 | 0.043 | - | 0.004 | - | 0.403 | 0.122 |
| HCM Control Delay (s) | 16.6 | 10.5 | - | 8.2 | 0 | 19.5 | 10.3 |
| HCM Lane LOS | C | B | - | A | A | C | B |
| HCM 95th %tile Q(veh) | 0.1 | 0.1 | - | 0 | - | 1.9 | 0.4 |

| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 185 | 230 | 209 | 293 | 0 | 0 |
| Future Volume (Veh/h) | 185 | 230 | 209 | 293 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 203 | 253 | 230 | 322 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 947 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 230 | | | | 889 | 230 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 230 | | | | 889 | 230 |
| tC, single (s) | 4.2 | | | | 6.5 | 6.4 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.3 | | | | 3.6 | 3.4 |
| p0 queue free % | 84 | | | | 100 | 100 |
| cM capacity (veh/h) | 1265 | | | | 250 | 778 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 456 | 230 | 322 |
| Volume Left | 203 | 0 | 0 |
| Volume Right | 0 | 0 | 322 |
| cSH | 1265 | 1700 | 1700 |
| Volume to Capacity | 0.16 | 0.14 | 0.19 |
| Queue Length 95th (ft) | 14 | 0 | 0 |
| Control Delay (s) | 4.6 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 4.6 | 0.0 | |
| Approach LOS | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.1 | | |
| Intersection Capacity Utilization | 47.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 10 | 239 | 5 | 36 | 305 | 7 | 214 | 37 | 52 | 10 | 14 | 29 |
| Future Volume (veh/h) | 10 | 239 | 5 | 36 | 305 | 7 | 214 | 37 | 52 | 10 | 14 | 29 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1557 | 1557 | 1557 | 1557 | 1557 | 1900 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 |
| Adj Flow Rate, veh/h | 11 | 263 | 5 | 40 | 335 | 8 | 235 | 41 | 57 | 11 | 15 | 32 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| Cap, veh/h | 21 | 435 | 370 | 64 | 467 | 11 | 277 | 413 | 351 | 21 | 145 | 123 |
| Arrive On Green | 0.01 | 0.28 | 0.28 | 0.04 | 0.31 | 0.31 | 0.19 | 0.27 | 0.27 | 0.01 | 0.09 | 0.09 |
| Sat Flow, veh/h | 1483 | 1557 | 1324 | 1483 | 1515 | 36 | 1483 | 1557 | 1324 | 1483 | 1557 | 1324 |
| Grp Volume(v), veh/h | 11 | 263 | 5 | 40 | 0 | 343 | 235 | 41 | 57 | 11 | 15 | 32 |
| Grp Sat Flow(s),veh/h/ln | 1483 | 1557 | 1324 | 1483 | 0 | 1551 | 1483 | 1557 | 1324 | 1483 | 1557 | 1324 |
| Q Serve(g_s), s | 0.3 | 6.8 | 0.1 | 1.2 | 0.0 | 9.2 | 7.2 | 0.9 | 1.5 | 0.3 | 0.4 | 1.1 |
| Cycle Q Clear(g_c), s | 0.3 | 6.8 | 0.1 | 1.2 | 0.0 | 9.2 | 7.2 | 0.9 | 1.5 | 0.3 | 0.4 | 1.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.02 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 21 | 435 | 370 | 64 | 0 | 479 | 277 | 413 | 351 | 21 | 145 | 123 |
| V/C Ratio(X) | 0.52 | 0.60 | 0.01 | 0.62 | 0.00 | 0.72 | 0.85 | 0.10 | 0.16 | 0.52 | 0.10 | 0.26 |
| Avail Cap(c_a), veh/h | 159 | 1019 | 866 | 159 | 0 | 1015 | 279 | 1192 | 1013 | 159 | 1066 | 906 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 22.9 | 14.6 | 12.2 | 22.0 | 0.0 | 14.4 | 18.4 | 13.0 | 13.2 | 22.9 | 19.4 | 19.7 |
| Incr Delay (d2), s/veh | 18.4 | 1.4 | 0.0 | 9.5 | 0.0 | 2.0 | 21.0 | 0.1 | 0.2 | 18.4 | 0.3 | 1.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 3.1 | 0.0 | 0.7 | 0.0 | 4.2 | 4.6 | 0.4 | 0.6 | 0.2 | 0.2 | 0.4 |
| LnGrp Delay(d),s/veh | 41.3 | 16.0 | 12.2 | 31.4 | 0.0 | 16.4 | 39.4 | 13.1 | 13.4 | 41.3 | 19.7 | 20.8 |
| LnGrp LOS | D | B | B | C | | B | D | B | B | D | B | C |
| Approach Vol, veh/h | | 279 | | | 383 | | | 333 | | | 58 | |
| Approach Delay, s/veh | | 16.9 | | | 18.0 | | | 31.7 | | | 24.4 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 4.9 | 17.3 | 6.2 | 18.4 | 12.9 | 9.2 | 4.9 | 19.7 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | * 4.2 | 5.3 | * 4.2 | 4.9 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 5 | 35.8 | * 5 | 30.6 | * 8.8 | 32.0 | * 5 | 30.6 |
| Max Q Clear Time (g_c+I1), s | 2.3 | 3.5 | 3.2 | 8.8 | 9.2 | 3.1 | 2.3 | 11.2 |
| Green Ext Time (p_c), s | 0.0 | 0.6 | 0.0 | 3.4 | 0.0 | 0.5 | 0.0 | 3.2 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 22.4 |
| HCM 2010 LOS | C |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 22 | 125 | 79 | 45 | 113 | 76 | 68 | 503 | 48 | 29 | 323 | 20 |
| Future Volume (veh/h) | 22 | 125 | 79 | 45 | 113 | 76 | 68 | 503 | 48 | 29 | 323 | 20 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1652 | 1900 | 1900 | 1652 | 1900 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 23 | 130 | 82 | 47 | 118 | 79 | 71 | 524 | 50 | 30 | 336 | 21 |
| Adj No. of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 120 | 246 | 142 | 156 | 224 | 129 | 87 | 959 | 91 | 45 | 913 | 57 |
| Arrive On Green | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.27 | 0.05 | 0.31 | 0.31 | 0.03 | 0.29 | 0.29 |
| Sat Flow, veh/h | 71 | 916 | 529 | 173 | 835 | 483 | 1675 | 3085 | 294 | 1675 | 3197 | 199 |
| Grp Volume(v), veh/h | 235 | 0 | 0 | 244 | 0 | 0 | 71 | 283 | 291 | 30 | 175 | 182 |
| Grp Sat Flow(s),veh/h/ln | 1516 | 0 | 0 | 1490 | 0 | 0 | 1675 | 1671 | 1707 | 1675 | 1671 | 1724 |
| Q Serve(g_s), s | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 1.7 | 5.5 | 5.6 | 0.7 | 3.3 | 3.3 |
| Cycle Q Clear(g_c), s | 5.1 | 0.0 | 0.0 | 5.3 | 0.0 | 0.0 | 1.7 | 5.5 | 5.6 | 0.7 | 3.3 | 3.3 |
| Prop In Lane | 0.10 | | 0.35 | 0.19 | | 0.32 | 1.00 | | 0.17 | 1.00 | | 0.12 |
| Lane Grp Cap(c), veh/h | 507 | 0 | 0 | 509 | 0 | 0 | 87 | 519 | 531 | 45 | 477 | 492 |
| V/C Ratio(X) | 0.46 | 0.00 | 0.00 | 0.48 | 0.00 | 0.00 | 0.81 | 0.55 | 0.55 | 0.66 | 0.37 | 0.37 |
| Avail Cap(c_a), veh/h | 1349 | 0 | 0 | 1312 | 0 | 0 | 375 | 1104 | 1128 | 247 | 964 | 995 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 12.4 | 0.0 | 0.0 | 12.5 | 0.0 | 0.0 | 18.5 | 11.3 | 11.3 | 19.0 | 11.2 | 11.2 |
| Incr Delay (d2), s/veh | 0.7 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 16.2 | 0.9 | 0.9 | 15.4 | 0.5 | 0.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.2 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 1.1 | 2.6 | 2.7 | 0.5 | 1.6 | 1.6 |
| LnGrp Delay(d),s/veh | 13.1 | 0.0 | 0.0 | 13.2 | 0.0 | 0.0 | 34.7 | 12.1 | 12.2 | 34.3 | 11.7 | 11.7 |
| LnGrp LOS | B | | | B | | | C | B | B | C | B | B |
| Approach Vol, veh/h | | 235 | | | 244 | | | 645 | | | 387 | |
| Approach Delay, s/veh | | 13.1 | | | 13.2 | | | 14.6 | | | 13.4 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 5.3 | 18.2 | | 15.9 | 6.3 | 17.2 | | 15.9 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | | 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | * 5.8 | * 26 | | 33.0 | * 8.8 | 22.7 | | 33.0 |
| Max Q Clear Time (g_c+I1), s | 2.7 | 7.6 | | 7.1 | 3.7 | 5.3 | | 7.3 |
| Green Ext Time (p_c), s | 0.0 | 4.7 | | 2.8 | 0.0 | 4.6 | | 2.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 13.8 |
| HCM 2010 LOS | B |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.1 |

| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
|---|---|---|---|---|---|---|
| Lane Configurations | ↑ | | | ↑ | ↖ | ↗ |
| Traffic Vol, veh/h | 135 | 0 | 0 | 58 | 11 | 124 |
| Future Vol, veh/h | 135 | 0 | 0 | 58 | 11 | 124 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | Yield |
| Storage Length | - | - | - | - | 85 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 24 | 0 | 0 | 24 | 24 | 24 |
| Mvmt Flow | 145 | 0 | 0 | 62 | 12 | 133 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | - | - | - | 207 | 145 |
| Stage 1 | - | - | - | - | 145 | - |
| Stage 2 | - | - | - | - | 62 | - |
| Critical Hdwy | - | - | - | - | 6.64 | 6.44 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.64 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.64 | - |
| Follow-up Hdwy | - | - | - | - | 3.716 | 3.516 |
| Pot Cap-1 Maneuver | - | 0 | 0 | - | 734 | 847 |
| Stage 1 | - | 0 | 0 | - | 831 | - |
| Stage 2 | - | 0 | 0 | - | 908 | - |
| Platoon blocked, % | - | | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | 734 | 847 |
| Mov Cap-2 Maneuver | - | - | - | - | 734 | - |
| Stage 1 | - | - | - | - | 831 | - |
| Stage 2 | - | - | - | - | 908 | - |

| Approach | NB | SB | NW |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 10 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBT | NWLn1 | NWLn2 | SBT |
|---|---|---|---|---|
| Capacity (veh/h) | - | 734 | 847 | - |
| HCM Lane V/C Ratio | - | 0.016 | 0.157 | - |
| HCM Control Delay (s) | - | 10 | 10 | - |
| HCM Lane LOS | - | B | B | - |
| HCM 95th %tile Q(veh) | - | 0 | 0.6 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 3 | 177 | 65 | 0 | 0 | 0 | 8 | 118 | 23 | 34 | 34 | 2 |
| Future Vol, veh/h | 3 | 177 | 65 | 0 | 0 | 0 | 8 | 118 | 23 | 34 | 34 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Stop | - | - | None | - | - | Free | - | - | Free |
| Storage Length | - | - | 100 | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 16979 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 22 | 22 | 22 | 0 | 0 | 0 | 22 | 22 | 22 | 22 | 22 | 22 |
| Mvmt Flow | 3 | 188 | 69 | 0 | 0 | 0 | 9 | 126 | 24 | 36 | 36 | 2 |

| Major/Minor | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 252 | 252 | 36 | 36 | 0 | - | 126 | 0 | 0 |
| Stage 1 | 109 | 109 | - | - | - | - | - | - | - |
| Stage 2 | 143 | 143 | - | - | - | - | - | - | - |
| Critical Hdwy | 6.62 | 6.72 | 6.42 | 4.32 | - | - | 4.32 | - | - |
| Critical Hdwy Stg 1 | 5.62 | 5.72 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.62 | 5.72 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.698 | 4.198 | 3.498 | 2.398 | - | - | 2.398 | - | - |
| Pot Cap-1 Maneuver | 695 | 618 | 982 | 1455 | - | 0 | 1346 | - | 0 |
| Stage 1 | 868 | 768 | - | - | - | 0 | - | - | 0 |
| Stage 2 | 837 | 742 | - | - | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | | - | | | - | |
| Mov Cap-1 Maneuver | 672 | 0 | 982 | 1455 | - | - | 1346 | - | - |
| Mov Cap-2 Maneuver | 672 | 0 | - | - | - | - | - | - | - |
| Stage 1 | 845 | 0 | - | - | - | - | - | - | - |
| Stage 2 | 831 | 0 | - | - | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11.5 | 0.5 | 3.9 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1455 | - | 672 | 982 | 1346 | - |
| HCM Lane V/C Ratio | 0.006 | - | 0.285 | 0.07 | 0.027 | - |
| HCM Control Delay (s) | 7.5 | 0 | 12.5 | 8.9 | 7.7 | 0 |
| HCM Lane LOS | A | A | B | A | A | A |
| HCM 95th %tile Q(veh) | 0 | - | 1.2 | 0.2 | 0.1 | - |

## Intersection: 1: Orange Avenue & North Avenue

| Movement | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | L | T | T | R | L | T | R | L | T |
| Maximum Queue (ft) | 65 | 170 | 16 | 120 | 143 | 138 | 65 | 58 | 45 | 60 | 44 | 45 |
| Average Queue (ft) | 18 | 41 | 2 | 24 | 44 | 34 | 15 | 3 | 11 | 10 | 13 | 8 |
| 95th Queue (ft) | 49 | 112 | 9 | 77 | 94 | 91 | 48 | 25 | 35 | 34 | 32 | 31 |
| Link Distance (ft) | | 2623 | 2623 | | 289 | 289 | | | 1968 | | | 3215 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | | 185 | | | 100 | 150 | | 150 | 100 | |
| Storage Blk Time (%) | | | | | | 0 | | | | | | |
| Queuing Penalty (veh) | | | | | | 0 | | | | | | |

## Intersection: 1: Orange Avenue & North Avenue

| Movement | SB |
|---|---|
| Directions Served | R |
| Maximum Queue (ft) | 65 |
| Average Queue (ft) | 15 |
| 95th Queue (ft) | 41 |
| Link Distance (ft) | |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | 130 |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

## Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

| Movement | EB | NB | NB | SB |
|---|---|---|---|---|
| Directions Served | R | L | R | LT |
| Maximum Queue (ft) | 101 | 14 | 41 | 170 |
| Average Queue (ft) | 15 | 4 | 11 | 87 |
| 95th Queue (ft) | 60 | 13 | 34 | 135 |
| Link Distance (ft) | | 2392 | | 1072 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | 60 | | 45 | |
| Storage Blk Time (%) | 0 | | 0 | 20 |
| Queuing Penalty (veh) | 0 | | 0 | 25 |

## Intersection: 4: North Avenue & SR 99 NB On-Ramp

| Movement | EB | WB |
|---|---|---|
| Directions Served | LT | T |
| Maximum Queue (ft) | 77 | 40 |
| Average Queue (ft) | 11 | 1 |
| 95th Queue (ft) | 42 | 13 |
| Link Distance (ft) | 730 | 367 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | L | TR | L | T | R | L | T | R |
| Maximum Queue (ft) | 87 | 167 | 57 | 74 | 243 | 167 | 141 | 43 | 51 | 89 | 74 |
| Average Queue (ft) | 33 | 54 | 14 | 30 | 81 | 111 | 23 | 12 | 8 | 28 | 14 |
| 95th Queue (ft) | 78 | 121 | 46 | 69 | 174 | 167 | 74 | 36 | 31 | 68 | 49 |
| Link Distance (ft) | | 473 | | | 5162 | | 609 | | | 1319 | |
| Upstream Blk Time (%) | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | |
| Storage Bay Dist (ft) | 150 | | 100 | 150 | | 180 | | 180 | 155 | | 355 |
| Storage Blk Time (%) | | 2 | | | 3 | 0 | | | | | |
| Queuing Penalty (veh) | | 1 | | | 1 | 0 | | | | | |

## Intersection: 6: Chestnut Ave & North Ave

| Movement | EB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | LTR | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 160 | 328 | 122 | 68 | 76 | 139 | 142 | 135 |
| Average Queue (ft) | 52 | 115 | 57 | 30 | 38 | 45 | 48 | 63 |
| 95th Queue (ft) | 122 | 222 | 101 | 57 | 74 | 89 | 87 | 107 |
| Link Distance (ft) | 5162 | 4573 | | 5304 | 5304 | | 5297 | 5297 |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (ft) | | | 245 | | | 150 | | |
| Storage Blk Time (%) | | | | | | 0 | 0 | |
| Queuing Penalty (veh) | | | | | | 0 | 0 | |

## Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

| Movement | NW |
|---|---|
| Directions Served | L |
| Maximum Queue (ft) | 41 |
| Average Queue (ft) | 14 |
| 95th Queue (ft) | 40 |
| Link Distance (ft) | |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | 85 |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

## Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

| Movement | EB | EB | NB | SB |
|---|---|---|---|---|
| Directions Served | LT | R | LTR | LTR |
| Maximum Queue (ft) | 86 | 75 | 89 | 63 |
| Average Queue (ft) | 44 | 17 | 9 | 9 |
| 95th Queue (ft) | 77 | 60 | 47 | 41 |
| Link Distance (ft) | 2392 | | 3449 | 1087 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | | 100 | | |
| Storage Blk Time (%) | 0 | | | |
| Queuing Penalty (veh) | 0 | | | |

## Network Summary

Network wide Queuing Penalty: 28

## Intersection: 1: Orange Avenue & North Avenue

| Movement | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | L | T | T | R | L | T | R | L | T |
| Maximum Queue (ft) | 83 | 266 | 16 | 68 | 84 | 92 | 42 | 38 | 66 | 65 | 92 | 81 |
| Average Queue (ft) | 35 | 109 | 3 | 28 | 32 | 19 | 5 | 7 | 19 | 23 | 41 | 16 |
| 95th Queue (ft) | 79 | 222 | 12 | 57 | 70 | 62 | 24 | 26 | 46 | 59 | 74 | 52 |
| Link Distance (ft) | | 2623 | 2623 | | 289 | 289 | | | 1968 | | | 3215 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | | 185 | | | 100 | 150 | | 150 | 100 | |
| Storage Blk Time (%) | | 0 | | | | 0 | | | | | 1 | 0 |
| Queuing Penalty (veh) | | 0 | | | | 0 | | | | | 1 | 0 |

## Intersection: 1: Orange Avenue & North Avenue

| Movement | SB |
|---|---|
| Directions Served | R |
| Maximum Queue (ft) | 61 |
| Average Queue (ft) | 16 |
| 95th Queue (ft) | 39 |
| Link Distance (ft) | |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | 130 |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

## Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

| Movement | EB | WB | NB | NB | SB |
|---|---|---|---|---|---|
| Directions Served | R | LT | L | R | LT |
| Maximum Queue (ft) | 171 | 14 | 14 | 54 | 115 |
| Average Queue (ft) | 22 | 1 | 2 | 19 | 65 |
| 95th Queue (ft) | 89 | 5 | 9 | 47 | 103 |
| Link Distance (ft) | | 730 | 2393 | | 1072 |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (ft) | 60 | | | 45 | |
| Storage Blk Time (%) | 3 | | | 1 | 11 |
| Queuing Penalty (veh) | 9 | | | 0 | 9 |

## Intersection: 4: North Avenue & SR 99 NB On-Ramp

| Movement | EB | WB |
|---|---|---|
| Directions Served | LT | R |
| Maximum Queue (ft) | 113 | 86 |
| Average Queue (ft) | 50 | 16 |
| 95th Queue (ft) | 95 | 60 |
| Link Distance (ft) | 730 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | 85 |
| Storage Blk Time (%) | | 0 |
| Queuing Penalty (veh) | | 0 |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | L | TR | L | T | R | L | T | R |
| Maximum Queue (ft) | 88 | 145 | 16 | 67 | 195 | 198 | 60 | 53 | 70 | 55 | 88 |
| Average Queue (ft) | 12 | 64 | 1 | 26 | 66 | 93 | 16 | 24 | 7 | 18 | 28 |
| 95th Queue (ft) | 46 | 122 | 7 | 58 | 129 | 169 | 45 | 50 | 32 | 51 | 63 |
| Link Distance (ft) | | 473 | | | 5162 | | 609 | | | 1319 | |
| Upstream Blk Time (%) | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | |
| Storage Bay Dist (ft) | 150 | | 100 | 150 | | 180 | | 180 | 155 | | 355 |
| Storage Blk Time (%) | | 2 | | | 1 | 1 | | | | | |
| Queuing Penalty (veh) | | 0 | | | 0 | 0 | | | | | |

## Intersection: 6: Chestnut Ave & North Ave

| Movement | EB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | LTR | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 166 | 188 | 94 | 180 | 160 | 74 | 118 | 121 |
| Average Queue (ft) | 80 | 80 | 45 | 68 | 79 | 22 | 50 | 60 |
| 95th Queue (ft) | 128 | 146 | 76 | 123 | 133 | 56 | 91 | 106 |
| Link Distance (ft) | 5162 | 4573 | | 5304 | 5304 | | 5297 | 5297 |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (ft) | | | 245 | | | 150 | | |
| Storage Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |

## Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

| Movement | NW | NW |
|---|---|---|
| Directions Served | L | R |
| Maximum Queue (ft) | 60 | 55 |
| Average Queue (ft) | 6 | 2 |
| 95th Queue (ft) | 27 | 18 |
| Link Distance (ft) | | 1717 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | 85 | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

| Movement | EB | EB | SB |
|---|---|---|---|
| Directions Served | LT | R | LTR |
| Maximum Queue (ft) | 87 | 54 | 48 |
| Average Queue (ft) | 45 | 3 | 5 |
| 95th Queue (ft) | 73 | 22 | 25 |
| Link Distance (ft) | 2393 | | 1084 |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (ft) | | 100 | |
| Storage Blk Time (%) | 0 | | |
| Queuing Penalty (veh) | 0 | | |

## Network Summary

Network wide Queuing Penalty: 20

# Appendix F: Existing plus Project Traffic Conditions

| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 46 | 146 | 4 | 49 | 35 | 330 | 49 | 4 | 21 | 27 | 215 | 15 |
| Future Volume (vph) | 46 | 146 | 4 | 49 | 35 | 330 | 49 | 4 | 21 | 27 | 215 | 15 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1543 | 1624 | 1380 | | 1543 | 3085 | 1380 | 1543 | 1624 | 1380 | 1543 | 1624 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1543 | 1624 | 1380 | | 1543 | 3085 | 1380 | 1543 | 1624 | 1380 | 1543 | 1624 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 51 | 162 | 4 | 54 | 39 | 367 | 54 | 4 | 23 | 30 | 239 | 17 |
| RTOR Reduction (vph) | 0 | 0 | 3 | 0 | 0 | 0 | 38 | 0 | 0 | 26 | 0 | 0 |
| Lane Group Flow (vph) | 51 | 162 | 1 | 0 | 93 | 367 | 16 | 4 | 23 | 4 | 239 | 17 |
| Turn Type | Prot | NA | Perm | Prot | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |
| Protected Phases | 7 | 4 | | 3 | 3 | 8 | | 5 | 2 | | 1 | 6 |
| Permitted Phases | | | 4 | | | | 8 | | | 2 | | |
| Actuated Green, G (s) | 3.1 | 16.1 | 16.1 | | 5.5 | 18.5 | 18.5 | 0.4 | 7.5 | 7.5 | 14.5 | 21.6 |
| Effective Green, g (s) | 3.1 | 16.1 | 16.1 | | 5.5 | 18.5 | 18.5 | 0.4 | 7.5 | 7.5 | 14.5 | 21.6 |
| Actuated g/C Ratio | 0.05 | 0.25 | 0.25 | | 0.09 | 0.29 | 0.29 | 0.01 | 0.12 | 0.12 | 0.23 | 0.34 |
| Clearance Time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 75 | 413 | 350 | | 134 | 901 | 403 | 9 | 192 | 163 | 353 | 554 |
| v/s Ratio Prot | 0.03 | 0.10 | | | c0.06 | c0.12 | | 0.00 | c0.01 | | c0.15 | 0.01 |
| v/s Ratio Perm | | | 0.00 | | | | 0.01 | | | 0.00 | | |
| v/c Ratio | 0.68 | 0.39 | 0.00 | | 0.69 | 0.41 | 0.04 | 0.44 | 0.12 | 0.02 | 0.68 | 0.03 |
| Uniform Delay, d1 | 29.6 | 19.5 | 17.6 | | 28.1 | 18.0 | 16.0 | 31.3 | 24.9 | 24.7 | 22.3 | 13.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 22.4 | 0.6 | 0.0 | | 14.4 | 0.3 | 0.0 | 31.3 | 0.3 | 0.1 | 5.1 | 0.0 |
| Delay (s) | 52.0 | 20.2 | 17.6 | | 42.5 | 18.3 | 16.1 | 62.6 | 25.2 | 24.7 | 27.3 | 13.9 |
| Level of Service | D | C | B | | D | B | B | E | C | C | C | B |
| Approach Delay (s) | | 27.6 | | | | 22.4 | | | 27.6 | | | 23.6 |
| Approach LOS | | C | | | | C | | | C | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 24.0 | HCM 2000 Level of Service | C |
| HCM 2000 Volume to Capacity ratio | 0.49 | | |
| Actuated Cycle Length (s) | 63.3 | Sum of lost time (s) | 19.7 |
| Intersection Capacity Utilization | 44.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 69 |
| Future Volume (vph) | 69 |
| Ideal Flow (vphpl) | 1900 |
| Total Lost time (s) | 6.0 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1380 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1380 |
| Peak-hour factor, PHF | 0.90 |
| Adj. Flow (vph) | 77 |
| RTOR Reduction (vph) | 51 |
| Lane Group Flow (vph) | 26 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 6 |
| Actuated Green, G (s) | 21.6 |
| Effective Green, g (s) | 21.6 |
| Actuated g/C Ratio | 0.34 |
| Clearance Time (s) | 6.0 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 470 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.02 |
| v/c Ratio | 0.06 |
| Uniform Delay, d1 | 14.0 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.0 |
| Delay (s) | 14.1 |
| Level of Service | B |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑↑↱ | | | ↱ |
| Traffic Vol, veh/h | 0 | 437 | 387 | 280 | 0 | 76 |
| Future Vol, veh/h | 0 | 437 | 387 | 280 | 0 | 76 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 17 | 17 | 3 | 0 | 3 |
| Mvmt Flow | 0 | 475 | 421 | 304 | 0 | 83 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 363 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.945 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.3285 |
| Pot Cap-1 Maneuver | 0 | - | - | - | 0 | 632 |
| Stage 1 | 0 | - | - | - | 0 | - |
| Stage 2 | 0 | - | - | - | 0 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 632 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 11.6 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|
| Capacity (veh/h) | - | - | - | 632 |
| HCM Lane V/C Ratio | - | - | - | 0.131 |
| HCM Control Delay (s) | - | - | - | 11.6 |
| HCM Lane LOS | - | - | - | B |
| HCM 95th %tile Q(veh) | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 24.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 341 | 102 | 4 | 341 | 0 | 13 | 0 | 17 | 153 | 109 | 305 |
| Future Vol, veh/h | 0 | 341 | 102 | 4 | 341 | 0 | 13 | 0 | 17 | 153 | 109 | 305 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Free | - | - | None | - | - | None | - | - | Yield |
| Storage Length | - | - | 60 | - | - | - | 0 | - | 45 | - | - | 55 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 0 | 27 | 27 | 27 | 27 | 0 | 27 | 0 | 27 | 27 | 27 | 27 |
| Mvmt Flow | 0 | 379 | 113 | 4 | 379 | 0 | 14 | 0 | 19 | 170 | 121 | 339 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 379 | 0 | 0 | 827 | - | 379 | 767 | 767 | 379 |
| Stage 1 | - | - | - | - | - | - | 379 | - | - | 388 | 388 | - |
| Stage 2 | - | - | - | - | - | - | 448 | - | - | 379 | 379 | - |
| Critical Hdwy | - | - | - | 4.37 | - | - | 7.37 | - | 6.47 | 7.37 | 6.77 | 6.47 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.37 | - | - | 6.37 | 5.77 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.37 | - | - | 6.37 | 5.77 | - |
| Follow-up Hdwy | - | - | - | 2.443 | - | - | 3.743 | - | 3.543 | 3.743 | 4.243 | 3.543 |
| Pot Cap-1 Maneuver | 0 | - | 0 | 1055 | - | 0 | 264 | 0 | 616 | 290 | 305 | 616 |
| Stage 1 | 0 | - | 0 | - | - | 0 | 595 | 0 | - | 588 | 568 | - |
| Stage 2 | 0 | - | 0 | - | - | 0 | 545 | 0 | - | 595 | 573 | - |
| Platoon blocked, % | | - | | | - | | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | 1055 | - | - | 81 | - | 616 | 280 | 303 | 616 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 81 | - | - | 280 | 303 | - |
| Stage 1 | - | - | - | - | - | - | 595 | - | - | 588 | 565 | - |
| Stage 2 | - | - | - | - | - | - | 192 | - | - | 577 | 573 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0.1 | 31.8 | 53.1 |
| HCM LOS | | | D | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | WBL | WBT | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 81 | 616 | - | 1055 | - | 289 | 616 |
| HCM Lane V/C Ratio | 0.178 | 0.031 | - | 0.004 | - | 1.007 | 0.55 |
| HCM Control Delay (s) | 58.9 | 11 | - | 8.4 | 0 | 94.3 | 17.8 |
| HCM Lane LOS | F | B | - | A | A | F | C |
| HCM 95th %tile Q(veh) | 0.6 | 0.1 | - | 0 | - | 10.6 | 3.3 |

| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 201 | 295 | 363 | 85 | 0 | 0 |
| Future Volume (Veh/h) | 201 | 295 | 363 | 85 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 214 | 314 | 386 | 90 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 947 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 386 | | | | 1128 | 386 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 386 | | | | 1128 | 386 |
| tC, single (s) | 4.4 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.5 | | | | 3.5 | 3.3 |
| p0 queue free % | 79 | | | | 100 | 100 |
| cM capacity (veh/h) | 1026 | | | | 180 | 666 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 528 | 386 | 90 |
| Volume Left | 214 | 0 | 0 |
| Volume Right | 0 | 0 | 90 |
| cSH | 1026 | 1700 | 1700 |
| Volume to Capacity | 0.21 | 0.23 | 0.05 |
| Queue Length 95th (ft) | 20 | 0 | 0 |
| Control Delay (s) | 5.3 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 5.3 | 0.0 | |
| Approach LOS | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.8 | | |
| Intersection Capacity Utilization | 52.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 34 | 254 | 24 | 28 | 255 | 27 | 275 | 29 | 40 | 8 | 25 | 16 |
| Future Volume (veh/h) | 34 | 254 | 24 | 28 | 255 | 27 | 275 | 29 | 40 | 8 | 25 | 16 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1439 | 1439 | 1439 | 1439 | 1439 | 1900 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 |
| Adj Flow Rate, veh/h | 42 | 314 | 30 | 35 | 315 | 33 | 340 | 36 | 49 | 10 | 31 | 20 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Percent Heavy Veh, % | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Cap, veh/h | 57 | 453 | 385 | 50 | 397 | 42 | 386 | 492 | 418 | 17 | 105 | 89 |
| Arrive On Green | 0.04 | 0.31 | 0.31 | 0.04 | 0.31 | 0.31 | 0.28 | 0.34 | 0.34 | 0.01 | 0.07 | 0.07 |
| Sat Flow, veh/h | 1371 | 1439 | 1223 | 1371 | 1281 | 134 | 1371 | 1439 | 1223 | 1371 | 1439 | 1223 |
| Grp Volume(v), veh/h | 42 | 314 | 30 | 35 | 0 | 348 | 340 | 36 | 49 | 10 | 31 | 20 |
| Grp Sat Flow(s),veh/h/ln | 1371 | 1439 | 1223 | 1371 | 0 | 1416 | 1371 | 1439 | 1223 | 1371 | 1439 | 1223 |
| Q Serve(g_s), s | 1.9 | 12.1 | 1.1 | 1.6 | 0.0 | 14.2 | 15.0 | 1.1 | 1.7 | 0.5 | 1.3 | 1.0 |
| Cycle Q Clear(g_c), s | 1.9 | 12.1 | 1.1 | 1.6 | 0.0 | 14.2 | 15.0 | 1.1 | 1.7 | 0.5 | 1.3 | 1.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.09 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 57 | 453 | 385 | 50 | 0 | 438 | 386 | 492 | 418 | 17 | 105 | 89 |
| V/C Ratio(X) | 0.74 | 0.69 | 0.08 | 0.70 | 0.00 | 0.79 | 0.88 | 0.07 | 0.12 | 0.57 | 0.29 | 0.22 |
| Avail Cap(c_a), veh/h | 113 | 698 | 593 | 109 | 0 | 682 | 626 | 1273 | 1082 | 109 | 730 | 620 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.9 | 19.0 | 15.2 | 30.1 | 0.0 | 19.9 | 21.7 | 14.0 | 14.2 | 31.0 | 27.7 | 27.6 |
| Incr Delay (d2), s/veh | 17.2 | 1.9 | 0.1 | 16.4 | 0.0 | 3.5 | 8.5 | 0.1 | 0.1 | 26.3 | 1.5 | 1.2 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.0 | 5.0 | 0.4 | 0.8 | 0.0 | 5.9 | 6.6 | 0.4 | 0.6 | 0.3 | 0.6 | 0.4 |
| LnGrp Delay(d),s/veh | 47.1 | 20.9 | 15.3 | 46.5 | 0.0 | 23.5 | 30.2 | 14.1 | 14.4 | 57.2 | 29.2 | 28.8 |
| LnGrp LOS | D | C | B | D | | C | C | B | B | E | C | C |
| Approach Vol, veh/h | | 386 | | | 383 | | | 425 | | | 61 | |
| Approach Delay, s/veh | | 23.3 | | | 25.6 | | | 27.0 | | | 33.7 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 5.0 | 26.5 | 6.5 | 25.1 | 22.0 | 9.5 | 6.8 | 24.8 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | * 4.2 | 5.3 | * 4.2 | 4.9 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 5 | 55.8 | * 5 | 30.6 | * 29 | 32.0 | * 5.2 | 30.4 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 3.7 | 3.6 | 14.1 | 17.0 | 3.3 | 3.9 | 16.2 |
| Green Ext Time (p_c), s | 0.0 | 0.6 | 0.0 | 3.5 | 0.8 | 0.5 | 0.0 | 3.3 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 25.8 |
| HCM 2010 LOS | C |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 53 | 107 | 61 | 63 | 155 | 40 | 87 | 225 | 40 | 63 | 298 | 51 |
| Future Volume (veh/h) | 53 | 107 | 61 | 63 | 155 | 40 | 87 | 225 | 40 | 63 | 298 | 51 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1652 | 1900 | 1900 | 1652 | 1900 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 63 | 127 | 73 | 75 | 185 | 48 | 104 | 268 | 48 | 75 | 355 | 61 |
| Adj No. of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 179 | 264 | 129 | 185 | 316 | 73 | 131 | 739 | 131 | 90 | 675 | 115 |
| Arrive On Green | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.31 | 0.08 | 0.26 | 0.26 | 0.05 | 0.24 | 0.24 |
| Sat Flow, veh/h | 230 | 850 | 415 | 248 | 1020 | 234 | 1675 | 2840 | 502 | 1675 | 2858 | 487 |
| Grp Volume(v), veh/h | 263 | 0 | 0 | 308 | 0 | 0 | 104 | 156 | 160 | 75 | 206 | 210 |
| Grp Sat Flow(s),veh/h/ln | 1494 | 0 | 0 | 1502 | 0 | 0 | 1675 | 1671 | 1671 | 1675 | 1671 | 1673 |
| Q Serve(g_s), s | 0.0 | 0.0 | 0.0 | 1.2 | 0.0 | 0.0 | 2.5 | 3.1 | 3.2 | 1.8 | 4.4 | 4.5 |
| Cycle Q Clear(g_c), s | 5.6 | 0.0 | 0.0 | 6.9 | 0.0 | 0.0 | 2.5 | 3.1 | 3.2 | 1.8 | 4.4 | 4.5 |
| Prop In Lane | 0.24 | | 0.28 | 0.24 | | 0.16 | 1.00 | | 0.30 | 1.00 | | 0.29 |
| Lane Grp Cap(c), veh/h | 572 | 0 | 0 | 574 | 0 | 0 | 131 | 435 | 435 | 90 | 395 | 395 |
| V/C Ratio(X) | 0.46 | 0.00 | 0.00 | 0.54 | 0.00 | 0.00 | 0.80 | 0.36 | 0.37 | 0.83 | 0.52 | 0.53 |
| Avail Cap(c_a), veh/h | 1246 | 0 | 0 | 1266 | 0 | 0 | 439 | 1013 | 1013 | 276 | 839 | 840 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 11.8 | 0.0 | 0.0 | 12.1 | 0.0 | 0.0 | 18.7 | 12.5 | 12.5 | 19.3 | 13.7 | 13.8 |
| Incr Delay (d2), s/veh | 0.6 | 0.0 | 0.0 | 0.8 | 0.0 | 0.0 | 10.4 | 0.5 | 0.5 | 17.1 | 1.1 | 1.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.5 | 0.0 | 0.0 | 3.1 | 0.0 | 0.0 | 1.5 | 1.5 | 1.5 | 1.3 | 2.1 | 2.2 |
| LnGrp Delay(d),s/veh | 12.4 | 0.0 | 0.0 | 12.9 | 0.0 | 0.0 | 29.1 | 13.0 | 13.0 | 36.4 | 14.8 | 14.9 |
| LnGrp LOS | B | | | B | | | C | B | B | D | B | B |
| Approach Vol, veh/h | | 263 | | | 308 | | | 420 | | | 491 | |
| Approach Delay, s/veh | | 12.4 | | | 12.9 | | | 17.0 | | | 18.1 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 6.4 | 16.7 | | 18.1 | 7.4 | 15.7 | | 18.1 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | | 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | * 6.8 | * 25 | | 33.0 | * 11 | 20.7 | | 33.0 |
| Max Q Clear Time (g_c+I1), s | 3.8 | 5.2 | | 7.6 | 4.5 | 6.5 | | 8.9 |
| Green Ext Time (p_c), s | 0.0 | 3.6 | | 3.5 | 0.1 | 3.2 | | 3.4 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 15.7 |
| HCM 2010 LOS | B |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.2 |

| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
|---|---|---|---|---|---|---|
| Lane Configurations | ↑ | | | ↑ | ↖ | ↗ |
| Traffic Vol, veh/h | 92 | 0 | 0 | 85 | 28 | 219 |
| Future Vol, veh/h | 92 | 0 | 0 | 85 | 28 | 219 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | Yield |
| Storage Length | - | - | - | - | 85 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 33 | 0 | 0 | 33 | 33 | 33 |
| Mvmt Flow | 103 | 0 | 0 | 96 | 31 | 246 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | - | - | - | 199 | 103 |
| Stage 1 | - | - | - | - | 103 | - |
| Stage 2 | - | - | - | - | 96 | - |
| Critical Hdwy | - | - | - | - | 6.73 | 6.53 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.73 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.73 | - |
| Follow-up Hdwy | - | - | - | - | 3.797 | 3.597 |
| Pot Cap-1 Maneuver | - | 0 | 0 | - | 725 | 874 |
| Stage 1 | - | 0 | 0 | - | 849 | - |
| Stage 2 | - | 0 | 0 | - | 856 | - |
| Platoon blocked, % | - | | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | 725 | 874 |
| Mov Cap-2 Maneuver | - | - | - | - | 725 | - |
| Stage 1 | - | - | - | - | 849 | - |
| Stage 2 | - | - | - | - | 856 | - |

| Approach | NB | SB | NW |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 10.6 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBT | NWLn1 | NWLn2 | SBT |
|---|---|---|---|---|
| Capacity (veh/h) | - | 725 | 874 | - |
| HCM Lane V/C Ratio | - | 0.043 | 0.282 | - |
| HCM Control Delay (s) | - | 10.2 | 10.7 | - |
| HCM Lane LOS | - | B | B | - |
| HCM 95th %tile Q(veh) | - | 0.1 | 1.2 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 5 | 92 | 90 | 0 | 0 | 0 | 20 | 97 | 26 | 40 | 60 | 13 |
| Future Vol, veh/h | 5 | 92 | 90 | 0 | 0 | 0 | 20 | 97 | 26 | 40 | 60 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Stop | - | - | None | - | - | Free | - | - | Free |
| Storage Length | - | - | 100 | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 16979 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Mvmt Flow | 5 | 100 | 98 | 0 | 0 | 0 | 22 | 105 | 28 | 43 | 65 | 14 |

| Major/Minor | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 301 | 301 | 65 | 65 | 0 | - | 105 | 0 | 0 |
| Stage 1 | 152 | 152 | - | - | - | - | - | - | - |
| Stage 2 | 149 | 149 | - | - | - | - | - | - | - |
| Critical Hdwy | 6.9 | 7 | 6.7 | 4.6 | - | - | 4.6 | - | - |
| Critical Hdwy Stg 1 | 5.9 | 6 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.9 | 6 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.95 | 4.45 | 3.75 | 2.65 | - | - | 2.65 | - | - |
| Pot Cap-1 Maneuver | 601 | 540 | 880 | 1280 | - | 0 | 1234 | - | 0 |
| Stage 1 | 771 | 689 | - | - | - | 0 | - | - | 0 |
| Stage 2 | 774 | 691 | - | - | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | | - | | | - | |
| Mov Cap-1 Maneuver | 569 | 0 | 880 | 1280 | - | - | 1234 | - | - |
| Mov Cap-2 Maneuver | 569 | 0 | - | - | - | - | - | - | - |
| Stage 1 | 743 | 0 | - | - | - | - | - | - | - |
| Stage 2 | 760 | 0 | - | - | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 11.3 | 1.3 | 3.2 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1280 | - | 569 | 880 | 1234 | - |
| HCM Lane V/C Ratio | 0.017 | - | 0.185 | 0.111 | 0.035 | - |
| HCM Control Delay (s) | 7.9 | 0 | 12.8 | 9.6 | 8 | 0 |
| HCM Lane LOS | A | A | B | A | A | A |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.7 | 0.4 | 0.1 | - |

| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 64 | 336 | 9 | 42 | 43 | 244 | 19 | 13 | 46 | 59 | 215 | 24 |
| Future Volume (vph) | 64 | 336 | 9 | 42 | 43 | 244 | 19 | 13 | 46 | 59 | 215 | 24 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1556 | 1638 | 1392 | | 1556 | 3112 | 1392 | 1556 | 1638 | 1392 | 1556 | 1638 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1556 | 1638 | 1392 | | 1556 | 3112 | 1392 | 1556 | 1638 | 1392 | 1556 | 1638 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 72 | 378 | 10 | 47 | 48 | 274 | 21 | 15 | 52 | 66 | 242 | 27 |
| RTOR Reduction (vph) | 0 | 0 | 7 | 0 | 0 | 0 | 15 | 0 | 0 | 55 | 0 | 0 |
| Lane Group Flow (vph) | 72 | 378 | 3 | 0 | 95 | 274 | 6 | 15 | 52 | 11 | 242 | 27 |
| Heavy Vehicles (%) | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% |
| Turn Type | Prot | NA | Perm | Prot | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |
| Protected Phases | 7 | 4 | | 3 | 3 | 8 | | 5 | 2 | | 1 | 6 |
| Permitted Phases | | | 4 | | | | 8 | | | 2 | | |
| Actuated Green, G (s) | 6.3 | 20.8 | 20.8 | | 5.2 | 19.7 | 19.7 | 0.5 | 11.6 | 11.6 | 13.9 | 25.0 |
| Effective Green, g (s) | 6.3 | 20.8 | 20.8 | | 5.2 | 19.7 | 19.7 | 0.5 | 11.6 | 11.6 | 13.9 | 25.0 |
| Actuated g/C Ratio | 0.09 | 0.29 | 0.29 | | 0.07 | 0.28 | 0.28 | 0.01 | 0.16 | 0.16 | 0.20 | 0.35 |
| Clearance Time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 137 | 478 | 406 | | 113 | 861 | 385 | 10 | 266 | 226 | 303 | 575 |
| v/s Ratio Prot | 0.05 | c0.23 | | | c0.06 | 0.09 | | 0.01 | c0.03 | | c0.16 | 0.02 |
| v/s Ratio Perm | | | 0.00 | | | | 0.00 | | | 0.01 | | |
| v/c Ratio | 0.53 | 0.79 | 0.01 | | 0.84 | 0.32 | 0.02 | 1.50 | 0.20 | 0.05 | 0.80 | 0.05 |
| Uniform Delay, d1 | 31.0 | 23.2 | 17.9 | | 32.6 | 20.4 | 18.7 | 35.4 | 25.8 | 25.1 | 27.3 | 15.2 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.6 | 8.7 | 0.0 | | 40.1 | 0.2 | 0.0 | 478.8 | 0.4 | 0.1 | 13.6 | 0.0 |
| Delay (s) | 34.6 | 31.9 | 17.9 | | 72.7 | 20.6 | 18.7 | 514.1 | 26.1 | 25.2 | 41.0 | 15.3 |
| Level of Service | C | C | B | | E | C | B | F | C | C | D | B |
| Approach Delay (s) | | 32.0 | | | | 33.2 | | | 80.7 | | | 33.3 |
| Approach LOS | | C | | | | C | | | F | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 37.6 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.66 | | |
| Actuated Cycle Length (s) | 71.2 | Sum of lost time (s) | 19.7 |
| Intersection Capacity Utilization | 54.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 68 |
| Future Volume (vph) | 68 |
| Ideal Flow (vphpl) | 1900 |
| Total Lost time (s) | 6.0 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1392 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1392 |
| Peak-hour factor, PHF | 0.89 |
| Adj. Flow (vph) | 76 |
| RTOR Reduction (vph) | 49 |
| Lane Group Flow (vph) | 27 |
| Heavy Vehicles (%) | 16% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 6 |
| Actuated Green, G (s) | 25.0 |
| Effective Green, g (s) | 25.0 |
| Actuated g/C Ratio | 0.35 |
| Clearance Time (s) | 6.0 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 488 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.02 |
| v/c Ratio | 0.05 |
| Uniform Delay, d1 | 15.3 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.0 |
| Delay (s) | 15.3 |
| Level of Service | B |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.6 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑↑↳ | | | ↱ |
| Traffic Vol, veh/h | 0 | 652 | 281 | 228 | 0 | 67 |
| Future Vol, veh/h | 0 | 652 | 281 | 228 | 0 | 67 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 17 | 17 | 3 | 17 | 3 |
| Mvmt Flow | 0 | 709 | 305 | 248 | 0 | 73 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 277 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.945 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.3285 |
| Pot Cap-1 Maneuver | 0 | - | - | - | 0 | 718 |
| Stage 1 | 0 | - | - | - | 0 | - |
| Stage 2 | 0 | - | - | - | 0 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 718 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 10.6 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|
| Capacity (veh/h) | - | - | - | 718 |
| HCM Lane V/C Ratio | - | - | - | 0.101 |
| HCM Control Delay (s) | - | - | - | 10.6 |
| HCM Lane LOS | - | - | - | B |
| HCM 95th %tile Q(veh) | - | - | - | 0.3 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 8.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 477 | 208 | 4 | 278 | 0 | 12 | 0 | 28 | 101 | 56 | 236 |
| Future Vol, veh/h | 0 | 477 | 208 | 4 | 278 | 0 | 12 | 0 | 28 | 101 | 56 | 236 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Free | - | - | None | - | - | None | - | - | Yield |
| Storage Length | - | - | 60 | - | - | - | 0 | - | 45 | - | - | 55 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 0 | 22 | 22 | 22 | 22 | 0 | 22 | 0 | 22 | 22 | 22 | 22 |
| Mvmt Flow | 0 | 507 | 221 | 4 | 296 | 0 | 13 | 0 | 30 | 107 | 60 | 251 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 507 | 0 | 0 | 841 | - | 507 | 811 | 811 | 296 |
| Stage 1 | - | - | - | - | - | - | 507 | - | - | 304 | 304 | - |
| Stage 2 | - | - | - | - | - | - | 334 | - | - | 507 | 507 | - |
| Critical Hdwy | - | - | - | 4.32 | - | - | 7.32 | - | 6.42 | 7.32 | 6.72 | 6.42 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.32 | - | - | 6.32 | 5.72 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.32 | - | - | 6.32 | 5.72 | - |
| Follow-up Hdwy | - | - | - | 2.398 | - | - | 3.698 | - | 3.498 | 3.698 | 4.198 | 3.498 |
| Pot Cap-1 Maneuver | 0 | - | 0 | 963 | - | 0 | 263 | 0 | 528 | 276 | 292 | 699 |
| Stage 1 | 0 | - | 0 | - | - | 0 | 513 | 0 | - | 665 | 628 | - |
| Stage 2 | 0 | - | 0 | - | - | 0 | 640 | 0 | - | 513 | 508 | - |
| Platoon blocked, % | | - | | | - | | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | 963 | - | - | 141 | - | 528 | 259 | 291 | 699 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 141 | - | - | 259 | 291 | - |
| Stage 1 | - | - | - | - | - | - | 513 | - | - | 665 | 625 | - |
| Stage 2 | - | - | - | - | - | - | 369 | - | - | 484 | 508 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0.1 | 18.5 | 22.9 |
| HCM LOS | | | C | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | WBL | WBT | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 141 | 528 | - | 963 | - | 270 | 699 |
| HCM Lane V/C Ratio | 0.091 | 0.056 | - | 0.004 | - | 0.619 | 0.359 |
| HCM Control Delay (s) | 33.1 | 12.2 | - | 8.8 | 0 | 37.8 | 13 |
| HCM Lane LOS | D | B | - | A | A | E | B |
| HCM 95th %tile Q(veh) | 0.3 | 0.2 | - | 0 | - | 3.8 | 1.6 |

| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 309 | 292 | 286 | 293 | 0 | 0 |
| Future Volume (Veh/h) | 309 | 292 | 286 | 293 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 340 | 321 | 314 | 322 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 947 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 314 | | | | 1315 | 314 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 314 | | | | 1315 | 314 |
| tC, single (s) | 4.2 | | | | 6.5 | 6.4 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.3 | | | | 3.6 | 3.4 |
| p0 queue free % | 71 | | | | 100 | 100 |
| cM capacity (veh/h) | 1176 | | | | 116 | 697 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 661 | 314 | 322 |
| Volume Left | 340 | 0 | 0 |
| Volume Right | 0 | 0 | 322 |
| cSH | 1176 | 1700 | 1700 |
| Volume to Capacity | 0.29 | 0.18 | 0.19 |
| Queue Length 95th (ft) | 30 | 0 | 0 |
| Control Delay (s) | 6.4 | 0.0 | 0.0 |
| Lane LOS | A | | |
| Approach Delay (s) | 6.4 | 0.0 | |
| Approach LOS | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.3 | | |
| Intersection Capacity Utilization | 57.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 11 | 300 | 5 | 36 | 360 | 7 | 234 | 37 | 52 | 10 | 14 | 31 |
| Future Volume (veh/h) | 11 | 300 | 5 | 36 | 360 | 7 | 234 | 37 | 52 | 10 | 14 | 31 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1557 | 1557 | 1557 | 1557 | 1557 | 1900 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 |
| Adj Flow Rate, veh/h | 12 | 330 | 5 | 40 | 396 | 8 | 257 | 41 | 57 | 11 | 15 | 34 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| Cap, veh/h | 23 | 499 | 424 | 63 | 529 | 11 | 261 | 391 | 332 | 21 | 138 | 118 |
| Arrive On Green | 0.02 | 0.32 | 0.32 | 0.04 | 0.35 | 0.35 | 0.18 | 0.25 | 0.25 | 0.01 | 0.09 | 0.09 |
| Sat Flow, veh/h | 1483 | 1557 | 1324 | 1483 | 1521 | 31 | 1483 | 1557 | 1324 | 1483 | 1557 | 1324 |
| Grp Volume(v), veh/h | 12 | 330 | 5 | 40 | 0 | 404 | 257 | 41 | 57 | 11 | 15 | 34 |
| Grp Sat Flow(s),veh/h/ln | 1483 | 1557 | 1324 | 1483 | 0 | 1552 | 1483 | 1557 | 1324 | 1483 | 1557 | 1324 |
| Q Serve(g_s), s | 0.4 | 9.1 | 0.1 | 1.3 | 0.0 | 11.5 | 8.6 | 1.0 | 1.7 | 0.4 | 0.4 | 1.2 |
| Cycle Q Clear(g_c), s | 0.4 | 9.1 | 0.1 | 1.3 | 0.0 | 11.5 | 8.6 | 1.0 | 1.7 | 0.4 | 0.4 | 1.2 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.02 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 23 | 499 | 424 | 63 | 0 | 539 | 261 | 391 | 332 | 21 | 138 | 118 |
| V/C Ratio(X) | 0.53 | 0.66 | 0.01 | 0.63 | 0.00 | 0.75 | 0.98 | 0.10 | 0.17 | 0.52 | 0.11 | 0.29 |
| Avail Cap(c_a), veh/h | 148 | 953 | 810 | 148 | 0 | 950 | 261 | 1115 | 948 | 148 | 997 | 848 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 24.4 | 14.6 | 11.6 | 23.5 | 0.0 | 14.4 | 20.5 | 14.4 | 14.7 | 24.5 | 20.9 | 21.3 |
| Incr Delay (d2), s/veh | 17.6 | 1.5 | 0.0 | 10.0 | 0.0 | 2.1 | 51.1 | 0.1 | 0.2 | 18.7 | 0.3 | 1.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.3 | 4.1 | 0.0 | 0.7 | 0.0 | 5.1 | 7.2 | 0.4 | 0.6 | 0.3 | 0.2 | 0.5 |
| LnGrp Delay(d),s/veh | 42.0 | 16.2 | 11.6 | 33.5 | 0.0 | 16.5 | 71.6 | 14.5 | 14.9 | 43.2 | 21.3 | 22.6 |
| LnGrp LOS | D | B | B | C | | B | E | B | B | D | C | C |
| Approach Vol, veh/h | | 347 | | | 444 | | | 355 | | | 60 | |
| Approach Delay, s/veh | | 17.0 | | | 18.0 | | | 55.9 | | | 26.1 | |
| Approach LOS | | B | | | B | | | E | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 4.9 | 17.4 | 6.3 | 21.3 | 13.0 | 9.3 | 5.0 | 22.7 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | * 4.2 | 5.3 | * 4.2 | 4.9 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 5 | 35.8 | * 5 | 30.6 | * 8.8 | 32.0 | * 5 | 30.6 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 3.7 | 3.3 | 11.1 | 10.6 | 3.2 | 2.4 | 13.5 |
| Green Ext Time (p_c), s | 0.0 | 0.6 | 0.0 | 4.1 | 0.0 | 0.5 | 0.0 | 3.9 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 29.3 |
| HCM 2010 LOS | C |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 44 | 154 | 80 | 45 | 123 | 76 | 69 | 503 | 48 | 29 | 323 | 56 |
| Future Volume (veh/h) | 44 | 154 | 80 | 45 | 123 | 76 | 69 | 503 | 48 | 29 | 323 | 56 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1652 | 1900 | 1900 | 1652 | 1900 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 46 | 160 | 83 | 47 | 128 | 79 | 72 | 524 | 50 | 30 | 336 | 58 |
| Adj No. of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 141 | 277 | 128 | 151 | 258 | 139 | 87 | 944 | 90 | 45 | 803 | 137 |
| Arrive On Green | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.30 | 0.05 | 0.31 | 0.31 | 0.03 | 0.28 | 0.28 |
| Sat Flow, veh/h | 140 | 933 | 432 | 164 | 871 | 467 | 1675 | 3085 | 294 | 1675 | 2856 | 488 |
| Grp Volume(v), veh/h | 289 | 0 | 0 | 254 | 0 | 0 | 72 | 283 | 291 | 30 | 195 | 199 |
| Grp Sat Flow(s),veh/h/ln | 1505 | 0 | 0 | 1502 | 0 | 0 | 1675 | 1671 | 1707 | 1675 | 1671 | 1673 |
| Q Serve(g_s), s | 1.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.8 | 5.9 | 6.0 | 0.7 | 4.0 | 4.1 |
| Cycle Q Clear(g_c), s | 6.7 | 0.0 | 0.0 | 5.7 | 0.0 | 0.0 | 1.8 | 5.9 | 6.0 | 0.7 | 4.0 | 4.1 |
| Prop In Lane | 0.16 | | 0.29 | 0.19 | | 0.31 | 1.00 | | 0.17 | 1.00 | | 0.29 |
| Lane Grp Cap(c), veh/h | 546 | 0 | 0 | 548 | 0 | 0 | 87 | 512 | 523 | 45 | 470 | 470 |
| V/C Ratio(X) | 0.53 | 0.00 | 0.00 | 0.46 | 0.00 | 0.00 | 0.83 | 0.55 | 0.56 | 0.67 | 0.42 | 0.42 |
| Avail Cap(c_a), veh/h | 1256 | 0 | 0 | 1240 | 0 | 0 | 353 | 1039 | 1061 | 232 | 907 | 908 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 12.7 | 0.0 | 0.0 | 12.4 | 0.0 | 0.0 | 19.6 | 12.1 | 12.1 | 20.2 | 12.2 | 12.3 |
| Incr Delay (d2), s/veh | 0.8 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 17.6 | 0.9 | 0.9 | 15.9 | 0.6 | 0.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.9 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 1.2 | 2.8 | 2.9 | 0.5 | 1.9 | 2.0 |
| LnGrp Delay(d),s/veh | 13.5 | 0.0 | 0.0 | 13.0 | 0.0 | 0.0 | 37.2 | 13.1 | 13.1 | 36.1 | 12.8 | 12.9 |
| LnGrp LOS | B | | | B | | | D | B | B | D | B | B |
| Approach Vol, veh/h | | 289 | | | 254 | | | 646 | | | 424 | |
| Approach Delay, s/veh | | 13.5 | | | 13.0 | | | 15.8 | | | 14.5 | |
| Approach LOS | | B | | | B | | | B | | | B | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 5.3 | 18.8 | | 17.7 | 6.4 | 17.8 | | 17.7 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | | 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | * 5.8 | * 26 | | 33.0 | * 8.8 | 22.7 | | 33.0 |
| Max Q Clear Time (g_c+I1), s | 2.7 | 8.0 | | 8.7 | 3.8 | 6.1 | | 7.7 |
| Green Ext Time (p_c), s | 0.0 | 4.8 | | 3.2 | 0.0 | 4.7 | | 3.3 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 14.6 |
| HCM 2010 LOS | B |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 4.5 |

| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
|---|---|---|---|---|---|---|
| Lane Configurations | ↑ | | | ↑ | ↰ | ↱ |
| Traffic Vol, veh/h | 135 | 0 | 0 | 58 | 11 | 144 |
| Future Vol, veh/h | 135 | 0 | 0 | 58 | 11 | 144 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | Yield |
| Storage Length | - | - | - | - | 85 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 24 | 0 | 0 | 24 | 24 | 24 |
| Mvmt Flow | 145 | 0 | 0 | 62 | 12 | 155 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | - | - | - | 207 | 145 |
| Stage 1 | - | - | - | - | 145 | - |
| Stage 2 | - | - | - | - | 62 | - |
| Critical Hdwy | - | - | - | - | 6.64 | 6.44 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.64 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.64 | - |
| Follow-up Hdwy | - | - | - | - | 3.716 | 3.516 |
| Pot Cap-1 Maneuver | - | 0 | 0 | - | 734 | 847 |
| Stage 1 | - | 0 | 0 | - | 831 | - |
| Stage 2 | - | 0 | 0 | - | 908 | - |
| Platoon blocked, % | - | | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | 734 | 847 |
| Mov Cap-2 Maneuver | - | - | - | - | 734 | - |
| Stage 1 | - | - | - | - | 831 | - |
| Stage 2 | - | - | - | - | 908 | - |

| Approach | NB | SB | NW |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 10.2 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBT | NWLn1 | NWLn2 | SBT |
|---|---|---|---|---|
| Capacity (veh/h) | - | 734 | 847 | - |
| HCM Lane V/C Ratio | - | 0.016 | 0.183 | - |
| HCM Control Delay (s) | - | 10 | 10.2 | - |
| HCM Lane LOS | - | B | B | - |
| HCM 95th %tile Q(veh) | - | 0 | 0.7 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 3 | 199 | 67 | 0 | 0 | 0 | 12 | 118 | 23 | 34 | 34 | 2 |
| Future Vol, veh/h | 3 | 199 | 67 | 0 | 0 | 0 | 12 | 118 | 23 | 34 | 34 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Stop | - | - | None | - | - | Free | - | - | Free |
| Storage Length | - | - | 100 | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 16979 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 22 | 22 | 22 | 0 | 0 | 0 | 22 | 22 | 22 | 22 | 22 | 22 |
| Mvmt Flow | 3 | 212 | 71 | 0 | 0 | 0 | 13 | 126 | 24 | 36 | 36 | 2 |

| Major/Minor | Minor2 | | | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 260 | 260 | 36 | | | 36 | 0 | - | 126 | 0 | 0 |
| Stage 1 | 109 | 109 | - | | | - | - | - | - | - | - |
| Stage 2 | 151 | 151 | - | | | - | - | - | - | - | - |
| Critical Hdwy | 6.62 | 6.72 | 6.42 | | | 4.32 | - | - | 4.32 | - | - |
| Critical Hdwy Stg 1 | 5.62 | 5.72 | - | | | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.62 | 5.72 | - | | | - | - | - | - | - | - |
| Follow-up Hdwy | 3.698 | 4.198 | 3.498 | | | 2.398 | - | - | 2.398 | - | - |
| Pot Cap-1 Maneuver | 688 | 612 | 982 | | | 1455 | - | 0 | 1346 | - | 0 |
| Stage 1 | 868 | 768 | - | | | - | - | 0 | - | - | 0 |
| Stage 2 | 830 | 736 | - | | | - | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | | | | - | | | - | |
| Mov Cap-1 Maneuver | 663 | 0 | 982 | | | 1455 | - | - | 1346 | - | - |
| Mov Cap-2 Maneuver | 663 | 0 | - | | | - | - | - | - | - | - |
| Stage 1 | 845 | 0 | - | | | - | - | - | - | - | - |
| Stage 2 | 822 | 0 | - | | | - | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 12 | 0.7 | 3.9 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1455 | - | 663 | 982 | 1346 | - |
| HCM Lane V/C Ratio | 0.009 | - | 0.324 | 0.073 | 0.027 | - |
| HCM Control Delay (s) | 7.5 | 0 | 13 | 9 | 7.7 | 0 |
| HCM Lane LOS | A | A | B | A | A | A |
| HCM 95th %tile Q(veh) | 0 | - | 1.4 | 0.2 | 0.1 | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 341 | 102 | 4 | 341 | 0 | 13 | 0 | 17 | 153 | 109 | 305 |
| Future Volume (veh/h) | 0 | 341 | 102 | 4 | 341 | 0 | 13 | 0 | 17 | 153 | 109 | 305 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 0 | 1496 | 1496 | 1900 | 1496 | 0 | 1496 | 0 | 1496 | 1496 | 1496 | 1496 |
| Adj Flow Rate, veh/h | 0 | 379 | 0 | 4 | 379 | 0 | 14 | 0 | 19 | 170 | 121 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 0 | 27 | 27 | 27 | 27 | 0 | 27 | 0 | 27 | 27 | 27 | 27 |
| Cap, veh/h | 0 | 572 | 486 | 4 | 408 | 0 | 66 | 0 | 0 | 288 | 149 | 127 |
| Arrive On Green | 0.00 | 0.26 | 0.00 | 0.28 | 0.28 | 0.00 | 0.05 | 0.00 | 0.00 | 0.20 | 0.10 | 0.00 |
| Sat Flow, veh/h | 0 | 1496 | 1272 | 16 | 1480 | 0 | 1425 | 14 | | 1425 | 1496 | 1272 |
| Grp Volume(v), veh/h | 0 | 379 | 0 | 383 | 0 | 0 | 14 | 50.3 | | 170 | 121 | 0 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1496 | 1272 | 1495 | 0 | 0 | 1425 | D | | 1425 | 1496 | 1272 |
| Q Serve(g_s), s | 0.0 | 24.1 | 0.0 | 26.4 | 0.0 | 0.0 | 1.0 | | | 11.5 | 8.4 | 0.0 |
| Cycle Q Clear(g_c), s | 0.0 | 24.1 | 0.0 | 26.4 | 0.0 | 0.0 | 1.0 | | | 11.5 | 8.4 | 0.0 |
| Prop In Lane | 0.00 | | 1.00 | 0.01 | | 0.00 | 1.00 | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 572 | 486 | 412 | 0 | 0 | 66 | | | 288 | 149 | 127 |
| V/C Ratio(X) | 0.00 | 0.66 | 0.00 | 0.93 | 0.00 | 0.00 | 0.21 | | | 0.59 | 0.81 | 0.00 |
| Avail Cap(c_a), veh/h | 0 | 572 | 486 | 457 | 0 | 0 | 67 | | | 288 | 209 | 178 |
| HCM Platoon Ratio | 1.00 | 0.67 | 0.67 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | | | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 0.0 | 33.3 | 0.0 | 37.4 | 0.0 | 0.0 | 48.7 | | | 38.3 | 46.8 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 2.9 | 0.0 | 29.7 | 0.0 | 0.0 | 1.6 | | | 3.1 | 15.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 10.4 | 0.0 | 14.3 | 0.0 | 0.0 | 0.4 | | | 4.7 | 4.1 | 0.0 |
| LnGrp Delay(d),s/veh | 0.0 | 36.1 | 0.0 | 67.1 | 0.0 | 0.0 | 50.3 | | | 41.4 | 61.8 | 0.0 |
| LnGrp LOS | | D | | E | | | D | | | D | E | |
| Approach Vol, veh/h | | 379 | | | 383 | | | | | | 291 | |
| Approach Delay, s/veh | | 36.1 | | | 67.1 | | | | | | 49.9 | |
| Approach LOS | | D | | | E | | | | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 25.6 | | | 45.8 | 9.1 | 16.6 | | 34.5 |
| Change Period (Y+Rc), s | 4.2 | | | 5.3 | 4.2 | * 6 | | 5.3 |
| Max Green Setting (Gmax), s | 14.8 | | | 33.0 | 5.0 | * 15 | | 32.4 |
| Max Q Clear Time (g_c+I1), s | 13.5 | | | 26.1 | 3.0 | 10.4 | | 28.4 |
| Green Ext Time (p_c), s | 0.1 | | | 1.2 | 0.0 | 0.2 | | 0.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 51.2 |
| HCM 2010 LOS | D |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 477 | 208 | 4 | 278 | 0 | 12 | 0 | 28 | 101 | 56 | 236 |
| Future Volume (veh/h) | 0 | 477 | 208 | 4 | 278 | 0 | 12 | 0 | 28 | 101 | 56 | 236 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 0 | 1557 | 1557 | 1900 | 1557 | 0 | 1557 | 0 | 1557 | 1557 | 1557 | 1557 |
| Adj Flow Rate, veh/h | 0 | 507 | 0 | 4 | 296 | 0 | 13 | 0 | 30 | 107 | 60 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | 0 | 1 | 0 | 1 | 0 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 0 | 22 | 22 | 22 | 22 | 0 | 22 | 0 | 22 | 22 | 22 | 22 |
| Cap, veh/h | 0 | 774 | 658 | 4 | 328 | 0 | 65 | 0 | 0 | 229 | 88 | 74 |
| Arrive On Green | 0.00 | 0.99 | 0.00 | 0.21 | 0.21 | 0.00 | 0.04 | 0.00 | 0.00 | 0.15 | 0.06 | 0.00 |
| Sat Flow, veh/h | 0 | 1557 | 1324 | 21 | 1536 | 0 | 1483 | 13 | | 1483 | 1557 | 1324 |
| Grp Volume(v), veh/h | 0 | 507 | 0 | 300 | 0 | 0 | 13 | 52.2 | | 107 | 60 | 0 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1557 | 1324 | 1556 | 0 | 0 | 1483 | D | | 1483 | 1557 | 1324 |
| Q Serve(g_s), s | 0.0 | 0.6 | 0.0 | 20.7 | 0.0 | 0.0 | 0.9 | | | 7.2 | 4.2 | 0.0 |
| Cycle Q Clear(g_c), s | 0.0 | 0.6 | 0.0 | 20.7 | 0.0 | 0.0 | 0.9 | | | 7.2 | 4.2 | 0.0 |
| Prop In Lane | 0.00 | | 1.00 | 0.01 | | 0.00 | 1.00 | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 774 | 658 | 333 | 0 | 0 | 65 | | | 229 | 88 | 74 |
| V/C Ratio(X) | 0.00 | 0.65 | 0.00 | 0.90 | 0.00 | 0.00 | 0.20 | | | 0.47 | 0.68 | 0.00 |
| Avail Cap(c_a), veh/h | 0 | 774 | 658 | 417 | 0 | 0 | 67 | | | 229 | 170 | 144 |
| HCM Platoon Ratio | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 1.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | | | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 0.0 | 0.2 | 0.0 | 42.1 | 0.0 | 0.0 | 50.7 | | | 42.4 | 50.9 | 0.0 |
| Incr Delay (d2), s/veh | 0.0 | 2.0 | 0.0 | 29.8 | 0.0 | 0.0 | 1.5 | | | 1.5 | 9.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 0.5 | 0.0 | 11.6 | 0.0 | 0.0 | 0.4 | | | 3.1 | 2.0 | 0.0 |
| LnGrp Delay(d),s/veh | 0.0 | 2.2 | 0.0 | 71.9 | 0.0 | 0.0 | 52.2 | | | 43.8 | 60.0 | 0.0 |
| LnGrp LOS | | A | | E | | | D | | | D | E | |
| Approach Vol, veh/h | | 507 | | | 300 | | | | | | 167 | |
| Approach Delay, s/veh | | 2.2 | | | 71.9 | | | | | | 49.6 | |
| Approach LOS | | A | | | E | | | | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 21.2 | | | 60.0 | 9.0 | 12.2 | | 28.8 |
| Change Period (Y+Rc), s | 4.2 | | | 5.3 | 4.2 | * 6 | | 5.3 |
| Max Green Setting (Gmax), s | 11.4 | | | 42.7 | 5.0 | * 12 | | 29.5 |
| Max Q Clear Time (g_c+I1), s | 9.2 | | | 2.6 | 2.9 | 6.2 | | 22.7 |
| Green Ext Time (p_c), s | 0.1 | | | 3.3 | 0.0 | 0.1 | | 0.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 32.1 |
| HCM 2010 LOS | C |

Notes

## Intersection: 1: Orange Avenue & North Avenue

| Movement | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | UL | T | T | R | L | T | R | L | T |
| Maximum Queue (ft) | 97 | 213 | 12 | 159 | 132 | 130 | 68 | 24 | 63 | 44 | 174 | 342 |
| Average Queue (ft) | 37 | 70 | 1 | 65 | 52 | 52 | 15 | 2 | 16 | 13 | 132 | 58 |
| 95th Queue (ft) | 84 | 153 | 6 | 121 | 108 | 104 | 45 | 13 | 44 | 37 | 198 | 220 |
| Link Distance (ft) | | 2623 | 2623 | | 289 | 289 | | | 1968 | | | 3215 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | | 185 | | | 100 | 150 | | 150 | 100 | |
| Storage Blk Time (%) | | | | | | 1 | | | | | 24 | |
| Queuing Penalty (veh) | | | | | | 1 | | | | | 20 | |

## Intersection: 1: Orange Avenue & North Avenue

| Movement | SB |
|---|---|
| Directions Served | R |
| Maximum Queue (ft) | 245 |
| Average Queue (ft) | 32 |
| 95th Queue (ft) | 105 |
| Link Distance (ft) | |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | 130 |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

## Intersection: 2: North Avenue & Driveway

| Movement | EB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (ft) | 154 | 67 |
| Average Queue (ft) | 5 | 34 |
| 95th Queue (ft) | 51 | 58 |
| Link Distance (ft) | 289 | 134 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

| Movement | EB | EB | WB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | T | R | LT | L | R | L | T | R |
| Maximum Queue (ft) | 469 | 260 | 450 | 87 | 60 | 312 | 178 | 240 |
| Average Queue (ft) | 255 | 38 | 208 | 18 | 12 | 128 | 99 | 28 |
| 95th Queue (ft) | 418 | 183 | 403 | 54 | 38 | 229 | 165 | 134 |
| Link Distance (ft) | 469 | | 730 | 2392 | | | 1060 | |
| Upstream Blk Time (%) | 1 | | | | | | | |
| Queuing Penalty (veh) | 5 | | | | | | | |
| Storage Bay Dist (ft) | | 60 | | | 45 | 300 | | 300 |
| Storage Blk Time (%) | 50 | 0 | | 10 | 3 | 0 | | |
| Queuing Penalty (veh) | 51 | 0 | | 2 | 0 | 2 | | |

## Intersection: 4: North Avenue & SR 99 NB On-Ramp

| Movement | EB | WB | WB |
|---|---|---|---|
| Directions Served | LT | T | R |
| Maximum Queue (ft) | 270 | 22 | 86 |
| Average Queue (ft) | 109 | 2 | 6 |
| 95th Queue (ft) | 221 | 13 | 36 |
| Link Distance (ft) | 730 | 367 | |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (ft) | | | 85 |
| Storage Blk Time (%) | | | 0 |
| Queuing Penalty (veh) | | | 0 |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | L | TR | L | T | R | L | T | R |
| Maximum Queue (ft) | 90 | 292 | 67 | 95 | 220 | 295 | 446 | 56 | 47 | 76 | 51 |
| Average Queue (ft) | 28 | 121 | 8 | 27 | 120 | 138 | 41 | 14 | 7 | 23 | 14 |
| 95th Queue (ft) | 67 | 222 | 32 | 70 | 214 | 242 | 210 | 41 | 32 | 58 | 41 |
| Link Distance (ft) | | 473 | | | 5162 | | 609 | | | 1319 | |
| Upstream Blk Time (%) | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | |
| Storage Bay Dist (ft) | 150 | | 100 | 150 | | 180 | | 180 | 155 | | 355 |
| Storage Blk Time (%) | | 9 | | | 5 | 4 | | | | | |
| Queuing Penalty (veh) | | 5 | | | 1 | 3 | | | | | |

## Intersection: 6: Chestnut Ave & North Ave

| Movement | EB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | LTR | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 290 | 224 | 113 | 92 | 135 | 97 | 111 | 137 |
| Average Queue (ft) | 102 | 102 | 51 | 49 | 54 | 45 | 57 | 67 |
| 95th Queue (ft) | 235 | 180 | 97 | 83 | 101 | 86 | 96 | 102 |
| Link Distance (ft) | 5162 | 4573 | | 5304 | 5304 | | 5297 | 5297 |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (ft) | | | 245 | | | 150 | | |
| Storage Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |

## Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

| Movement | NW | NW |
|---|---|---|
| Directions Served | L | R |
| Maximum Queue (ft) | 47 | 74 |
| Average Queue (ft) | 13 | 4 |
| 95th Queue (ft) | 38 | 30 |
| Link Distance (ft) | | 1717 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | 85 | |
| Storage Blk Time (%) | | 0 |
| Queuing Penalty (veh) | | 0 |

## Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

| Movement | EB | EB | NB | SB |
|---|---|---|---|---|
| Directions Served | LT | R | LTR | LTR |
| Maximum Queue (ft) | 100 | 73 | 75 | 25 |
| Average Queue (ft) | 48 | 9 | 4 | 2 |
| 95th Queue (ft) | 79 | 42 | 29 | 14 |
| Link Distance (ft) | 2392 | | 3449 | 1087 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | | 100 | | |
| Storage Blk Time (%) | 0 | | | |
| Queuing Penalty (veh) | 0 | | | |

## Network Summary

Network wide Queuing Penalty: 90

## Intersection: 1: Orange Avenue & North Avenue

| Movement | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | UL | T | T | R | L | T | R | L | T |
| Maximum Queue (ft) | 180 | 272 | 15 | 140 | 106 | 107 | 21 | 44 | 167 | 63 | 174 | 301 |
| Average Queue (ft) | 67 | 139 | 2 | 72 | 41 | 51 | 6 | 6 | 42 | 20 | 122 | 52 |
| 95th Queue (ft) | 123 | 246 | 11 | 122 | 97 | 105 | 20 | 25 | 96 | 46 | 175 | 200 |
| Link Distance (ft) | | 2623 | 2623 | | 289 | 289 | | | 1968 | | | 3215 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | | 185 | | | 100 | 150 | | 150 | 100 | |
| Storage Blk Time (%) | | 0 | | | | 1 | | | 1 | | 27 | |
| Queuing Penalty (veh) | | 0 | | | | 0 | | | 0 | | 25 | |

## Intersection: 1: Orange Avenue & North Avenue

| Movement | SB |
|---|---|
| Directions Served | R |
| Maximum Queue (ft) | 245 |
| Average Queue (ft) | 38 |
| 95th Queue (ft) | 131 |
| Link Distance (ft) | |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | 130 |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

## Intersection: 2: North Avenue & Driveway

| Movement | EB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (ft) | 119 | 75 |
| Average Queue (ft) | 17 | 31 |
| 95th Queue (ft) | 78 | 59 |
| Link Distance (ft) | 289 | 137 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

| Movement | EB | EB | WB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | T | R | LT | L | R | L | T | R |
| Maximum Queue (ft) | 483 | 260 | 413 | 56 | 75 | 209 | 155 | 164 |
| Average Queue (ft) | 322 | 181 | 163 | 5 | 25 | 83 | 50 | 15 |
| 95th Queue (ft) | 500 | 377 | 314 | 24 | 63 | 166 | 112 | 88 |
| Link Distance (ft) | 469 | | 730 | 2393 | | | 1060 | |
| Upstream Blk Time (%) | 2 | | | | | | | |
| Queuing Penalty (veh) | 13 | | | | | | | |
| Storage Bay Dist (ft) | | 60 | | | 45 | 300 | | 300 |
| Storage Blk Time (%) | 46 | | | 0 | 11 | | | |
| Queuing Penalty (veh) | 95 | | | 0 | 1 | | | |

## Intersection: 4: North Avenue & SR 99 NB On-Ramp

| Movement | EB | WB |
|---|---|---|
| Directions Served | LT | R |
| Maximum Queue (ft) | 412 | 89 |
| Average Queue (ft) | 117 | 12 |
| 95th Queue (ft) | 279 | 50 |
| Link Distance (ft) | 730 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | 85 |
| Storage Blk Time (%) | | 0 |
| Queuing Penalty (veh) | | 0 |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | EB | EB | EB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | L | TR | L | T | R | L | T | R |
| Maximum Queue (ft) | 66 | 337 | 21 | 106 | 338 | 288 | 184 | 80 | 87 | 76 | 138 |
| Average Queue (ft) | 16 | 137 | 1 | 47 | 110 | 163 | 31 | 23 | 20 | 12 | 33 |
| 95th Queue (ft) | 50 | 269 | 7 | 105 | 229 | 254 | 90 | 53 | 62 | 40 | 93 |
| Link Distance (ft) | | 473 | | | 5162 | | 609 | | | 1319 | |
| Upstream Blk Time (%) | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | |
| Storage Bay Dist (ft) | 150 | | 100 | 150 | | 180 | | 180 | 155 | | 355 |
| Storage Blk Time (%) | | 13 | | | 3 | 8 | 0 | | | | |
| Queuing Penalty (veh) | | 2 | | | 1 | 7 | 0 | | | | |

## Intersection: 6: Chestnut Ave & North Ave

| Movement | EB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | LTR | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 318 | 177 | 151 | 164 | 236 | 96 | 222 | 191 |
| Average Queue (ft) | 132 | 80 | 53 | 71 | 86 | 30 | 57 | 68 |
| 95th Queue (ft) | 261 | 137 | 106 | 126 | 156 | 76 | 117 | 129 |
| Link Distance (ft) | 5162 | 4573 | | 5304 | 5304 | | 5297 | 5297 |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (ft) | | | 245 | | | 150 | | |
| Storage Blk Time (%) | | | | | | | 0 | |
| Queuing Penalty (veh) | | | | | | | 0 | |

## Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

| Movement | NW | NW |
|---|---|---|
| Directions Served | L | R |
| Maximum Queue (ft) | 63 | 74 |
| Average Queue (ft) | 13 | 4 |
| 95th Queue (ft) | 45 | 31 |
| Link Distance (ft) | | 1717 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | 85 | |
| Storage Blk Time (%) | | 0 |
| Queuing Penalty (veh) | | 0 |

## Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

| Movement | EB | EB | NB | SB |
|---|---|---|---|---|
| Directions Served | LT | R | LTR | LTR |
| Maximum Queue (ft) | 103 | 37 | 80 | 74 |
| Average Queue (ft) | 48 | 1 | 4 | 6 |
| 95th Queue (ft) | 84 | 12 | 28 | 32 |
| Link Distance (ft) | 2393 | | 3449 | 1084 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | | 100 | | |
| Storage Blk Time (%) | 0 | | | |
| Queuing Penalty (veh) | 0 | | | |

## Network Summary

Network wide Queuing Penalty: 146

# Appendix G: Near Term plus Project Traffic Conditions

| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 67 | 193 | 134 | 49 | 735 | 609 | 49 | 31 | 93 | 194 | 215 | 339 |
| Future Volume (vph) | 67 | 193 | 134 | 49 | 735 | 609 | 49 | 31 | 93 | 194 | 215 | 339 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1543 | 1624 | 1380 | | 1543 | 3085 | 1380 | 1543 | 1624 | 1380 | 1543 | 1624 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1543 | 1624 | 1380 | | 1543 | 3085 | 1380 | 1543 | 1624 | 1380 | 1543 | 1624 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 74 | 214 | 149 | 54 | 817 | 677 | 54 | 34 | 103 | 216 | 239 | 377 |
| RTOR Reduction (vph) | 0 | 0 | 118 | 0 | 0 | 0 | 34 | 0 | 0 | 164 | 0 | 0 |
| Lane Group Flow (vph) | 74 | 214 | 31 | 0 | 871 | 677 | 20 | 34 | 103 | 52 | 239 | 377 |
| Turn Type | Prot | NA | Perm | Prot | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |
| Protected Phases | 7 | 4 | | 3 | 3 | 8 | | 5 | 2 | | 1 | 6 |
| Permitted Phases | | | 4 | | | | 8 | | | 2 | | |
| Actuated Green, G (s) | 7.4 | 18.7 | 18.7 | | 21.8 | 33.1 | 33.1 | 2.5 | 21.5 | 21.5 | 7.1 | 26.1 |
| Effective Green, g (s) | 7.4 | 18.7 | 18.7 | | 21.8 | 33.1 | 33.1 | 2.5 | 21.5 | 21.5 | 7.1 | 26.1 |
| Actuated g/C Ratio | 0.08 | 0.21 | 0.21 | | 0.25 | 0.37 | 0.37 | 0.03 | 0.24 | 0.24 | 0.08 | 0.29 |
| Clearance Time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 128 | 341 | 290 | | 378 | 1149 | 514 | 43 | 393 | 334 | 123 | 477 |
| v/s Ratio Prot | 0.05 | 0.13 | | | c0.56 | c0.22 | | 0.02 | 0.06 | | c0.15 | c0.23 |
| v/s Ratio Perm | | | 0.02 | | | | 0.01 | | | 0.04 | | |
| v/c Ratio | 0.58 | 0.63 | 0.11 | | 2.30 | 0.59 | 0.04 | 0.79 | 0.26 | 0.16 | 1.94 | 0.79 |
| Uniform Delay, d1 | 39.2 | 31.9 | 28.3 | | 33.5 | 22.4 | 17.7 | 42.9 | 27.2 | 26.5 | 40.9 | 28.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 6.2 | 3.6 | 0.2 | | 595.2 | 0.8 | 0.0 | 63.1 | 0.4 | 0.2 | 452.7 | 8.7 |
| Delay (s) | 45.4 | 35.5 | 28.5 | | 628.7 | 23.2 | 17.8 | 106.0 | 27.6 | 26.7 | 493.5 | 37.5 |
| Level of Service | D | D | C | | F | C | B | F | C | C | F | D |
| Approach Delay (s) | | 34.8 | | | | 352.2 | | | 34.6 | | | 170.6 |
| Approach LOS | | C | | | | F | | | C | | | F |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 228.1 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.38 | | |
| Actuated Cycle Length (s) | 88.8 | Sum of lost time (s) | 19.7 |
| Intersection Capacity Utilization | 93.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 166 |
| Future Volume (vph) | 166 |
| Ideal Flow (vphpl) | 1900 |
| Total Lost time (s) | 6.0 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1380 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1380 |
| Peak-hour factor, PHF | 0.90 |
| Adj. Flow (vph) | 184 |
| RTOR Reduction (vph) | 100 |
| Lane Group Flow (vph) | 84 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 6 |
| Actuated Green, G (s) | 26.1 |
| Effective Green, g (s) | 26.1 |
| Actuated g/C Ratio | 0.29 |
| Clearance Time (s) | 6.0 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 405 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.06 |
| v/c Ratio | 0.21 |
| Uniform Delay, d1 | 23.6 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.3 |
| Delay (s) | 23.8 |
| Level of Service | C |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.7 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑↑↱ | | | ↱ |
| Traffic Vol, veh/h | 0 | 651 | 1366 | 280 | 0 | 76 |
| Future Vol, veh/h | 0 | 651 | 1366 | 280 | 0 | 76 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 17 | 17 | 3 | 0 | 3 |
| Mvmt Flow | 0 | 708 | 1485 | 304 | 0 | 83 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 895 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.945 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.3285 |
| Pot Cap-1 Maneuver | 0 | - | - | - | 0 | 283 |
| Stage 1 | 0 | - | - | - | 0 | - |
| Stage 2 | 0 | - | - | - | 0 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 283 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 22.9 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|
| Capacity (veh/h) | - | - | - | 283 |
| HCM Lane V/C Ratio | - | - | - | 0.292 |
| HCM Control Delay (s) | - | - | - | 22.9 |
| HCM Lane LOS | - | - | - | C |
| HCM 95th %tile Q(veh) | - | - | - | 1.2 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 536.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 549 | 108 | 4 | 842 | 0 | 13 | 0 | 17 | 153 | 220 | 783 |
| Future Vol, veh/h | 0 | 549 | 108 | 4 | 842 | 0 | 13 | 0 | 17 | 153 | 220 | 783 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Free | - | - | None | - | - | None | - | - | Yield |
| Storage Length | - | - | 60 | - | - | - | 0 | - | 45 | - | - | 55 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 | 90 |
| Heavy Vehicles, % | 0 | 27 | 27 | 27 | 27 | 0 | 27 | 0 | 27 | 27 | 27 | 27 |
| Mvmt Flow | 0 | 610 | 120 | 4 | 936 | 0 | 14 | 0 | 19 | 170 | 244 | 870 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 610 | 0 | 0 | 1677 | - | 610 | 1554 | 1554 | 936 |
| Stage 1 | - | - | - | - | - | - | 610 | - | - | 944 | 944 | - |
| Stage 2 | - | - | - | - | - | - | 1067 | - | - | 610 | 610 | - |
| Critical Hdwy | - | - | - | 4.37 | - | - | 7.37 | - | 6.47 | 7.37 | 6.77 | 6.47 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.37 | - | - | 6.37 | 5.77 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.37 | - | - | 6.37 | 5.77 | - |
| Follow-up Hdwy | - | - | - | 2.443 | - | - | 3.743 | - | 3.543 | 3.743 | 4.243 | 3.543 |
| Pot Cap-1 Maneuver | 0 | - | 0 | 858 | - | 0 | 66 | 0 | 452 | ~ 81 | ~ 100 | ~ 289 |
| Stage 1 | 0 | - | 0 | - | - | 0 | 441 | 0 | - | 284 | 310 | - |
| Stage 2 | 0 | - | 0 | - | - | 0 | 241 | 0 | - | 441 | 448 | - |
| Platoon blocked, % | | - | | | - | | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | 858 | - | - | - | - | 452 | ~ 77 | ~ 99 | ~ 289 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | ~ 77 | ~ 99 | - |
| Stage 1 | - | - | - | - | - | - | 441 | - | - | 284 | 307 | - |
| Stage 2 | - | - | - | - | - | - | - | - | - | 423 | 448 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | | $ 1198.7 |
| HCM LOS | | | - | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | WBL | WBT | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | 452 | - | 858 | - | 89 | 289 |
| HCM Lane V/C Ratio | - | 0.042 | - | 0.005 | - | 4.657 | 3.01 |
| HCM Control Delay (s) | - | 13.3 | - | 9.2 | $ | $ 1740.9 | $ 940.4 |
| HCM Lane LOS | - | B | - | A | A | F | F |
| HCM 95th %tile Q(veh) | - | 0.1 | - | 0 | - | 44.2 | 76.9 |

**Notes**

~: Volume exceeds capacity  $: Delay exceeds 300s  +: Computation Not Defined  *: All major volume in platoon

| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 307 | 397 | 864 | 108 | 0 | 0 |
| Future Volume (Veh/h) | 307 | 397 | 864 | 108 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Hourly flow rate (vph) | 327 | 422 | 919 | 115 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 947 | | | |
| pX, platoon unblocked | 0.66 | | | | 0.66 | 0.66 |
| vC, conflicting volume | 919 | | | | 1995 | 919 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 624 | | | | 2246 | 624 |
| tC, single (s) | 4.4 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.5 | | | | 3.5 | 3.3 |
| p0 queue free % | 40 | | | | 100 | 100 |
| cM capacity (veh/h) | 549 | | | | 13 | 324 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 749 | 919 | 115 |
| Volume Left | 327 | 0 | 0 |
| Volume Right | 0 | 0 | 115 |
| cSH | 549 | 1700 | 1700 |
| Volume to Capacity | 0.60 | 0.54 | 0.07 |
| Queue Length 95th (ft) | 97 | 0 | 0 |
| Control Delay (s) | 18.3 | 0.0 | 0.0 |
| Lane LOS | C | | |
| Approach Delay (s) | 18.3 | 0.0 | |
| Approach LOS | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.7 | | |
| Intersection Capacity Utilization | 90.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 39 | 345 | 24 | 28 | 719 | 27 | 326 | 37 | 49 | 9 | 35 | 30 |
| Future Volume (veh/h) | 39 | 345 | 24 | 28 | 719 | 27 | 326 | 37 | 49 | 9 | 35 | 30 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1439 | 1439 | 1439 | 1439 | 1439 | 1900 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 |
| Adj Flow Rate, veh/h | 48 | 426 | 30 | 35 | 888 | 33 | 402 | 46 | 60 | 11 | 43 | 37 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Percent Heavy Veh, % | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Cap, veh/h | 56 | 621 | 528 | 46 | 585 | 22 | 325 | 412 | 351 | 19 | 91 | 77 |
| Arrive On Green | 0.04 | 0.43 | 0.43 | 0.03 | 0.42 | 0.42 | 0.24 | 0.29 | 0.29 | 0.01 | 0.06 | 0.06 |
| Sat Flow, veh/h | 1371 | 1439 | 1223 | 1371 | 1379 | 51 | 1371 | 1439 | 1223 | 1371 | 1439 | 1223 |
| Grp Volume(v), veh/h | 48 | 426 | 30 | 35 | 0 | 921 | 402 | 46 | 60 | 11 | 43 | 37 |
| Grp Sat Flow(s),veh/h/ln | 1371 | 1439 | 1223 | 1371 | 0 | 1430 | 1371 | 1439 | 1223 | 1371 | 1439 | 1223 |
| Q Serve(g_s), s | 2.8 | 19.0 | 1.1 | 2.0 | 0.0 | 33.7 | 18.8 | 1.9 | 2.9 | 0.6 | 2.3 | 2.3 |
| Cycle Q Clear(g_c), s | 2.8 | 19.0 | 1.1 | 2.0 | 0.0 | 33.7 | 18.8 | 1.9 | 2.9 | 0.6 | 2.3 | 2.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.04 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 56 | 621 | 528 | 46 | 0 | 607 | 325 | 412 | 351 | 19 | 91 | 77 |
| V/C Ratio(X) | 0.85 | 0.69 | 0.06 | 0.75 | 0.00 | 1.52 | 1.24 | 0.11 | 0.17 | 0.59 | 0.47 | 0.48 |
| Avail Cap(c_a), veh/h | 152 | 621 | 528 | 152 | 0 | 607 | 325 | 785 | 667 | 183 | 636 | 541 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 37.8 | 18.2 | 13.1 | 38.0 | 0.0 | 22.8 | 30.3 | 20.9 | 21.2 | 38.9 | 35.9 | 35.9 |
| Incr Delay (d2), s/veh | 27.9 | 3.1 | 0.0 | 21.5 | 0.0 | 241.0 | 130.9 | 0.1 | 0.2 | 26.5 | 3.8 | 4.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.5 | 8.0 | 0.4 | 1.0 | 0.0 | 53.8 | 18.8 | 0.8 | 1.0 | 0.4 | 1.0 | 0.9 |
| LnGrp Delay(d),s/veh | 65.7 | 21.3 | 13.2 | 59.5 | 0.0 | 263.8 | 161.1 | 21.0 | 21.5 | 65.4 | 39.7 | 40.4 |
| LnGrp LOS | E | C | B | E | | F | F | C | C | E | D | D |
| Approach Vol, veh/h | | 504 | | | 956 | | | 508 | | | 91 | |
| Approach Delay, s/veh | | 25.1 | | | 256.3 | | | 132.0 | | | 43.1 | |
| Approach LOS | | C | | | F | | | F | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 5.3 | 27.6 | 6.9 | 39.6 | 23.0 | 9.9 | 7.5 | 39.0 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | * 4.2 | 5.3 | * 4.2 | 4.9 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 11 | 43.3 | * 8.8 | 33.7 | * 19 | 35.1 | * 8.8 | 33.7 |
| Max Q Clear Time (g_c+I1), s | 2.6 | 4.9 | 4.0 | 21.0 | 20.8 | 4.3 | 4.8 | 35.7 |
| Green Ext Time (p_c), s | 0.0 | 0.8 | 0.0 | 7.2 | 0.0 | 0.8 | 0.0 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 159.6 |
| HCM 2010 LOS | F |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 81 | 131 | 73 | 66 | 236 | 40 | 111 | 236 | 42 | 63 | 310 | 205 |
| Future Volume (veh/h) | 81 | 131 | 73 | 66 | 236 | 40 | 111 | 236 | 42 | 63 | 310 | 205 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1652 | 1900 | 1900 | 1652 | 1900 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 96 | 156 | 87 | 79 | 281 | 48 | 132 | 281 | 50 | 75 | 369 | 244 |
| Adj No. of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 | 0.84 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 180 | 255 | 122 | 148 | 396 | 62 | 166 | 907 | 159 | 93 | 534 | 348 |
| Arrive On Green | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.10 | 0.32 | 0.32 | 0.06 | 0.28 | 0.28 |
| Sat Flow, veh/h | 280 | 721 | 346 | 206 | 1120 | 177 | 1675 | 2843 | 499 | 1675 | 1942 | 1265 |
| Grp Volume(v), veh/h | 339 | 0 | 0 | 408 | 0 | 0 | 132 | 164 | 167 | 75 | 317 | 296 |
| Grp Sat Flow(s),veh/h/ln | 1346 | 0 | 0 | 1502 | 0 | 0 | 1675 | 1671 | 1671 | 1675 | 1671 | 1536 |
| Q Serve(g_s), s | 0.0 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 4.4 | 4.2 | 4.3 | 2.5 | 9.6 | 9.9 |
| Cycle Q Clear(g_c), s | 12.0 | 0.0 | 0.0 | 13.3 | 0.0 | 0.0 | 4.4 | 4.2 | 4.3 | 2.5 | 9.6 | 9.9 |
| Prop In Lane | 0.28 | | 0.26 | 0.19 | | 0.12 | 1.00 | | 0.30 | 1.00 | | 0.82 |
| Lane Grp Cap(c), veh/h | 557 | 0 | 0 | 606 | 0 | 0 | 166 | 533 | 533 | 93 | 460 | 423 |
| V/C Ratio(X) | 0.61 | 0.00 | 0.00 | 0.67 | 0.00 | 0.00 | 0.79 | 0.31 | 0.31 | 0.81 | 0.69 | 0.70 |
| Avail Cap(c_a), veh/h | 852 | 0 | 0 | 933 | 0 | 0 | 259 | 763 | 763 | 171 | 667 | 613 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 15.5 | 0.0 | 0.0 | 16.1 | 0.0 | 0.0 | 25.1 | 14.6 | 14.7 | 26.6 | 18.5 | 18.5 |
| Incr Delay (d2), s/veh | 1.1 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 8.8 | 0.3 | 0.3 | 15.1 | 1.8 | 2.1 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 4.7 | 0.0 | 0.0 | 5.8 | 0.0 | 0.0 | 2.4 | 2.0 | 2.0 | 1.6 | 4.6 | 4.4 |
| LnGrp Delay(d),s/veh | 16.6 | 0.0 | 0.0 | 17.4 | 0.0 | 0.0 | 33.9 | 15.0 | 15.0 | 41.7 | 20.3 | 20.7 |
| LnGrp LOS | B | | | B | | | C | B | B | D | C | C |
| Approach Vol, veh/h | | 339 | | | 408 | | | 463 | | | 688 | |
| Approach Delay, s/veh | | 16.6 | | | 17.4 | | | 20.4 | | | 22.8 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 7.3 | 24.2 | | 25.4 | 9.8 | 21.7 | | 25.4 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | | 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | * 5.8 | * 26 | | 33.0 | * 8.8 | 22.7 | | 33.0 |
| Max Q Clear Time (g_c+I1), s | 4.5 | 6.3 | | 14.0 | 6.4 | 11.9 | | 15.3 |
| Green Ext Time (p_c), s | 0.0 | 5.0 | | 4.5 | 0.1 | 3.8 | | 4.3 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 19.9 |
| HCM 2010 LOS | B |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.7 |

| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
|---|---|---|---|---|---|---|
| Lane Configurations | ↑ | | | ↑ | ↖ | ↗ |
| Traffic Vol, veh/h | 135 | 0 | 0 | 165 | 39 | 247 |
| Future Vol, veh/h | 135 | 0 | 0 | 165 | 39 | 247 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | Yield |
| Storage Length | - | - | - | - | 85 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 89 | 89 | 89 | 89 | 89 | 89 |
| Heavy Vehicles, % | 33 | 0 | 0 | 33 | 33 | 33 |
| Mvmt Flow | 152 | 0 | 0 | 185 | 44 | 278 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | - | - | - | 337 | 152 |
| Stage 1 | - | - | - | - | 152 | - |
| Stage 2 | - | - | - | - | 185 | - |
| Critical Hdwy | - | - | - | - | 6.73 | 6.53 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.73 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.73 | - |
| Follow-up Hdwy | - | - | - | - | 3.797 | 3.597 |
| Pot Cap-1 Maneuver | - | 0 | 0 | - | 600 | 819 |
| Stage 1 | - | 0 | 0 | - | 806 | - |
| Stage 2 | - | 0 | 0 | - | 777 | - |
| Platoon blocked, % | - | | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | 600 | 819 |
| Mov Cap-2 Maneuver | - | - | - | - | 600 | - |
| Stage 1 | - | - | - | - | 806 | - |
| Stage 2 | - | - | - | - | 777 | - |

| Approach | NB | SB | NW |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 11.6 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBT | NWLn1 | NWLn2 | SBT |
|---|---|---|---|---|
| Capacity (veh/h) | - | 600 | 819 | - |
| HCM Lane V/C Ratio | - | 0.073 | 0.339 | - |
| HCM Control Delay (s) | - | 11.5 | 11.6 | - |
| HCM Lane LOS | - | B | B | - |
| HCM 95th %tile Q(veh) | - | 0.2 | 1.5 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 6.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 5 | 109 | 201 | 0 | 0 | 0 | 20 | 140 | 28 | 40 | 151 | 13 |
| Future Vol, veh/h | 5 | 109 | 201 | 0 | 0 | 0 | 20 | 140 | 28 | 40 | 151 | 13 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Stop | - | - | None | - | - | Free | - | - | Free |
| Storage Length | - | - | 100 | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 16979 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 | 50 |
| Mvmt Flow | 5 | 118 | 218 | 0 | 0 | 0 | 22 | 152 | 30 | 43 | 164 | 14 |

| Major/Minor | Minor2 | | | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 447 | 447 | 164 | | | 164 | 0 | - | 152 | 0 | 0 |
| Stage 1 | 251 | 251 | - | | | - | - | - | - | - | - |
| Stage 2 | 196 | 196 | - | | | - | - | - | - | - | - |
| Critical Hdwy | 6.9 | 7 | 6.7 | | | 4.6 | - | - | 4.6 | - | - |
| Critical Hdwy Stg 1 | 5.9 | 6 | - | | | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.9 | 6 | - | | | - | - | - | - | - | - |
| Follow-up Hdwy | 3.95 | 4.45 | 3.75 | | | 2.65 | - | - | 2.65 | - | - |
| Pot Cap-1 Maneuver | 490 | 442 | 770 | | | 1169 | - | 0 | 1182 | - | 0 |
| Stage 1 | 691 | 619 | - | | | - | - | 0 | - | - | 0 |
| Stage 2 | 735 | 657 | - | | | - | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | | | | - | | | - | |
| Mov Cap-1 Maneuver | 461 | 0 | 770 | | | 1169 | - | - | 1182 | - | - |
| Mov Cap-2 Maneuver | 461 | 0 | - | | | - | - | - | - | - | - |
| Stage 1 | 663 | 0 | - | | | - | - | - | - | - | - |
| Stage 2 | 720 | 0 | - | | | - | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 13 | 1 | 1.7 |
| HCM LOS | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1169 | - | 461 | 770 | 1182 | - |
| HCM Lane V/C Ratio | 0.019 | - | 0.269 | 0.284 | 0.037 | - |
| HCM Control Delay (s) | 8.1 | 0 | 15.7 | 11.5 | 8.2 | 0 |
| HCM Lane LOS | A | A | C | B | A | A |
| HCM 95th %tile Q(veh) | 0.1 | - | 1.1 | 1.2 | 0.1 | - |

| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 158 | 560 | 45 | 42 | 248 | 295 | 19 | 144 | 383 | 778 | 215 | 111 |
| Future Volume (vph) | 158 | 560 | 45 | 42 | 248 | 295 | 19 | 144 | 383 | 778 | 215 | 111 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1556 | 1638 | 1392 | | 1556 | 3112 | 1392 | 1556 | 1638 | 1392 | 1556 | 1638 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1556 | 1638 | 1392 | | 1556 | 3112 | 1392 | 1556 | 1638 | 1392 | 1556 | 1638 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 178 | 629 | 51 | 47 | 279 | 331 | 21 | 162 | 430 | 874 | 242 | 125 |
| RTOR Reduction (vph) | 0 | 0 | 35 | 0 | 0 | 0 | 14 | 0 | 0 | 95 | 0 | 0 |
| Lane Group Flow (vph) | 178 | 629 | 16 | 0 | 326 | 331 | 7 | 162 | 430 | 779 | 242 | 125 |
| Heavy Vehicles (%) | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% |
| Turn Type | Prot | NA | Perm | Prot | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |
| Protected Phases | 7 | 4 | | 3 | 3 | 8 | | 5 | 2 | | 1 | 6 |
| Permitted Phases | | | 4 | | | | 8 | | | 2 | | |
| Actuated Green, G (s) | 9.8 | 35.7 | 35.7 | | 9.8 | 35.7 | 35.7 | 14.2 | 42.0 | 42.0 | 7.8 | 35.6 |
| Effective Green, g (s) | 9.8 | 35.7 | 35.7 | | 9.8 | 35.7 | 35.7 | 14.2 | 42.0 | 42.0 | 7.8 | 35.6 |
| Actuated g/C Ratio | 0.09 | 0.31 | 0.31 | | 0.09 | 0.31 | 0.31 | 0.12 | 0.37 | 0.37 | 0.07 | 0.31 |
| Clearance Time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 132 | 508 | 432 | | 132 | 966 | 432 | 192 | 598 | 508 | 105 | 507 |
| v/s Ratio Prot | 0.11 | c0.38 | | | c0.21 | 0.11 | | 0.10 | 0.26 | | c0.16 | 0.08 |
| v/s Ratio Perm | | | 0.01 | | | | 0.00 | | | c0.56 | | |
| v/c Ratio | 1.35 | 1.24 | 0.04 | | 2.47 | 0.34 | 0.02 | 0.84 | 0.72 | 1.53 | 2.30 | 0.25 |
| Uniform Delay, d1 | 52.6 | 39.6 | 27.7 | | 52.6 | 30.6 | 27.5 | 49.3 | 31.4 | 36.5 | 53.6 | 29.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 198.5 | 123.2 | 0.0 | | 683.5 | 0.2 | 0.0 | 27.2 | 4.1 | 250.2 | 616.0 | 0.3 |
| Delay (s) | 251.1 | 162.9 | 27.7 | | 736.1 | 30.8 | 27.5 | 76.5 | 35.6 | 286.7 | 669.6 | 29.9 |
| Level of Service | F | F | C | | F | C | C | E | D | F | F | C |
| Approach Delay (s) | | 173.1 | | | | 369.8 | | | 189.8 | | | 358.9 |
| Approach LOS | | F | | | | F | | | F | | | F |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 243.7 | HCM 2000 Level of Service | F |
| HCM 2000 Volume to Capacity ratio | 1.58 | | |
| Actuated Cycle Length (s) | 115.0 | Sum of lost time (s) | 19.7 |
| Intersection Capacity Utilization | 122.0% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 92 |
| Future Volume (vph) | 92 |
| Ideal Flow (vphpl) | 1900 |
| Total Lost time (s) | 6.0 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1392 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1392 |
| Peak-hour factor, PHF | 0.89 |
| Adj. Flow (vph) | 103 |
| RTOR Reduction (vph) | 71 |
| Lane Group Flow (vph) | 32 |
| Heavy Vehicles (%) | 16% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 6 |
| Actuated Green, G (s) | 35.6 |
| Effective Green, g (s) | 35.6 |
| Actuated g/C Ratio | 0.31 |
| Clearance Time (s) | 6.0 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 430 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.02 |
| v/c Ratio | 0.07 |
| Uniform Delay, d1 | 28.1 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.1 |
| Delay (s) | 28.1 |
| Level of Service | C |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.3 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑ | ↑↱ | | | ↱ |
| Traffic Vol, veh/h | 0 | 1595 | 537 | 228 | 0 | 67 |
| Future Vol, veh/h | 0 | 1595 | 537 | 228 | 0 | 67 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 17 | 17 | 3 | 17 | 3 |
| Mvmt Flow | 0 | 1734 | 584 | 248 | 0 | 73 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 416 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.945 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.3285 |
| Pot Cap-1 Maneuver | 0 | - | - | - | 0 | 584 |
| Stage 1 | 0 | - | - | - | 0 | - |
| Stage 2 | 0 | - | - | - | 0 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 584 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 12 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|
| Capacity (veh/h) | - | - | - | 584 |
| HCM Lane V/C Ratio | - | - | - | 0.125 |
| HCM Control Delay (s) | - | - | - | 12 |
| HCM Lane LOS | - | - | - | B |
| HCM 95th %tile Q(veh) | - | - | - | 0.4 |

| Intersection | |
|---|---|
| Int Delay, s/veh | 145.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 0 | 1390 | 238 | 4 | 404 | 0 | 12 | 0 | 28 | 101 | 86 | 366 |
| Future Vol, veh/h | 0 | 1390 | 238 | 4 | 404 | 0 | 12 | 0 | 28 | 101 | 86 | 366 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | Free | - | - | None | - | - | None | - | - | Yield |
| Storage Length | - | - | 60 | - | - | - | 0 | - | 45 | - | - | 55 |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 0 | 22 | 22 | 22 | 22 | 0 | 22 | 0 | 22 | 22 | 22 | 22 |
| Mvmt Flow | 0 | 1479 | 253 | 4 | 430 | 0 | 13 | 0 | 30 | 107 | 91 | 389 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 1479 | 0 | 0 | 1963 | - | 1479 | 1917 | 1917 | 430 |
| Stage 1 | - | - | - | - | - | - | 1479 | - | - | 438 | 438 | - |
| Stage 2 | - | - | - | - | - | - | 484 | - | - | 1479 | 1479 | - |
| Critical Hdwy | - | - | - | 4.32 | - | - | 7.32 | - | 6.42 | 7.32 | 6.72 | 6.42 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.32 | - | - | 6.32 | 5.72 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.32 | - | - | 6.32 | 5.72 | - |
| Follow-up Hdwy | - | - | - | 2.398 | - | - | 3.698 | - | 3.498 | 3.698 | 4.198 | 3.498 |
| Pot Cap-1 Maneuver | 0 | - | 0 | 400 | - | 0 | 42 | 0 | 139 | ~ 45 | ~ 60 | 585 |
| Stage 1 | 0 | - | 0 | - | - | 0 | 141 | 0 | - | 560 | 546 | - |
| Stage 2 | 0 | - | 0 | - | - | 0 | 528 | 0 | - | 141 | 172 | - |
| Platoon blocked, % | | - | | | - | | | | | | | |
| Mov Cap-1 Maneuver | - | - | - | 400 | - | - | - | - | 139 | ~ 35 | ~ 59 | 585 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | - | - | - | ~ 35 | ~ 59 | - |
| Stage 1 | - | - | - | - | - | - | 141 | - | - | 560 | 539 | - |
| Stage 2 | - | - | - | - | - | - | 145 | - | - | 111 | 172 | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 0 | 0.1 | | $ 630.7 |
| HCM LOS | | | - | F |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBT | WBL | WBT | SBLn1 | SBLn2 |
|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | - | 139 | - | 400 | - | 43 | 585 |
| HCM Lane V/C Ratio | - | 0.214 | - | 0.011 | - | 4.626 | 0.666 |
| HCM Control Delay (s) | - | 37.8 | - | 14.1 | $ | 1821.2 | 22.5 |
| HCM Lane LOS | - | E | - | B | A | F | C |
| HCM 95th %tile Q(veh) | - | 0.8 | - | 0 | - | 22.8 | 5 |

Notes

~: Volume exceeds capacity  $: Delay exceeds 300s  +: Computation Not Defined  *: All major volume in platoon

| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 762 | 782 | 412 | 403 | 0 | 0 |
| Future Volume (Veh/h) | 762 | 782 | 412 | 403 | 0 | 0 |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 837 | 859 | 453 | 443 | 0 | 0 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | None | | | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 947 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 453 | | | | 2986 | 453 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 453 | | | | 2986 | 453 |
| tC, single (s) | 4.2 | | | | 6.5 | 6.4 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.3 | | | | 3.6 | 3.4 |
| p0 queue free % | 20 | | | | 100 | 100 |
| cM capacity (veh/h) | 1042 | | | | 3 | 581 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 |
|---|---|---|---|
| Volume Total | 1696 | 453 | 443 |
| Volume Left | 837 | 0 | 0 |
| Volume Right | 0 | 0 | 443 |
| cSH | 1042 | 1700 | 1700 |
| Volume to Capacity | 0.80 | 0.27 | 0.26 |
| Queue Length 95th (ft) | 226 | 0 | 0 |
| Control Delay (s) | 20.8 | 0.0 | 0.0 |
| Lane LOS | C | | |
| Approach Delay (s) | 20.8 | 0.0 | |
| Approach LOS | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 13.6 | | |
| Intersection Capacity Utilization | 114.9% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 36 | 736 | 5 | 39 | 480 | 10 | 347 | 66 | 127 | 13 | 17 | 34 |
| Future Volume (veh/h) | 36 | 736 | 5 | 39 | 480 | 10 | 347 | 66 | 127 | 13 | 17 | 34 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1557 | 1557 | 1557 | 1557 | 1557 | 1900 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 |
| Adj Flow Rate, veh/h | 40 | 809 | 5 | 43 | 527 | 11 | 381 | 73 | 140 | 14 | 19 | 37 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 0 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| Cap, veh/h | 53 | 784 | 666 | 55 | 768 | 16 | 271 | 355 | 302 | 24 | 97 | 82 |
| Arrive On Green | 0.04 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 | 0.18 | 0.23 | 0.23 | 0.02 | 0.06 | 0.06 |
| Sat Flow, veh/h | 1483 | 1557 | 1324 | 1483 | 1520 | 32 | 1483 | 1557 | 1324 | 1483 | 1557 | 1324 |
| Grp Volume(v), veh/h | 40 | 809 | 5 | 43 | 0 | 538 | 381 | 73 | 140 | 14 | 19 | 37 |
| Grp Sat Flow(s),veh/h/ln | 1483 | 1557 | 1324 | 1483 | 0 | 1552 | 1483 | 1557 | 1324 | 1483 | 1557 | 1324 |
| Q Serve(g_s), s | 2.3 | 43.6 | 0.2 | 2.5 | 0.0 | 22.7 | 15.8 | 3.3 | 7.9 | 0.8 | 1.0 | 2.3 |
| Cycle Q Clear(g_c), s | 2.3 | 43.6 | 0.2 | 2.5 | 0.0 | 22.7 | 15.8 | 3.3 | 7.9 | 0.8 | 1.0 | 2.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 0.02 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 53 | 784 | 666 | 55 | 0 | 784 | 271 | 355 | 302 | 24 | 97 | 82 |
| V/C Ratio(X) | 0.76 | 1.03 | 0.01 | 0.78 | 0.00 | 0.69 | 1.41 | 0.21 | 0.46 | 0.57 | 0.20 | 0.45 |
| Avail Cap(c_a), veh/h | 89 | 784 | 666 | 86 | 0 | 784 | 271 | 770 | 654 | 86 | 575 | 489 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 41.4 | 21.5 | 10.7 | 41.3 | 0.0 | 16.2 | 35.4 | 27.1 | 28.9 | 42.3 | 38.6 | 39.2 |
| Incr Delay (d2), s/veh | 19.3 | 40.6 | 0.0 | 20.9 | 0.0 | 2.5 | 204.2 | 0.3 | 1.1 | 19.3 | 1.0 | 3.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.2 | 27.3 | 0.1 | 1.3 | 0.0 | 10.3 | 21.7 | 1.4 | 3.0 | 0.5 | 0.5 | 0.9 |
| LnGrp Delay(d),s/veh | 60.7 | 62.1 | 10.7 | 62.2 | 0.0 | 18.8 | 239.6 | 27.4 | 30.0 | 61.6 | 39.5 | 43.0 |
| LnGrp LOS | E | F | B | E | | B | F | C | C | E | D | D |
| Approach Vol, veh/h | | 854 | | | 581 | | | 594 | | | 70 | |
| Approach Delay, s/veh | | 61.7 | | | 22.0 | | | 164.1 | | | 45.8 | |
| Approach LOS | | E | | | C | | | F | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 5.6 | 24.6 | 7.4 | 48.9 | 20.0 | 10.3 | 7.3 | 49.0 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | * 4.2 | 5.3 | * 4.2 | 4.9 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 5 | 42.8 | * 5 | 43.6 | * 16 | 32.0 | * 5.2 | 43.4 |
| Max Q Clear Time (g_c+I1), s | 2.8 | 9.9 | 4.5 | 45.6 | 17.8 | 4.3 | 4.3 | 24.7 |
| Green Ext Time (p_c), s | 0.0 | 1.1 | 0.0 | 0.0 | 0.0 | 1.0 | 0.0 | 8.6 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 79.2 |
| HCM 2010 LOS | E |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 139 | 239 | 130 | 52 | 146 | 76 | 81 | 514 | 51 | 29 | 333 | 98 |
| Future Volume (veh/h) | 139 | 239 | 130 | 52 | 146 | 76 | 81 | 514 | 51 | 29 | 333 | 98 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1652 | 1900 | 1900 | 1652 | 1900 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 145 | 249 | 135 | 54 | 152 | 79 | 84 | 535 | 53 | 30 | 347 | 102 |
| Adj No. of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 221 | 322 | 159 | 150 | 371 | 171 | 106 | 837 | 83 | 42 | 600 | 174 |
| Arrive On Green | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.06 | 0.27 | 0.27 | 0.03 | 0.23 | 0.23 |
| Sat Flow, veh/h | 326 | 737 | 364 | 175 | 848 | 392 | 1675 | 3073 | 304 | 1675 | 2558 | 741 |
| Grp Volume(v), veh/h | 529 | 0 | 0 | 285 | 0 | 0 | 84 | 290 | 298 | 30 | 225 | 224 |
| Grp Sat Flow(s),veh/h/ln | 1427 | 0 | 0 | 1416 | 0 | 0 | 1675 | 1671 | 1706 | 1675 | 1671 | 1628 |
| Q Serve(g_s), s | 11.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 2.9 | 8.9 | 9.0 | 1.0 | 6.9 | 7.1 |
| Cycle Q Clear(g_c), s | 18.8 | 0.0 | 0.0 | 7.3 | 0.0 | 0.0 | 2.9 | 8.9 | 9.0 | 1.0 | 6.9 | 7.1 |
| Prop In Lane | 0.27 | | 0.26 | 0.19 | | 0.28 | 1.00 | | 0.18 | 1.00 | | 0.46 |
| Lane Grp Cap(c), veh/h | 702 | 0 | 0 | 692 | 0 | 0 | 106 | 455 | 465 | 42 | 392 | 382 |
| V/C Ratio(X) | 0.75 | 0.00 | 0.00 | 0.41 | 0.00 | 0.00 | 0.80 | 0.64 | 0.64 | 0.71 | 0.57 | 0.59 |
| Avail Cap(c_a), veh/h | 916 | 0 | 0 | 907 | 0 | 0 | 281 | 753 | 769 | 109 | 573 | 558 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 14.2 | 0.0 | 0.0 | 11.3 | 0.0 | 0.0 | 27.0 | 18.7 | 18.7 | 28.2 | 19.8 | 19.8 |
| Incr Delay (d2), s/veh | 2.6 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 12.6 | 1.5 | 1.5 | 20.0 | 1.3 | 1.4 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 8.0 | 0.0 | 0.0 | 3.2 | 0.0 | 0.0 | 1.7 | 4.3 | 4.4 | 0.7 | 3.3 | 3.3 |
| LnGrp Delay(d),s/veh | 16.8 | 0.0 | 0.0 | 11.7 | 0.0 | 0.0 | 39.6 | 20.2 | 20.2 | 48.2 | 21.1 | 21.3 |
| LnGrp LOS | B | | | B | | | D | C | C | D | C | C |
| Approach Vol, veh/h | | 529 | | | 285 | | | 672 | | | 479 | |
| Approach Delay, s/veh | | 16.8 | | | 11.7 | | | 22.6 | | | 22.9 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 5.7 | 21.9 | | 30.8 | 7.9 | 19.7 | | 30.8 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | | 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | * 3.8 | * 26 | | 34.7 | * 9.8 | 20.0 | | 34.7 |
| Max Q Clear Time (g_c+I1), s | 3.0 | 11.0 | | 20.8 | 4.9 | 9.1 | | 9.3 |
| Green Ext Time (p_c), s | 0.0 | 4.9 | | 4.4 | 0.1 | 4.1 | | 5.6 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 19.5 |
| HCM 2010 LOS | B |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 3.4 |

| Movement | NBT | NBR | SBL | SBT | NWL | NWR |
|---|---|---|---|---|---|---|
| Lane Configurations | ↑ | | | ↑ | ↖ | ↗ |
| Traffic Vol, veh/h | 349 | 0 | 0 | 82 | 13 | 147 |
| Future Vol, veh/h | 349 | 0 | 0 | 82 | 13 | 147 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | Yield |
| Storage Length | - | - | - | - | 85 | 0 |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 93 | 93 | 93 |
| Heavy Vehicles, % | 24 | 0 | 0 | 24 | 24 | 24 |
| Mvmt Flow | 375 | 0 | 0 | 88 | 14 | 158 |

| Major/Minor | Major1 | | Major2 | | Minor1 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 0 | - | - | - | 463 | 375 |
| Stage 1 | - | - | - | - | 375 | - |
| Stage 2 | - | - | - | - | 88 | - |
| Critical Hdwy | - | - | - | - | 6.64 | 6.44 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.64 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.64 | - |
| Follow-up Hdwy | - | - | - | - | 3.716 | 3.516 |
| Pot Cap-1 Maneuver | - | 0 | 0 | - | 519 | 625 |
| Stage 1 | - | 0 | 0 | - | 649 | - |
| Stage 2 | - | 0 | 0 | - | 883 | - |
| Platoon blocked, % | - | | | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | 519 | 625 |
| Mov Cap-2 Maneuver | - | - | - | - | 519 | - |
| Stage 1 | - | - | - | - | 649 | - |
| Stage 2 | - | - | - | - | 883 | - |

| Approach | NB | SB | NW |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 12.7 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBT | NWLn1 | NWLn2 | SBT |
|---|---|---|---|---|
| Capacity (veh/h) | - | 519 | 625 | - |
| HCM Lane V/C Ratio | - | 0.027 | 0.253 | - |
| HCM Control Delay (s) | - | 12.1 | 12.7 | - |
| HCM Lane LOS | - | B | B | - |
| HCM 95th %tile Q(veh) | - | 0.1 | 1 | - |

| Intersection | |
|---|---|
| Int Delay, s/veh | 7.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 5 | 217 | 97 | 0 | 0 | 0 | 12 | 330 | 33 | 34 | 59 | 3 |
| Future Vol, veh/h | 5 | 217 | 97 | 0 | 0 | 0 | 12 | 330 | 33 | 34 | 59 | 3 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | Stop | - | - | None | - | - | Free | - | - | Free |
| Storage Length | - | - | 100 | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 16979 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 22 | 22 | 22 | 0 | 0 | 0 | 22 | 22 | 22 | 22 | 22 | 22 |
| Mvmt Flow | 5 | 231 | 103 | 0 | 0 | 0 | 13 | 351 | 35 | 36 | 63 | 3 |

| Major/Minor | Minor2 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 512 | 512 | 63 | 63 | 0 | - | 351 | 0 | 0 |
| Stage 1 | 135 | 135 | - | - | - | - | - | - | - |
| Stage 2 | 377 | 377 | - | - | - | - | - | - | - |
| Critical Hdwy | 6.62 | 6.72 | 6.42 | 4.32 | - | - | 4.32 | - | - |
| Critical Hdwy Stg 1 | 5.62 | 5.72 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.62 | 5.72 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.698 | 4.198 | 3.498 | 2.398 | - | - | 2.398 | - | - |
| Pot Cap-1 Maneuver | 488 | 438 | 948 | 1421 | - | 0 | 1105 | - | 0 |
| Stage 1 | 844 | 748 | - | - | - | 0 | - | - | 0 |
| Stage 2 | 652 | 582 | - | - | - | 0 | - | - | 0 |
| Platoon blocked, % | | | | | - | | | - | |
| Mov Cap-1 Maneuver | 466 | 0 | 948 | 1421 | - | - | 1105 | - | - |
| Mov Cap-2 Maneuver | 466 | 0 | - | - | - | - | - | - | - |
| Stage 1 | 815 | 0 | - | - | - | - | - | - | - |
| Stage 2 | 645 | 0 | - | - | - | - | - | - | - |

| Approach | EB | NB | SB |
|---|---|---|---|
| HCM Control Delay, s | 17 | 0.3 | 3.1 |
| HCM LOS | C | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | EBLn2 | SBL | SBT |
|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1421 | - | 466 | 948 | 1105 | - |
| HCM Lane V/C Ratio | 0.009 | - | 0.507 | 0.109 | 0.033 | - |
| HCM Control Delay (s) | 7.6 | 0 | 20.4 | 9.3 | 8.4 | 0 |
| HCM Lane LOS | A | A | C | A | A | A |
| HCM 95th %tile Q(veh) | 0 | - | 2.8 | 0.4 | 0.1 | - |

| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 67 | 193 | 134 | 49 | 735 | 609 | 49 | 31 | 93 | 194 | 215 | 339 |
| Future Volume (vph) | 67 | 193 | 134 | 49 | 735 | 609 | 49 | 31 | 93 | 194 | 215 | 339 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | | 0.97 | 0.95 | 1.00 | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1543 | 3085 | 1380 | | 2993 | 3085 | 1380 | 1543 | 1624 | 2429 | 1543 | 1624 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1543 | 3085 | 1380 | | 2993 | 3085 | 1380 | 1543 | 1624 | 2429 | 1543 | 1624 |
| Peak-hour factor, PHF | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 74 | 214 | 149 | 54 | 817 | 677 | 54 | 34 | 103 | 216 | 239 | 377 |
| RTOR Reduction (vph) | 0 | 0 | 125 | 0 | 0 | 0 | 34 | 0 | 0 | 181 | 0 | 0 |
| Lane Group Flow (vph) | 74 | 214 | 24 | 0 | 871 | 677 | 20 | 34 | 103 | 35 | 239 | 377 |
| Turn Type | Prot | NA | Perm | Prot | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |
| Protected Phases | 7 | 4 | | 3 | 3 | 8 | | 5 | 2 | | 1 | 6 |
| Permitted Phases | | | 4 | | | | 8 | | | 2 | | |
| Actuated Green, G (s) | 7.8 | 14.2 | 14.2 | | 26.1 | 32.5 | 32.5 | 2.5 | 14.4 | 14.4 | 14.8 | 26.7 |
| Effective Green, g (s) | 7.8 | 14.2 | 14.2 | | 26.1 | 32.5 | 32.5 | 2.5 | 14.4 | 14.4 | 14.8 | 26.7 |
| Actuated g/C Ratio | 0.09 | 0.16 | 0.16 | | 0.29 | 0.36 | 0.36 | 0.03 | 0.16 | 0.16 | 0.17 | 0.30 |
| Clearance Time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 134 | 491 | 219 | | 875 | 1124 | 502 | 43 | 262 | 392 | 256 | 486 |
| v/s Ratio Prot | c0.05 | 0.07 | | | c0.29 | c0.22 | | c0.02 | 0.06 | | c0.15 | c0.23 |
| v/s Ratio Perm | | | 0.02 | | | | 0.01 | | | 0.01 | | |
| v/c Ratio | 0.55 | 0.44 | 0.11 | | 1.00 | 0.60 | 0.04 | 0.79 | 0.39 | 0.09 | 0.93 | 0.78 |
| Uniform Delay, d1 | 39.0 | 33.9 | 32.1 | | 31.5 | 23.1 | 18.3 | 43.1 | 33.5 | 31.8 | 36.7 | 28.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.9 | 0.6 | 0.2 | | 29.1 | 0.9 | 0.0 | 63.1 | 1.0 | 0.1 | 38.4 | 7.6 |
| Delay (s) | 43.9 | 34.5 | 32.3 | | 60.6 | 24.0 | 18.3 | 106.2 | 34.5 | 31.9 | 75.1 | 36.1 |
| Level of Service | D | C | C | | E | C | B | F | C | C | E | D |
| Approach Delay (s) | | 35.3 | | | | 43.7 | | | 39.8 | | | 44.9 |
| Approach LOS | | D | | | | D | | | D | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 42.4 | HCM 2000 Level of Service | D |
| HCM 2000 Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 89.2 | Sum of lost time (s) | 19.7 |
| Intersection Capacity Utilization | 65.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 166 |
| Future Volume (vph) | 166 |
| Ideal Flow (vphpl) | 1900 |
| Total Lost time (s) | 6.0 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1380 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1380 |
| Peak-hour factor, PHF | 0.90 |
| Adj. Flow (vph) | 184 |
| RTOR Reduction (vph) | 102 |
| Lane Group Flow (vph) | 82 |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 6 |
| Actuated Green, G (s) | 26.7 |
| Effective Green, g (s) | 26.7 |
| Actuated g/C Ratio | 0.30 |
| Clearance Time (s) | 6.0 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 413 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.06 |
| v/c Ratio | 0.20 |
| Uniform Delay, d1 | 23.3 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.2 |
| Delay (s) | 23.5 |
| Level of Service | C |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 549 | 108 | 4 | 842 | 0 | 13 | 0 | 17 | 153 | 220 | 783 |
| Future Volume (veh/h) | 0 | 549 | 108 | 4 | 842 | 0 | 13 | 0 | 17 | 153 | 220 | 783 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 0 | 1496 | 1496 | 1496 | 1496 | 0 | 1496 | 0 | 1496 | 1496 | 1496 | 1496 |
| Adj Flow Rate, veh/h | 0 | 610 | 120 | 4 | 936 | 0 | 14 | 0 | 19 | 170 | 244 | 870 |
| Adj No. of Lanes | 0 | 2 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 1 | 2 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Percent Heavy Veh, % | 0 | 27 | 27 | 27 | 27 | 0 | 27 | 0 | 27 | 27 | 27 | 27 |
| Cap, veh/h | 0 | 786 | 352 | 95 | 1178 | 0 | 24 | 0 | 0 | 619 | 541 | 809 |
| Arrive On Green | 0.00 | 0.28 | 0.28 | 0.07 | 0.41 | 0.00 | 0.02 | 0.00 | 0.00 | 0.43 | 0.36 | 0.36 |
| Sat Flow, veh/h | 0 | 2917 | 1272 | 1425 | 2917 | 0 | 1425 | 14 | | 1425 | 1496 | 2238 |
| Grp Volume(v), veh/h | 0 | 610 | 120 | 4 | 936 | 0 | 14 | 56.8 | | 170 | 244 | 870 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1421 | 1272 | 1425 | 1421 | 0 | 1425 | E | | 1425 | 1496 | 1119 |
| Q Serve(g_s), s | 0.0 | 14.8 | 4.5 | 0.2 | 21.5 | 0.0 | 0.7 | | | 5.7 | 9.3 | 27.0 |
| Cycle Q Clear(g_c), s | 0.0 | 14.8 | 4.5 | 0.2 | 21.5 | 0.0 | 0.7 | | | 5.7 | 9.3 | 27.0 |
| Prop In Lane | 0.00 | | 1.00 | 1.00 | | 0.00 | 1.00 | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 786 | 352 | 95 | 1178 | 0 | 24 | | | 619 | 541 | 809 |
| V/C Ratio(X) | 0.00 | 0.78 | 0.34 | 0.04 | 0.79 | 0.00 | 0.58 | | | 0.27 | 0.45 | 1.08 |
| Avail Cap(c_a), veh/h | 0 | 1267 | 567 | 95 | 1617 | 0 | 95 | | | 619 | 541 | 809 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 0.0 | 24.9 | 13.9 | 32.6 | 19.1 | 0.0 | 36.5 | | | 13.6 | 18.2 | 23.9 |
| Incr Delay (d2), s/veh | 0.0 | 1.7 | 0.6 | 0.2 | 2.0 | 0.0 | 20.3 | | | 0.2 | 0.6 | 54.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 5.9 | 1.8 | 0.1 | 8.6 | 0.0 | 0.4 | | | 2.3 | 3.9 | 14.3 |
| LnGrp Delay(d),s/veh | 0.0 | 26.6 | 14.4 | 32.8 | 21.1 | 0.0 | 56.8 | | | 13.8 | 18.8 | 77.9 |
| LnGrp LOS | | C | B | C | C | | E | | | B | B | F |
| Approach Vol, veh/h | | 730 | | | 940 | | | | | | 1284 | |
| Approach Delay, s/veh | | 24.6 | | | 21.1 | | | | | | 58.2 | |
| Approach LOS | | C | | | C | | | | | | E | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | | 3 | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 38.5 | | 10.3 | 26.0 | 5.5 | 33.0 | | 36.3 |
| Change Period (Y+Rc), s | 6.0 | | 5.3 | * 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | 19.9 | | 5.0 | * 33 | * 5 | 27.0 | | 42.5 |
| Max Q Clear Time (g_c+I1), s | 7.7 | | 2.2 | 16.8 | 2.7 | 29.0 | | 23.5 |
| Green Ext Time (p_c), s | 4.6 | | 1.6 | 3.9 | 0.0 | 0.0 | | 6.1 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 38.2 |
| HCM 2010 LOS | D |

Notes

| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 307 | 397 | 864 | 108 | 0 | 0 |
| Future Volume (veh/h) | 307 | 397 | 864 | 108 | 0 | 0 |
| Number | 7 | 4 | 8 | 18 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1439 | 1439 | 1439 | 1439 | | |
| Adj Flow Rate, veh/h | 327 | 422 | 919 | 0 | | |
| Adj No. of Lanes | 2 | 2 | 2 | 1 | | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | | |
| Percent Heavy Veh, % | 32 | 32 | 32 | 32 | | |
| Cap, veh/h | 485 | 2268 | 1399 | 626 | | |
| Arrive On Green | 0.18 | 0.83 | 0.51 | 0.00 | | |
| Sat Flow, veh/h | 2659 | 2807 | 2807 | 1223 | | |
| Grp Volume(v), veh/h | 327 | 422 | 919 | 0 | | |
| Grp Sat Flow(s),veh/h/ln | 1330 | 1367 | 1367 | 1223 | | |
| Q Serve(g_s), s | 3.6 | 1.0 | 7.7 | 0.0 | | |
| Cycle Q Clear(g_c), s | 3.6 | 1.0 | 7.7 | 0.0 | | |
| Prop In Lane | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 485 | 2268 | 1399 | 626 | | |
| V/C Ratio(X) | 0.67 | 0.19 | 0.66 | 0.00 | | |
| Avail Cap(c_a), veh/h | 839 | 3057 | 1823 | 816 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 0.00 | | |
| Uniform Delay (d), s/veh | 11.8 | 0.5 | 5.6 | 0.0 | | |
| Incr Delay (d2), s/veh | 1.6 | 0.0 | 0.5 | 0.0 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 1.4 | 0.4 | 2.9 | 0.0 | | |
| LnGrp Delay(d),s/veh | 13.5 | 0.6 | 6.1 | 0.0 | | |
| LnGrp LOS | B | A | A | | | |
| Approach Vol, veh/h | | 749 | 919 | | | |
| Approach Delay, s/veh | | 6.2 | 6.1 | | | |
| Approach LOS | | A | A | | | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | | | 4 | | | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | | | 31.0 | | | 9.9 | 21.2 |
| Change Period (Y+Rc), s | | | | 5.3 | | | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | | | | 34.7 | | | * 9.8 | 20.7 |
| Max Q Clear Time (g_c+I1), s | | | | 3.0 | | | 5.6 | 9.7 |
| Green Ext Time (p_c), s | | | | 10.8 | | | 0.5 | 6.2 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 6.2 |
| HCM 2010 LOS | A |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 39 | 345 | 24 | 28 | 719 | 27 | 326 | 37 | 49 | 9 | 35 | 30 |
| Future Volume (veh/h) | 39 | 345 | 24 | 28 | 719 | 27 | 326 | 37 | 49 | 9 | 35 | 30 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1439 | 1439 | 1900 | 1439 | 1439 | 1900 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 |
| Adj Flow Rate, veh/h | 48 | 426 | 30 | 35 | 888 | 33 | 402 | 46 | 60 | 11 | 43 | 37 |
| Adj No. of Lanes | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 | 0.81 |
| Percent Heavy Veh, % | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Cap, veh/h | 62 | 578 | 41 | 278 | 1071 | 40 | 496 | 358 | 305 | 19 | 110 | 94 |
| Arrive On Green | 0.05 | 0.22 | 0.22 | 0.20 | 0.40 | 0.40 | 0.19 | 0.25 | 0.25 | 0.01 | 0.08 | 0.08 |
| Sat Flow, veh/h | 1371 | 2593 | 182 | 1371 | 2689 | 100 | 2659 | 1439 | 1223 | 1371 | 1439 | 1223 |
| Grp Volume(v), veh/h | 48 | 224 | 232 | 35 | 452 | 469 | 402 | 46 | 60 | 11 | 43 | 37 |
| Grp Sat Flow(s),veh/h/ln | 1371 | 1367 | 1407 | 1371 | 1367 | 1422 | 1330 | 1439 | 1223 | 1371 | 1439 | 1223 |
| Q Serve(g_s), s | 2.2 | 9.6 | 9.7 | 1.3 | 18.8 | 18.8 | 9.2 | 1.6 | 1.3 | 0.5 | 1.8 | 1.8 |
| Cycle Q Clear(g_c), s | 2.2 | 9.6 | 9.7 | 1.3 | 18.8 | 18.8 | 9.2 | 1.6 | 1.3 | 0.5 | 1.8 | 1.8 |
| Prop In Lane | 1.00 | | 0.13 | 1.00 | | 0.07 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 62 | 305 | 314 | 278 | 545 | 566 | 496 | 358 | 305 | 19 | 110 | 94 |
| V/C Ratio(X) | 0.78 | 0.73 | 0.74 | 0.13 | 0.83 | 0.83 | 0.81 | 0.13 | 0.20 | 0.58 | 0.39 | 0.40 |
| Avail Cap(c_a), veh/h | 110 | 700 | 720 | 278 | 728 | 757 | 655 | 968 | 823 | 108 | 727 | 618 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.9 | 22.9 | 22.9 | 20.6 | 17.1 | 17.1 | 24.7 | 18.4 | 5.0 | 31.0 | 27.8 | 27.8 |
| Incr Delay (d2), s/veh | 18.6 | 3.4 | 3.4 | 0.2 | 6.0 | 5.8 | 5.8 | 0.2 | 0.3 | 24.7 | 2.2 | 2.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.1 | 3.9 | 4.0 | 0.5 | 7.9 | 8.2 | 3.7 | 0.6 | 0.8 | 0.3 | 0.8 | 0.7 |
| LnGrp Delay(d),s/veh | 48.5 | 26.3 | 26.3 | 20.8 | 23.1 | 22.9 | 30.4 | 18.6 | 5.3 | 55.8 | 30.1 | 30.5 |
| LnGrp LOS | D | C | C | C | C | C | C | B | A | E | C | C |
| Approach Vol, veh/h | | 504 | | | 956 | | | 508 | | | 91 | |
| Approach Delay, s/veh | | 28.4 | | | 22.9 | | | 26.4 | | | 33.4 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 5.1 | 20.7 | 18.2 | 19.4 | 16.0 | 9.7 | 7.1 | 30.5 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | 5.3 | * 5.3 | * 4.2 | 4.9 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 5 | 42.6 | 6.4 | * 32 | * 16 | 32.0 | * 5.1 | 33.7 |
| Max Q Clear Time (g_c+I1), s | 2.5 | 3.6 | 3.3 | 11.7 | 11.2 | 3.8 | 4.2 | 20.8 |
| Green Ext Time (p_c), s | 0.0 | 0.8 | 1.6 | 2.4 | 0.6 | 0.8 | 0.0 | 4.4 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 25.6 |
| HCM 2010 LOS | C |

Notes

| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 158 | 560 | 45 | 42 | 248 | 295 | 19 | 144 | 383 | 778 | 215 | 111 |
| Future Volume (vph) | 158 | 560 | 45 | 42 | 248 | 295 | 19 | 144 | 383 | 778 | 215 | 111 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | | 0.97 | 0.95 | 1.00 | 1.00 | 1.00 | 0.88 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1556 | 3112 | 1392 | | 3019 | 3112 | 1392 | 1556 | 1638 | 2450 | 1556 | 1638 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1556 | 3112 | 1392 | | 3019 | 3112 | 1392 | 1556 | 1638 | 2450 | 1556 | 1638 |
| Peak-hour factor, PHF | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 | 0.89 |
| Adj. Flow (vph) | 178 | 629 | 51 | 47 | 279 | 331 | 21 | 162 | 430 | 874 | 242 | 125 |
| RTOR Reduction (vph) | 0 | 0 | 37 | 0 | 0 | 0 | 15 | 0 | 0 | 242 | 0 | 0 |
| Lane Group Flow (vph) | 178 | 629 | 14 | 0 | 326 | 331 | 6 | 162 | 430 | 633 | 242 | 125 |
| Heavy Vehicles (%) | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% |
| Turn Type | Prot | NA | Perm | Prot | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |
| Protected Phases | 7 | 4 | | 3 | 3 | 8 | | 5 | 2 | | 1 | 6 |
| Permitted Phases | | | 4 | | | | 8 | | | 2 | | |
| Actuated Green, G (s) | 14.9 | 30.8 | 30.8 | | 15.7 | 31.6 | 31.6 | 32.5 | 35.5 | 35.5 | 14.3 | 17.3 |
| Effective Green, g (s) | 14.9 | 30.8 | 30.8 | | 15.7 | 31.6 | 31.6 | 32.5 | 35.5 | 35.5 | 14.3 | 17.3 |
| Actuated g/C Ratio | 0.13 | 0.27 | 0.27 | | 0.14 | 0.27 | 0.27 | 0.28 | 0.31 | 0.31 | 0.12 | 0.15 |
| Clearance Time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 199 | 826 | 369 | | 408 | 847 | 379 | 435 | 501 | 749 | 191 | 244 |
| v/s Ratio Prot | c0.11 | c0.20 | | | c0.11 | 0.11 | | 0.10 | c0.26 | | c0.16 | 0.08 |
| v/s Ratio Perm | | | 0.01 | | | | 0.00 | | | 0.26 | | |
| v/c Ratio | 0.89 | 0.76 | 0.04 | | 0.80 | 0.39 | 0.02 | 0.37 | 0.86 | 0.84 | 1.27 | 0.51 |
| Uniform Delay, d1 | 49.8 | 39.2 | 31.6 | | 48.6 | 34.4 | 30.8 | 33.6 | 37.9 | 37.7 | 50.9 | 45.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 0.99 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 36.0 | 6.6 | 0.2 | | 10.1 | 1.3 | 0.1 | 0.5 | 13.6 | 8.6 | 154.9 | 1.8 |
| Delay (s) | 85.7 | 45.8 | 31.8 | | 58.0 | 35.8 | 30.9 | 34.1 | 51.5 | 46.3 | 205.7 | 47.3 |
| Level of Service | F | D | C | | E | D | C | C | D | D | F | D |
| Approach Delay (s) | | 53.2 | | | | 46.4 | | | 46.5 | | | 127.8 |
| Approach LOS | | D | | | | D | | | D | | | F |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 59.1 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 116.0 | Sum of lost time (s) | 19.7 |
| Intersection Capacity Utilization | 79.3% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 92 |
| Future Volume (vph) | 92 |
| Ideal Flow (vphpl) | 1900 |
| Total Lost time (s) | 6.0 |
| Lane Util. Factor | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1392 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1392 |
| Peak-hour factor, PHF | 0.89 |
| Adj. Flow (vph) | 103 |
| RTOR Reduction (vph) | 88 |
| Lane Group Flow (vph) | 15 |
| Heavy Vehicles (%) | 16% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 6 |
| Actuated Green, G (s) | 17.3 |
| Effective Green, g (s) | 17.3 |
| Actuated g/C Ratio | 0.15 |
| Clearance Time (s) | 6.0 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 207 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.01 |
| v/c Ratio | 0.07 |
| Uniform Delay, d1 | 42.5 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.2 |
| Delay (s) | 42.6 |
| Level of Service | D |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 1390 | 238 | 4 | 404 | 0 | 12 | 0 | 28 | 101 | 86 | 366 |
| Future Volume (veh/h) | 0 | 1390 | 238 | 4 | 404 | 0 | 12 | 0 | 28 | 101 | 86 | 366 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 0 | 1557 | 1557 | 1557 | 1557 | 0 | 1557 | 0 | 1557 | 1557 | 1557 | 1557 |
| Adj Flow Rate, veh/h | 0 | 1479 | 253 | 4 | 430 | 0 | 13 | 0 | 30 | 107 | 91 | 389 |
| Adj No. of Lanes | 0 | 2 | 1 | 1 | 2 | 0 | 1 | 0 | 1 | 1 | 1 | 2 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 0 | 22 | 22 | 22 | 22 | 0 | 22 | 0 | 22 | 22 | 22 | 22 |
| Cap, veh/h | 0 | 1852 | 828 | 107 | 2172 | 0 | 21 | 0 | 0 | 287 | 223 | 333 |
| Arrive On Green | 0.00 | 0.83 | 0.83 | 0.14 | 1.00 | 0.00 | 0.01 | 0.00 | 0.00 | 0.19 | 0.14 | 0.14 |
| Sat Flow, veh/h | 0 | 3037 | 1324 | 1483 | 3037 | 0 | 1483 | 13 | | 1483 | 1557 | 2330 |
| Grp Volume(v), veh/h | 0 | 1479 | 253 | 4 | 430 | 0 | 13 | 81.7 | | 107 | 91 | 389 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1480 | 1324 | 1483 | 1480 | 0 | 1483 | F | | 1483 | 1557 | 1165 |
| Q Serve(g_s), s | 0.0 | 29.0 | 5.0 | 0.3 | 0.0 | 0.0 | 1.0 | | | 7.3 | 6.2 | 16.6 |
| Cycle Q Clear(g_c), s | 0.0 | 29.0 | 5.0 | 0.3 | 0.0 | 0.0 | 1.0 | | | 7.3 | 6.2 | 16.6 |
| Prop In Lane | 0.00 | | 1.00 | 1.00 | | 0.00 | 1.00 | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 1852 | 828 | 107 | 2172 | 0 | 21 | | | 287 | 223 | 333 |
| V/C Ratio(X) | 0.00 | 0.80 | 0.31 | 0.04 | 0.20 | 0.00 | 0.61 | | | 0.37 | 0.41 | 1.17 |
| Avail Cap(c_a), veh/h | 0 | 1852 | 828 | 107 | 2172 | 0 | 64 | | | 287 | 223 | 333 |
| HCM Platoon Ratio | 1.00 | 1.33 | 1.33 | 2.00 | 2.00 | 1.00 | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 1.00 | 1.00 | 0.97 | 0.97 | 0.00 | 1.00 | | | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 0.0 | 6.1 | 4.1 | 46.2 | 0.0 | 0.0 | 56.8 | | | 40.6 | 45.2 | 49.7 |
| Incr Delay (d2), s/veh | 0.0 | 3.7 | 1.0 | 0.1 | 0.2 | 0.0 | 24.9 | | | 0.8 | 1.2 | 102.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 12.2 | 2.0 | 0.1 | 0.1 | 0.0 | 0.6 | | | 3.0 | 2.7 | 10.1 |
| LnGrp Delay(d),s/veh | 0.0 | 9.8 | 5.0 | 46.4 | 0.2 | 0.0 | 81.7 | | | 41.4 | 46.4 | 152.3 |
| LnGrp LOS | | A | A | D | A | | F | | | D | D | F |
| Approach Vol, veh/h | | 1732 | | | 434 | | | | | | 587 | |
| Approach Delay, s/veh | | 9.1 | | | 0.6 | | | | | | 115.7 | |
| Approach LOS | | A | | | A | | | | | | F | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | | 3 | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 26.7 | | 12.5 | 76.8 | 5.9 | 20.8 | | 89.3 |
| Change Period (Y+Rc), s | 4.2 | | * 4.2 | * 4.2 | * 4.2 | * 4.2 | | * 4.2 |
| Max Green Setting (Gmax), s | 14.8 | | * 5 | * 73 | * 5 | * 17 | | * 82 |
| Max Q Clear Time (g_c+I1), s | 9.3 | | 2.3 | 31.0 | 3.0 | 18.6 | | 2.0 |
| Green Ext Time (p_c), s | 0.1 | | 0.7 | 16.6 | 0.0 | 0.0 | | 2.9 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 30.7 |
| HCM 2010 LOS | C |

Notes

| Movement | EBL | EBT | WBT | WBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 762 | 782 | 412 | 403 | 0 | 0 |
| Future Volume (veh/h) | 762 | 782 | 412 | 403 | 0 | 0 |
| Number | 7 | 4 | 8 | 18 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1652 | 1652 | 1652 | 1652 | | |
| Adj Flow Rate, veh/h | 837 | 859 | 453 | 443 | | |
| Adj No. of Lanes | 2 | 2 | 2 | 1 | | |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | | |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | | |
| Cap, veh/h | 922 | 2852 | 1677 | 750 | | |
| Arrive On Green | 0.60 | 1.00 | 0.53 | 0.53 | | |
| Sat Flow, veh/h | 3053 | 3222 | 3222 | 1404 | | |
| Grp Volume(v), veh/h | 837 | 859 | 453 | 443 | | |
| Grp Sat Flow(s),veh/h/ln | 1526 | 1570 | 1570 | 1404 | | |
| Q Serve(g_s), s | 13.9 | 0.0 | 4.6 | 12.4 | | |
| Cycle Q Clear(g_c), s | 13.9 | 0.0 | 4.6 | 12.4 | | |
| Prop In Lane | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 922 | 2852 | 1677 | 750 | | |
| V/C Ratio(X) | 0.91 | 0.30 | 0.27 | 0.59 | | |
| Avail Cap(c_a), veh/h | 1095 | 2852 | 1677 | 750 | | |
| HCM Platoon Ratio | 2.00 | 2.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 0.62 | 0.62 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 10.8 | 0.0 | 7.4 | 9.2 | | |
| Incr Delay (d2), s/veh | 6.5 | 0.2 | 0.4 | 3.4 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 6.4 | 0.1 | 2.0 | 5.5 | | |
| LnGrp Delay(d),s/veh | 17.3 | 0.2 | 7.8 | 12.6 | | |
| LnGrp LOS | B | A | A | B | | |
| Approach Vol, veh/h | | 1696 | 896 | | | |
| Approach Delay, s/veh | | 8.6 | 10.1 | | | |
| Approach LOS | | A | B | | | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | | | 4 | | | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | | | 58.0 | | | 21.7 | 36.3 |
| Change Period (Y+Rc), s | | | | 5.3 | | | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | | | | 52.7 | | | * 21 | 27.7 |
| Max Q Clear Time (g_c+I1), s | | | | 2.0 | | | 15.9 | 14.4 |
| Green Ext Time (p_c), s | | | | 14.6 | | | 1.6 | 8.0 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 9.1 |
| HCM 2010 LOS | A |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 36 | 736 | 5 | 39 | 480 | 10 | 347 | 66 | 127 | 13 | 17 | 34 |
| Future Volume (veh/h) | 36 | 736 | 5 | 39 | 480 | 10 | 347 | 66 | 127 | 13 | 17 | 34 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1557 | 1557 | 1900 | 1557 | 1557 | 1900 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 |
| Adj Flow Rate, veh/h | 40 | 809 | 5 | 43 | 527 | 11 | 381 | 73 | 140 | 14 | 19 | 37 |
| Adj No. of Lanes | 1 | 2 | 0 | 1 | 2 | 0 | 2 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 | 0.91 |
| Percent Heavy Veh, % | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| Cap, veh/h | 632 | 1844 | 11 | 51 | 624 | 13 | 433 | 277 | 235 | 23 | 67 | 57 |
| Arrive On Green | 0.43 | 0.61 | 0.61 | 0.03 | 0.21 | 0.21 | 0.15 | 0.18 | 0.18 | 0.02 | 0.04 | 0.04 |
| Sat Flow, veh/h | 1483 | 3015 | 19 | 1483 | 2964 | 62 | 2877 | 1557 | 1324 | 1483 | 1557 | 1324 |
| Grp Volume(v), veh/h | 40 | 397 | 417 | 43 | 263 | 275 | 381 | 73 | 140 | 14 | 19 | 37 |
| Grp Sat Flow(s),veh/h/ln | 1483 | 1480 | 1554 | 1483 | 1480 | 1546 | 1439 | 1557 | 1324 | 1483 | 1557 | 1324 |
| Q Serve(g_s), s | 1.8 | 16.5 | 16.5 | 3.3 | 19.8 | 19.8 | 15.0 | 4.7 | 11.3 | 1.1 | 1.4 | 1.5 |
| Cycle Q Clear(g_c), s | 1.8 | 16.5 | 16.5 | 3.3 | 19.8 | 19.8 | 15.0 | 4.7 | 11.3 | 1.1 | 1.4 | 1.5 |
| Prop In Lane | 1.00 | | 0.01 | 1.00 | | 0.04 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 632 | 905 | 951 | 51 | 312 | 326 | 433 | 277 | 235 | 23 | 67 | 57 |
| V/C Ratio(X) | 0.06 | 0.44 | 0.44 | 0.84 | 0.84 | 0.84 | 0.88 | 0.26 | 0.59 | 0.60 | 0.28 | 0.65 |
| Avail Cap(c_a), veh/h | 632 | 905 | 951 | 75 | 478 | 500 | 491 | 628 | 534 | 64 | 430 | 365 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 0.90 | 0.90 | 0.90 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 19.6 | 12.0 | 12.0 | 55.7 | 44.0 | 44.0 | 48.3 | 41.1 | 43.8 | 56.7 | 53.8 | 11.7 |
| Incr Delay (d2), s/veh | 0.0 | 1.5 | 1.5 | 36.0 | 21.6 | 20.9 | 15.4 | 0.5 | 2.4 | 22.6 | 2.3 | 11.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.8 | 7.1 | 7.5 | 1.9 | 10.0 | 10.4 | 6.9 | 2.1 | 4.3 | 0.6 | 0.6 | 0.7 |
| LnGrp Delay(d),s/veh | 19.7 | 13.5 | 13.4 | 91.7 | 65.5 | 64.9 | 63.7 | 41.6 | 46.2 | 79.3 | 56.0 | 23.4 |
| LnGrp LOS | B | B | B | F | E | E | E | D | D | E | E | C |
| Approach Vol, veh/h | | 854 | | | 581 | | | 594 | | | 70 | |
| Approach Delay, s/veh | | 13.8 | | | 67.2 | | | 56.9 | | | 43.5 | |
| Approach LOS | | B | | | E | | | E | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 6.0 | 25.5 | 8.2 | 76.2 | 21.6 | 9.9 | 54.7 | 29.7 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | * 4.2 | 5.3 | * 4.2 | 4.9 | 5.3 | * 5.3 |
| Max Green Setting (Gmax), s | * 5 | 46.8 | * 5.9 | 39.7 | * 20 | 32.0 | 8.1 | * 38 |
| Max Q Clear Time (g_c+I1), s | 3.1 | 13.3 | 5.3 | 18.5 | 17.0 | 3.5 | 3.8 | 21.8 |
| Green Ext Time (p_c), s | 0.0 | 1.1 | 0.0 | 4.8 | 0.4 | 1.1 | 1.9 | 2.6 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 41.7 |
| HCM 2010 LOS | D |

Notes

## Intersection: 1: Orange Avenue & North Avenue

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | UL | L | T | T | R | L | T | R |
| Maximum Queue (ft) | 163 | 155 | 114 | 165 | 228 | 270 | 365 | 277 | 220 | 69 | 167 | 133 |
| Average Queue (ft) | 64 | 80 | 56 | 64 | 224 | 267 | 315 | 165 | 22 | 30 | 63 | 54 |
| 95th Queue (ft) | 124 | 144 | 108 | 130 | 234 | 289 | 381 | 264 | 110 | 64 | 119 | 96 |
| Link Distance (ft) | | 2618 | 2618 | | | | 277 | 277 | | | 1956 | |
| Upstream Blk Time (%) | | | | | | 18 | 40 | 0 | | | | |
| Queuing Penalty (veh) | | | | | | 0 | 290 | 3 | | | | |
| Storage Bay Dist (ft) | 250 | | | 250 | 185 | 185 | | | 100 | 150 | | 150 |
| Storage Blk Time (%) | | | | | 33 | 55 | 1 | 18 | | | 1 | 0 |
| Queuing Penalty (veh) | | | | | 102 | 167 | 9 | 9 | | | 2 | 0 |

## Intersection: 1: Orange Avenue & North Avenue

| Movement | NB | SB | SB | SB |
|---|---|---|---|---|
| Directions Served | R | L | T | R |
| Maximum Queue (ft) | 82 | 175 | 1059 | 245 |
| Average Queue (ft) | 29 | 125 | 336 | 78 |
| 95th Queue (ft) | 60 | 212 | 773 | 207 |
| Link Distance (ft) | | | 3209 | |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | 150 | 100 | | 130 |
| Storage Blk Time (%) | | 25 | 29 | |
| Queuing Penalty (veh) | | 124 | 111 | |

## Intersection: 2: North Avenue & Driveway

| Movement | WB | WB | SB |
|---|---|---|---|
| Directions Served | T | TR | R |
| Maximum Queue (ft) | 468 | 439 | 142 |
| Average Queue (ft) | 388 | 145 | 118 |
| 95th Queue (ft) | 572 | 429 | 167 |
| Link Distance (ft) | 439 | 439 | 127 |
| Upstream Blk Time (%) | 9 | 0 | 85 |
| Queuing Penalty (veh) | 75 | 0 | 0 |
| Storage Bay Dist (ft) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | R | L | T | T | L | R | L | T | R | R |
| Maximum Queue (ft) | 310 | 254 | 114 | 8 | 501 | 365 | 106 | 65 | 191 | 1104 | 420 | 360 |
| Average Queue (ft) | 188 | 100 | 35 | 0 | 179 | 144 | 11 | 20 | 90 | 440 | 338 | 274 |
| 95th Queue (ft) | 303 | 211 | 81 | 3 | 382 | 282 | 50 | 53 | 156 | 1067 | 485 | 441 |
| Link Distance (ft) | 439 | 439 | | | 703 | 703 | 2368 | | | 1041 | | |
| Upstream Blk Time (%) | | | | | | | | | | 6 | | |
| Queuing Penalty (veh) | | | | | | | | | | 0 | | |
| Storage Bay Dist (ft) | | | 60 | 150 | | | | 45 | 300 | | 300 | 300 |
| Storage Blk Time (%) | | 15 | 2 | | 14 | | 1 | 7 | | 1 | 24 | 2 |
| Queuing Penalty (veh) | | 17 | 7 | | 1 | | 0 | 1 | | 8 | 89 | 9 |

## Intersection: 4: North Avenue & SR 99 NB On-Ramp

| Movement | EB | EB | EB | EB | WB | WB | WB |
|---|---|---|---|---|---|---|---|
| Directions Served | L | L | T | T | T | T | R |
| Maximum Queue (ft) | 160 | 199 | 23 | 42 | 179 | 201 | 83 |
| Average Queue (ft) | 69 | 106 | 1 | 1 | 86 | 81 | 7 |
| 95th Queue (ft) | 123 | 174 | 8 | 14 | 152 | 158 | 40 |
| Link Distance (ft) | | | 703 | 703 | 377 | 377 | |
| Upstream Blk Time (%) | | | | | | | |
| Queuing Penalty (veh) | | | | | | | |
| Storage Bay Dist (ft) | 250 | 250 | | | | | 85 |
| Storage Blk Time (%) | | | | | | 4 | 0 |
| Queuing Penalty (veh) | | | | | | 4 | 0 |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | L | T | R | L | T |
| Maximum Queue (ft) | 130 | 182 | 187 | 130 | 371 | 232 | 205 | 295 | 67 | 78 | 47 | 130 |
| Average Queue (ft) | 41 | 56 | 85 | 39 | 137 | 107 | 104 | 114 | 26 | 36 | 7 | 35 |
| 95th Queue (ft) | 89 | 122 | 158 | 91 | 251 | 199 | 172 | 191 | 63 | 71 | 31 | 89 |
| Link Distance (ft) | | 467 | 467 | | | | | | 609 | | | 1306 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 150 | | | 150 | | | 180 | 180 | | 180 | 155 | |
| Storage Blk Time (%) | | 0 | | 0 | 7 | | 0 | 0 | | | | |
| Queuing Penalty (veh) | | 0 | | 0 | 2 | | 0 | 0 | | | | |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | SB |
|---|---|
| Directions Served | R |
| Maximum Queue (ft) | 99 |
| Average Queue (ft) | 24 |
| 95th Queue (ft) | 68 |
| Link Distance (ft) | |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | 355 |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

## Intersection: 6: Chestnut Ave & North Ave

| Movement | EB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | LTR | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 217 | 265 | 138 | 115 | 117 | 116 | 199 | 198 |
| Average Queue (ft) | 109 | 138 | 76 | 46 | 61 | 42 | 67 | 99 |
| 95th Queue (ft) | 186 | 232 | 126 | 85 | 107 | 82 | 120 | 167 |
| Link Distance (ft) | | 4573 | | 5304 | 5304 | | 5297 | 5297 |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (ft) | | | 245 | | | 150 | | |
| Storage Blk Time (%) | | | | | | | 0 | |
| Queuing Penalty (veh) | | | | | | | 0 | |

## Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

| Movement | NW | NW |
|---|---|---|
| Directions Served | L | R |
| Maximum Queue (ft) | 55 | 236 |
| Average Queue (ft) | 26 | 41 |
| 95th Queue (ft) | 56 | 149 |
| Link Distance (ft) | | 1717 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | 85 | |
| Storage Blk Time (%) | | 4 |
| Queuing Penalty (veh) | | 2 |

## Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

| Movement | EB | EB | NB | SB |
|---|---|---|---|---|
| Directions Served | LT | R | LTR | LTR |
| Maximum Queue (ft) | 101 | 172 | 104 | 107 |
| Average Queue (ft) | 55 | 66 | 17 | 20 |
| 95th Queue (ft) | 92 | 141 | 72 | 69 |
| Link Distance (ft) | 2368 | | 3449 | 1087 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | | 100 | | |
| Storage Blk Time (%) | 0 | 3 | | |
| Queuing Penalty (veh) | 1 | 4 | | |

## Intersection: 14: North Ave

| Movement |
|---|
| Directions Served |
| Maximum Queue (ft) |
| Average Queue (ft) |
| 95th Queue (ft) |
| Link Distance (ft) |
| Upstream Blk Time (%) |
| Queuing Penalty (veh) |
| Storage Bay Dist (ft) |
| Storage Blk Time (%) |
| Queuing Penalty (veh) |

## Network Summary

Network wide Queuing Penalty: 1037

## Intersection: 1: Orange Avenue & North Avenue

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | UL | L | T | T | R | L | T | R |
| Maximum Queue (ft) | 366 | 518 | 491 | 87 | 218 | 225 | 224 | 176 | 50 | 249 | 766 | 400 |
| Average Queue (ft) | 174 | 219 | 199 | 26 | 100 | 121 | 84 | 87 | 6 | 120 | 272 | 214 |
| 95th Queue (ft) | 304 | 355 | 324 | 58 | 179 | 193 | 157 | 150 | 24 | 252 | 529 | 344 |
| Link Distance (ft) | | 2618 | 2618 | | | | 277 | 277 | | | 1956 | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | | 250 | 185 | 185 | | | 100 | 150 | | 150 |
| Storage Blk Time (%) | 1 | 4 | 3 | | 1 | 3 | 0 | 7 | | 2 | 26 | 19 |
| Queuing Penalty (veh) | 2 | 6 | 1 | | 2 | 5 | 1 | 1 | | 24 | 244 | 100 |

## Intersection: 1: Orange Avenue & North Avenue

| Movement | NB | SB | SB | SB |
|---|---|---|---|---|
| Directions Served | R | L | T | R |
| Maximum Queue (ft) | 268 | 175 | 1900 | 245 |
| Average Queue (ft) | 149 | 172 | 908 | 111 |
| 95th Queue (ft) | 256 | 185 | 1739 | 293 |
| Link Distance (ft) | | | 3209 | |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | 150 | 100 | | 130 |
| Storage Blk Time (%) | 5 | 84 | 16 | |
| Queuing Penalty (veh) | 28 | 170 | 50 | |

## Intersection: 2: North Avenue & Driveway

| Movement | SB |
|---|---|
| Directions Served | R |
| Maximum Queue (ft) | 74 |
| Average Queue (ft) | 31 |
| 95th Queue (ft) | 52 |
| Link Distance (ft) | 127 |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

## Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | R | L | T | T | L | R | L | T | R | R |
| Maximum Queue (ft) | 360 | 278 | 260 | 4 | 166 | 39 | 102 | 75 | 188 | 152 | 122 | 92 |
| Average Queue (ft) | 211 | 117 | 37 | 0 | 18 | 4 | 19 | 36 | 85 | 73 | 67 | 47 |
| 95th Queue (ft) | 335 | 237 | 119 | 2 | 81 | 22 | 63 | 71 | 149 | 134 | 110 | 80 |
| Link Distance (ft) | 439 | 439 | | | 703 | 703 | 2368 | | | 1041 | | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | | | 60 | 150 | | | | 45 | 300 | | 300 | 300 |
| Storage Blk Time (%) | | 16 | 2 | | 0 | | 3 | 27 | | | | |
| Queuing Penalty (veh) | | 38 | 11 | | 0 | | 1 | 3 | | | | |

## Intersection: 4: North Avenue & SR 99 NB On-Ramp

| Movement | EB | EB | EB | WB | WB | WB |
|---|---|---|---|---|---|---|
| Directions Served | L | L | T | T | T | R |
| Maximum Queue (ft) | 309 | 368 | 422 | 175 | 370 | 334 |
| Average Queue (ft) | 159 | 173 | 14 | 61 | 83 | 132 |
| 95th Queue (ft) | 276 | 325 | 139 | 130 | 216 | 247 |
| Link Distance (ft) | | | 703 | 372 | 372 | |
| Upstream Blk Time (%) | | | | | 0 | |
| Queuing Penalty (veh) | | | | | 1 | |
| Storage Bay Dist (ft) | 250 | 250 | | | | 85 |
| Storage Blk Time (%) | 1 | 3 | | | 3 | 12 |
| Queuing Penalty (veh) | 4 | 12 | | | 13 | 26 |

## Intersection: 5: Cedar Avenue & North Avenue

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | NB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | TR | L | T | TR | L | L | T | R | L | T |
| Maximum Queue (ft) | 100 | 249 | 210 | 144 | 201 | 217 | 239 | 299 | 476 | 111 | 106 | 71 |
| Average Queue (ft) | 25 | 126 | 113 | 38 | 80 | 98 | 118 | 186 | 102 | 47 | 25 | 20 |
| 95th Queue (ft) | 69 | 220 | 189 | 85 | 175 | 194 | 214 | 296 | 284 | 90 | 71 | 56 |
| Link Distance (ft) | | 467 | 467 | | 2575 | 2575 | | | 609 | | | 1307 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 150 | | | 150 | | | 180 | 180 | | 180 | 155 | |
| Storage Blk Time (%) | | 6 | | 0 | 1 | | 0 | 14 | | | | |
| Queuing Penalty (veh) | | 2 | | 0 | 0 | | 1 | 27 | | | | |

## Intersection: 5: Cedar Avenue & North Avenue

| Movement | SB |
|---|---|
| Directions Served | R |
| Maximum Queue (ft) | 71 |
| Average Queue (ft) | 23 |
| 95th Queue (ft) | 53 |
| Link Distance (ft) | |
| Upstream Blk Time (%) | |
| Queuing Penalty (veh) | |
| Storage Bay Dist (ft) | 355 |
| Storage Blk Time (%) | |
| Queuing Penalty (veh) | |

## Intersection: 6: Chestnut Ave & North Avenue

| Movement | EB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|
| Directions Served | LTR | LTR | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 858 | 286 | 197 | 180 | 214 | 59 | 151 | 154 |
| Average Queue (ft) | 317 | 136 | 64 | 100 | 127 | 22 | 76 | 92 |
| 95th Queue (ft) | 643 | 260 | 124 | 161 | 191 | 51 | 125 | 150 |
| Link Distance (ft) | 2533 | 4573 | | 5304 | 5304 | | 5286 | 5286 |
| Upstream Blk Time (%) | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | |
| Storage Bay Dist (ft) | | | 245 | | | 150 | | |
| Storage Blk Time (%) | | | | | | | 0 | |
| Queuing Penalty (veh) | | | | | | | 0 | |

## Intersection: 7: Cedar Avenue & SR 99 NB Off-Ramp

| Movement | NW | NW |
|---|---|---|
| Directions Served | L | R |
| Maximum Queue (ft) | 41 | 108 |
| Average Queue (ft) | 6 | 10 |
| 95th Queue (ft) | 26 | 53 |
| Link Distance (ft) | | 1717 |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | 85 | |
| Storage Blk Time (%) | | 1 |
| Queuing Penalty (veh) | | 0 |

## Intersection: 8: Cedar Avenue & Parkway Drive/SR 99 SB On-Ramp

| Movement | EB | EB | NB | SB |
|---|---|---|---|---|
| Directions Served | LT | R | LTR | LTR |
| Maximum Queue (ft) | 151 | 75 | 155 | 49 |
| Average Queue (ft) | 65 | 8 | 24 | 12 |
| 95th Queue (ft) | 117 | 41 | 97 | 37 |
| Link Distance (ft) | 2368 | | 3449 | 1087 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | | 100 | | |
| Storage Blk Time (%) | 2 | | | |
| Queuing Penalty (veh) | 2 | | | |

## Network Summary

Network wide Queuing Penalty: 773

# Appendix H: State Route 99 at North and Cedar Concept and Funding

**EXHIBIT 6-6**

**CAPACITY INCREASING PROJECT LIST**

**2010 THROUGH 2035**

| Agency | TIP/RTP Project ID | CTIPS Project ID | Description | | | Estimated Cost | Conformity Analysis Year (project open to traffic) | | | | | | | | Complete |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Type of Improvement | Facility Name/Route | Project Limits | | 2011 | 2012 | 2014 | 2017 | 2020 | 2023 | 2025 | 2035 | Date |
| Kingsburg | 1062 | | 2 lanes to 4 lanes | 18th | Mountain View to Stroud | $1,875,000.00 | | | | | | | X | X | 2025 |
| Kingsburg | 924 | | 2 LU to 4 LU | 18th Avenue/Mendocino | Stroud ave. to SR 99 | $682,000.00 | | | | X | X | X | X | X | 2015 |
| Kingsburg | 1066 | | New 4 lane Expressway | Academy Parkway | Mountain View to Simpson | $4,500,000.00 | | | | | X | X | X | X | 2020 |
| City of Fresno | 933 | | 2 LU to 4 LD | American | Orange to Maple | $1,200,000.00 | | | | | | | X | X | 2030 |
| County of Fresno | 1075 | | 2 LU to 4 LD | American | SR 41 to SR 99 | $6,500,000.00 | | | | | | | X | X | 2030 |
| Clovis | 400 | 20300000555 | 3 LD to 4 LD Incl Median Landscaping, some portions already exist as 4LD | Ashlan | Armstrong to Temperance | $1,100,000.00 | X | X | X | X | X | X | X | X | 2010 |
| Clovis | 305 | | 3 LU to 4 LD | Ashlan | Dewolf to Leonard | $1,100,000.00 | | | | X | X | X | X | X | 2015 |
| Clovis | 303 | | 2 LU to 4 LD | Ashlan | Leonard to Highland | $5,600,000.00 | | | | X | X | X | X | X | 2015 |
| City of Fresno | 195 | 20300000566 | 2 LD to 4 LD | Ashlan | Cornelia to Blythe | $650,000.00 | | | | X | X | X | X | X | 2015 |
| Clovis | 304 | | 2LU to 4LD | Ashlan | Highland to Thompson | $2,800,000.00 | | | | | X | X | X | X | 2018 |
| City of Fresno | 196 | | 2 LU to 4 LD | Ashlan | Polk to Cornelia | $750,000.00 | | | | | X | X | X | X | 2020 |
| City of Fresno | 940 | | Unconstructed to 4 LD | Ashlan | Garfield to Grantland | $1,000,000.00 | | | | | X | X | X | X | 2020 |
| City of Fresno | 106 | | 2LD to 4 LD | Ashlan | Bryan to Polk | $1,350,000.00 | | | | | X | X | X | X | 2020 |
| Clovis | 306 | | 2LU to 4LD | Ashlan | Thompson to McCall | $2,800,000.00 | | | | | X | X | X | X | 2020 |
| City of Fresno | 108 | | 2 L to 4 LD | Ashlan | Grantland to Bryan | $650,000.00 | | | | | | | X | X | 2025 |
| Caltrans | 208 | | Interchange Improvements | Ashlan | Grade separation @ UPRR & SR 99 interchange | $7,600,000.00 | | | | | | | | X | 2035 |
| County of Fresno | 564 | | 2 LU to 4 LD | Auberry | Copper to Millerton (W) | $51,050,000.00 | | | | | | | X | X | 2030 |
| City of Fresno | 210 | | 3 LD to 4 LD (add WB Lane) | Belmont | Clovis to Fowler | $1,700,000.00 | | X | X | X | X | X | X | X | 2012 |
| City of Fresno | 256 | | 3 LU to 4 LD (add WB lane) | Belmont | Fowler to Armstrong | $500,000.00 | | | | | X | X | X | X | 2020 |
| City of Fresno | 255 | | 2 LU & 4LU to 4 LD | Belmont | Brawley to SR 99 | $1,700,000.00 | | | | | | | X | X | 2025 |
| City of Fresno | 249 | | 2 LU to 4 LD | Belmont | Armstrong to Temperance | $900,000.00 | | | | | | | X | X | 2025 |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | incomplete portions | | | | | | | | | | | | |
| Clovis | 1088 | | 2 LU to 4 LD Complete incomplete portions | Nees | Sunnyside to Fowler | $2,000,000.00 | | | | | X | X | X | X | 2018 |
| Clovis | 1089 | | 2 LU to 4 LD complete incomplete portions | Nees | Fowler to Armstrong | $2,500,000.00 | | | | | X | X | X | X | 2018 |
| Clovis | 345 | | Unconstructed to 4 LD | Nees | Locan to Alluvial Alignemnt | $3,000,000.00 | | | | | X | X | X | X | 2020 |
| City of Fresno | 239 | | 2 LU to 4 LU | North | Cedar to Chestnut | $1,500,000.00 | | | | | X | X | X | X | 2020 |
| City of Fresno | 994 | | 2 LU to 4 LD | North | Walnut to Hwy 41 | $2,500,000.00 | | | | | X | X | X | X | 2020 |
| City of Fresno | 261 | | 2 LU to 4 LD, improve SR 99 interchange | North | Orange to Cedar | $12,500,000.00 | | | | | | | X | X | 2030 |
| City of Fresno | 192 | | 2 LU to 4 LD | Peach | Kings Canyon to Belmont | $10,000,000.00 | | | | X | X | X | X | X | 2015 |
| City of Fresno | 193 | | 2 LU to 4 LD | Peach | Jensen to Butler | $1,500,000.00 | | | | | X | X | X | X | 2020 |
| City of Fresno | 131 | | 2 LU to 4 LD | Polk | Gettysburg to Shaw | $5,000,000.00 | | | | X | X | X | X | X | 2015 |
| City of Fresno | 913 | | Unconstructed to 4 LD | Polk | Olive to Belmont | $1,000,000.00 | | | | X | X | X | X | X | 2015 |
| City of Fresno | 1001 | | 2 LD to 4 LD | Polk | Olive to McKinley | $500,000.00 | | | | X | X | X | X | X | 2015 |
| City of Fresno | 161 | | 2 LU to 4 LD | Polk | Shields to Gettysburg | $1,500,000.00 | | | | | | | X | X | 2025 |
| City of Fresno | 220 | | 2 LU to 4 LD | Polk | McKinley to Shields | $1,000,000.00 | | | | | | | X | X | 2025 |
| Reedley | 676 | 20300000417 | 2 LU to 4 LD | Reed | I Street to South Ave | $5,000,000.00 | | X | X | X | X | X | X | X | 2013 |
| County of Fresno | 556 | | 2 LD to 4 LD | Reed | Reedley City Limit(South ave.) to Goodfellow | $6,000,000.00 | | | | | | | X | X | 2030 |
| Clovis | 392 | 20300000559 | 4 LD to 6 LD | Shaw | Clovis to Temperance | $311,000.00 | | X | X | X | X | X | X | X | 2012 |
| Clovis | 412 | | 4 LU to 6 LD | Shaw | Carson to Locan | $850,000.00 | | X | X | X | X | X | X | X | 2012 |
| Clovis | 908 | | 2 LU to 6 LD | Shaw | Locan to Main | $1,700,000.00 | | X | X | X | X | X | X | X | 2012 |
| Clovis | 354 | | 2 LU to 6 LD | Shaw | Highland to McCall | $7,000,000.00 | | | | X | X | X | X | X | 2015 |
| Clovis | 931 | | 2 LU 6 LD | Shaw | DeWolf to Highland | $7,000,000.00 | | | | X | X | X | X | X | 2015 |
| City of Fresno | 177 | | 4 LD to 6 LD | Shaw | SR 99 to Brawley | $2,000,000.00 | | | | | | | X | X | 2025 |
| City of Fresno | 243 | | 2 LU to 6 LD | Shaw | Veterans Blvd to Golden State | $4,000,000.00 | | | | | | | X | X | 2030 |
| City of Fresno | 265 | | 2 LU to 4 LD | Shaw | Garfield to Veterans Blvd | $1,000,000.00 | | | | | | | X | X | 2030 |
| County of Fresno | 558 | | 2 LU to 4 LD | Shaw | McCall to Academy | $10,000,000.00 | | | | | | | X | X | 2030 |
| Clovis | 359 | 20300000560 | 2 LU to 3 LD | Shepherd | Willow to 1/2 Mile east | $1,623,000.00 | | X | X | X | X | X | X | X | 2012 |

# TABLE 2 -- TIER 1 PROJECTS

## MEASURE "C" EXTENSION EXPENDITURE PLAN

### REGIONAL TRANSPORTATION FUNDING PROGRAM - URBAN TIER 1

**URBAN AREA PROJECTS ASSUMING ALLOCATION OF 50% OF REGIONAL TRANSPORTATION FUNDING PROGRAM FUNDS**

***(The Tier 1 projects are in a generalized priority order. The funding order would be determined by Fresno COG during preparation of the biennial Expenditure Plan Update and could be affected by project cost benefit, project readiness, funding availability, etc.)***

| Project Identifier | Project Name | Project Limits | Project Description | Uninflated Costs | Inflated Costs *1 | Cumulative Inflated Costs |
|---|---|---|---|---|---|---|
| | | | Tier 1 Projects | | | |
| A | SR 180 East | Clovis to Temperance | New 4 Lane Freeway within 6 Lane Right of Way | $ 33,479,701 | $ 63,169,246 | $ 63,169,246 |
| B | SR 180 West | Brawley to Hughes/ West | Funding Shortfall | $ 6,995,758 | $ 13,199,544 | $ 76,368,790 |
| C | SR 41/SR 168/SR 180 | Added Capacity for Safe Connection Between State Routes | New Braided Ramps | $ 29,981,821 | $ 56,569,474 | $ 132,938,265 |
| D | Willow Avenue | Barstow to Copper | Complete to 6 Lane Divided//retrofit bike paths | $ 13,991,517 | $ 26,399,088 | $ 159,337,353 |
| E | Temperance Avenue | Bullard to Shepherd | Widen to 4 Lane Divided | $ 5,996,364 | $ 11,313,895 | $ 170,651,247 |
| F | Ventura Blvd. | SR 41 to SR 99 | Widen to 4 Lane Divided | $ 5,000,000 | $ 9,428,246 | $ 180,079,493 |
| G | SR 99 | Monterey Avenue | Bridge improvement/Improved acess to downtown from West Fresno | $ 1,000,000 | $ 1,885,649 | $ 181,965,142 |
| H | California Avenue | Ventura to West | Widen to 4 Lane Divided | $ 7,995,152 | $ 15,085,193 | $ 197,050,335 |
| I | Peach Avenue | SR 180 to Jensen Avenue | Widen to 4 Lane Divided | $ 24,984,851 | $ 47,141,229 | $ 244,191,564 |
| J | SR 41 | SB Aux. Lane, Tulare to "O" | Widen/Aux. Lanes and Improve On & Off Ramps | $ 3,000,000 | $ 5,656,947 | $ 249,848,511 |
| K | Herndon Avenue | SR 99 to DeWolf | Complete to 6 Lane Divided/retrofit bike paths | $ 30,000,000 | $ 56,569,474 | $ 306,417,986 |
| L | Shaw | Sunnyside - McCall | Complete to 6 Lane divided traffic signal upgrades, grade crossing | $ 31,580,852 | $ 59,586,513 | $ 366,004,499 |
| M | SR 99 | North & Cedar Avenue | Improve Interchange | $ 24,984,851 | $ 47,141,229 | $ 413,145,727 |
| N | Veteran's Boulevard | Herndon to Grantland | Connection and grade separation | $ 60,000,000 | $ 113,138,949 | $ 526,284,676 |
| | | | **Urban Tier 1 Total** | | **$ 526,284,676** | |

*1 Original project costs were estimated by Local Agencies, and were in 2004 Dollars. A 5% annual inflation was applied through 2017.

# TABLE 3 -- TIER 1 PROJECTS

## MEASURE "C" EXTENSION EXPENDITURE PLAN

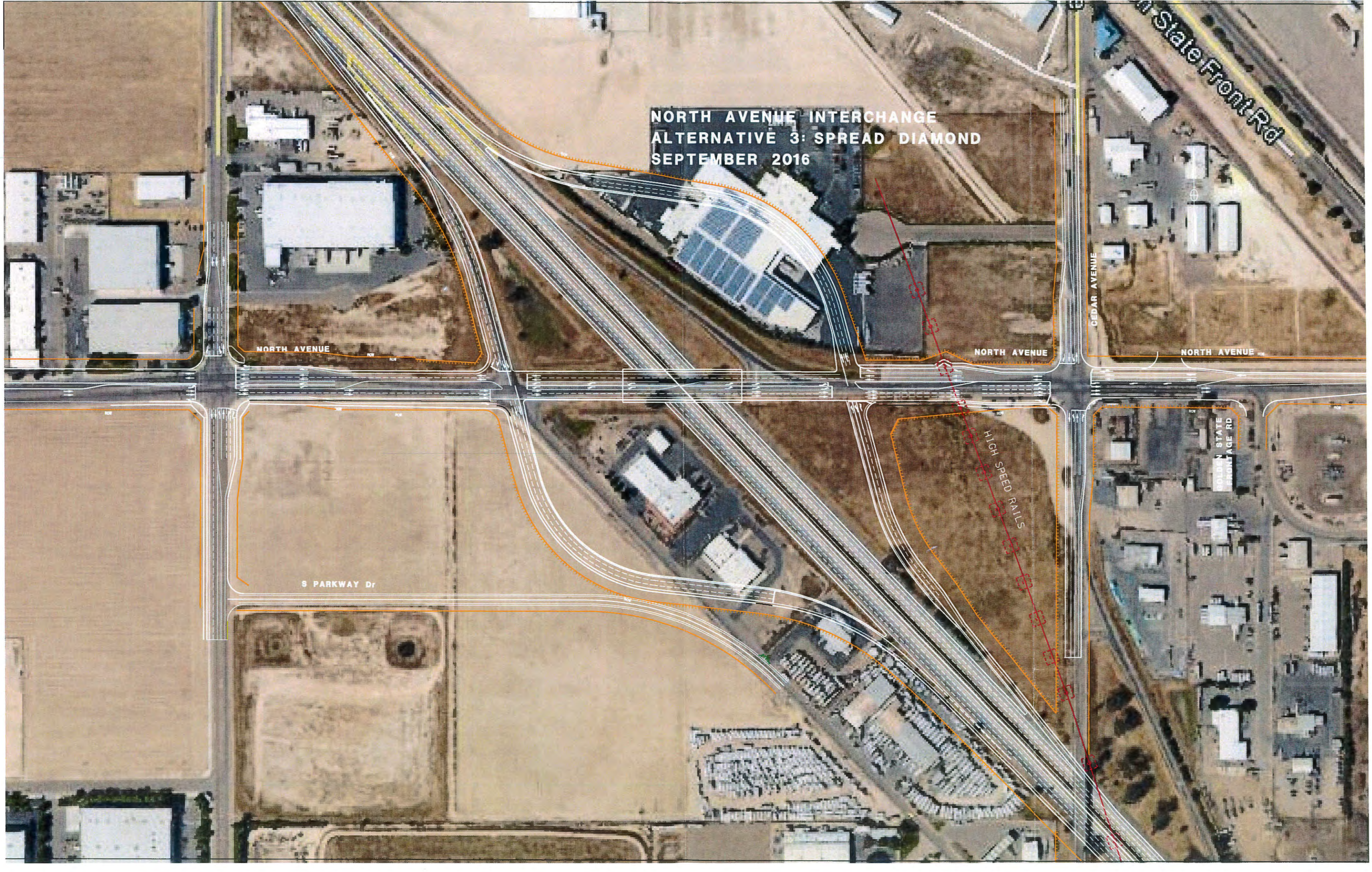
### REGIONAL TRANSPORTATION FUNDING PROGRAM - RURAL TIER 1

**RURAL AREA PROJECTS ASSUMING ALLOCATION OF 50% OF REGIONAL TRANSPORTATION FUNDING PROGRAM FUNDS**

***(The Tier 1 projects are in a generalized priority order. The funding order would be determined by Fresno COG during preparation of the biennial Expenditure Plan Update and could be affected by project cost benefit, project readiness, funding availability, etc.)***

| Project Identifier | Project Name | Project Limits | Project Description | Uninflated Costs | Inflated Costs *1 | Cumulative Inflated Costs |
|---|---|---|---|---|---|---|
| | | | Tier 1 Projects | | | |
| A | SR 180 West | Yuba Ave. to James Ave. | Passing lanes | $ 9,993,940 | $ 18,856,491 | $ 18,856,491 |
| B | SR 180 East | Temperance to Academy | Widen to 4 Lane Divided Expressway | $ 14,491,214 | $ 27,341,913 | $ 46,198,404 |
| C | SR 180 East | Academy to Trimmer Springs | Widen to 2 Lane Expressway on 4 Lane Right of Way | $ 38,976,368 | $ 73,540,317 | $ 119,738,721 |
| D | SR 180 East | Trimmer Springs to Frankwood | Widen to 2 Lane Expressway on 4 Lane Right of Way | $ 42,674,126 | $ 80,517,218 | $ 200,255,939 |
| E | Friant Road | Copper to Millerton | Widen to 4 Lane Divided | $ 16,490,002 | $ 31,113,211 | $ 231,369,150 |
| F | Golden State Boulevard | American to Tulare County Line | Corridor Improvements | $ 34,978,792 | $ 65,997,720 | $ 297,366,870 |
| G | SR 269 | Bridge located between SR 198 & Huron | New Bridge & Channel to Address Seasonal Road Closures Due to Flooding | $ 16,989,699 | $ 32,056,035 | $ 329,422,906 |
| H | SR 180 West | Extend to Interstate 5 (I-5) | As a 2 Lane Undivided | $ 39,975,762 | $ 75,425,966 | $ 404,848,871 |
| I | Mountain View Avenue | Bethel to Tulare County Line | Widen to 4 Lane Divided | $ 5,496,667 | $ 10,371,070 | $ 415,219,942 |
| J | Mendocino Avenue | Manning to Industrial Park | Widen to 4 lane Divided | $ 1,998,788 | $ 3,771,298 | $ 418,991,240 |
| K | SR 99 | American Avenue | Interchange Improvements | $ 24,984,851 | $ 47,141,229 | $ 466,132,469 |
| L | I-5 | At SR 198 | Construct Interchange Improvements | $ 7,995,152 | $ 15,085,193 | $ 481,217,662 |
| | | | **Rural Tier 1 Total** | | **$ 481,217,662** | |

*1 Original project costs were estimated by Local Agencies, and were in 2004 Dollars. A 5% annual inflation was applied through 2017.


NORTH AVENUE INTERCHANGE
ALTERNATIVE 3: SPREAD DIAMOND
SEPTEMBER 2016
NORTH AVENUE
NORTH AVENUE
NORTH AVENUE
CEDAR AVENUE
S PARKWAY Dr
HIGH SPEED RAILS
STATE
RD
Slate Front Rd

# Appendix I: Cumulative Year 2035 No Project Traffic Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 48 | 627 | 134 | 728 | 565 | 56 | 31 | 84 | 194 | 47 | 337 | 164 |
| Future Volume (veh/h) | 48 | 627 | 134 | 728 | 565 | 56 | 31 | 84 | 194 | 47 | 337 | 164 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 | 1624 |
| Adj Flow Rate, veh/h | 52 | 682 | 146 | 791 | 614 | 61 | 34 | 91 | 211 | 51 | 366 | 178 |
| Adj No. of Lanes | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 | 17 |
| Cap, veh/h | 63 | 908 | 405 | 800 | 1606 | 716 | 39 | 290 | 430 | 61 | 595 | 265 |
| Arrive On Green | 0.04 | 0.29 | 0.29 | 0.27 | 0.52 | 0.52 | 0.03 | 0.18 | 0.18 | 0.04 | 0.19 | 0.19 |
| Sat Flow, veh/h | 1547 | 3085 | 1376 | 3000 | 3085 | 1376 | 1547 | 1624 | 2409 | 1547 | 3085 | 1374 |
| Grp Volume(v), veh/h | 52 | 682 | 146 | 791 | 614 | 61 | 34 | 91 | 211 | 51 | 366 | 178 |
| Grp Sat Flow(s),veh/h/ln | 1547 | 1543 | 1376 | 1500 | 1543 | 1376 | 1547 | 1624 | 1204 | 1547 | 1543 | 1374 |
| Q Serve(g_s), s | 3.0 | 17.9 | 7.5 | 23.4 | 10.6 | 2.0 | 2.0 | 4.4 | 7.0 | 2.9 | 9.7 | 10.7 |
| Cycle Q Clear(g_c), s | 3.0 | 17.9 | 7.5 | 23.4 | 10.6 | 2.0 | 2.0 | 4.4 | 7.0 | 2.9 | 9.7 | 10.7 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 63 | 908 | 405 | 800 | 1606 | 716 | 39 | 290 | 430 | 61 | 595 | 265 |
| V/C Ratio(X) | 0.83 | 0.75 | 0.36 | 0.99 | 0.38 | 0.09 | 0.87 | 0.31 | 0.49 | 0.83 | 0.62 | 0.67 |
| Avail Cap(c_a), veh/h | 170 | 1096 | 489 | 800 | 1606 | 716 | 118 | 564 | 837 | 66 | 968 | 431 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 42.5 | 28.5 | 24.8 | 32.6 | 12.8 | 10.7 | 43.3 | 31.9 | 33.0 | 42.5 | 33.0 | 33.4 |
| Incr Delay (d2), s/veh | 22.9 | 2.4 | 0.5 | 28.8 | 0.1 | 0.1 | 39.5 | 0.6 | 0.9 | 54.8 | 1.0 | 3.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.7 | 7.9 | 2.9 | 12.9 | 4.6 | 0.8 | 1.3 | 2.0 | 2.4 | 2.2 | 4.2 | 4.3 |
| LnGrp Delay(d),s/veh | 65.4 | 30.9 | 25.4 | 61.3 | 13.0 | 10.8 | 82.8 | 32.5 | 33.9 | 97.4 | 34.0 | 36.4 |
| LnGrp LOS | E | C | C | E | B | B | F | C | C | F | C | D |
| Approach Vol, veh/h | | 880 | | | 1466 | | | 336 | | | 595 | |
| Approach Delay, s/veh | | 32.0 | | | 39.0 | | | 38.5 | | | 40.2 | |
| Approach LOS | | C | | | D | | | D | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 7.7 | 21.9 | 28.0 | 31.6 | 6.5 | 23.2 | 7.8 | 51.7 |
| Change Period (Y+Rc), s | * 4.2 | 6.0 | * 4.2 | 5.3 | * 4.2 | 6.0 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 3.8 | 31.0 | * 24 | 31.7 | * 6.8 | 28.0 | * 9.8 | 45.7 |
| Max Q Clear Time (g_c+I1), s | 4.9 | 9.0 | 25.4 | 19.9 | 4.0 | 12.7 | 5.0 | 12.6 |
| Green Ext Time (p_c), s | 0.0 | 4.0 | 0.0 | 6.1 | 0.0 | 3.6 | 0.0 | 11.1 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 37.3 |
| HCM 2010 LOS | D |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 438 | 430 | 121 | 748 | 0 | 0 | 0 | 0 | 265 | 0 | 601 |
| Future Volume (veh/h) | 0 | 438 | 430 | 121 | 748 | 0 | 0 | 0 | 0 | 265 | 0 | 601 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | | | | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | | | | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 0 | 1496 | 1496 | 1496 | 1496 | 0 | | | | 1496 | 0 | 1496 |
| Adj Flow Rate, veh/h | 0 | 476 | 467 | 132 | 813 | 0 | | | | 288 | 0 | 653 |
| Adj No. of Lanes | 0 | 2 | 1 | 2 | 2 | 0 | | | | 2 | 0 | 2 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 0 | 27 | 27 | 27 | 27 | 0 | | | | 27 | 0 | 27 |
| Cap, veh/h | 0 | 1104 | 494 | 281 | 1644 | 0 | | | | 820 | 0 | 664 |
| Arrive On Green | 0.00 | 0.39 | 0.39 | 0.20 | 1.00 | 0.00 | | | | 0.30 | 0.00 | 0.30 |
| Sat Flow, veh/h | 0 | 2917 | 1272 | 2764 | 2917 | 0 | | | | 2764 | 0 | 2238 |
| Grp Volume(v), veh/h | 0 | 476 | 467 | 132 | 813 | 0 | | | | 288 | 0 | 653 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1421 | 1272 | 1382 | 1421 | 0 | | | | 1382 | 0 | 1119 |
| Q Serve(g_s), s | 0.0 | 7.4 | 21.3 | 2.5 | 0.0 | 0.0 | | | | 4.9 | 0.0 | 17.4 |
| Cycle Q Clear(g_c), s | 0.0 | 7.4 | 21.3 | 2.5 | 0.0 | 0.0 | | | | 4.9 | 0.0 | 17.4 |
| Prop In Lane | 0.00 | | 1.00 | 1.00 | | 0.00 | | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 1104 | 494 | 281 | 1644 | 0 | | | | 820 | 0 | 664 |
| V/C Ratio(X) | 0.00 | 0.43 | 0.95 | 0.47 | 0.49 | 0.00 | | | | 0.35 | 0.00 | 0.98 |
| Avail Cap(c_a), veh/h | 0 | 1104 | 494 | 281 | 1644 | 0 | | | | 820 | 0 | 664 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 0.66 | 0.66 | 0.85 | 0.85 | 0.00 | | | | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 0.0 | 13.5 | 17.7 | 22.5 | 0.0 | 0.0 | | | | 16.6 | 0.0 | 21.0 |
| Incr Delay (d2), s/veh | 0.0 | 0.8 | 22.0 | 1.0 | 0.9 | 0.0 | | | | 0.3 | 0.0 | 30.7 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 3.0 | 10.4 | 1.0 | 0.2 | 0.0 | | | | 1.9 | 0.0 | 8.2 |
| LnGrp Delay(d),s/veh | 0.0 | 14.3 | 39.7 | 23.5 | 0.9 | 0.0 | | | | 16.8 | 0.0 | 51.6 |
| LnGrp LOS | | B | D | C | A | | | | | B | | D |
| Approach Vol, veh/h | | 943 | | | 945 | | | | | | 941 | |
| Approach Delay, s/veh | | 26.9 | | | 4.1 | | | | | | 41.0 | |
| Approach LOS | | C | | | A | | | | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | | 3 | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | | 11.5 | 28.6 | | 22.0 | | 40.1 |
| Change Period (Y+Rc), s | | | 5.3 | * 5.3 | | 4.2 | | 5.3 |
| Max Green Setting (Gmax), s | | | 5.2 | * 23 | | 17.8 | | 32.7 |
| Max Q Clear Time (g_c+I1), s | | | 4.5 | 23.3 | | 19.4 | | 2.0 |
| Green Ext Time (p_c), s | | | 0.1 | 0.0 | | 0.0 | | 6.5 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 23.9 |
| HCM 2010 LOS | C |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 151 | 552 | 0 | 0 | 650 | 108 | 219 | 0 | 69 | 0 | 0 | 0 |
| Future Volume (veh/h) | 151 | 552 | 0 | 0 | 650 | 108 | 219 | 0 | 69 | 0 | 0 | 0 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Adj Sat Flow, veh/h/ln | 1439 | 1439 | 0 | 0 | 1439 | 1439 | 1439 | 0 | 1439 | | | |
| Adj Flow Rate, veh/h | 161 | 587 | 0 | 0 | 691 | 115 | 233 | 0 | 73 | | | |
| Adj No. of Lanes | 2 | 2 | 0 | 0 | 2 | 1 | 2 | 0 | 1 | | | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | | | |
| Percent Heavy Veh, % | 32 | 32 | 0 | 0 | 32 | 32 | 32 | 0 | 32 | | | |
| Cap, veh/h | 818 | 1966 | 0 | 0 | 882 | 393 | 327 | 0 | 150 | | | |
| Arrive On Green | 0.62 | 1.00 | 0.00 | 0.00 | 0.32 | 0.32 | 0.12 | 0.00 | 0.12 | | | |
| Sat Flow, veh/h | 2659 | 2807 | 0 | 0 | 2807 | 1218 | 2659 | 0 | 1223 | | | |
| Grp Volume(v), veh/h | 161 | 587 | 0 | 0 | 691 | 115 | 233 | 0 | 73 | | | |
| Grp Sat Flow(s),veh/h/ln | 1330 | 1367 | 0 | 0 | 1367 | 1218 | 1330 | 0 | 1223 | | | |
| Q Serve(g_s), s | 1.6 | 0.0 | 0.0 | 0.0 | 13.7 | 4.2 | 5.1 | 0.0 | 3.3 | | | |
| Cycle Q Clear(g_c), s | 1.6 | 0.0 | 0.0 | 0.0 | 13.7 | 4.2 | 5.1 | 0.0 | 3.3 | | | |
| Prop In Lane | 1.00 | | 0.00 | 0.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 818 | 1966 | 0 | 0 | 882 | 393 | 327 | 0 | 150 | | | |
| V/C Ratio(X) | 0.20 | 0.30 | 0.00 | 0.00 | 0.78 | 0.29 | 0.71 | 0.00 | 0.49 | | | |
| Avail Cap(c_a), veh/h | 818 | 1966 | 0 | 0 | 1217 | 542 | 479 | 0 | 220 | | | |
| HCM Platoon Ratio | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Upstream Filter(I) | 0.90 | 0.90 | 0.00 | 0.00 | 0.73 | 0.73 | 1.00 | 0.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 8.3 | 0.0 | 0.0 | 0.0 | 18.4 | 15.2 | 25.3 | 0.0 | 24.5 | | | |
| Incr Delay (d2), s/veh | 0.1 | 0.4 | 0.0 | 0.0 | 5.1 | 1.4 | 2.9 | 0.0 | 2.4 | | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| %ile BackOfQ(50%),veh/ln | 0.6 | 0.1 | 0.0 | 0.0 | 5.8 | 1.6 | 2.0 | 0.0 | 1.2 | | | |
| LnGrp Delay(d),s/veh | 8.4 | 0.4 | 0.0 | 0.0 | 23.5 | 16.6 | 28.2 | 0.0 | 27.0 | | | |
| LnGrp LOS | A | A | | | C | B | C | | C | | | |
| Approach Vol, veh/h | | 748 | | | 806 | | | 306 | | | | |
| Approach Delay, s/veh | | 2.1 | | | 22.5 | | | 27.9 | | | | |
| Approach LOS | | A | | | C | | | C | | | | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | | | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 11.6 | | 48.4 | | | 23.8 | 24.7 |
| Change Period (Y+Rc), s | | * 4.2 | | 5.3 | | | 5.3 | * 5.3 |
| Max Green Setting (Gmax), s | | * 11 | | 39.7 | | | 8.8 | * 27 |
| Max Q Clear Time (g_c+I1), s | | 7.1 | | 2.0 | | | 3.6 | 15.7 |
| Green Ext Time (p_c), s | | 0.4 | | 4.8 | | | 2.0 | 3.6 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 15.2 |
| HCM 2010 LOS | B |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 89 | 455 | 77 | 71 | 650 | 68 | 79 | 39 | 80 | 9 | 35 | 29 |
| Future Volume (veh/h) | 89 | 455 | 77 | 71 | 650 | 68 | 79 | 39 | 80 | 9 | 35 | 29 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 |
| Adj Flow Rate, veh/h | 97 | 495 | 84 | 77 | 707 | 74 | 86 | 42 | 87 | 10 | 38 | 32 |
| Adj No. of Lanes | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Cap, veh/h | 113 | 1116 | 497 | 87 | 1065 | 474 | 99 | 245 | 208 | 18 | 160 | 135 |
| Arrive On Green | 0.08 | 0.41 | 0.41 | 0.06 | 0.39 | 0.39 | 0.07 | 0.17 | 0.17 | 0.01 | 0.11 | 0.11 |
| Sat Flow, veh/h | 1371 | 2735 | 1219 | 1371 | 2735 | 1219 | 1371 | 1439 | 1217 | 1371 | 1439 | 1214 |
| Grp Volume(v), veh/h | 97 | 495 | 84 | 77 | 707 | 74 | 86 | 42 | 87 | 10 | 38 | 32 |
| Grp Sat Flow(s),veh/h/ln | 1371 | 1367 | 1219 | 1371 | 1367 | 1219 | 1371 | 1439 | 1217 | 1371 | 1439 | 1214 |
| Q Serve(g_s), s | 3.8 | 7.1 | 2.4 | 3.0 | 11.5 | 2.1 | 3.3 | 1.3 | 3.4 | 0.4 | 1.3 | 1.3 |
| Cycle Q Clear(g_c), s | 3.8 | 7.1 | 2.4 | 3.0 | 11.5 | 2.1 | 3.3 | 1.3 | 3.4 | 0.4 | 1.3 | 1.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 113 | 1116 | 497 | 87 | 1065 | 474 | 99 | 245 | 208 | 18 | 160 | 135 |
| V/C Ratio(X) | 0.86 | 0.44 | 0.17 | 0.88 | 0.66 | 0.16 | 0.87 | 0.17 | 0.42 | 0.57 | 0.24 | 0.24 |
| Avail Cap(c_a), veh/h | 198 | 1552 | 692 | 173 | 1501 | 669 | 178 | 907 | 767 | 127 | 854 | 720 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 24.4 | 11.5 | 10.2 | 25.0 | 13.6 | 10.7 | 24.8 | 19.1 | 20.0 | 26.5 | 21.9 | 21.9 |
| Incr Delay (d2), s/veh | 16.5 | 0.3 | 0.2 | 22.9 | 0.7 | 0.2 | 19.6 | 0.3 | 1.3 | 25.3 | 0.8 | 0.9 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.9 | 2.7 | 0.8 | 1.7 | 4.4 | 0.7 | 1.8 | 0.6 | 1.2 | 0.3 | 0.6 | 0.5 |
| LnGrp Delay(d),s/veh | 41.0 | 11.8 | 10.3 | 48.0 | 14.3 | 10.9 | 44.4 | 19.4 | 21.3 | 51.8 | 22.6 | 22.8 |
| LnGrp LOS | D | B | B | D | B | B | D | B | C | D | C | C |
| Approach Vol, veh/h | | 676 | | | 858 | | | 215 | | | 80 | |
| Approach Delay, s/veh | | 15.8 | | | 17.0 | | | 30.2 | | | 26.3 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 4.9 | 14.1 | 7.6 | 27.3 | 8.1 | 10.9 | 8.6 | 26.3 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | * 4.2 | 5.3 | * 4.2 | 4.9 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 5 | 34.0 | * 6.8 | 30.6 | * 7 | 32.0 | * 7.8 | 29.6 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 5.4 | 5.0 | 9.1 | 5.3 | 3.3 | 5.8 | 13.5 |
| Green Ext Time (p_c), s | 0.0 | 0.7 | 0.0 | 8.7 | 0.0 | 0.7 | 0.0 | 7.5 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 18.5 |
| HCM 2010 LOS | B |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 219 | 300 | 162 | 66 | 204 | 52 | 199 | 368 | 44 | 96 | 413 | 180 |
| Future Volume (veh/h) | 219 | 300 | 162 | 66 | 204 | 52 | 199 | 368 | 44 | 96 | 413 | 180 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1652 | 1900 | 1900 | 1652 | 1900 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 238 | 326 | 176 | 72 | 222 | 57 | 216 | 400 | 48 | 104 | 449 | 196 |
| Adj No. of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 260 | 309 | 164 | 156 | 453 | 110 | 210 | 711 | 85 | 104 | 393 | 170 |
| Arrive On Green | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.56 | 0.13 | 0.24 | 0.24 | 0.06 | 0.17 | 0.17 |
| Sat Flow, veh/h | 386 | 550 | 292 | 207 | 807 | 197 | 1675 | 3008 | 359 | 1675 | 2273 | 984 |
| Grp Volume(v), veh/h | 740 | 0 | 0 | 351 | 0 | 0 | 216 | 221 | 227 | 104 | 329 | 316 |
| Grp Sat Flow(s),veh/h/ln | 1229 | 0 | 0 | 1211 | 0 | 0 | 1675 | 1671 | 1696 | 1675 | 1671 | 1586 |
| Q Serve(g_s), s | 45.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 13.8 | 12.8 | 13.0 | 6.8 | 19.0 | 19.0 |
| Cycle Q Clear(g_c), s | 61.7 | 0.0 | 0.0 | 16.7 | 0.0 | 0.0 | 13.8 | 12.8 | 13.0 | 6.8 | 19.0 | 19.0 |
| Prop In Lane | 0.32 | | 0.24 | 0.21 | | 0.16 | 1.00 | | 0.21 | 1.00 | | 0.62 |
| Lane Grp Cap(c), veh/h | 732 | 0 | 0 | 719 | 0 | 0 | 210 | 395 | 401 | 104 | 289 | 274 |
| V/C Ratio(X) | 1.01 | 0.00 | 0.00 | 0.49 | 0.00 | 0.00 | 1.03 | 0.56 | 0.57 | 1.00 | 1.14 | 1.15 |
| Avail Cap(c_a), veh/h | 732 | 0 | 0 | 719 | 0 | 0 | 210 | 400 | 405 | 104 | 289 | 274 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 27.2 | 0.0 | 0.0 | 13.9 | 0.0 | 0.0 | 48.1 | 37.0 | 37.0 | 51.6 | 45.5 | 45.5 |
| Incr Delay (d2), s/veh | 35.8 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 69.4 | 1.7 | 1.8 | 89.5 | 96.3 | 102.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 29.5 | 0.0 | 0.0 | 6.3 | 0.0 | 0.0 | 10.4 | 6.1 | 6.2 | 5.7 | 16.5 | 16.1 |
| LnGrp Delay(d),s/veh | 63.0 | 0.0 | 0.0 | 14.4 | 0.0 | 0.0 | 117.7 | 38.7 | 38.8 | 141.1 | 141.8 | 147.8 |
| LnGrp LOS | F | | | B | | | F | D | D | F | F | F |
| Approach Vol, veh/h | | 740 | | | 351 | | | 664 | | | 749 | |
| Approach Delay, s/veh | | 63.0 | | | 14.4 | | | 64.4 | | | 144.2 | |
| Approach LOS | | E | | | B | | | E | | | F | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 11.0 | 32.0 | | 67.0 | 18.0 | 25.0 | | 67.0 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | | 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | * 6.8 | * 26 | | 61.7 | * 14 | 19.0 | | 61.7 |
| Max Q Clear Time (g_c+I1), s | 8.8 | 15.0 | | 63.7 | 15.8 | 21.0 | | 18.7 |
| Green Ext Time (p_c), s | 0.0 | 4.5 | | 0.0 | 0.0 | 0.0 | | 9.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 80.9 |
| HCM 2010 LOS | F |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.4 |

| Movement | NBL | NBT | SBT | SBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 16 | 147 | 159 | 24 | 51 | 199 |
| Future Vol, veh/h | 16 | 147 | 159 | 24 | 51 | 199 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | Stop |
| Storage Length | - | - | - | 50 | 0 | 65 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 50 | 50 | 50 | 50 | 50 | 50 |
| Mvmt Flow | 17 | 160 | 173 | 26 | 55 | 216 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 173 | 0 | - | 0 | 368 | 173 |
| Stage 1 | - | - | - | - | 173 | - |
| Stage 2 | - | - | - | - | 195 | - |
| Critical Hdwy | 4.6 | - | - | - | 6.9 | 6.7 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.9 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.9 | - |
| Follow-up Hdwy | 2.65 | - | - | - | 3.95 | 3.75 |
| Pot Cap-1 Maneuver | 1160 | - | - | 0 | 547 | 760 |
| Stage 1 | - | - | - | 0 | 754 | - |
| Stage 2 | - | - | - | 0 | 735 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | 1160 | - | - | - | 538 | 760 |
| Mov Cap-2 Maneuver | - | - | - | - | 538 | - |
| Stage 1 | - | - | - | - | 754 | - |
| Stage 2 | - | - | - | - | 723 | - |

| Approach | NB | SB | SE |
|---|---|---|---|
| HCM Control Delay, s | 0.8 | 0 | 11.8 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBL | NBT | SELn1 | SELn2 | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1160 | - | 538 | 760 | - |
| HCM Lane V/C Ratio | 0.015 | - | 0.103 | 0.285 | - |
| HCM Control Delay (s) | 8.2 | 0 | 12.5 | 11.6 | - |
| HCM Lane LOS | A | A | B | B | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.3 | 1.2 | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 145 | 712 | 104 | 241 | 733 | 28 | 144 | 374 | 778 | 73 | 110 | 125 |
| Future Volume (veh/h) | 145 | 712 | 104 | 241 | 733 | 28 | 144 | 374 | 778 | 73 | 110 | 125 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 | 1638 |
| Adj Flow Rate, veh/h | 158 | 774 | 113 | 262 | 797 | 30 | 157 | 407 | 846 | 79 | 120 | 136 |
| Adj No. of Lanes | 1 | 2 | 1 | 2 | 2 | 1 | 1 | 1 | 2 | 1 | 2 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 | 16 |
| Cap, veh/h | 181 | 896 | 400 | 535 | 1113 | 496 | 389 | 491 | 731 | 97 | 350 | 155 |
| Arrive On Green | 0.12 | 0.29 | 0.29 | 0.35 | 0.72 | 0.72 | 0.42 | 0.50 | 0.50 | 0.06 | 0.11 | 0.11 |
| Sat Flow, veh/h | 1560 | 3112 | 1388 | 3026 | 3112 | 1386 | 1560 | 1638 | 2438 | 1560 | 3112 | 1381 |
| Grp Volume(v), veh/h | 158 | 774 | 113 | 262 | 797 | 30 | 157 | 407 | 846 | 79 | 120 | 136 |
| Grp Sat Flow(s),veh/h/ln | 1560 | 1556 | 1388 | 1513 | 1556 | 1386 | 1560 | 1638 | 1219 | 1560 | 1556 | 1381 |
| Q Serve(g_s), s | 12.0 | 28.3 | 7.6 | 8.1 | 17.9 | 0.6 | 8.5 | 25.4 | 36.0 | 6.0 | 4.3 | 9.0 |
| Cycle Q Clear(g_c), s | 12.0 | 28.3 | 7.6 | 8.1 | 17.9 | 0.6 | 8.5 | 25.4 | 36.0 | 6.0 | 4.3 | 9.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 181 | 896 | 400 | 535 | 1113 | 496 | 389 | 491 | 731 | 97 | 350 | 155 |
| V/C Ratio(X) | 0.87 | 0.86 | 0.28 | 0.49 | 0.72 | 0.06 | 0.40 | 0.83 | 1.16 | 0.82 | 0.34 | 0.87 |
| Avail Cap(c_a), veh/h | 205 | 1107 | 494 | 535 | 1113 | 496 | 389 | 491 | 731 | 114 | 752 | 334 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | 1.67 | 1.67 | 1.67 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 0.91 | 0.91 | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 52.1 | 40.5 | 33.1 | 34.6 | 13.5 | 6.8 | 28.7 | 27.3 | 29.9 | 55.6 | 49.2 | 31.3 |
| Incr Delay (d2), s/veh | 28.7 | 10.8 | 1.8 | 0.6 | 3.6 | 0.2 | 0.7 | 11.3 | 85.5 | 31.0 | 0.6 | 14.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 6.6 | 13.5 | 3.1 | 3.4 | 7.9 | 0.3 | 3.7 | 12.8 | 20.5 | 3.4 | 1.9 | 4.0 |
| LnGrp Delay(d),s/veh | 80.8 | 51.3 | 34.9 | 35.2 | 17.1 | 7.0 | 29.4 | 38.6 | 115.4 | 86.6 | 49.7 | 45.4 |
| LnGrp LOS | F | D | C | D | B | A | C | D | F | F | D | D |
| Approach Vol, veh/h | | 1045 | | | 1089 | | | 1410 | | | 335 | |
| Approach Delay, s/veh | | 54.0 | | | 21.2 | | | 83.7 | | | 56.6 | |
| Approach LOS | | D | | | C | | | F | | | E | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 11.6 | 42.0 | 26.5 | 39.8 | 34.1 | 19.5 | 18.1 | 48.2 |
| Change Period (Y+Rc), s | 4.2 | * 6 | 5.3 | * 5.3 | 4.2 | * 6 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | 8.8 | * 36 | 12.8 | * 43 | 15.8 | * 29 | * 16 | 39.7 |
| Max Q Clear Time (g_c+I1), s | 8.0 | 38.0 | 10.1 | 30.3 | 10.5 | 11.0 | 14.0 | 19.9 |
| Green Ext Time (p_c), s | 0.0 | 0.0 | 1.5 | 4.3 | 0.3 | 1.0 | 0.1 | 6.1 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 55.8 |
| HCM 2010 LOS | E |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 1126 | 437 | 153 | 783 | 0 | 0 | 0 | 0 | 129 | 0 | 219 |
| Future Volume (veh/h) | 0 | 1126 | 437 | 153 | 783 | 0 | 0 | 0 | 0 | 129 | 0 | 219 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | | | | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | | | | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 0 | 1557 | 1557 | 1557 | 1557 | 0 | | | | 1557 | 0 | 1557 |
| Adj Flow Rate, veh/h | 0 | 1198 | 465 | 163 | 833 | 0 | | | | 137 | 0 | 233 |
| Adj No. of Lanes | 0 | 2 | 1 | 2 | 2 | 0 | | | | 2 | 0 | 2 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | | | | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 0 | 22 | 22 | 22 | 22 | 0 | | | | 22 | 0 | 22 |
| Cap, veh/h | 0 | 1417 | 634 | 463 | 2155 | 0 | | | | 326 | 0 | 264 |
| Arrive On Green | 0.00 | 0.64 | 0.64 | 0.32 | 1.00 | 0.00 | | | | 0.11 | 0.00 | 0.11 |
| Sat Flow, veh/h | 0 | 3037 | 1324 | 2877 | 3037 | 0 | | | | 2877 | 0 | 2330 |
| Grp Volume(v), veh/h | 0 | 1198 | 465 | 163 | 833 | 0 | | | | 137 | 0 | 233 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1480 | 1324 | 1439 | 1480 | 0 | | | | 1439 | 0 | 1165 |
| Q Serve(g_s), s | 0.0 | 19.1 | 14.4 | 2.6 | 0.0 | 0.0 | | | | 2.7 | 0.0 | 5.9 |
| Cycle Q Clear(g_c), s | 0.0 | 19.1 | 14.4 | 2.6 | 0.0 | 0.0 | | | | 2.7 | 0.0 | 5.9 |
| Prop In Lane | 0.00 | | 1.00 | 1.00 | | 0.00 | | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 1417 | 634 | 463 | 2155 | 0 | | | | 326 | 0 | 264 |
| V/C Ratio(X) | 0.00 | 0.85 | 0.73 | 0.35 | 0.39 | 0.00 | | | | 0.42 | 0.00 | 0.88 |
| Avail Cap(c_a), veh/h | 0 | 1662 | 744 | 463 | 2155 | 0 | | | | 326 | 0 | 264 |
| HCM Platoon Ratio | 1.00 | 1.33 | 1.33 | 2.00 | 2.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 0.57 | 0.57 | 0.69 | 0.69 | 0.00 | | | | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 0.0 | 9.1 | 8.3 | 17.9 | 0.0 | 0.0 | | | | 24.8 | 0.0 | 26.2 |
| Incr Delay (d2), s/veh | 0.0 | 3.8 | 4.3 | 0.3 | 0.4 | 0.0 | | | | 0.9 | 0.0 | 27.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 8.3 | 5.8 | 1.0 | 0.1 | 0.0 | | | | 1.1 | 0.0 | 2.9 |
| LnGrp Delay(d),s/veh | 0.0 | 12.9 | 12.6 | 18.3 | 0.4 | 0.0 | | | | 25.6 | 0.0 | 53.7 |
| LnGrp LOS | | B | B | B | A | | | | | C | | D |
| Approach Vol, veh/h | | 1663 | | | 996 | | | | | | 370 | |
| Approach Delay, s/veh | | 12.8 | | | 3.3 | | | | | | 43.3 | |
| Approach LOS | | B | | | A | | | | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | | 3 | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | | 15.0 | 34.0 | | 11.0 | | 49.0 |
| Change Period (Y+Rc), s | | | 5.3 | * 5.3 | | 4.2 | | 5.3 |
| Max Green Setting (Gmax), s | | | 5.8 | * 34 | | 6.8 | | 43.7 |
| Max Q Clear Time (g_c+I1), s | | | 4.6 | 21.1 | | 7.9 | | 2.0 |
| Green Ext Time (p_c), s | | | 0.7 | 7.6 | | 0.0 | | 7.1 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 13.4 |
| HCM 2010 LOS | B |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 638 | 617 | 0 | 0 | 649 | 403 | 287 | 0 | 104 | 0 | 0 | 0 |
| Future Volume (veh/h) | 638 | 617 | 0 | 0 | 649 | 403 | 287 | 0 | 104 | 0 | 0 | 0 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Adj Sat Flow, veh/h/ln | 1652 | 1652 | 0 | 0 | 1652 | 1652 | 1652 | 0 | 1652 | | | |
| Adj Flow Rate, veh/h | 693 | 671 | 0 | 0 | 705 | 438 | 312 | 0 | 113 | | | |
| Adj No. of Lanes | 2 | 2 | 0 | 0 | 2 | 1 | 2 | 0 | 1 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | | |
| Percent Heavy Veh, % | 15 | 15 | 0 | 0 | 15 | 15 | 15 | 0 | 15 | | | |
| Cap, veh/h | 887 | 2220 | 0 | 0 | 1031 | 459 | 410 | 0 | 189 | | | |
| Arrive On Green | 0.49 | 1.00 | 0.00 | 0.00 | 0.11 | 0.11 | 0.13 | 0.00 | 0.13 | | | |
| Sat Flow, veh/h | 3053 | 3222 | 0 | 0 | 3222 | 1398 | 3053 | 0 | 1404 | | | |
| Grp Volume(v), veh/h | 693 | 671 | 0 | 0 | 705 | 438 | 312 | 0 | 113 | | | |
| Grp Sat Flow(s),veh/h/ln | 1526 | 1570 | 0 | 0 | 1570 | 1398 | 1526 | 0 | 1404 | | | |
| Q Serve(g_s), s | 11.3 | 0.0 | 0.0 | 0.0 | 13.0 | 18.7 | 5.9 | 0.0 | 4.5 | | | |
| Cycle Q Clear(g_c), s | 11.3 | 0.0 | 0.0 | 0.0 | 13.0 | 18.7 | 5.9 | 0.0 | 4.5 | | | |
| Prop In Lane | 1.00 | | 0.00 | 0.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 887 | 2220 | 0 | 0 | 1031 | 459 | 410 | 0 | 189 | | | |
| V/C Ratio(X) | 0.78 | 0.30 | 0.00 | 0.00 | 0.68 | 0.95 | 0.76 | 0.00 | 0.60 | | | |
| Avail Cap(c_a), veh/h | 906 | 2220 | 0 | 0 | 1031 | 459 | 448 | 0 | 206 | | | |
| HCM Platoon Ratio | 1.67 | 1.67 | 1.00 | 1.00 | 0.33 | 0.33 | 1.00 | 1.00 | 1.00 | | | |
| Upstream Filter(I) | 0.61 | 0.61 | 0.00 | 0.00 | 0.78 | 0.78 | 1.00 | 0.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 13.9 | 0.0 | 0.0 | 0.0 | 23.8 | 26.3 | 25.0 | 0.0 | 24.4 | | | |
| Incr Delay (d2), s/veh | 2.7 | 0.2 | 0.0 | 0.0 | 2.9 | 27.5 | 6.9 | 0.0 | 4.1 | | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| %ile BackOfQ(50%),veh/ln | 5.0 | 0.1 | 0.0 | 0.0 | 6.1 | 10.7 | 2.9 | 0.0 | 2.0 | | | |
| LnGrp Delay(d),s/veh | 16.6 | 0.2 | 0.0 | 0.0 | 26.7 | 53.8 | 31.9 | 0.0 | 28.5 | | | |
| LnGrp LOS | B | A | | | C | D | C | | C | | | |
| Approach Vol, veh/h | | 1364 | | | 1143 | | | 425 | | | | |
| Approach Delay, s/veh | | 8.5 | | | 37.1 | | | 31.0 | | | | |
| Approach LOS | | A | | | D | | | C | | | | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | | | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 12.3 | | 47.7 | | | 22.7 | 25.0 |
| Change Period (Y+Rc), s | | * 4.2 | | 5.3 | | | 5.3 | * 5.3 |
| Max Green Setting (Gmax), s | | * 8.8 | | 41.7 | | | 17.8 | * 20 |
| Max Q Clear Time (g_c+I1), s | | 7.9 | | 2.0 | | | 13.3 | 20.7 |
| Green Ext Time (p_c), s | | 0.2 | | 8.3 | | | 2.7 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 22.9 |
| HCM 2010 LOS | C |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 35 | 675 | 11 | 95 | 805 | 18 | 203 | 66 | 136 | 13 | 17 | 44 |
| Future Volume (veh/h) | 35 | 675 | 11 | 95 | 805 | 18 | 203 | 66 | 136 | 13 | 17 | 44 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 |
| Adj Flow Rate, veh/h | 38 | 734 | 12 | 103 | 875 | 20 | 221 | 72 | 148 | 14 | 18 | 48 |
| Adj No. of Lanes | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| Cap, veh/h | 397 | 1526 | 681 | 123 | 951 | 424 | 247 | 360 | 305 | 23 | 115 | 97 |
| Arrive On Green | 0.36 | 0.69 | 0.69 | 0.08 | 0.32 | 0.32 | 0.17 | 0.23 | 0.23 | 0.02 | 0.07 | 0.07 |
| Sat Flow, veh/h | 1483 | 2959 | 1320 | 1483 | 2959 | 1318 | 1483 | 1557 | 1319 | 1483 | 1557 | 1308 |
| Grp Volume(v), veh/h | 38 | 734 | 12 | 103 | 875 | 20 | 221 | 72 | 148 | 14 | 18 | 48 |
| Grp Sat Flow(s),veh/h/ln | 1483 | 1480 | 1320 | 1483 | 1480 | 1318 | 1483 | 1557 | 1319 | 1483 | 1557 | 1308 |
| Q Serve(g_s), s | 2.0 | 14.0 | 0.2 | 8.2 | 34.2 | 1.1 | 17.5 | 4.5 | 11.7 | 1.1 | 1.3 | 4.2 |
| Cycle Q Clear(g_c), s | 2.0 | 14.0 | 0.2 | 8.2 | 34.2 | 1.1 | 17.5 | 4.5 | 11.7 | 1.1 | 1.3 | 4.2 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 397 | 1526 | 681 | 123 | 951 | 424 | 247 | 360 | 305 | 23 | 115 | 97 |
| V/C Ratio(X) | 0.10 | 0.48 | 0.02 | 0.84 | 0.92 | 0.05 | 0.89 | 0.20 | 0.49 | 0.61 | 0.16 | 0.50 |
| Avail Cap(c_a), veh/h | 397 | 1526 | 681 | 147 | 1013 | 451 | 282 | 646 | 547 | 62 | 415 | 349 |
| HCM Platoon Ratio | 1.33 | 1.33 | 1.33 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.96 | 0.96 | 0.96 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.0 | 11.3 | 2.1 | 54.3 | 39.2 | 20.8 | 49.0 | 37.2 | 40.0 | 58.7 | 52.0 | 53.4 |
| Incr Delay (d2), s/veh | 0.1 | 1.0 | 0.0 | 29.1 | 15.2 | 0.2 | 26.2 | 0.3 | 1.2 | 23.1 | 0.6 | 3.9 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.8 | 5.8 | 0.1 | 4.4 | 16.0 | 0.4 | 9.0 | 1.9 | 4.3 | 0.6 | 0.6 | 1.6 |
| LnGrp Delay(d),s/veh | 29.1 | 12.4 | 2.2 | 83.4 | 54.4 | 21.0 | 75.1 | 37.5 | 41.2 | 81.8 | 52.7 | 57.3 |
| LnGrp LOS | C | B | A | F | D | C | E | D | D | F | D | E |
| Approach Vol, veh/h | | 784 | | | 998 | | | 441 | | | 80 | |
| Approach Delay, s/veh | | 13.0 | | | 56.8 | | | 57.6 | | | 60.5 | |
| Approach LOS | | B | | | E | | | E | | | E | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 6.1 | 32.6 | 14.1 | 67.2 | 24.9 | 13.8 | 37.4 | 43.9 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | * 4.2 | 5.3 | 4.9 | * 4.9 | 5.3 | * 5.3 |
| Max Green Setting (Gmax), s | * 5 | 49.8 | * 12 | 34.7 | 22.8 | * 32 | 5.5 | * 41 |
| Max Q Clear Time (g_c+I1), s | 3.1 | 13.7 | 10.2 | 16.0 | 19.5 | 6.2 | 4.0 | 36.2 |
| Green Ext Time (p_c), s | 0.0 | 1.5 | 0.0 | 4.7 | 0.5 | 0.2 | 0.7 | 2.4 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 42.2 |
| HCM 2010 LOS | D |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 163 | 250 | 300 | 52 | 301 | 87 | 288 | 601 | 51 | 42 | 480 | 205 |
| Future Volume (veh/h) | 163 | 250 | 300 | 52 | 301 | 87 | 288 | 601 | 51 | 42 | 480 | 205 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1652 | 1900 | 1900 | 1652 | 1900 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 170 | 260 | 312 | 54 | 314 | 91 | 300 | 626 | 53 | 44 | 500 | 214 |
| Adj No. of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 168 | 221 | 256 | 91 | 491 | 136 | 249 | 958 | 81 | 55 | 438 | 187 |
| Arrive On Green | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.15 | 0.31 | 0.31 | 0.03 | 0.19 | 0.19 |
| Sat Flow, veh/h | 246 | 417 | 481 | 108 | 925 | 256 | 1675 | 3120 | 264 | 1675 | 2286 | 973 |
| Grp Volume(v), veh/h | 742 | 0 | 0 | 459 | 0 | 0 | 300 | 335 | 344 | 44 | 365 | 349 |
| Grp Sat Flow(s),veh/h/ln | 1145 | 0 | 0 | 1289 | 0 | 0 | 1675 | 1671 | 1713 | 1675 | 1671 | 1588 |
| Q Serve(g_s), s | 36.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 17.8 | 20.8 | 20.9 | 3.1 | 23.0 | 23.0 |
| Cycle Q Clear(g_c), s | 63.7 | 0.0 | 0.0 | 27.1 | 0.0 | 0.0 | 17.8 | 20.8 | 20.9 | 3.1 | 23.0 | 23.0 |
| Prop In Lane | 0.23 | | 0.42 | 0.12 | | 0.20 | 1.00 | | 0.15 | 1.00 | | 0.61 |
| Lane Grp Cap(c), veh/h | 645 | 0 | 0 | 718 | 0 | 0 | 249 | 513 | 526 | 55 | 320 | 304 |
| V/C Ratio(X) | 1.15 | 0.00 | 0.00 | 0.64 | 0.00 | 0.00 | 1.21 | 0.65 | 0.65 | 0.80 | 1.14 | 1.15 |
| Avail Cap(c_a), veh/h | 645 | 0 | 0 | 718 | 0 | 0 | 249 | 513 | 526 | 67 | 320 | 304 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 31.8 | 0.0 | 0.0 | 18.9 | 0.0 | 0.0 | 51.1 | 36.0 | 36.0 | 57.6 | 48.5 | 48.5 |
| Incr Delay (d2), s/veh | 85.1 | 0.0 | 0.0 | 1.9 | 0.0 | 0.0 | 124.7 | 2.9 | 2.9 | 41.1 | 93.5 | 97.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 36.5 | 0.0 | 0.0 | 10.8 | 0.0 | 0.0 | 16.8 | 10.0 | 10.3 | 2.1 | 18.9 | 18.3 |
| LnGrp Delay(d),s/veh | 116.9 | 0.0 | 0.0 | 20.8 | 0.0 | 0.0 | 175.8 | 39.0 | 39.0 | 98.7 | 142.0 | 146.0 |
| LnGrp LOS | F | | | C | | | F | D | D | F | F | F |
| Approach Vol, veh/h | | 742 | | | 459 | | | 979 | | | 758 | |
| Approach Delay, s/veh | | 116.9 | | | 20.8 | | | 80.9 | | | 141.3 | |
| Approach LOS | | F | | | C | | | F | | | F | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 8.1 | 42.9 | | 69.0 | 22.0 | 29.0 | | 69.0 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | | 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | * 4.8 | * 36 | | 63.7 | * 18 | 23.0 | | 63.7 |
| Max Q Clear Time (g_c+I1), s | 15.1 | 22.9 | | 65.7 | 19.8 | 25.0 | | 29.1 |
| Green Ext Time (p_c), s | 0.0 | 6.3 | | 0.0 | 0.0 | 0.0 | | 10.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 96.2 |
| HCM 2010 LOS | F |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.2 |

| Movement | NBL | NBT | SBT | SBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 19 | 380 | 107 | 16 | 25 | 95 |
| Future Vol, veh/h | 19 | 380 | 107 | 16 | 25 | 95 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | Stop |
| Storage Length | - | - | - | 50 | 0 | 65 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 22 | 22 | 22 | 22 | 22 | 22 |
| Mvmt Flow | 20 | 404 | 114 | 17 | 27 | 101 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 114 | 0 | - | 0 | 559 | 114 |
| Stage 1 | - | - | - | - | 114 | - |
| Stage 2 | - | - | - | - | 445 | - |
| Critical Hdwy | 4.32 | - | - | - | 6.62 | 6.42 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.62 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.62 | - |
| Follow-up Hdwy | 2.398 | - | - | - | 3.698 | 3.498 |
| Pot Cap-1 Maneuver | 1360 | - | - | 0 | 458 | 887 |
| Stage 1 | - | - | - | 0 | 863 | - |
| Stage 2 | - | - | - | 0 | 606 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | 1360 | - | - | - | 449 | 887 |
| Mov Cap-2 Maneuver | - | - | - | - | 449 | - |
| Stage 1 | - | - | - | - | 863 | - |
| Stage 2 | - | - | - | - | 594 | - |

| Approach | NB | SB | SE |
|---|---|---|---|
| HCM Control Delay, s | 0.4 | 0 | 10.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBL | NBT | SELn1 | SELn2 | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1360 | - | 449 | 887 | - |
| HCM Lane V/C Ratio | 0.015 | - | 0.059 | 0.114 | - |
| HCM Control Delay (s) | 7.7 | 0 | 13.5 | 9.6 | - |
| HCM Lane LOS | A | A | B | A | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.2 | 0.4 | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 219 | 300 | 162 | 66 | 204 | 52 | 199 | 368 | 44 | 96 | 413 | 180 |
| Future Volume (veh/h) | 219 | 300 | 162 | 66 | 204 | 52 | 199 | 368 | 44 | 96 | 413 | 180 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1652 | 1652 | 1652 | 1652 | 1652 | 1652 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 238 | 326 | 176 | 72 | 222 | 57 | 216 | 400 | 48 | 104 | 449 | 196 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 256 | 515 | 437 | 89 | 340 | 288 | 208 | 915 | 109 | 130 | 585 | 253 |
| Arrive On Green | 0.16 | 0.31 | 0.31 | 0.06 | 0.21 | 0.21 | 0.12 | 0.30 | 0.30 | 0.08 | 0.26 | 0.26 |
| Sat Flow, veh/h | 1573 | 1652 | 1402 | 1573 | 1652 | 1400 | 1675 | 3008 | 359 | 1675 | 2273 | 984 |
| Grp Volume(v), veh/h | 238 | 326 | 176 | 72 | 222 | 57 | 216 | 221 | 227 | 104 | 329 | 316 |
| Grp Sat Flow(s),veh/h/ln | 1573 | 1652 | 1402 | 1573 | 1652 | 1400 | 1675 | 1671 | 1696 | 1675 | 1671 | 1586 |
| Q Serve(g_s), s | 11.8 | 13.3 | 7.8 | 3.6 | 9.7 | 2.7 | 9.8 | 8.4 | 8.5 | 4.8 | 14.3 | 14.6 |
| Cycle Q Clear(g_c), s | 11.8 | 13.3 | 7.8 | 3.6 | 9.7 | 2.7 | 9.8 | 8.4 | 8.5 | 4.8 | 14.3 | 14.6 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.21 | 1.00 | | 0.62 |
| Lane Grp Cap(c), veh/h | 256 | 515 | 437 | 89 | 340 | 288 | 208 | 508 | 516 | 130 | 430 | 408 |
| V/C Ratio(X) | 0.93 | 0.63 | 0.40 | 0.81 | 0.65 | 0.20 | 1.04 | 0.44 | 0.44 | 0.80 | 0.76 | 0.77 |
| Avail Cap(c_a), veh/h | 256 | 730 | 619 | 214 | 686 | 581 | 208 | 579 | 588 | 166 | 530 | 503 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 32.6 | 23.3 | 21.4 | 36.8 | 28.7 | 25.9 | 34.5 | 22.0 | 22.0 | 35.7 | 27.0 | 27.1 |
| Incr Delay (d2), s/veh | 38.1 | 1.3 | 0.6 | 15.7 | 2.1 | 0.3 | 72.2 | 0.6 | 0.6 | 18.8 | 5.3 | 5.9 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 7.8 | 6.3 | 3.1 | 1.9 | 4.6 | 1.0 | 8.6 | 4.0 | 4.1 | 2.9 | 7.2 | 7.0 |
| LnGrp Delay(d),s/veh | 70.6 | 24.6 | 22.0 | 52.5 | 30.9 | 26.2 | 106.8 | 22.6 | 22.6 | 54.5 | 32.3 | 33.0 |
| LnGrp LOS | E | C | C | D | C | C | F | C | C | D | C | C |
| Approach Vol, veh/h | | 740 | | | 351 | | | 664 | | | 749 | |
| Approach Delay, s/veh | | 38.8 | | | 34.5 | | | 50.0 | | | 35.7 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 10.3 | 30.0 | 8.7 | 29.8 | 14.0 | 26.3 | 17.0 | 21.5 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | * 4.2 | 5.3 | * 4.2 | 6.0 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 7.8 | * 27 | * 11 | 34.8 | * 9.8 | 25.0 | * 13 | 32.7 |
| Max Q Clear Time (g_c+I1), s | 6.8 | 10.5 | 5.6 | 15.3 | 11.8 | 16.6 | 13.8 | 11.7 |
| Green Ext Time (p_c), s | 0.0 | 5.5 | 0.1 | 3.7 | 0.0 | 3.7 | 0.0 | 3.7 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 40.2 |
| HCM 2010 LOS | D |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 163 | 250 | 300 | 52 | 301 | 87 | 288 | 601 | 51 | 42 | 480 | 205 |
| Future Volume (veh/h) | 163 | 250 | 300 | 52 | 301 | 87 | 288 | 601 | 51 | 42 | 480 | 205 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1652 | 1652 | 1652 | 1652 | 1652 | 1652 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 170 | 260 | 312 | 54 | 314 | 91 | 300 | 626 | 53 | 44 | 500 | 214 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 160 | 517 | 438 | 66 | 418 | 354 | 268 | 1201 | 102 | 54 | 589 | 251 |
| Arrive On Green | 0.10 | 0.31 | 0.31 | 0.04 | 0.25 | 0.25 | 0.16 | 0.39 | 0.39 | 0.03 | 0.26 | 0.26 |
| Sat Flow, veh/h | 1573 | 1652 | 1402 | 1573 | 1652 | 1401 | 1675 | 3120 | 264 | 1675 | 2286 | 973 |
| Grp Volume(v), veh/h | 170 | 260 | 312 | 54 | 314 | 91 | 300 | 335 | 344 | 44 | 365 | 349 |
| Grp Sat Flow(s),veh/h/ln | 1573 | 1652 | 1402 | 1573 | 1652 | 1401 | 1675 | 1671 | 1713 | 1675 | 1671 | 1588 |
| Q Serve(g_s), s | 8.8 | 11.1 | 17.0 | 2.9 | 15.1 | 4.5 | 13.8 | 13.3 | 13.4 | 2.3 | 17.9 | 18.1 |
| Cycle Q Clear(g_c), s | 8.8 | 11.1 | 17.0 | 2.9 | 15.1 | 4.5 | 13.8 | 13.3 | 13.4 | 2.3 | 17.9 | 18.1 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.15 | 1.00 | | 0.61 |
| Lane Grp Cap(c), veh/h | 160 | 517 | 438 | 66 | 418 | 354 | 268 | 644 | 659 | 54 | 430 | 409 |
| V/C Ratio(X) | 1.06 | 0.50 | 0.71 | 0.82 | 0.75 | 0.26 | 1.12 | 0.52 | 0.52 | 0.82 | 0.85 | 0.85 |
| Avail Cap(c_a), veh/h | 160 | 671 | 570 | 117 | 625 | 530 | 268 | 644 | 659 | 132 | 484 | 459 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 38.8 | 24.2 | 26.2 | 41.0 | 29.8 | 25.8 | 36.3 | 20.4 | 20.4 | 41.5 | 30.5 | 30.5 |
| Incr Delay (d2), s/veh | 88.1 | 0.8 | 2.9 | 20.9 | 2.8 | 0.4 | 91.4 | 0.8 | 0.7 | 24.6 | 12.2 | 13.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 7.7 | 5.2 | 6.9 | 1.7 | 7.2 | 1.8 | 13.1 | 6.3 | 6.4 | 1.4 | 9.7 | 9.5 |
| LnGrp Delay(d),s/veh | 126.9 | 25.0 | 29.1 | 61.9 | 32.6 | 26.2 | 127.7 | 21.2 | 21.2 | 66.1 | 42.6 | 43.9 |
| LnGrp LOS | F | C | C | E | C | C | F | C | C | E | D | D |
| Approach Vol, veh/h | | 742 | | | 459 | | | 979 | | | 758 | |
| Approach Delay, s/veh | | 50.1 | | | 34.7 | | | 53.8 | | | 44.6 | |
| Approach LOS | | D | | | C | | | D | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 7.0 | 39.3 | 7.8 | 32.3 | 18.0 | 28.2 | 13.0 | 27.1 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | * 4.2 | 5.3 | * 4.2 | 6.0 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 6.8 | * 32 | * 6.4 | 35.1 | * 14 | 25.0 | * 8.8 | 32.7 |
| Max Q Clear Time (g_c+I1), s | 4.3 | 15.4 | 4.9 | 19.0 | 15.8 | 20.1 | 10.8 | 17.1 |
| Green Ext Time (p_c), s | 0.0 | 7.2 | 0.0 | 4.2 | 0.0 | 2.2 | 0.0 | 4.1 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 47.5 |
| HCM 2010 LOS | D |

Notes

## Intersection: 1: Orange Avenue & North Avenue

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | L | T | T | R | L | T | R |
| Maximum Queue (ft) | 131 | 216 | 262 | 162 | 335 | 419 | 749 | 162 | 53 | 110 | 172 | 132 |
| Average Queue (ft) | 34 | 129 | 180 | 47 | 228 | 259 | 159 | 92 | 10 | 28 | 52 | 49 |
| 95th Queue (ft) | 79 | 209 | 272 | 104 | 352 | 402 | 453 | 164 | 35 | 69 | 113 | 101 |
| Link Distance (ft) | | 2611 | 2611 | | | | 774 | 774 | | | | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | | 250 | 250 | 250 | | | 100 | 150 | | 250 |
| Storage Blk Time (%) | | | 1 | | 6 | 11 | | 7 | | | 1 | |
| Queuing Penalty (veh) | | | 2 | | 17 | 31 | | 4 | | | 2 | |

## Intersection: 1: Orange Avenue & North Avenue

| Movement | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|
| Directions Served | R | L | T | T | R |
| Maximum Queue (ft) | 82 | 129 | 156 | 182 | 146 |
| Average Queue (ft) | 37 | 37 | 87 | 84 | 52 |
| 95th Queue (ft) | 67 | 84 | 136 | 154 | 105 |
| Link Distance (ft) | | | 208 | 208 | |
| Upstream Blk Time (%) | | | | | |
| Queuing Penalty (veh) | | | | | |
| Storage Bay Dist (ft) | 250 | 100 | | | 150 |
| Storage Blk Time (%) | | 5 | 3 | 1 | 1 |
| Queuing Penalty (veh) | | 8 | 2 | 2 | 1 |

## Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

| Movement | EB | EB | EB | WB | WB | WB | WB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | R | L | L | T | T | L | L | R | R |
| Maximum Queue (ft) | 319 | 138 | 285 | 113 | 112 | 207 | 184 | 105 | 210 | 268 | 273 |
| Average Queue (ft) | 141 | 79 | 120 | 16 | 68 | 96 | 75 | 42 | 79 | 184 | 107 |
| 95th Queue (ft) | 240 | 141 | 232 | 62 | 104 | 177 | 138 | 86 | 143 | 258 | 218 |
| Link Distance (ft) | 774 | 774 | | | | 771 | 771 | | | 1043 | |
| Upstream Blk Time (%) | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | |
| Storage Bay Dist (ft) | | | 300 | 300 | 300 | | | 300 | 300 | | 300 |
| Storage Blk Time (%) | | | 0 | | | | | | | | |
| Queuing Penalty (veh) | | | 0 | | | | | | | | |

## Intersection: 4: North Avenue & SR 99 NB On-Ramp

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | L | T | T | T | T | R | L | L | R |
| Maximum Queue (ft) | 136 | 142 | 129 | 137 | 248 | 232 | 114 | 140 | 198 | 94 |
| Average Queue (ft) | 47 | 87 | 47 | 53 | 143 | 112 | 37 | 58 | 77 | 42 |
| 95th Queue (ft) | 106 | 139 | 102 | 119 | 247 | 217 | 88 | 113 | 153 | 84 |
| Link Distance (ft) | | | 771 | 771 | 850 | 850 | | | 998 | |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (ft) | 300 | 300 | | | | | 300 | 300 | | 300 |
| Storage Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | T | R | L | T | R | L |
| Maximum Queue (ft) | 172 | 158 | 154 | 54 | 126 | 173 | 140 | 80 | 170 | 125 | 52 | 45 |
| Average Queue (ft) | 71 | 62 | 55 | 22 | 48 | 100 | 65 | 19 | 57 | 24 | 20 | 8 |
| 95th Queue (ft) | 133 | 128 | 125 | 54 | 102 | 155 | 134 | 51 | 120 | 69 | 43 | 30 |
| Link Distance (ft) | | 850 | 850 | | | 2586 | 2586 | | | 1732 | | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | | 250 | 250 | | | 250 | 250 | | 250 | 250 |
| Storage Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (ft) | 109 | 60 |
| Average Queue (ft) | 32 | 17 |
| 95th Queue (ft) | 77 | 46 |
| Link Distance (ft) | 1294 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | 250 |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 6: Chestnut Ave & North Ave

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | L | T | R | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 302 | 292 | 96 | 171 | 246 | 97 | 364 | 426 | 186 | 174 | 180 | 232 |
| Average Queue (ft) | 158 | 129 | 46 | 57 | 112 | 29 | 143 | 100 | 108 | 62 | 90 | 124 |
| 95th Queue (ft) | 247 | 241 | 76 | 122 | 194 | 71 | 276 | 226 | 174 | 125 | 156 | 192 |
| Link Distance (ft) | | 2528 | | | 4573 | | | 5286 | 5286 | | 5279 | 5279 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | 250 | 250 | | 250 | 245 | | | 150 | | |
| Storage Blk Time (%) | 0 | 0 | | | 0 | | 6 | | | 1 | 0 | |
| Queuing Penalty (veh) | 2 | 1 | | | 0 | | 11 | | | 1 | 0 | |

## Intersection: 8: Cedar Avenue & Parkway Drive

| Movement | NB | SE | SE |
|---|---|---|---|
| Directions Served | LT | L | R |
| Maximum Queue (ft) | 72 | 185 | 139 |
| Average Queue (ft) | 14 | 34 | 56 |
| 95th Queue (ft) | 52 | 92 | 123 |
| Link Distance (ft) | 3472 | | |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (ft) | | | 65 |
| Storage Blk Time (%) | | 0 | 6 |
| Queuing Penalty (veh) | | 1 | 3 |

## Zone Summary

Zone wide Queuing Penalty: 89

## Intersection: 1: Orange Avenue & North Avenue

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | L | T | T | R | L | T | R |
| Maximum Queue (ft) | 349 | 373 | 489 | 370 | 186 | 210 | 365 | 352 | 220 | 250 | 319 | 334 |
| Average Queue (ft) | 149 | 210 | 220 | 41 | 68 | 94 | 163 | 164 | 15 | 115 | 250 | 257 |
| 95th Queue (ft) | 269 | 331 | 363 | 148 | 140 | 164 | 295 | 311 | 82 | 231 | 353 | 350 |
| Link Distance (ft) | | 2611 | 2611 | | | | 774 | 774 | | | | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | | 250 | 250 | 250 | | | 100 | 150 | | 250 |
| Storage Blk Time (%) | 2 | 5 | 7 | | | | 4 | 25 | | 1 | 27 | 8 |
| Queuing Penalty (veh) | 6 | 8 | 7 | | | | 11 | 7 | | 15 | 245 | 43 |

## Intersection: 1: Orange Avenue & North Avenue

| Movement | NB | SB | SB | SB | SB |
|---|---|---|---|---|---|
| Directions Served | R | L | T | T | R |
| Maximum Queue (ft) | 310 | 152 | 204 | 169 | 91 |
| Average Queue (ft) | 176 | 68 | 51 | 31 | 38 |
| 95th Queue (ft) | 311 | 125 | 115 | 94 | 76 |
| Link Distance (ft) | | | 208 | 208 | |
| Upstream Blk Time (%) | | | 0 | | |
| Queuing Penalty (veh) | | | 0 | | |
| Storage Bay Dist (ft) | 250 | 100 | | | 150 |
| Storage Blk Time (%) | 1 | 9 | 2 | 0 | |
| Queuing Penalty (veh) | 4 | 5 | 2 | 0 | |

## Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Avenue

| Movement | EB | EB | EB | WB | WB | WB | WB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | R | L | L | T | T | L | L | R | R |
| Maximum Queue (ft) | 340 | 287 | 181 | 85 | 147 | 177 | 290 | 85 | 119 | 142 | 79 |
| Average Queue (ft) | 188 | 120 | 100 | 27 | 77 | 42 | 28 | 18 | 58 | 72 | 22 |
| 95th Queue (ft) | 300 | 229 | 168 | 61 | 129 | 107 | 120 | 51 | 103 | 117 | 59 |
| Link Distance (ft) | 774 | 774 | | | | 771 | 771 | | | 1043 | |
| Upstream Blk Time (%) | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | |
| Storage Bay Dist (ft) | | | 300 | 300 | 300 | | | 300 | 300 | | 300 |
| Storage Blk Time (%) | | 0 | | | | | | | | | |
| Queuing Penalty (veh) | | 0 | | | | | | | | | |

## Intersection: 4: North Avenue & SR 99 NB On-Ramp

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | L | T | T | T | T | R | L | L | R |
| Maximum Queue (ft) | 167 | 222 | 145 | 129 | 265 | 228 | 166 | 189 | 216 | 110 |
| Average Queue (ft) | 81 | 116 | 35 | 41 | 147 | 118 | 99 | 57 | 96 | 43 |
| 95th Queue (ft) | 142 | 191 | 82 | 90 | 241 | 201 | 157 | 136 | 179 | 86 |
| Link Distance (ft) | | | 771 | 771 | 850 | 850 | | | 998 | |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (ft) | 300 | 300 | | | | | 300 | 300 | | 300 |
| Storage Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | T | R | L | T | R | L |
| Maximum Queue (ft) | 130 | 315 | 272 | 59 | 186 | 265 | 302 | 54 | 274 | 127 | 184 | 84 |
| Average Queue (ft) | 40 | 146 | 110 | 6 | 97 | 115 | 150 | 8 | 172 | 55 | 50 | 18 |
| 95th Queue (ft) | 101 | 255 | 211 | 26 | 162 | 202 | 248 | 33 | 258 | 110 | 124 | 56 |
| Link Distance (ft) | | 850 | 850 | | | 2586 | 2586 | | | 1732 | | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | | 250 | 250 | | | 250 | 250 | | 250 | 250 |
| Storage Blk Time (%) | | 1 | 0 | | | 1 | 1 | | 2 | | | |
| Queuing Penalty (veh) | | 0 | 0 | | | 1 | 0 | | 4 | | | |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (ft) | 64 | 64 |
| Average Queue (ft) | 19 | 23 |
| 95th Queue (ft) | 52 | 53 |
| Link Distance (ft) | 1294 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | 250 |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 6: Chestnut Ave & North Ave

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | L | T | R | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 370 | 1189 | 270 | 176 | 291 | 94 | 365 | 805 | 682 | 68 | 267 | 362 |
| Average Queue (ft) | 228 | 255 | 94 | 54 | 174 | 43 | 348 | 478 | 207 | 27 | 153 | 189 |
| 95th Queue (ft) | 393 | 607 | 193 | 116 | 277 | 85 | 430 | 811 | 474 | 57 | 243 | 299 |
| Link Distance (ft) | | 2528 | | | 4573 | | | 5286 | 5286 | | 5279 | 5279 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | 150 | 250 | | 250 | 245 | | | 150 | | |
| Storage Blk Time (%) | 26 | 6 | 1 | | 2 | | 81 | 0 | | | 12 | |
| Queuing Penalty (veh) | 142 | 28 | 5 | | 3 | | 244 | 0 | | | 5 | |

## Intersection: 8: Cedar Avenue & Parkway Drive

| Movement | SE | SE |
|---|---|---|
| Directions Served | L | R |
| Maximum Queue (ft) | 33 | 49 |
| Average Queue (ft) | 6 | 13 |
| 95th Queue (ft) | 20 | 37 |
| Link Distance (ft) | | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | 65 |
| Storage Blk Time (%) | | 0 |
| Queuing Penalty (veh) | | 0 |

## Zone Summary

Zone wide Queuing Penalty: 785

# Appendix J: Cumulative Year 2035 plus Project Traffic Conditions

| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 86 | 627 | 134 | 54 | 737 | 591 | 57 | 31 | 90 | 194 | 225 | 339 |
| Future Volume (vph) | 86 | 627 | 134 | 54 | 737 | 591 | 57 | 31 | 90 | 194 | 225 | 339 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | | 0.97 | 0.95 | 1.00 | 1.00 | 1.00 | 0.88 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.99 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.98 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1543 | 3085 | 1360 | | 3018 | 3085 | 1345 | 1543 | 1624 | 2369 | 1543 | 3085 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1543 | 3085 | 1360 | | 3018 | 3085 | 1345 | 1543 | 1624 | 2369 | 1543 | 3085 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 93 | 682 | 146 | 59 | 801 | 642 | 62 | 34 | 98 | 211 | 245 | 368 |
| RTOR Reduction (vph) | 0 | 0 | 107 | 0 | 0 | 0 | 36 | 0 | 0 | 179 | 0 | 0 |
| Lane Group Flow (vph) | 93 | 682 | 39 | 0 | 860 | 642 | 26 | 34 | 98 | 32 | 245 | 368 |
| Confl. Peds. (#/hr) | | | 3 | | | | 3 | | | 3 | | |
| Heavy Vehicles (%) | 17% | 17% | 17% | 3% | 17% | 17% | 17% | 17% | 17% | 17% | 17% | 17% |
| Turn Type | Prot | NA | Perm | Prot | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |
| Protected Phases | 7 | 4 | | 3 | 3 | 8 | | 5 | 2 | | 1 | 6 |
| Permitted Phases | | | 4 | | | | 8 | | | 2 | | |
| Actuated Green, G (s) | 9.1 | 27.1 | 27.1 | | 25.1 | 43.1 | 43.1 | 3.8 | 15.5 | 15.5 | 14.0 | 25.7 |
| Effective Green, g (s) | 9.1 | 27.1 | 27.1 | | 25.1 | 43.1 | 43.1 | 3.8 | 15.5 | 15.5 | 14.0 | 25.7 |
| Actuated g/C Ratio | 0.09 | 0.27 | 0.27 | | 0.25 | 0.43 | 0.43 | 0.04 | 0.15 | 0.15 | 0.14 | 0.25 |
| Clearance Time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 138 | 824 | 363 | | 747 | 1311 | 571 | 57 | 248 | 362 | 213 | 781 |
| v/s Ratio Prot | 0.06 | c0.22 | | | c0.28 | 0.21 | | 0.02 | 0.06 | | c0.16 | c0.12 |
| v/s Ratio Perm | | | 0.03 | | | | 0.02 | | | 0.01 | | |
| v/c Ratio | 0.67 | 0.83 | 0.11 | | 1.15 | 0.49 | 0.05 | 0.60 | 0.40 | 0.09 | 1.15 | 0.47 |
| Uniform Delay, d1 | 44.7 | 35.0 | 28.0 | | 38.2 | 21.2 | 17.1 | 48.0 | 38.7 | 36.9 | 43.7 | 32.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 12.2 | 6.9 | 0.1 | | 83.1 | 0.3 | 0.0 | 15.6 | 1.0 | 0.1 | 108.1 | 0.5 |
| Delay (s) | 57.0 | 41.8 | 28.2 | | 121.2 | 21.5 | 17.1 | 63.7 | 39.8 | 37.0 | 151.8 | 32.5 |
| Level of Service | E | D | C | | F | C | B | E | D | D | F | C |
| Approach Delay (s) | | 41.2 | | | | 76.2 | | | 40.4 | | | 68.7 |
| Approach LOS | | D | | | | E | | | D | | | E |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 62.2 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 0.93 | | |
| Actuated Cycle Length (s) | 101.4 | Sum of lost time (s) | 19.7 |
| Intersection Capacity Utilization | 78.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 165 |
| Future Volume (vph) | 165 |
| Ideal Flow (vphpl) | 1900 |
| Total Lost time (s) | 6.0 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.98 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1359 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1359 |
| Peak-hour factor, PHF | 0.92 |
| Adj. Flow (vph) | 179 |
| RTOR Reduction (vph) | 134 |
| Lane Group Flow (vph) | 45 |
| Confl. Peds. (#/hr) | 3 |
| Heavy Vehicles (%) | 17% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 6 |
| Actuated Green, G (s) | 25.7 |
| Effective Green, g (s) | 25.7 |
| Actuated g/C Ratio | 0.25 |
| Clearance Time (s) | 6.0 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 344 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.03 |
| v/c Ratio | 0.13 |
| Uniform Delay, d1 | 29.2 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.2 |
| Delay (s) | 29.4 |
| Level of Service | C |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.8 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↑↱ | | | ↱ |
| Traffic Vol, veh/h | 0 | 1100 | 1349 | 263 | 0 | 90 |
| Future Vol, veh/h | 0 | 1100 | 1349 | 263 | 0 | 90 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 17 | 17 | 3 | 0 | 3 |
| Mvmt Flow | 0 | 1196 | 1466 | 286 | 0 | 98 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 876 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.96 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.33 |
| Pot Cap-1 Maneuver | 0 | - | - | - | 0 | 290 |
| Stage 1 | 0 | - | - | - | 0 | - |
| Stage 2 | 0 | - | - | - | 0 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 290 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 23.6 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|
| Capacity (veh/h) | - | - | - | 290 |
| HCM Lane V/C Ratio | - | - | - | 0.337 |
| HCM Control Delay (s) | - | - | - | 23.6 |
| HCM Lane LOS | - | - | - | C |
| HCM 95th %tile Q(veh) | - | - | - | 1.4 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 646 | 454 | 121 | 864 | 0 | 0 | 0 | 0 | 265 | 0 | 748 |
| Future Volume (veh/h) | 0 | 646 | 454 | 121 | 864 | 0 | 0 | 0 | 0 | 265 | 0 | 748 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | | | | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | | | | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 0 | 1496 | 1496 | 1496 | 1496 | 0 | | | | 1496 | 0 | 1496 |
| Adj Flow Rate, veh/h | 0 | 702 | 493 | 132 | 939 | 0 | | | | 288 | 0 | 813 |
| Adj No. of Lanes | 0 | 2 | 1 | 2 | 2 | 0 | | | | 2 | 0 | 2 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 0 | 27 | 27 | 27 | 27 | 0 | | | | 27 | 0 | 27 |
| Cap, veh/h | 0 | 924 | 413 | 452 | 1640 | 0 | | | | 1004 | 0 | 813 |
| Arrive On Green | 0.00 | 0.32 | 0.32 | 0.33 | 1.00 | 0.00 | | | | 0.36 | 0.00 | 0.36 |
| Sat Flow, veh/h | 0 | 2917 | 1272 | 2764 | 2917 | 0 | | | | 2764 | 0 | 2238 |
| Grp Volume(v), veh/h | 0 | 702 | 493 | 132 | 939 | 0 | | | | 288 | 0 | 813 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1421 | 1272 | 1382 | 1421 | 0 | | | | 1382 | 0 | 1119 |
| Q Serve(g_s), s | 0.0 | 13.3 | 19.5 | 2.1 | 0.0 | 0.0 | | | | 4.4 | 0.0 | 21.8 |
| Cycle Q Clear(g_c), s | 0.0 | 13.3 | 19.5 | 2.1 | 0.0 | 0.0 | | | | 4.4 | 0.0 | 21.8 |
| Prop In Lane | 0.00 | | 1.00 | 1.00 | | 0.00 | | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 924 | 413 | 452 | 1640 | 0 | | | | 1004 | 0 | 813 |
| V/C Ratio(X) | 0.00 | 0.76 | 1.19 | 0.29 | 0.57 | 0.00 | | | | 0.29 | 0.00 | 1.00 |
| Avail Cap(c_a), veh/h | 0 | 924 | 413 | 452 | 1640 | 0 | | | | 1004 | 0 | 813 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 1.00 | 1.00 | 0.72 | 0.72 | 0.00 | | | | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 0.0 | 18.2 | 20.2 | 17.6 | 0.0 | 0.0 | | | | 13.6 | 0.0 | 19.1 |
| Incr Delay (d2), s/veh | 0.0 | 5.8 | 108.4 | 0.3 | 1.0 | 0.0 | | | | 0.2 | 0.0 | 31.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 5.9 | 19.2 | 0.8 | 0.2 | 0.0 | | | | 1.7 | 0.0 | 10.2 |
| LnGrp Delay(d),s/veh | 0.0 | 24.0 | 128.6 | 17.9 | 1.0 | 0.0 | | | | 13.7 | 0.0 | 50.6 |
| LnGrp LOS | | C | F | B | A | | | | | B | | D |
| Approach Vol, veh/h | | 1195 | | | 1071 | | | | | | 1101 | |
| Approach Delay, s/veh | | 67.2 | | | 3.1 | | | | | | 41.0 | |
| Approach LOS | | E | | | A | | | | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | | 3 | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | | 15.2 | 24.8 | | 26.0 | | 40.0 |
| Change Period (Y+Rc), s | | | 5.3 | * 5.3 | | 4.2 | | 5.3 |
| Max Green Setting (Gmax), s | | | 5.0 | * 20 | | 21.8 | | 28.7 |
| Max Q Clear Time (g_c+I1), s | | | 4.1 | 21.5 | | 23.8 | | 2.0 |
| Green Ext Time (p_c), s | | | 0.1 | 0.0 | | 0.0 | | 7.4 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 38.2 |
| HCM 2010 LOS | D |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 279 | 632 | 0 | 0 | 736 | 108 | 249 | 0 | 69 | 0 | 0 | 0 |
| Future Volume (veh/h) | 279 | 632 | 0 | 0 | 736 | 108 | 249 | 0 | 69 | 0 | 0 | 0 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Adj Sat Flow, veh/h/ln | 1439 | 1439 | 0 | 0 | 1439 | 1439 | 1439 | 0 | 1439 | | | |
| Adj Flow Rate, veh/h | 297 | 672 | 0 | 0 | 783 | 115 | 265 | 0 | 73 | | | |
| Adj No. of Lanes | 2 | 2 | 0 | 0 | 2 | 1 | 2 | 0 | 1 | | | |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | | | |
| Percent Heavy Veh, % | 32 | 32 | 0 | 0 | 32 | 32 | 32 | 0 | 32 | | | |
| Cap, veh/h | 719 | 1938 | 0 | 0 | 957 | 426 | 354 | 0 | 163 | | | |
| Arrive On Green | 0.54 | 1.00 | 0.00 | 0.00 | 0.35 | 0.35 | 0.13 | 0.00 | 0.13 | | | |
| Sat Flow, veh/h | 2659 | 2807 | 0 | 0 | 2807 | 1218 | 2659 | 0 | 1223 | | | |
| Grp Volume(v), veh/h | 297 | 672 | 0 | 0 | 783 | 115 | 265 | 0 | 73 | | | |
| Grp Sat Flow(s),veh/h/ln | 1330 | 1367 | 0 | 0 | 1367 | 1218 | 1330 | 0 | 1223 | | | |
| Q Serve(g_s), s | 4.0 | 0.0 | 0.0 | 0.0 | 15.6 | 4.1 | 5.8 | 0.0 | 3.3 | | | |
| Cycle Q Clear(g_c), s | 4.0 | 0.0 | 0.0 | 0.0 | 15.6 | 4.1 | 5.8 | 0.0 | 3.3 | | | |
| Prop In Lane | 1.00 | | 0.00 | 0.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 719 | 1938 | 0 | 0 | 957 | 426 | 354 | 0 | 163 | | | |
| V/C Ratio(X) | 0.41 | 0.35 | 0.00 | 0.00 | 0.82 | 0.27 | 0.75 | 0.00 | 0.45 | | | |
| Avail Cap(c_a), veh/h | 719 | 1938 | 0 | 0 | 1171 | 522 | 434 | 0 | 200 | | | |
| HCM Platoon Ratio | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Upstream Filter(I) | 0.75 | 0.75 | 0.00 | 0.00 | 0.70 | 0.70 | 1.00 | 0.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 11.0 | 0.0 | 0.0 | 0.0 | 17.8 | 14.0 | 25.0 | 0.0 | 24.0 | | | |
| Incr Delay (d2), s/veh | 0.3 | 0.4 | 0.0 | 0.0 | 5.5 | 1.1 | 5.6 | 0.0 | 1.9 | | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| %ile BackOfQ(50%),veh/ln | 1.4 | 0.1 | 0.0 | 0.0 | 6.6 | 1.5 | 2.4 | 0.0 | 1.2 | | | |
| LnGrp Delay(d),s/veh | 11.3 | 0.4 | 0.0 | 0.0 | 23.3 | 15.1 | 30.7 | 0.0 | 25.9 | | | |
| LnGrp LOS | B | A | | | C | B | C | | C | | | |
| Approach Vol, veh/h | | 969 | | | 898 | | | 338 | | | | |
| Approach Delay, s/veh | | 3.7 | | | 22.2 | | | 29.6 | | | | |
| Approach LOS | | A | | | C | | | C | | | | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | | | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 12.2 | | 47.8 | | | 21.5 | 26.3 |
| Change Period (Y+Rc), s | | * 4.2 | | 5.3 | | | 5.3 | * 5.3 |
| Max Green Setting (Gmax), s | | * 9.8 | | 40.7 | | | 10.8 | * 26 |
| Max Q Clear Time (g_c+I1), s | | 7.8 | | 2.0 | | | 6.0 | 17.6 |
| Green Ext Time (p_c), s | | 0.3 | | 6.2 | | | 2.3 | 3.4 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 15.2 |
| HCM 2010 LOS | B |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 90 | 533 | 78 | 71 | 735 | 68 | 79 | 39 | 80 | 9 | 35 | 30 |
| Future Volume (veh/h) | 90 | 533 | 78 | 71 | 735 | 68 | 79 | 39 | 80 | 9 | 35 | 30 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 | 1439 |
| Adj Flow Rate, veh/h | 98 | 579 | 85 | 77 | 799 | 74 | 86 | 42 | 87 | 10 | 38 | 33 |
| Adj No. of Lanes | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 | 32 |
| Cap, veh/h | 129 | 1159 | 517 | 88 | 1023 | 456 | 99 | 242 | 204 | 18 | 156 | 131 |
| Arrive On Green | 0.09 | 0.42 | 0.42 | 0.06 | 0.37 | 0.37 | 0.07 | 0.17 | 0.17 | 0.01 | 0.11 | 0.11 |
| Sat Flow, veh/h | 1371 | 2735 | 1219 | 1371 | 2735 | 1219 | 1371 | 1439 | 1217 | 1371 | 1439 | 1213 |
| Grp Volume(v), veh/h | 98 | 579 | 85 | 77 | 799 | 74 | 86 | 42 | 87 | 10 | 38 | 33 |
| Grp Sat Flow(s),veh/h/ln | 1371 | 1367 | 1219 | 1371 | 1367 | 1219 | 1371 | 1439 | 1217 | 1371 | 1439 | 1213 |
| Q Serve(g_s), s | 3.9 | 8.7 | 2.4 | 3.1 | 14.5 | 1.6 | 3.5 | 1.4 | 3.6 | 0.4 | 1.4 | 1.0 |
| Cycle Q Clear(g_c), s | 3.9 | 8.7 | 2.4 | 3.1 | 14.5 | 1.6 | 3.5 | 1.4 | 3.6 | 0.4 | 1.4 | 1.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 129 | 1159 | 517 | 88 | 1023 | 456 | 99 | 242 | 204 | 18 | 156 | 131 |
| V/C Ratio(X) | 0.76 | 0.50 | 0.16 | 0.88 | 0.78 | 0.16 | 0.87 | 0.17 | 0.43 | 0.57 | 0.24 | 0.25 |
| Avail Cap(c_a), veh/h | 191 | 1511 | 674 | 156 | 1443 | 643 | 171 | 872 | 737 | 122 | 821 | 692 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 24.8 | 11.8 | 10.0 | 26.0 | 15.5 | 5.9 | 25.8 | 20.0 | 20.9 | 27.5 | 22.9 | 10.9 |
| Incr Delay (d2), s/veh | 9.7 | 0.3 | 0.1 | 22.5 | 1.9 | 0.2 | 19.5 | 0.3 | 1.4 | 25.6 | 0.8 | 1.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.8 | 3.3 | 0.8 | 1.7 | 5.7 | 0.7 | 1.9 | 0.6 | 1.3 | 0.3 | 0.6 | 0.5 |
| LnGrp Delay(d),s/veh | 34.4 | 12.2 | 10.2 | 48.5 | 17.4 | 6.0 | 45.3 | 20.3 | 22.3 | 53.1 | 23.7 | 11.9 |
| LnGrp LOS | C | B | B | D | B | A | D | C | C | D | C | B |
| Approach Vol, veh/h | | 762 | | | 950 | | | 215 | | | 81 | |
| Approach Delay, s/veh | | 14.8 | | | 19.0 | | | 31.1 | | | 22.5 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 4.9 | 14.3 | 7.8 | 29.1 | 8.3 | 11.0 | 10.6 | 26.3 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | * 4.2 | 5.3 | * 4.2 | 4.9 | 5.3 | * 5.3 |
| Max Green Setting (Gmax), s | * 5 | 34.0 | * 6.4 | 31.0 | * 7 | 32.0 | 7.8 | * 30 |
| Max Q Clear Time (g_c+I1), s | 2.4 | 5.6 | 5.1 | 10.7 | 5.5 | 3.4 | 5.9 | 16.5 |
| Green Ext Time (p_c), s | 0.0 | 0.7 | 0.0 | 4.2 | 0.0 | 0.7 | 0.8 | 4.5 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 18.9 |
| HCM 2010 LOS | B |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 270 | 314 | 163 | 66 | 219 | 52 | 200 | 368 | 44 | 96 | 413 | 235 |
| Future Volume (veh/h) | 270 | 314 | 163 | 66 | 219 | 52 | 200 | 368 | 44 | 96 | 413 | 235 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1652 | 1900 | 1900 | 1652 | 1900 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 293 | 341 | 177 | 72 | 238 | 57 | 217 | 400 | 48 | 104 | 449 | 255 |
| Adj No. of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 282 | 281 | 146 | 157 | 494 | 113 | 179 | 727 | 87 | 95 | 395 | 223 |
| Arrive On Green | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.57 | 0.11 | 0.24 | 0.24 | 0.06 | 0.19 | 0.19 |
| Sat Flow, veh/h | 422 | 491 | 255 | 212 | 863 | 198 | 1675 | 3008 | 359 | 1675 | 2062 | 1163 |
| Grp Volume(v), veh/h | 811 | 0 | 0 | 367 | 0 | 0 | 217 | 221 | 227 | 104 | 363 | 341 |
| Grp Sat Flow(s),veh/h/ln | 1167 | 0 | 0 | 1272 | 0 | 0 | 1675 | 1671 | 1696 | 1675 | 1671 | 1554 |
| Q Serve(g_s), s | 50.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 12.8 | 13.9 | 14.0 | 6.8 | 23.0 | 23.0 |
| Cycle Q Clear(g_c), s | 68.7 | 0.0 | 0.0 | 18.3 | 0.0 | 0.0 | 12.8 | 13.9 | 14.0 | 6.8 | 23.0 | 23.0 |
| Prop In Lane | 0.36 | | 0.22 | 0.20 | | 0.16 | 1.00 | | 0.21 | 1.00 | | 0.75 |
| Lane Grp Cap(c), veh/h | 709 | 0 | 0 | 764 | 0 | 0 | 179 | 404 | 410 | 95 | 320 | 298 |
| V/C Ratio(X) | 1.14 | 0.00 | 0.00 | 0.48 | 0.00 | 0.00 | 1.21 | 0.55 | 0.55 | 1.10 | 1.13 | 1.14 |
| Avail Cap(c_a), veh/h | 709 | 0 | 0 | 764 | 0 | 0 | 179 | 408 | 414 | 95 | 320 | 298 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 29.7 | 0.0 | 0.0 | 14.5 | 0.0 | 0.0 | 53.6 | 39.8 | 39.8 | 56.6 | 48.5 | 48.5 |
| Incr Delay (d2), s/veh | 81.0 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 136.7 | 1.5 | 1.6 | 120.5 | 91.6 | 96.9 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 39.4 | 0.0 | 0.0 | 7.1 | 0.0 | 0.0 | 12.7 | 6.6 | 6.7 | 6.3 | 18.7 | 17.9 |
| LnGrp Delay(d),s/veh | 110.7 | 0.0 | 0.0 | 15.0 | 0.0 | 0.0 | 190.3 | 41.3 | 41.4 | 177.1 | 140.1 | 145.4 |
| LnGrp LOS | F | | | B | | | F | D | D | F | F | F |
| Approach Vol, veh/h | | 811 | | | 367 | | | 665 | | | 808 | |
| Approach Delay, s/veh | | 110.7 | | | 15.0 | | | 89.9 | | | 147.1 | |
| Approach LOS | | F | | | B | | | F | | | F | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 11.0 | 35.0 | | 74.0 | 17.0 | 29.0 | | 74.0 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | | 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | * 6.8 | * 29 | | 68.7 | * 13 | 23.0 | | 68.7 |
| Max Q Clear Time (g_c+I1), s | 8.8 | 16.0 | | 70.7 | 14.8 | 25.0 | | 20.3 |
| Green Ext Time (p_c), s | 0.0 | 5.2 | | 0.0 | 0.0 | 0.0 | | 11.6 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 103.3 |
| HCM 2010 LOS | F |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 5.4 |

| Movement | NBL | NBT | SBT | SBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 18 | 147 | 159 | 24 | 51 | 201 |
| Future Vol, veh/h | 18 | 147 | 159 | 24 | 51 | 201 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | Stop |
| Storage Length | - | - | - | 50 | 0 | 65 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 50 | 50 | 50 | 50 | 50 | 50 |
| Mvmt Flow | 20 | 160 | 173 | 26 | 55 | 218 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 173 | 0 | - | 0 | 372 | 173 |
| Stage 1 | - | - | - | - | 173 | - |
| Stage 2 | - | - | - | - | 199 | - |
| Critical Hdwy | 4.6 | - | - | - | 6.9 | 6.7 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.9 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.9 | - |
| Follow-up Hdwy | 2.65 | - | - | - | 3.95 | 3.75 |
| Pot Cap-1 Maneuver | 1160 | - | - | 0 | 544 | 760 |
| Stage 1 | - | - | - | 0 | 754 | - |
| Stage 2 | - | - | - | 0 | 732 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | 1160 | - | - | - | 534 | 760 |
| Mov Cap-2 Maneuver | - | - | - | - | 534 | - |
| Stage 1 | - | - | - | - | 754 | - |
| Stage 2 | - | - | - | - | 718 | - |

| Approach | NB | SB | SE |
|---|---|---|---|
| HCM Control Delay, s | 0.9 | 0 | 11.8 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBL | NBT | SELn1 | SELn2 | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1160 | - | 534 | 760 | - |
| HCM Lane V/C Ratio | 0.017 | - | 0.104 | 0.287 | - |
| HCM Control Delay (s) | 8.2 | 0 | 12.5 | 11.6 | - |
| HCM Lane LOS | A | A | B | B | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.3 | 1.2 | - |

| Movement | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 174 | 712 | 104 | 46 | 247 | 770 | 29 | 144 | 380 | 778 | 217 | 111 |
| Future Volume (vph) | 174 | 712 | 104 | 46 | 247 | 770 | 29 | 144 | 380 | 778 | 217 | 111 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | | 0.97 | 0.95 | 1.00 | 1.00 | 1.00 | 0.88 | 1.00 | 0.95 |
| Frpb, ped/bikes | 1.00 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 | 0.97 | 1.00 | 1.00 |
| Flpb, ped/bikes | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1556 | 3112 | 1371 | | 3073 | 3112 | 1356 | 1556 | 1638 | 2387 | 1556 | 3112 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1556 | 3112 | 1371 | | 3073 | 3112 | 1356 | 1556 | 1638 | 2387 | 1556 | 3112 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 189 | 774 | 113 | 50 | 268 | 837 | 32 | 157 | 413 | 846 | 236 | 121 |
| RTOR Reduction (vph) | 0 | 0 | 80 | 0 | 0 | 0 | 23 | 0 | 0 | 225 | 0 | 0 |
| Lane Group Flow (vph) | 189 | 774 | 33 | 0 | 318 | 837 | 9 | 157 | 413 | 621 | 236 | 121 |
| Confl. Peds. (#/hr) | | | 3 | | | | 3 | | | 3 | | |
| Heavy Vehicles (%) | 16% | 16% | 16% | 3% | 16% | 16% | 16% | 16% | 16% | 16% | 16% | 16% |
| Turn Type | Prot | NA | Perm | Prot | Prot | NA | Perm | Prot | NA | Perm | Prot | NA |
| Protected Phases | 7 | 4 | | 3 | 3 | 8 | | 5 | 2 | | 1 | 6 |
| Permitted Phases | | | 4 | | | | 8 | | | 2 | | |
| Actuated Green, G (s) | 14.8 | 34.7 | 34.7 | | 15.0 | 34.9 | 34.9 | 16.7 | 31.8 | 31.8 | 18.8 | 33.9 |
| Effective Green, g (s) | 14.8 | 34.7 | 34.7 | | 15.0 | 34.9 | 34.9 | 16.7 | 31.8 | 31.8 | 18.8 | 33.9 |
| Actuated g/C Ratio | 0.12 | 0.29 | 0.29 | | 0.12 | 0.29 | 0.29 | 0.14 | 0.27 | 0.27 | 0.16 | 0.28 |
| Clearance Time (s) | 4.2 | 5.3 | 5.3 | | 4.2 | 5.3 | 5.3 | 4.2 | 6.0 | 6.0 | 4.2 | 6.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 191 | 899 | 396 | | 384 | 905 | 394 | 216 | 434 | 632 | 243 | 879 |
| v/s Ratio Prot | c0.12 | 0.25 | | | 0.10 | c0.27 | | 0.10 | 0.25 | | c0.15 | 0.04 |
| v/s Ratio Perm | | | 0.02 | | | | 0.01 | | | c0.26 | | |
| v/c Ratio | 0.99 | 0.86 | 0.08 | | 0.83 | 0.92 | 0.02 | 0.73 | 0.95 | 0.98 | 0.97 | 0.14 |
| Uniform Delay, d1 | 52.5 | 40.4 | 31.1 | | 51.2 | 41.3 | 30.4 | 49.5 | 43.3 | 43.8 | 50.3 | 32.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 0.86 | 0.82 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 61.4 | 10.6 | 0.4 | | 12.7 | 15.5 | 0.1 | 11.5 | 31.0 | 31.2 | 49.4 | 0.1 |
| Delay (s) | 113.9 | 51.0 | 31.5 | | 56.8 | 49.4 | 30.5 | 61.0 | 74.3 | 75.1 | 99.7 | 32.2 |
| Level of Service | F | D | C | | E | D | C | E | E | E | F | C |
| Approach Delay (s) | | 60.0 | | | | 50.9 | | | 73.3 | | | 64.3 |
| Approach LOS | | E | | | | D | | | E | | | E |

| Intersection Summary | | | |
|---|---|---|---|
| HCM 2000 Control Delay | 62.4 | HCM 2000 Level of Service | E |
| HCM 2000 Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 19.7 |
| Intersection Capacity Utilization | 90.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | SBR |
|---|---|
| Lane Configurations | |
| Traffic Volume (vph) | 127 |
| Future Volume (vph) | 127 |
| Ideal Flow (vphpl) | 1900 |
| Total Lost time (s) | 6.0 |
| Lane Util. Factor | 1.00 |
| Frpb, ped/bikes | 0.98 |
| Flpb, ped/bikes | 1.00 |
| Frt | 0.85 |
| Flt Protected | 1.00 |
| Satd. Flow (prot) | 1370 |
| Flt Permitted | 1.00 |
| Satd. Flow (perm) | 1370 |
| Peak-hour factor, PHF | 0.92 |
| Adj. Flow (vph) | 138 |
| RTOR Reduction (vph) | 99 |
| Lane Group Flow (vph) | 39 |
| Confl. Peds. (#/hr) | 3 |
| Heavy Vehicles (%) | 16% |
| Turn Type | Perm |
| Protected Phases | |
| Permitted Phases | 6 |
| Actuated Green, G (s) | 33.9 |
| Effective Green, g (s) | 33.9 |
| Actuated g/C Ratio | 0.28 |
| Clearance Time (s) | 6.0 |
| Vehicle Extension (s) | 3.0 |
| Lane Grp Cap (vph) | 387 |
| v/s Ratio Prot | |
| v/s Ratio Perm | 0.03 |
| v/c Ratio | 0.10 |
| Uniform Delay, d1 | 31.8 |
| Progression Factor | 1.00 |
| Incremental Delay, d2 | 0.1 |
| Delay (s) | 31.9 |
| Level of Service | C |
| Approach Delay (s) | |
| Approach LOS | |

| Intersection Summary |
|---|

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.5 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | ↑↑ | ↑↱ | | | ↱ |
| Traffic Vol, veh/h | 0 | 1753 | 1002 | 209 | 0 | 90 |
| Future Vol, veh/h | 0 | 1753 | 1002 | 209 | 0 | 90 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | - | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 0 | 17 | 17 | 3 | 0 | 3 |
| Mvmt Flow | 0 | 1905 | 1089 | 227 | 0 | 98 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | - | 0 | - | 0 | - | 658 |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |
| Critical Hdwy | - | - | - | - | - | 6.96 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - |
| Follow-up Hdwy | - | - | - | - | - | 3.33 |
| Pot Cap-1 Maneuver | 0 | - | - | - | 0 | 404 |
| Stage 1 | 0 | - | - | - | 0 | - |
| Stage 2 | 0 | - | - | - | 0 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | - | - | - | - | - | 404 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - |
| Stage 1 | - | - | - | - | - | - |
| Stage 2 | - | - | - | - | - | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 16.7 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|
| Capacity (veh/h) | - | - | - | 404 |
| HCM Lane V/C Ratio | - | - | - | 0.242 |
| HCM Control Delay (s) | - | - | - | 16.7 |
| HCM Lane LOS | - | - | - | C |
| HCM 95th %tile Q(veh) | - | - | - | 0.9 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 0 | 1291 | 462 | 153 | 878 | 0 | 0 | 0 | 0 | 129 | 0 | 333 |
| Future Volume (veh/h) | 0 | 1291 | 462 | 153 | 878 | 0 | 0 | 0 | 0 | 129 | 0 | 333 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | | | | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | | | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | | | | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 0 | 1557 | 1557 | 1557 | 1557 | 0 | | | | 1557 | 0 | 1557 |
| Adj Flow Rate, veh/h | 0 | 1373 | 491 | 163 | 934 | 0 | | | | 137 | 0 | 354 |
| Adj No. of Lanes | 0 | 2 | 1 | 2 | 2 | 0 | | | | 2 | 0 | 2 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | 0.94 | | | | 0.94 | 0.94 | 0.94 |
| Percent Heavy Veh, % | 0 | 22 | 22 | 22 | 22 | 0 | | | | 22 | 0 | 22 |
| Cap, veh/h | 0 | 1573 | 704 | 264 | 2106 | 0 | | | | 374 | 0 | 303 |
| Arrive On Green | 0.00 | 0.36 | 0.36 | 0.18 | 1.00 | 0.00 | | | | 0.13 | 0.00 | 0.13 |
| Sat Flow, veh/h | 0 | 3037 | 1324 | 2877 | 3037 | 0 | | | | 2877 | 0 | 2330 |
| Grp Volume(v), veh/h | 0 | 1373 | 491 | 163 | 934 | 0 | | | | 137 | 0 | 354 |
| Grp Sat Flow(s),veh/h/ln | 0 | 1480 | 1324 | 1439 | 1480 | 0 | | | | 1439 | 0 | 1165 |
| Q Serve(g_s), s | 0.0 | 26.0 | 19.1 | 3.1 | 0.0 | 0.0 | | | | 2.6 | 0.0 | 7.8 |
| Cycle Q Clear(g_c), s | 0.0 | 26.0 | 19.1 | 3.1 | 0.0 | 0.0 | | | | 2.6 | 0.0 | 7.8 |
| Prop In Lane | 0.00 | | 1.00 | 1.00 | | 0.00 | | | | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 0 | 1573 | 704 | 264 | 2106 | 0 | | | | 374 | 0 | 303 |
| V/C Ratio(X) | 0.00 | 0.87 | 0.70 | 0.62 | 0.44 | 0.00 | | | | 0.37 | 0.00 | 1.17 |
| Avail Cap(c_a), veh/h | 0 | 1623 | 726 | 269 | 2106 | 0 | | | | 374 | 0 | 303 |
| HCM Platoon Ratio | 1.00 | 0.67 | 0.67 | 2.00 | 2.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.00 | 1.00 | 1.00 | 0.55 | 0.55 | 0.00 | | | | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 0.0 | 17.4 | 15.2 | 23.5 | 0.0 | 0.0 | | | | 23.8 | 0.0 | 26.1 |
| Incr Delay (d2), s/veh | 0.0 | 7.0 | 5.7 | 2.3 | 0.4 | 0.0 | | | | 0.6 | 0.0 | 105.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 12.1 | 8.0 | 1.3 | 0.1 | 0.0 | | | | 1.1 | 0.0 | 6.9 |
| LnGrp Delay(d),s/veh | 0.0 | 24.4 | 20.9 | 25.8 | 0.4 | 0.0 | | | | 24.4 | 0.0 | 131.7 |
| LnGrp LOS | | C | C | C | A | | | | | C | | F |
| Approach Vol, veh/h | | 1864 | | | 1097 | | | | | | 491 | |
| Approach Delay, s/veh | | 23.5 | | | 4.1 | | | | | | 101.7 | |
| Approach LOS | | C | | | A | | | | | | F | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | | 3 | 4 | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | | | 10.8 | 37.2 | | 12.0 | | 48.0 |
| Change Period (Y+Rc), s | | | 5.3 | * 5.3 | | 4.2 | | 5.3 |
| Max Green Setting (Gmax), s | | | 5.6 | * 33 | | 7.8 | | 42.7 |
| Max Q Clear Time (g_c+I1), s | | | 5.1 | 28.0 | | 9.8 | | 2.0 |
| Green Ext Time (p_c), s | | | 0.3 | 3.9 | | 0.0 | | 8.2 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 28.5 |
| HCM 2010 LOS | C |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 737 | 683 | 0 | 0 | 719 | 403 | 312 | 0 | 104 | 0 | 0 | 0 |
| Future Volume (veh/h) | 737 | 683 | 0 | 0 | 719 | 403 | 312 | 0 | 104 | 0 | 0 | 0 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | | |
| Adj Sat Flow, veh/h/ln | 1652 | 1652 | 0 | 0 | 1652 | 1652 | 1652 | 0 | 1652 | | | |
| Adj Flow Rate, veh/h | 801 | 742 | 0 | 0 | 782 | 438 | 339 | 0 | 113 | | | |
| Adj No. of Lanes | 2 | 2 | 0 | 0 | 2 | 1 | 2 | 0 | 1 | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | | |
| Percent Heavy Veh, % | 15 | 15 | 0 | 0 | 15 | 15 | 15 | 0 | 15 | | | |
| Cap, veh/h | 916 | 2197 | 0 | 0 | 978 | 436 | 433 | 0 | 199 | | | |
| Arrive On Green | 0.50 | 1.00 | 0.00 | 0.00 | 0.62 | 0.62 | 0.14 | 0.00 | 0.14 | | | |
| Sat Flow, veh/h | 3053 | 3222 | 0 | 0 | 3222 | 1398 | 3053 | 0 | 1404 | | | |
| Grp Volume(v), veh/h | 801 | 742 | 0 | 0 | 782 | 438 | 339 | 0 | 113 | | | |
| Grp Sat Flow(s),veh/h/ln | 1526 | 1570 | 0 | 0 | 1570 | 1398 | 1526 | 0 | 1404 | | | |
| Q Serve(g_s), s | 14.0 | 0.0 | 0.0 | 0.0 | 11.2 | 18.7 | 6.4 | 0.0 | 4.5 | | | |
| Cycle Q Clear(g_c), s | 14.0 | 0.0 | 0.0 | 0.0 | 11.2 | 18.7 | 6.4 | 0.0 | 4.5 | | | |
| Prop In Lane | 1.00 | | 0.00 | 0.00 | | 1.00 | 1.00 | | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 916 | 2197 | 0 | 0 | 978 | 436 | 433 | 0 | 199 | | | |
| V/C Ratio(X) | 0.87 | 0.34 | 0.00 | 0.00 | 0.80 | 1.01 | 0.78 | 0.00 | 0.57 | | | |
| Avail Cap(c_a), veh/h | 956 | 2197 | 0 | 0 | 978 | 436 | 448 | 0 | 206 | | | |
| HCM Platoon Ratio | 1.67 | 1.67 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | | | |
| Upstream Filter(I) | 0.47 | 0.47 | 0.00 | 0.00 | 0.75 | 0.75 | 1.00 | 0.00 | 1.00 | | | |
| Uniform Delay (d), s/veh | 14.0 | 0.0 | 0.0 | 0.0 | 9.9 | 11.3 | 24.9 | 0.0 | 24.0 | | | |
| Incr Delay (d2), s/veh | 4.4 | 0.2 | 0.0 | 0.0 | 5.2 | 38.6 | 8.6 | 0.0 | 3.4 | | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | | |
| %ile BackOfQ(50%),veh/ln | 6.3 | 0.1 | 0.0 | 0.0 | 5.3 | 11.4 | 3.2 | 0.0 | 1.9 | | | |
| LnGrp Delay(d),s/veh | 18.4 | 0.2 | 0.0 | 0.0 | 15.1 | 49.9 | 33.4 | 0.0 | 27.5 | | | |
| LnGrp LOS | B | A | | | B | F | C | | C | | | |
| Approach Vol, veh/h | | 1543 | | | 1220 | | | 452 | | | | |
| Approach Delay, s/veh | | 9.6 | | | 27.6 | | | 31.9 | | | | |
| Approach LOS | | A | | | C | | | C | | | | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | | 4 | | | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 12.7 | | 47.3 | | | 23.3 | 24.0 |
| Change Period (Y+Rc), s | | * 4.2 | | 5.3 | | | 5.3 | * 5.3 |
| Max Green Setting (Gmax), s | | * 8.8 | | 41.7 | | | 18.8 | * 19 |
| Max Q Clear Time (g_c+I1), s | | 8.4 | | 2.0 | | | 16.0 | 20.7 |
| Green Ext Time (p_c), s | | 0.1 | | 9.9 | | | 1.8 | 0.0 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 19.6 |
| HCM 2010 LOS | B |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 36 | 739 | 12 | 95 | 874 | 18 | 203 | 66 | 136 | 13 | 17 | 45 |
| Future Volume (veh/h) | 36 | 739 | 12 | 95 | 874 | 18 | 203 | 66 | 136 | 13 | 17 | 45 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 0.99 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.99 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 | 1557 |
| Adj Flow Rate, veh/h | 39 | 803 | 13 | 103 | 950 | 20 | 221 | 72 | 148 | 14 | 18 | 49 |
| Adj No. of Lanes | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 | 22 |
| Cap, veh/h | 46 | 853 | 380 | 454 | 1693 | 756 | 244 | 352 | 298 | 23 | 111 | 93 |
| Arrive On Green | 0.06 | 0.58 | 0.58 | 0.31 | 0.57 | 0.57 | 0.16 | 0.23 | 0.23 | 0.02 | 0.07 | 0.07 |
| Sat Flow, veh/h | 1483 | 2959 | 1317 | 1483 | 2959 | 1320 | 1483 | 1557 | 1319 | 1483 | 1557 | 1307 |
| Grp Volume(v), veh/h | 39 | 803 | 13 | 103 | 950 | 20 | 221 | 72 | 148 | 14 | 18 | 49 |
| Grp Sat Flow(s),veh/h/ln | 1483 | 1480 | 1317 | 1483 | 1480 | 1320 | 1483 | 1557 | 1319 | 1483 | 1557 | 1307 |
| Q Serve(g_s), s | 3.1 | 30.1 | 0.5 | 6.2 | 24.3 | 0.8 | 17.6 | 4.5 | 5.8 | 1.1 | 1.3 | 3.8 |
| Cycle Q Clear(g_c), s | 3.1 | 30.1 | 0.5 | 6.2 | 24.3 | 0.8 | 17.6 | 4.5 | 5.8 | 1.1 | 1.3 | 3.8 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 46 | 853 | 380 | 454 | 1693 | 756 | 244 | 352 | 298 | 23 | 111 | 93 |
| V/C Ratio(X) | 0.85 | 0.94 | 0.03 | 0.23 | 0.56 | 0.03 | 0.90 | 0.20 | 0.50 | 0.61 | 0.16 | 0.53 |
| Avail Cap(c_a), veh/h | 62 | 932 | 415 | 454 | 1693 | 756 | 257 | 620 | 525 | 62 | 415 | 349 |
| HCM Platoon Ratio | 2.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 56.0 | 24.5 | 18.2 | 31.1 | 16.2 | 11.1 | 49.2 | 37.7 | 9.9 | 58.7 | 52.4 | 42.1 |
| Incr Delay (d2), s/veh | 49.9 | 18.7 | 0.2 | 0.3 | 1.3 | 0.1 | 31.5 | 0.3 | 1.3 | 23.1 | 0.7 | 4.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.9 | 14.3 | 0.2 | 2.6 | 10.2 | 0.3 | 9.3 | 2.0 | 2.2 | 0.6 | 0.6 | 1.5 |
| LnGrp Delay(d),s/veh | 105.9 | 43.1 | 18.3 | 31.3 | 17.5 | 11.2 | 80.7 | 38.0 | 11.2 | 81.8 | 53.0 | 46.7 |
| LnGrp LOS | F | D | B | C | B | B | F | D | B | F | D | D |
| Approach Vol, veh/h | | 855 | | | 1073 | | | 441 | | | 81 | |
| Approach Delay, s/veh | | 45.6 | | | 18.7 | | | 50.4 | | | 54.2 | |
| Approach LOS | | D | | | B | | | D | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 6.1 | 32.0 | 42.0 | 39.9 | 24.7 | 13.4 | 7.9 | 74.0 |
| Change Period (Y+Rc), s | * 4.2 | 4.9 | 5.3 | * 5.3 | 4.9 | * 4.9 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 5 | 47.8 | 10.8 | * 38 | 20.8 | * 32 | * 5 | 43.6 |
| Max Q Clear Time (g_c+I1), s | 3.1 | 7.8 | 8.2 | 32.1 | 19.6 | 5.8 | 5.1 | 26.3 |
| Green Ext Time (p_c), s | 0.0 | 1.5 | 1.6 | 2.5 | 0.2 | 0.2 | 0.0 | 6.3 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 35.0 |
| HCM 2010 LOS | C |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 199 | 261 | 301 | 52 | 313 | 87 | 289 | 601 | 51 | 42 | 480 | 244 |
| Future Volume (veh/h) | 199 | 261 | 301 | 52 | 313 | 87 | 289 | 601 | 51 | 42 | 480 | 244 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1652 | 1900 | 1900 | 1652 | 1900 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 207 | 272 | 314 | 54 | 326 | 91 | 301 | 626 | 53 | 44 | 500 | 254 |
| Adj No. of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 182 | 202 | 227 | 92 | 514 | 137 | 221 | 958 | 81 | 55 | 448 | 227 |
| Arrive On Green | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.53 | 0.13 | 0.31 | 0.31 | 0.03 | 0.21 | 0.21 |
| Sat Flow, veh/h | 272 | 380 | 428 | 110 | 968 | 258 | 1675 | 3120 | 264 | 1675 | 2151 | 1088 |
| Grp Volume(v), veh/h | 793 | 0 | 0 | 471 | 0 | 0 | 301 | 335 | 344 | 44 | 388 | 366 |
| Grp Sat Flow(s),veh/h/ln | 1081 | 0 | 0 | 1336 | 0 | 0 | 1675 | 1671 | 1713 | 1675 | 1671 | 1567 |
| Q Serve(g_s), s | 36.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 15.8 | 20.8 | 20.9 | 3.1 | 25.0 | 25.0 |
| Cycle Q Clear(g_c), s | 63.7 | 0.0 | 0.0 | 27.2 | 0.0 | 0.0 | 15.8 | 20.8 | 20.9 | 3.1 | 25.0 | 25.0 |
| Prop In Lane | 0.26 | | 0.40 | 0.11 | | 0.19 | 1.00 | | 0.15 | 1.00 | | 0.69 |
| Lane Grp Cap(c), veh/h | 611 | 0 | 0 | 743 | 0 | 0 | 221 | 513 | 526 | 55 | 348 | 327 |
| V/C Ratio(X) | 1.30 | 0.00 | 0.00 | 0.63 | 0.00 | 0.00 | 1.36 | 0.65 | 0.65 | 0.80 | 1.11 | 1.12 |
| Avail Cap(c_a), veh/h | 611 | 0 | 0 | 743 | 0 | 0 | 221 | 513 | 526 | 67 | 348 | 327 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 32.7 | 0.0 | 0.0 | 19.0 | 0.0 | 0.0 | 52.1 | 36.0 | 36.0 | 57.6 | 47.5 | 47.5 |
| Incr Delay (d2), s/veh | 145.5 | 0.0 | 0.0 | 1.8 | 0.0 | 0.0 | 190.3 | 2.9 | 2.9 | 41.1 | 82.8 | 86.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 44.9 | 0.0 | 0.0 | 11.1 | 0.0 | 0.0 | 19.0 | 10.0 | 10.3 | 2.1 | 19.5 | 18.6 |
| LnGrp Delay(d),s/veh | 178.2 | 0.0 | 0.0 | 20.8 | 0.0 | 0.0 | 242.4 | 39.0 | 39.0 | 98.7 | 130.3 | 134.0 |
| LnGrp LOS | F | | | C | | | F | D | D | F | F | F |
| Approach Vol, veh/h | | 793 | | | 471 | | | 980 | | | 798 | |
| Approach Delay, s/veh | | 178.2 | | | 20.8 | | | 101.5 | | | 130.3 | |
| Approach LOS | | F | | | C | | | F | | | F | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 8.1 | 42.9 | | 69.0 | 20.0 | 31.0 | | 69.0 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | | 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | * 4.8 | * 36 | | 63.7 | * 16 | 25.0 | | 63.7 |
| Max Q Clear Time (g_c+I1), s | 5.1 | 22.9 | | 65.7 | 17.8 | 27.0 | | 29.2 |
| Green Ext Time (p_c), s | 0.0 | 6.5 | | 0.0 | 0.0 | 0.0 | | 11.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 116.5 |
| HCM 2010 LOS | F |

Notes

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.2 |

| Movement | NBL | NBT | SBT | SBR | SEL | SER |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 21 | 380 | 108 | 16 | 25 | 95 |
| Future Vol, veh/h | 21 | 380 | 108 | 16 | 25 | 95 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | Free | - | Stop |
| Storage Length | - | - | - | 50 | 0 | 65 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 94 | 94 | 94 | 94 | 94 | 94 |
| Heavy Vehicles, % | 22 | 22 | 22 | 22 | 22 | 22 |
| Mvmt Flow | 22 | 404 | 115 | 17 | 27 | 101 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 115 | 0 | - | 0 | 564 | 115 |
| Stage 1 | - | - | - | - | 115 | - |
| Stage 2 | - | - | - | - | 449 | - |
| Critical Hdwy | 4.32 | - | - | - | 6.62 | 6.42 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.62 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.62 | - |
| Follow-up Hdwy | 2.398 | - | - | - | 3.698 | 3.498 |
| Pot Cap-1 Maneuver | 1358 | - | - | 0 | 455 | 886 |
| Stage 1 | - | - | - | 0 | 863 | - |
| Stage 2 | - | - | - | 0 | 603 | - |
| Platoon blocked, % | | - | - | | | |
| Mov Cap-1 Maneuver | 1358 | - | - | - | 445 | 886 |
| Mov Cap-2 Maneuver | - | - | - | - | 445 | - |
| Stage 1 | - | - | - | - | 863 | - |
| Stage 2 | - | - | - | - | 590 | - |

| Approach | NB | SB | SE |
|---|---|---|---|
| HCM Control Delay, s | 0.4 | 0 | 10.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | NBL | NBT | SELn1 | SELn2 | SBT |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1358 | - | 445 | 886 | - |
| HCM Lane V/C Ratio | 0.016 | - | 0.06 | 0.114 | - |
| HCM Control Delay (s) | 7.7 | 0 | 13.6 | 9.6 | - |
| HCM Lane LOS | A | A | B | A | - |
| HCM 95th %tile Q(veh) | 0.1 | - | 0.2 | 0.4 | - |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 270 | 314 | 163 | 66 | 219 | 52 | 200 | 368 | 44 | 96 | 413 | 235 |
| Future Volume (veh/h) | 270 | 314 | 163 | 66 | 219 | 52 | 200 | 368 | 44 | 96 | 413 | 235 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1652 | 1652 | 1652 | 1652 | 1652 | 1652 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 293 | 341 | 177 | 72 | 238 | 57 | 217 | 400 | 48 | 104 | 449 | 255 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 412 | 706 | 599 | 312 | 706 | 599 | 151 | 916 | 109 | 106 | 573 | 323 |
| Arrive On Green | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.43 | 0.09 | 0.30 | 0.30 | 0.06 | 0.28 | 0.28 |
| Sat Flow, veh/h | 957 | 1652 | 1402 | 780 | 1652 | 1402 | 1675 | 3008 | 359 | 1675 | 2062 | 1163 |
| Grp Volume(v), veh/h | 293 | 341 | 177 | 72 | 238 | 57 | 217 | 221 | 227 | 104 | 363 | 341 |
| Grp Sat Flow(s),veh/h/ln | 957 | 1652 | 1402 | 780 | 1652 | 1402 | 1675 | 1671 | 1696 | 1675 | 1671 | 1554 |
| Q Serve(g_s), s | 22.3 | 11.3 | 6.3 | 5.6 | 7.3 | 1.8 | 6.8 | 8.0 | 8.1 | 4.7 | 15.2 | 15.3 |
| Cycle Q Clear(g_c), s | 29.6 | 11.3 | 6.3 | 16.8 | 7.3 | 1.8 | 6.8 | 8.0 | 8.1 | 4.7 | 15.2 | 15.3 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.21 | 1.00 | | 0.75 |
| Lane Grp Cap(c), veh/h | 412 | 706 | 599 | 312 | 706 | 599 | 151 | 509 | 516 | 106 | 465 | 432 |
| V/C Ratio(X) | 0.71 | 0.48 | 0.30 | 0.23 | 0.34 | 0.10 | 1.44 | 0.43 | 0.44 | 0.98 | 0.78 | 0.79 |
| Avail Cap(c_a), veh/h | 416 | 714 | 606 | 316 | 714 | 606 | 151 | 603 | 612 | 106 | 552 | 513 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 24.4 | 15.6 | 14.2 | 21.7 | 14.5 | 12.9 | 34.4 | 21.1 | 21.1 | 35.4 | 25.2 | 25.3 |
| Incr Delay (d2), s/veh | 5.5 | 0.5 | 0.3 | 0.4 | 0.3 | 0.1 | 231.9 | 0.6 | 0.6 | 80.2 | 6.1 | 6.9 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 6.5 | 5.2 | 2.5 | 1.2 | 3.4 | 0.7 | 12.8 | 3.8 | 3.9 | 4.5 | 7.7 | 7.4 |
| LnGrp Delay(d),s/veh | 30.0 | 16.2 | 14.5 | 22.1 | 14.8 | 13.0 | 266.3 | 21.7 | 21.7 | 115.5 | 31.2 | 32.1 |
| LnGrp LOS | C | B | B | C | B | B | F | C | C | F | C | C |
| Approach Vol, veh/h | | 811 | | | 367 | | | 665 | | | 808 | |
| Approach Delay, s/veh | | 20.8 | | | 15.9 | | | 101.5 | | | 42.5 | |
| Approach LOS | | C | | | B | | | F | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | | 4 | 5 | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 9.0 | 29.0 | | 37.6 | 11.0 | 27.0 | | 37.6 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | | 5.3 | * 4.2 | 6.0 | | 5.3 |
| Max Green Setting (Gmax), s | * 4.8 | * 27 | | 32.7 | * 6.8 | 25.0 | | 32.7 |
| Max Q Clear Time (g_c+I1), s | 6.7 | 10.1 | | 31.6 | 8.8 | 17.3 | | 18.8 |
| Green Ext Time (p_c), s | 0.0 | 5.9 | | 0.7 | 0.0 | 3.7 | | 5.2 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 47.0 |
| HCM 2010 LOS | D |

Notes

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 199 | 261 | 301 | 52 | 313 | 87 | 289 | 601 | 51 | 42 | 480 | 244 |
| Future Volume (veh/h) | 199 | 261 | 301 | 52 | 313 | 87 | 289 | 601 | 51 | 42 | 480 | 244 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1652 | 1652 | 1652 | 1652 | 1652 | 1652 | 1759 | 1759 | 1900 | 1759 | 1759 | 1900 |
| Adj Flow Rate, veh/h | 207 | 272 | 314 | 54 | 326 | 91 | 301 | 626 | 53 | 44 | 500 | 254 |
| Adj No. of Lanes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 | 0.96 |
| Percent Heavy Veh, % | 15 | 15 | 15 | 15 | 15 | 15 | 8 | 8 | 8 | 8 | 8 | 8 |
| Cap, veh/h | 228 | 573 | 486 | 66 | 404 | 343 | 308 | 1204 | 102 | 55 | 505 | 255 |
| Arrive On Green | 0.14 | 0.35 | 0.35 | 0.04 | 0.24 | 0.24 | 0.18 | 0.39 | 0.39 | 0.03 | 0.23 | 0.23 |
| Sat Flow, veh/h | 1573 | 1652 | 1402 | 1573 | 1652 | 1404 | 1675 | 3120 | 264 | 1675 | 2151 | 1088 |
| Grp Volume(v), veh/h | 207 | 272 | 314 | 54 | 326 | 91 | 301 | 335 | 344 | 44 | 388 | 366 |
| Grp Sat Flow(s),veh/h/ln | 1573 | 1652 | 1402 | 1573 | 1652 | 1404 | 1675 | 1671 | 1713 | 1675 | 1671 | 1567 |
| Q Serve(g_s), s | 13.3 | 13.2 | 19.3 | 3.5 | 19.0 | 5.4 | 18.3 | 15.7 | 15.8 | 2.7 | 23.7 | 23.9 |
| Cycle Q Clear(g_c), s | 13.3 | 13.2 | 19.3 | 3.5 | 19.0 | 5.4 | 18.3 | 15.7 | 15.8 | 2.7 | 23.7 | 23.9 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 0.15 | 1.00 | | 0.69 |
| Lane Grp Cap(c), veh/h | 228 | 573 | 486 | 66 | 404 | 343 | 308 | 645 | 661 | 55 | 392 | 368 |
| V/C Ratio(X) | 0.91 | 0.47 | 0.65 | 0.81 | 0.81 | 0.27 | 0.98 | 0.52 | 0.52 | 0.80 | 0.99 | 1.00 |
| Avail Cap(c_a), veh/h | 228 | 607 | 515 | 152 | 528 | 449 | 308 | 645 | 661 | 111 | 392 | 368 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Uniform Delay (d), s/veh | 43.1 | 26.1 | 28.1 | 48.6 | 36.4 | 31.2 | 41.5 | 24.1 | 24.2 | 49.2 | 39.0 | 39.1 |
| Incr Delay (d2), s/veh | 36.1 | 0.6 | 2.6 | 20.4 | 6.9 | 0.4 | 45.0 | 0.7 | 0.7 | 23.2 | 42.6 | 45.6 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 8.0 | 6.1 | 7.7 | 1.9 | 9.5 | 2.1 | 12.3 | 7.4 | 7.6 | 1.6 | 15.5 | 14.9 |
| LnGrp Delay(d),s/veh | 79.2 | 26.7 | 30.7 | 69.0 | 43.3 | 31.6 | 86.6 | 24.9 | 24.9 | 72.3 | 81.6 | 84.7 |
| LnGrp LOS | E | C | C | E | D | C | F | C | C | E | F | F |
| Approach Vol, veh/h | | 793 | | | 471 | | | 980 | | | 798 | |
| Approach Delay, s/veh | | 42.0 | | | 44.0 | | | 43.8 | | | 82.5 | |
| Approach LOS | | D | | | D | | | D | | | F | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | 7.5 | 45.5 | 8.5 | 40.8 | 23.0 | 30.0 | 19.0 | 30.3 |
| Change Period (Y+Rc), s | * 4.2 | * 6 | * 4.2 | 5.3 | * 4.2 | 6.0 | * 4.2 | 5.3 |
| Max Green Setting (Gmax), s | * 6.8 | * 36 | * 9.9 | 37.6 | * 19 | 24.0 | * 15 | 32.7 |
| Max Q Clear Time (g_c+I1), s | 4.7 | 17.8 | 5.5 | 21.3 | 20.3 | 25.9 | 15.3 | 21.0 |
| Green Ext Time (p_c), s | 0.0 | 7.8 | 0.0 | 4.4 | 0.0 | 0.0 | 0.0 | 3.8 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 53.5 |
| HCM 2010 LOS | D |

Notes

## Intersection: 1: Orange Avenue & North Avenue/North Ave

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | UL | L | T | T | R | L | T | R |
| Maximum Queue (ft) | 350 | 388 | 374 | 145 | 305 | 308 | 359 | 311 | 214 | 48 | 222 | 109 |
| Average Queue (ft) | 87 | 178 | 202 | 53 | 285 | 293 | 308 | 215 | 25 | 19 | 78 | 58 |
| 95th Queue (ft) | 186 | 288 | 315 | 109 | 339 | 350 | 435 | 355 | 94 | 43 | 167 | 106 |
| Link Distance (ft) | | 2611 | 2611 | | | | 309 | 309 | | | | |
| Upstream Blk Time (%) | | | | | 2 | 13 | 26 | 1 | | | | |
| Queuing Penalty (veh) | | | | | 0 | 0 | 185 | 9 | | | | |
| Storage Bay Dist (ft) | 250 | | | 250 | 250 | 250 | | | 100 | 150 | | 250 |
| Storage Blk Time (%) | | 2 | 4 | | 28 | 52 | 9 | 17 | 0 | | 2 | |
| Queuing Penalty (veh) | | 2 | 5 | | 84 | 153 | 68 | 10 | 0 | | 5 | |

## Intersection: 1: Orange Avenue & North Avenue/North Ave

| Movement | NB | SB | SB | SB | SB | B24 | B24 |
|---|---|---|---|---|---|---|---|
| Directions Served | R | L | T | T | R | T | T |
| Maximum Queue (ft) | 103 | 175 | 285 | 235 | 208 | 192 | 189 |
| Average Queue (ft) | 47 | 149 | 178 | 123 | 54 | 21 | 11 |
| 95th Queue (ft) | 92 | 209 | 304 | 213 | 151 | 103 | 78 |
| Link Distance (ft) | | | 208 | 208 | | 2953 | 2953 |
| Upstream Blk Time (%) | | | 16 | 1 | 0 | | |
| Queuing Penalty (veh) | | | 0 | 0 | 0 | | |
| Storage Bay Dist (ft) | 250 | 100 | | | 150 | | |
| Storage Blk Time (%) | | 46 | 9 | 3 | 0 | | |
| Queuing Penalty (veh) | | 77 | 21 | 4 | 0 | | |

## Intersection: 2: North Ave & Driveway

| Movement | WB | WB | SB |
|---|---|---|---|
| Directions Served | T | TR | R |
| Maximum Queue (ft) | 442 | 417 | 220 |
| Average Queue (ft) | 230 | 70 | 170 |
| 95th Queue (ft) | 496 | 278 | 264 |
| Link Distance (ft) | 417 | 417 | 205 |
| Upstream Blk Time (%) | 6 | 0 | 45 |
| Queuing Penalty (veh) | 47 | 1 | 0 |
| Storage Bay Dist (ft) | | | |
| Storage Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |

## Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Ave/North Avenue

| Movement | EB | EB | EB | WB | WB | WB | WB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | R | L | L | T | T | L | L | R | R |
| Maximum Queue (ft) | 346 | 266 | 327 | 73 | 113 | 346 | 212 | 201 | 314 | 783 | 350 |
| Average Queue (ft) | 180 | 122 | 117 | 15 | 53 | 130 | 100 | 30 | 99 | 246 | 159 |
| 95th Queue (ft) | 288 | 227 | 225 | 51 | 88 | 280 | 193 | 92 | 184 | 464 | 310 |
| Link Distance (ft) | 417 | 417 | | | | 771 | 771 | | | 1043 | |
| Upstream Blk Time (%) | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | |
| Storage Bay Dist (ft) | | | 300 | 300 | 300 | | | 300 | 300 | | 300 |
| Storage Blk Time (%) | | | 0 | | | 1 | | | 0 | 5 | 0 |
| Queuing Penalty (veh) | | | 1 | | | 1 | | | 2 | 32 | 0 |

## Intersection: 4: North Avenue & SR 99 NB On-Ramp

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | L | T | T | T | T | R | L | L | R |
| Maximum Queue (ft) | 150 | 176 | 161 | 198 | 390 | 285 | 71 | 171 | 172 | 110 |
| Average Queue (ft) | 91 | 116 | 64 | 79 | 162 | 139 | 30 | 64 | 86 | 38 |
| 95th Queue (ft) | 159 | 169 | 125 | 153 | 298 | 256 | 64 | 125 | 146 | 78 |
| Link Distance (ft) | | | 771 | 771 | 850 | 850 | | | 998 | |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (ft) | 300 | 300 | | | | | 300 | 300 | | 300 |
| Storage Blk Time (%) | | | | | | 0 | | | | |
| Queuing Penalty (veh) | | | | | | 0 | | | | |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | T | R | L | T | R | L |
| Maximum Queue (ft) | 133 | 180 | 185 | 103 | 145 | 252 | 280 | 69 | 155 | 76 | 125 | 45 |
| Average Queue (ft) | 66 | 87 | 64 | 33 | 61 | 143 | 113 | 18 | 58 | 18 | 28 | 7 |
| 95th Queue (ft) | 127 | 155 | 137 | 72 | 120 | 238 | 220 | 53 | 126 | 52 | 69 | 29 |
| Link Distance (ft) | | 850 | 850 | | | 2586 | 2586 | | | 1732 | | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | | 250 | 250 | | | 250 | 250 | | 250 | 250 |
| Storage Blk Time (%) | | | | | | 0 | 1 | | | | | |
| Queuing Penalty (veh) | | | | | | 0 | 0 | | | | | |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (ft) | 104 | 51 |
| Average Queue (ft) | 37 | 13 |
| 95th Queue (ft) | 83 | 37 |
| Link Distance (ft) | 1294 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | 250 |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 6: Chestnut Ave & North Ave

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | L | T | R | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 292 | 287 | 114 | 94 | 172 | 95 | 365 | 1468 | 987 | 162 | 189 | 219 |
| Average Queue (ft) | 150 | 123 | 48 | 39 | 86 | 23 | 325 | 770 | 139 | 85 | 107 | 148 |
| 95th Queue (ft) | 242 | 229 | 94 | 83 | 141 | 66 | 450 | 1594 | 435 | 151 | 174 | 219 |
| Link Distance (ft) | | 2528 | | | 4573 | | | 5286 | 5286 | | 5279 | 5279 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | 250 | 250 | | 250 | 245 | | | 150 | | |
| Storage Blk Time (%) | 1 | 1 | | | | | 80 | 0 | | 4 | 3 | |
| Queuing Penalty (veh) | 4 | 2 | | | | | 147 | 0 | | 8 | 3 | |

## Intersection: 8: Cedar Avenue & Parkway Drive

| Movement | NB | SE | SE |
|---|---|---|---|
| Directions Served | LT | L | R |
| Maximum Queue (ft) | 64 | 74 | 88 |
| Average Queue (ft) | 4 | 24 | 43 |
| 95th Queue (ft) | 27 | 56 | 80 |
| Link Distance (ft) | 3472 | | |
| Upstream Blk Time (%) | | | |
| Queuing Penalty (veh) | | | |
| Storage Bay Dist (ft) | | | 65 |
| Storage Blk Time (%) | | 0 | 1 |
| Queuing Penalty (veh) | | 1 | 1 |

## Zone Summary

Zone wide Queuing Penalty: 873

## Intersection: 1: Orange Avenue & North Avenue/North Ave

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | UL | L | T | T | R | L | T | R |
| Maximum Queue (ft) | 338 | 344 | 381 | 115 | 268 | 265 | 324 | 338 | 220 | 250 | 339 | 337 |
| Average Queue (ft) | 159 | 200 | 216 | 34 | 119 | 137 | 238 | 250 | 17 | 161 | 292 | 303 |
| 95th Queue (ft) | 273 | 315 | 335 | 82 | 219 | 229 | 331 | 344 | 84 | 288 | 348 | 330 |
| Link Distance (ft) | | 2611 | 2611 | | | | 314 | 314 | | | | |
| Upstream Blk Time (%) | | | | | | | 1 | 2 | | | | |
| Queuing Penalty (veh) | | | | | | | 6 | 11 | | | | |
| Storage Bay Dist (ft) | 250 | | | 250 | 250 | 250 | | | 100 | 150 | | 250 |
| Storage Blk Time (%) | 2 | 3 | 3 | | 0 | 1 | 5 | 40 | | 12 | 45 | 25 |
| Queuing Penalty (veh) | 7 | 5 | 3 | | 0 | 5 | 15 | 11 | | 134 | 411 | 133 |

## Intersection: 1: Orange Avenue & North Avenue/North Ave

| Movement | NB | SB | SB | SB | SB | B24 |
|---|---|---|---|---|---|---|
| Directions Served | R | L | T | T | R | T |
| Maximum Queue (ft) | 309 | 174 | 291 | 208 | 119 | 56 |
| Average Queue (ft) | 258 | 133 | 124 | 59 | 43 | 4 |
| 95th Queue (ft) | 358 | 203 | 274 | 160 | 98 | 26 |
| Link Distance (ft) | | | 208 | 208 | | 2953 |
| Upstream Blk Time (%) | | | 5 | 0 | | |
| Queuing Penalty (veh) | | | 0 | 0 | | |
| Storage Bay Dist (ft) | 250 | 100 | | | 150 | |
| Storage Blk Time (%) | 2 | 35 | 0 | 0 | | |
| Queuing Penalty (veh) | 10 | 19 | 0 | 0 | | |

## Intersection: 2: North Ave & Driveway

| Movement | EB | WB | WB | SB |
|---|---|---|---|---|
| Directions Served | T | T | TR | R |
| Maximum Queue (ft) | 83 | 184 | 116 | 118 |
| Average Queue (ft) | 3 | 14 | 13 | 42 |
| 95th Queue (ft) | 27 | 82 | 65 | 81 |
| Link Distance (ft) | 314 | 411 | 411 | 206 |
| Upstream Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |
| Storage Bay Dist (ft) | | | | |
| Storage Blk Time (%) | | | | |
| Queuing Penalty (veh) | | | | |

## Intersection: 3: Parkway Drive/SR 99 SB Off-Ramp & North Ave/North Avenue

| Movement | EB | EB | EB | WB | WB | WB | WB | SB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | T | T | R | L | L | T | T | L | L | R | R |
| Maximum Queue (ft) | 318 | 260 | 181 | 134 | 148 | 192 | 153 | 124 | 139 | 270 | 243 |
| Average Queue (ft) | 186 | 121 | 81 | 23 | 66 | 62 | 53 | 17 | 63 | 118 | 61 |
| 95th Queue (ft) | 289 | 225 | 144 | 75 | 118 | 162 | 135 | 63 | 124 | 199 | 144 |
| Link Distance (ft) | 411 | 411 | | | | 771 | 771 | | | 1043 | |
| Upstream Blk Time (%) | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | |
| Storage Bay Dist (ft) | | | 300 | 300 | 300 | | | 300 | 300 | | 300 |
| Storage Blk Time (%) | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | |

## Intersection: 4: North Avenue & SR 99 NB On-Ramp

| Movement | EB | EB | EB | EB | WB | WB | WB | NB | NB | NB |
|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | L | T | T | T | T | R | L | L | R |
| Maximum Queue (ft) | 224 | 234 | 99 | 136 | 280 | 261 | 258 | 148 | 174 | 111 |
| Average Queue (ft) | 109 | 142 | 37 | 44 | 156 | 127 | 93 | 57 | 110 | 42 |
| 95th Queue (ft) | 190 | 222 | 84 | 101 | 250 | 202 | 185 | 124 | 167 | 84 |
| Link Distance (ft) | | | 771 | 771 | 850 | 850 | | | 998 | |
| Upstream Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |
| Storage Bay Dist (ft) | 300 | 300 | | | | | 300 | 300 | | 300 |
| Storage Blk Time (%) | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | EB | EB | EB | EB | WB | WB | WB | WB | NB | NB | NB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | T | R | L | T | T | R | L | T | R | L |
| Maximum Queue (ft) | 85 | 458 | 413 | 22 | 192 | 265 | 347 | 37 | 368 | 515 | 164 | 66 |
| Average Queue (ft) | 30 | 196 | 175 | 5 | 96 | 147 | 172 | 3 | 179 | 85 | 55 | 13 |
| 95th Queue (ft) | 68 | 359 | 313 | 19 | 161 | 249 | 301 | 17 | 337 | 298 | 118 | 41 |
| Link Distance (ft) | | 850 | 850 | | | 2586 | 2586 | | | 1732 | | |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | | 250 | 250 | | | 250 | 250 | | 250 | 250 |
| Storage Blk Time (%) | | 4 | 3 | | | 0 | 2 | | 5 | 0 | | |
| Queuing Penalty (veh) | | 2 | 0 | | | 0 | 0 | | 10 | 0 | | |

## Intersection: 5: Cedar Avenue & North Ave

| Movement | SB | SB |
|---|---|---|
| Directions Served | T | R |
| Maximum Queue (ft) | 112 | 145 |
| Average Queue (ft) | 14 | 30 |
| 95th Queue (ft) | 54 | 80 |
| Link Distance (ft) | 1294 | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | 250 |
| Storage Blk Time (%) | | |
| Queuing Penalty (veh) | | |

## Intersection: 6: Chestnut Ave & North Ave

| Movement | EB | EB | EB | WB | WB | WB | NB | NB | NB | SB | SB | SB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Directions Served | L | T | R | L | T | R | L | T | TR | L | T | TR |
| Maximum Queue (ft) | 364 | 407 | 370 | 110 | 360 | 364 | 364 | 387 | 253 | 130 | 332 | 340 |
| Average Queue (ft) | 209 | 163 | 103 | 55 | 197 | 62 | 224 | 152 | 157 | 46 | 195 | 234 |
| 95th Queue (ft) | 343 | 338 | 244 | 107 | 306 | 197 | 322 | 275 | 241 | 95 | 285 | 326 |
| Link Distance (ft) | | 2528 | | | 4573 | | | 5286 | 5286 | | 5279 | 5279 |
| Upstream Blk Time (%) | | | | | | | | | | | | |
| Queuing Penalty (veh) | | | | | | | | | | | | |
| Storage Bay Dist (ft) | 250 | | 250 | 250 | | 250 | 245 | | | 150 | | |
| Storage Blk Time (%) | 10 | 1 | 0 | | 3 | | 11 | 0 | | 0 | 23 | |
| Queuing Penalty (veh) | 55 | 4 | 0 | | 4 | | 34 | 1 | | 0 | 10 | |

## Intersection: 8: Cedar Avenue & Parkway Drive

| Movement | SE | SE |
|---|---|---|
| Directions Served | L | R |
| Maximum Queue (ft) | 50 | 33 |
| Average Queue (ft) | 6 | 7 |
| 95th Queue (ft) | 23 | 23 |
| Link Distance (ft) | | |
| Upstream Blk Time (%) | | |
| Queuing Penalty (veh) | | |
| Storage Bay Dist (ft) | | 65 |
| Storage Blk Time (%) | 0 | |
| Queuing Penalty (veh) | 0 | |

## Zone Summary

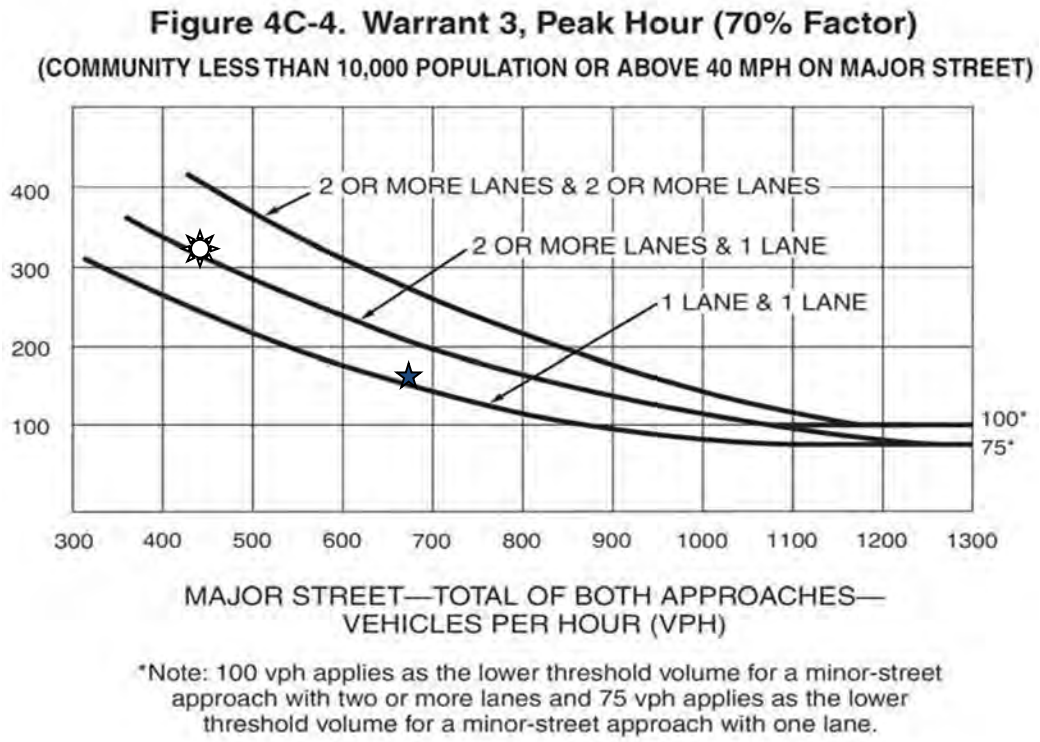
Zone wide Queuing Penalty: 891

# Appendix K: Signal Warrants

# Peak Hour Warrant (Rural Areas)

**Existing - AM (PM) Peak Hour**
**Intersection: 3. North Avenue and State Route 99 SB Off-Ramp**

**State Route 99 SB Off-Ramp Highest Approach Volume = 324 (202) VPH**




**North Avenue Total Volume = 450 (680) VPH**

☼ **AM Peak Hour Volume – Signal Warrant is Met**

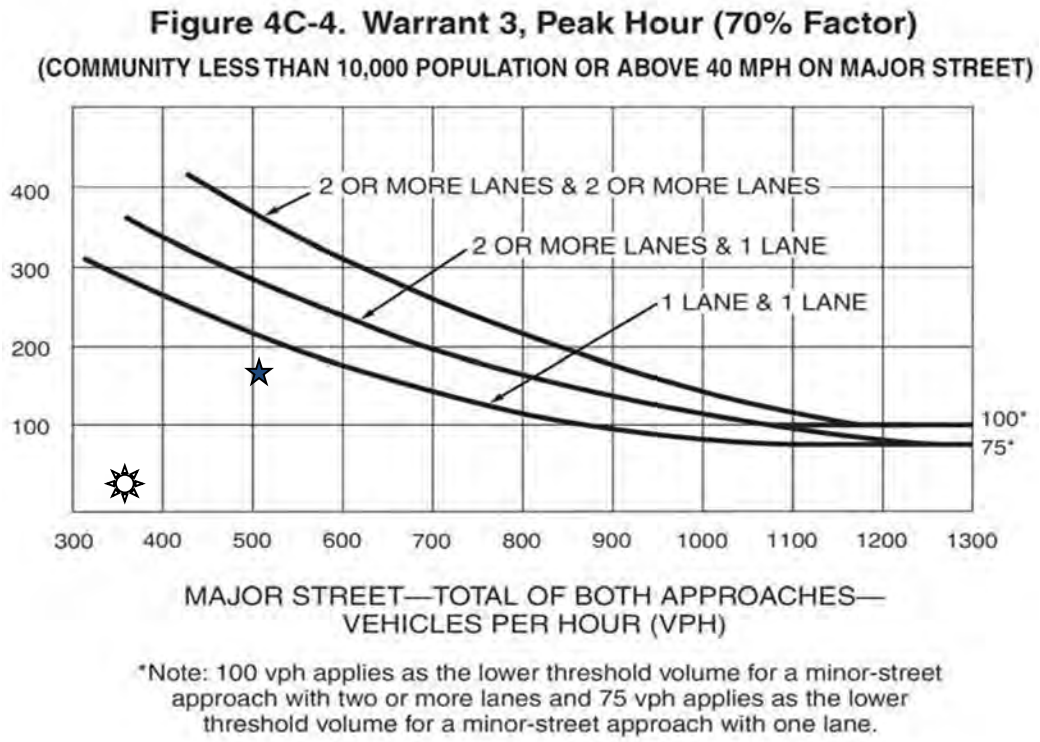
★ **PM Peak Hour Volume – Signal Warrant is Met**

***Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)***
***Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Rural Areas)

**Existing - AM (PM) Peak Hour**
**Intersection: 4. North Avenue and State Route 99 NB On-Ramp**

**North Avenue Eastbound Left-Through Volume Highest Approach Volume = 45 (185) VPH**




**North Avenue Westbound Through-Right Volume = 354 (502) VPH**

**AM Peak Hour Volume – Signal Warrant is Not Met**

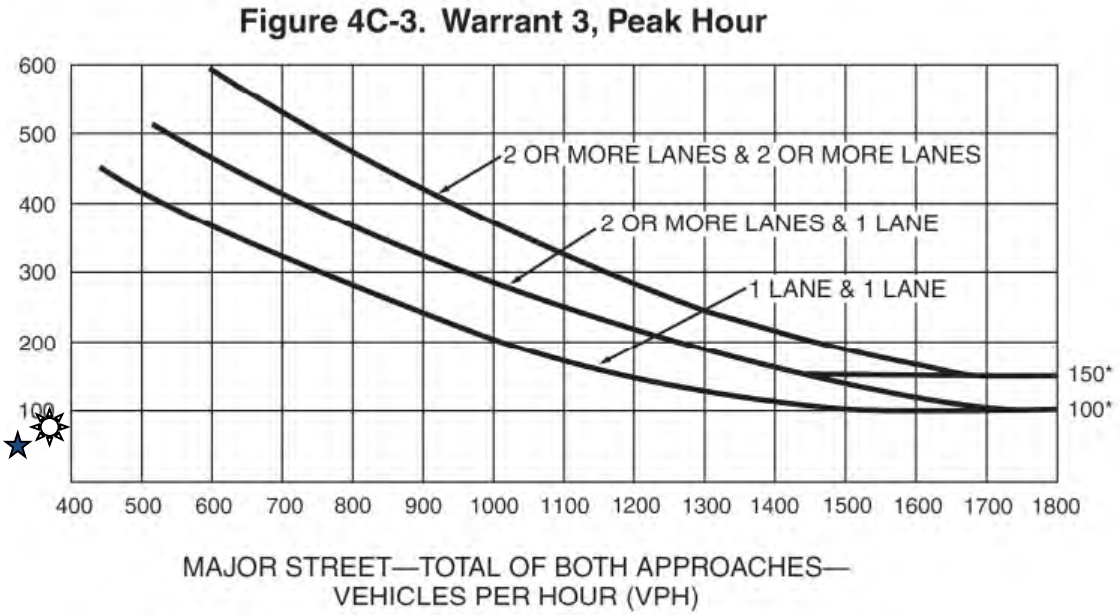
**PM Peak Hour Volume – Signal Warrant is Not Met**

***Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)***
***Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Urban Areas)

**Existing - AM (PM) Peak Hour**
**Intersection: 7. State Route 99 NB Off-Ramp and Cedar Avenue**

**Minor Street Highest Approach Volume = 92 (73) VPH**




*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

**Major Street Total Volume= 223 (193) VPH**

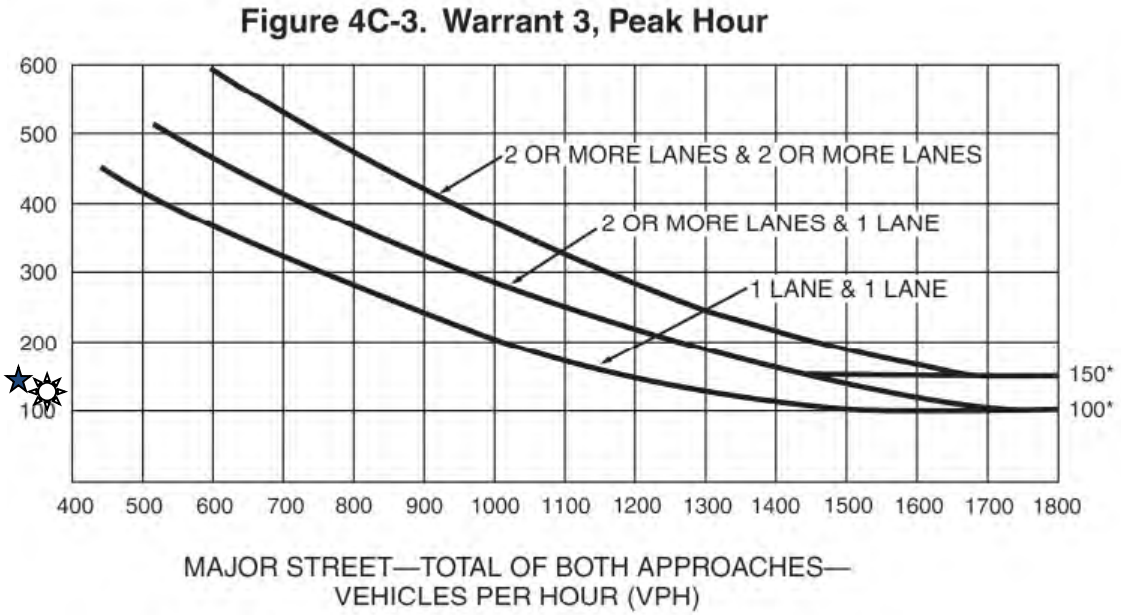
**AM Peak Hour Volume – Signal Warrant is Not Met**
**PM Peak Hour Volume – Signal Warrant is Not Met**

***Source:*** ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Urban Areas)

**Existing - AM (PM) Peak Hour**
**Intersection: 8. Parkway Drive and Cedar Avenue**

**Minor Street Highest Approach Volume = 120 (138) VPH**




*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

**Major Street Total Volume = 252 (245) VPH**

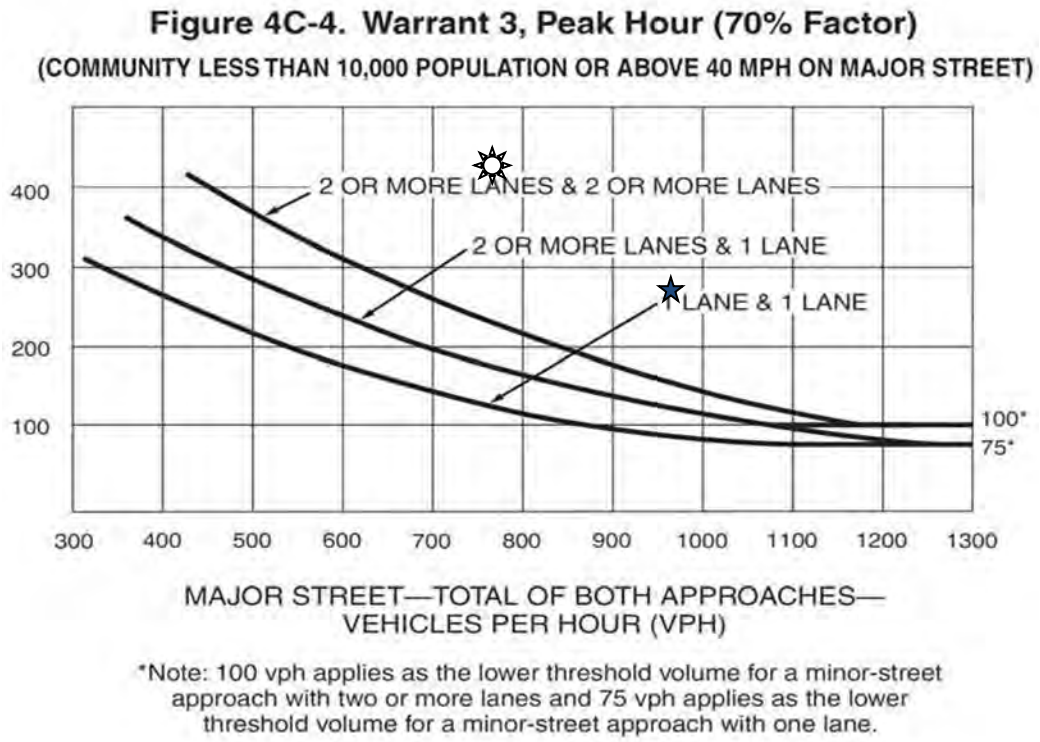
**AM Peak Hour Volume – Signal Warrant is Not Met**
**PM Peak Hour Volume – Signal Warrant is Not Met**

***Source:*** ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Rural Areas)

**Existing plus Project - AM (PM) Peak Hour**
**Intersection: 3. North Avenue and State Route 99 SB Off-Ramp**

**State Route 99**
**SB Off-Ramp**
**Highest Approach**
**Volume = 415 (275) VPH**




**North Avenue Total Volume = 788 (967) VPH**

**AM Peak Hour Volume – Signal Warrant is Met**

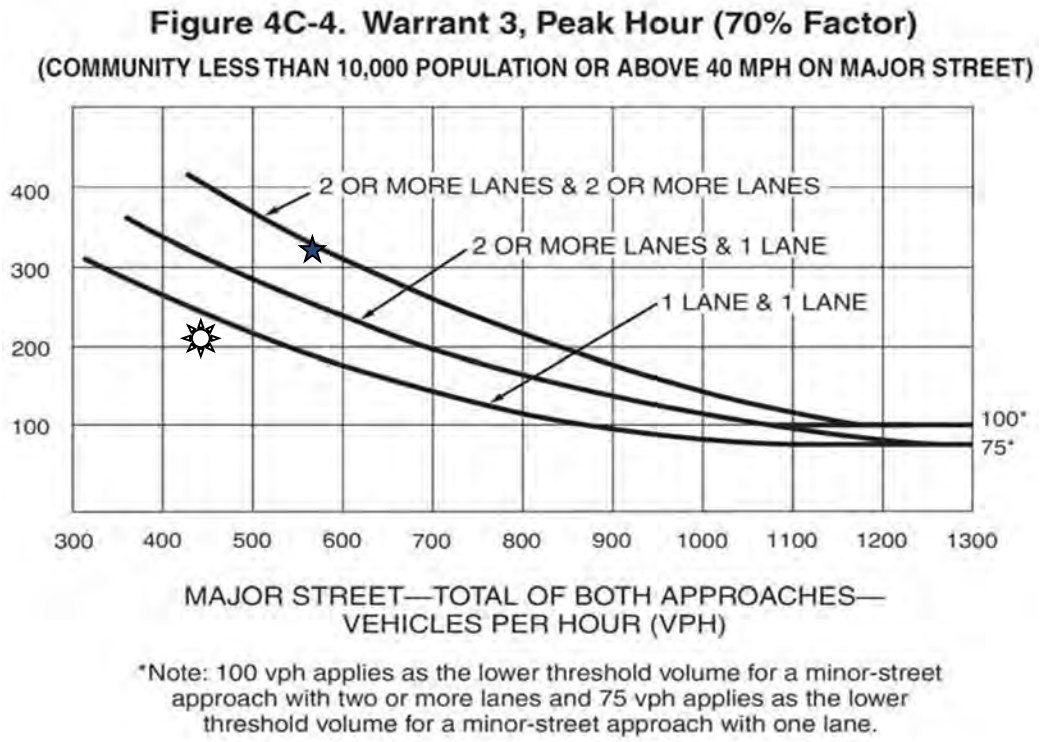
**PM Peak Hour Volume – Signal Warrant is Met**

***Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)***
***Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Rural Areas)

**Existing plus Project - AM (PM) Peak Hour**
**Intersection: 4. North Avenue and State Route 99 NB On-Ramp**

**North Avenue Eastbound Left-Through Volume Highest Approach Volume = 201 (309) VPH**




**North Avenue Westbound Through-Right Volume = 448 (579) VPH**

☼ **AM Peak Hour Volume – Signal Warrant is Not Met**

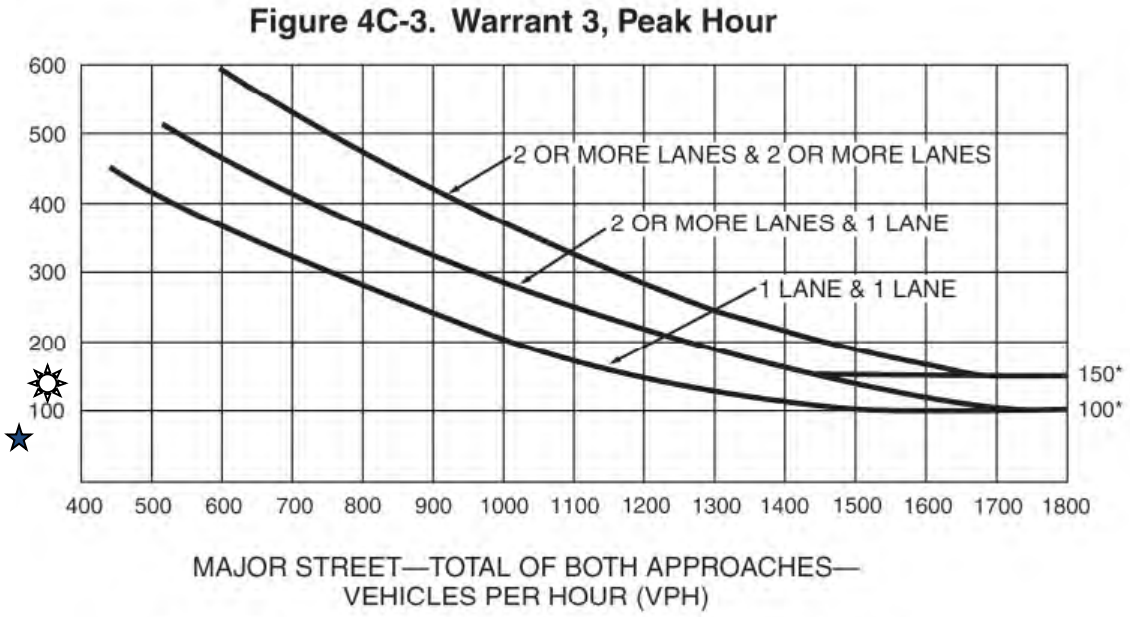
★ **PM Peak Hour Volume – Signal Warrant is Met**

***Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)***
***Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Urban Areas)

**Existing plus Project - AM (PM) Peak Hour**
**Intersection: 7. State Route 99 NB Off-Ramp and Cedar Avenue**

**Minor Street Highest Approach Volume = 138 (83) VPH**




**Major Street Total Volume= 177 (155) VPH**

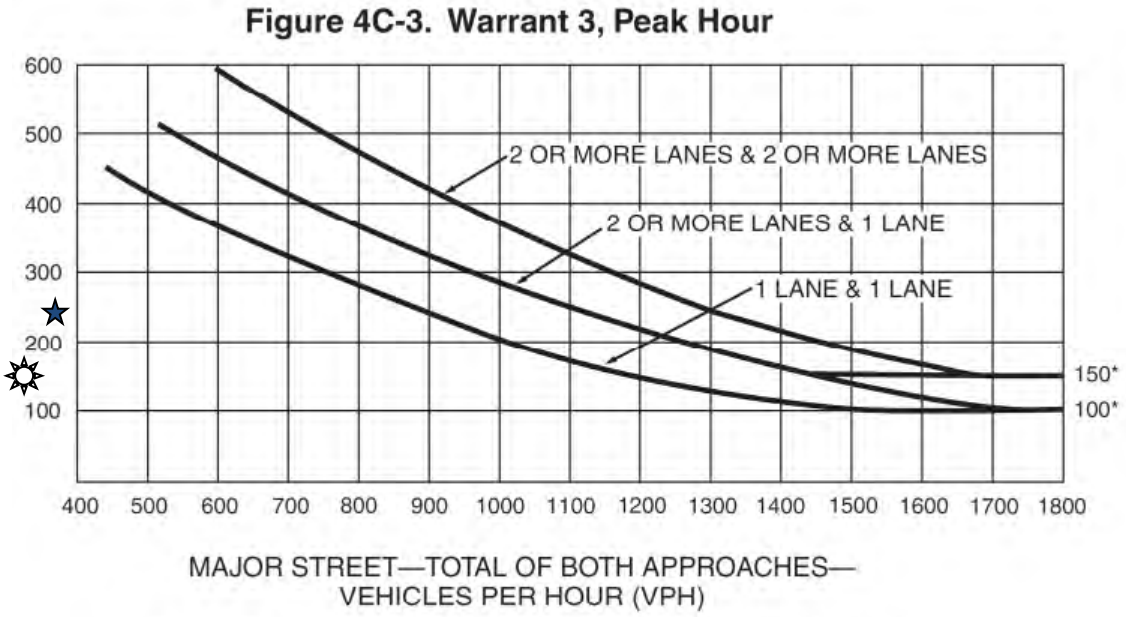
**AM Peak Hour Volume – Signal Warrant is Not Met**
**PM Peak Hour Volume – Signal Warrant is Not Met**

***Source:*** ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Urban Areas)

**Existing plus Project - AM (PM) Peak Hour**
**Intersection: 8. Parkway Drive and Cedar Avenue**

**Minor Street Highest Approach Volume = 142 (236) VPH**




*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

**Major Street Total Volume = 256 (223) VPH**

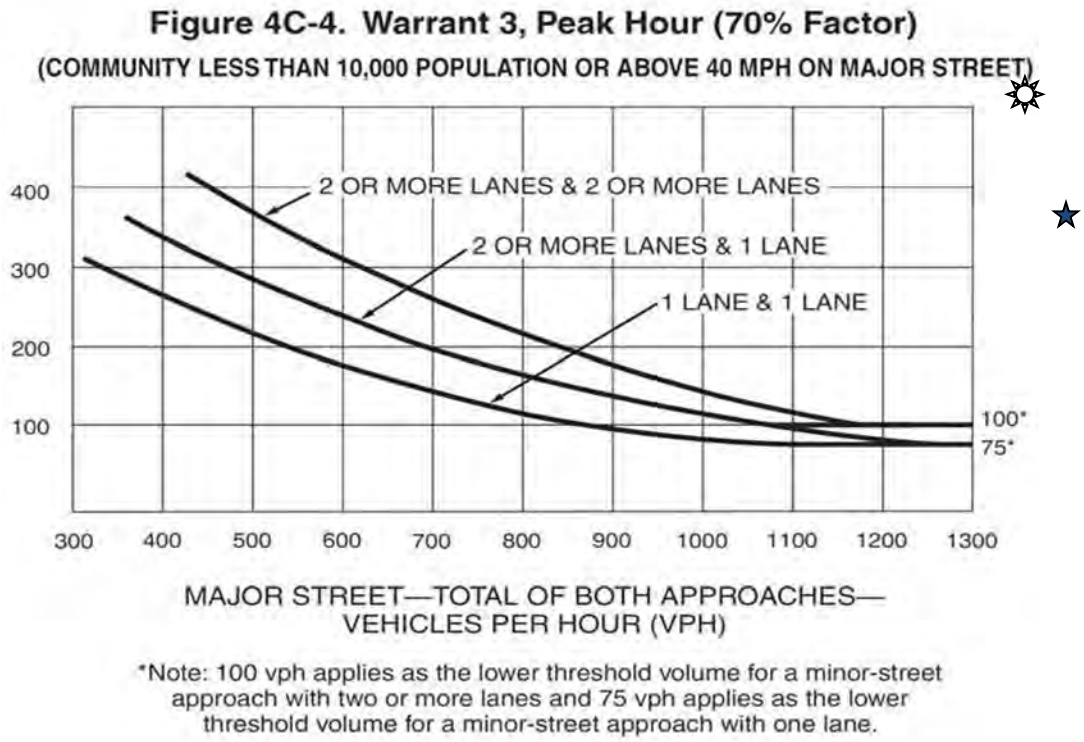
**AM Peak Hour Volume – Signal Warrant is Not Met**
**PM Peak Hour Volume – Signal Warrant is Not Met**

***Source:*** ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Rural Areas)

**Near Term plus Project - AM (PM) Peak Hour**
**Intersection: 3. North Avenue and State Route 99 SB Off-Ramp**

**State Route 99**
**SB Off-Ramp**
**Highest Approach**
**Volume = 765 (370) VPH**




**North Avenue Total Volume = 1503 (2036) VPH**

☼ **AM Peak Hour Volume – Signal Warrant is Met**

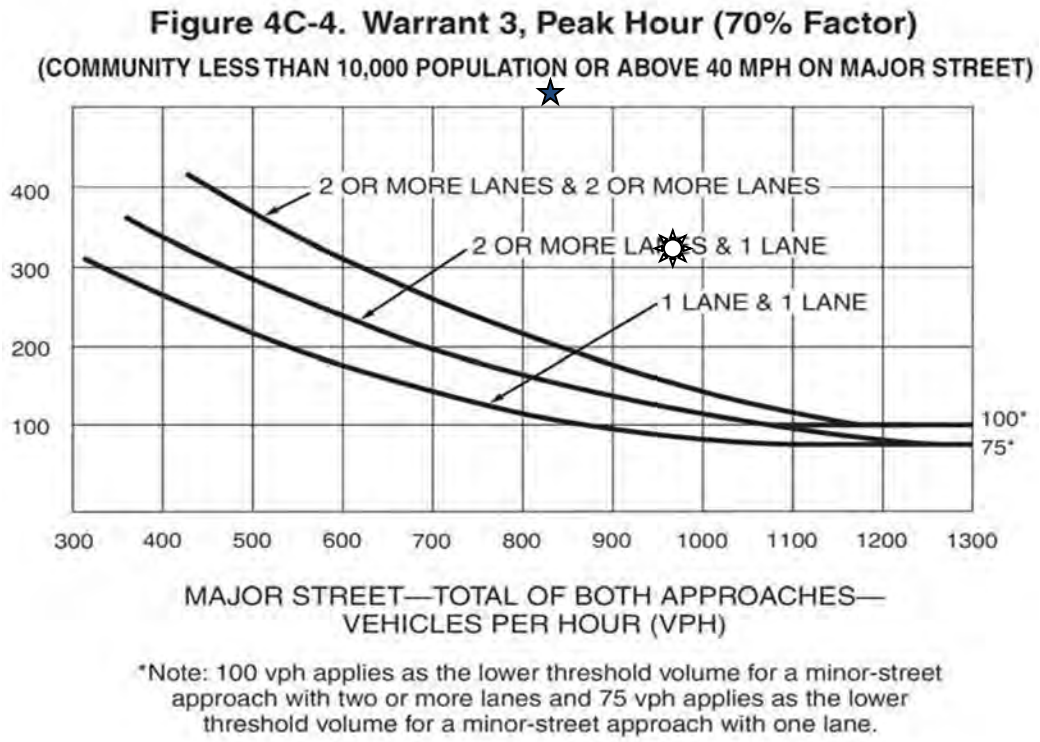
★ **PM Peak Hour Volume – Signal Warrant is Met**

***Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)***
***Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Rural Areas)

**Near Term plus Project - AM (PM) Peak Hour**
**Intersection: 4. North Avenue and State Route 99 NB On-Ramp**

**North Avenue Eastbound Left Volume Highest Approach Volume = 307 (762) VPH**




**North Avenue Westbound Through-Right Volume = 972 (815) VPH**

**AM Peak Hour Volume – Signal Warrant is Met**

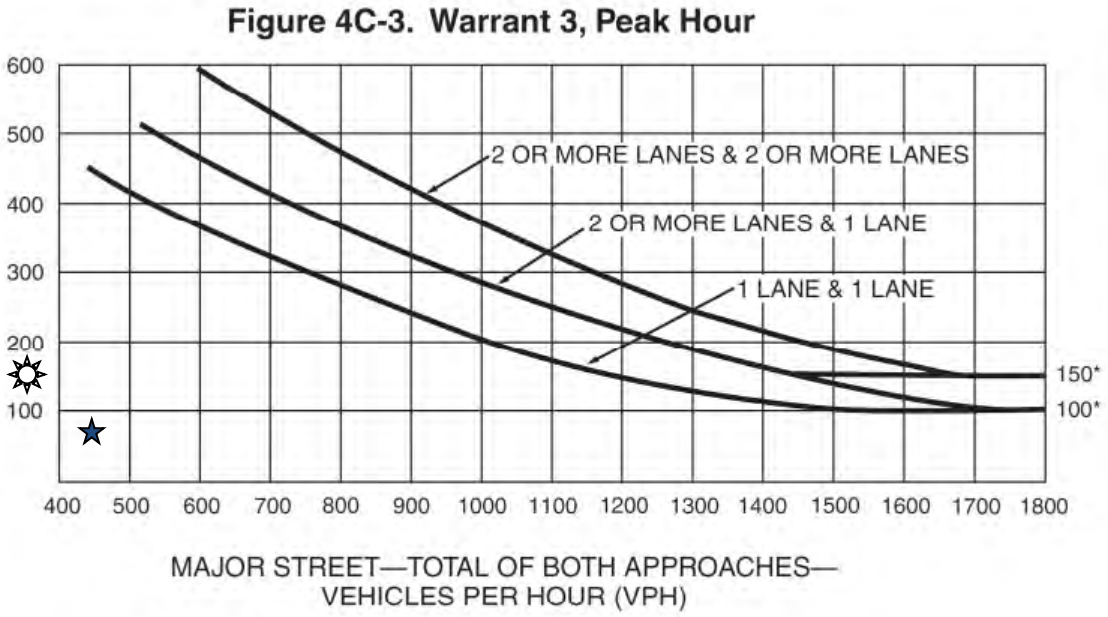
**PM Peak Hour Volume – Signal Warrant is Met**

***Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)***
***Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Urban Areas)

**Near Term plus Project - AM (PM) Peak Hour**
**Intersection: 7. State Route 99 NB Off-Ramp and Cedar Avenue**

**Minor Street Highest Approach Volume = 163 (87) VPH**




*Note: 150 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 100 vph applies as the lower threshold volume for a minor-street approach with one lane.

**Major Street Total Volume= 300 (431) VPH**

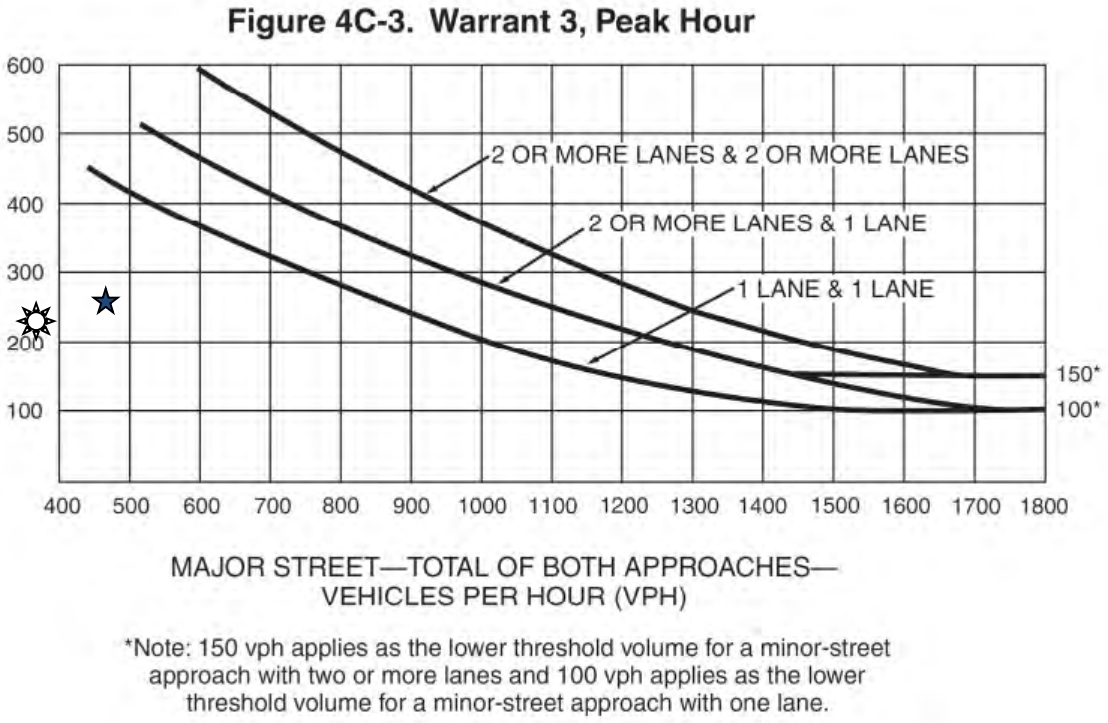
**AM Peak Hour Volume – Signal Warrant is Not Met**
**PM Peak Hour Volume – Signal Warrant is Not Met**

***Source:*** ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Urban Areas)

**Near Term plus Project - AM (PM) Peak Hour**
**Intersection: 8. Parkway Drive and Cedar Avenue**

**Minor Street Highest Approach Volume = 215 (271) VPH**




**Major Street Total Volume = 392 (471) VPH**

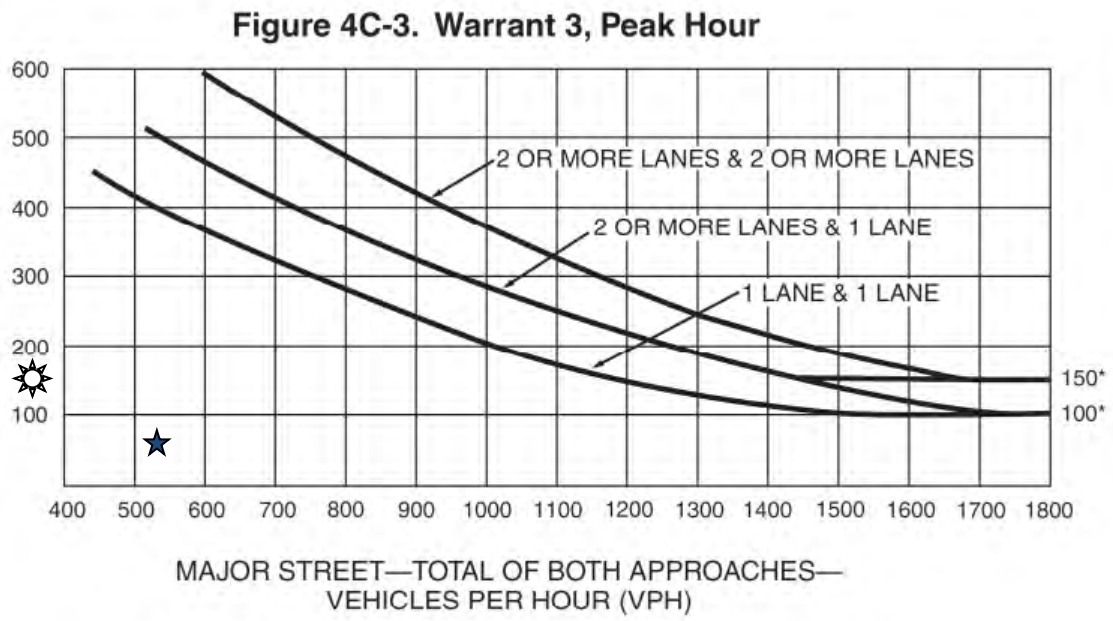
**AM Peak Hour Volume – Signal Warrant is Not Met**
**PM Peak Hour Volume – Signal Warrant is Not Met**

***Source:*** ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)***
***Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Urban Areas)

**Cumulative Year 2035 No Project - AM (PM) Peak Hour**
**Intersection: 8. Parkway Drive and Cedar Avenue**

**Minor Street Highest Approach Volume = 151 (73) VPH**




**Major Street Total Volume = 346 (522) VPH**

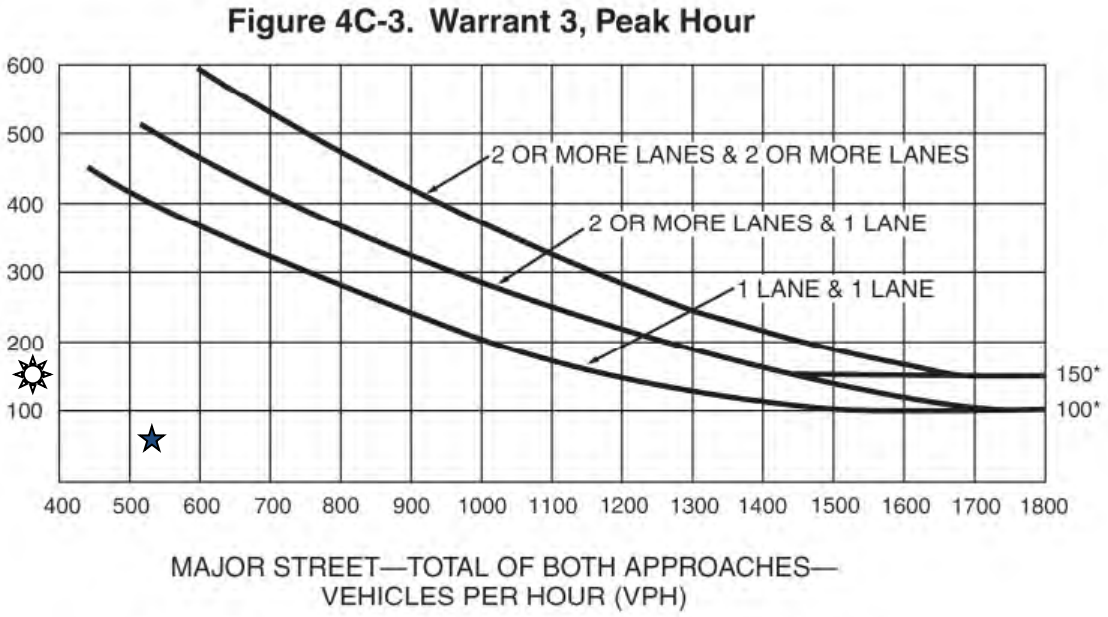
**AM Peak Hour Volume – Signal Warrant is Not Met**
**PM Peak Hour Volume – Signal Warrant is Not Met**

***Source:*** ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition) Part 4: Highway Traffic Signals, November 7, 2014***

# Peak Hour Warrant (Urban Areas)

**Cumulative Year 2035 plus Project - AM (PM) Peak Hour**
**Intersection: 8. Parkway Drive and Cedar Avenue**

**Minor Street Highest Approach Volume = 152 (73) VPH**




**Major Street Total Volume = 348 (525) VPH**

**AM Peak Hour Volume – Signal Warrant is Not Met**
**PM Peak Hour Volume – Signal Warrant is Not Met**

***Source:*** ***California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)***
***Part 4: Highway Traffic Signals, November 7, 2014***