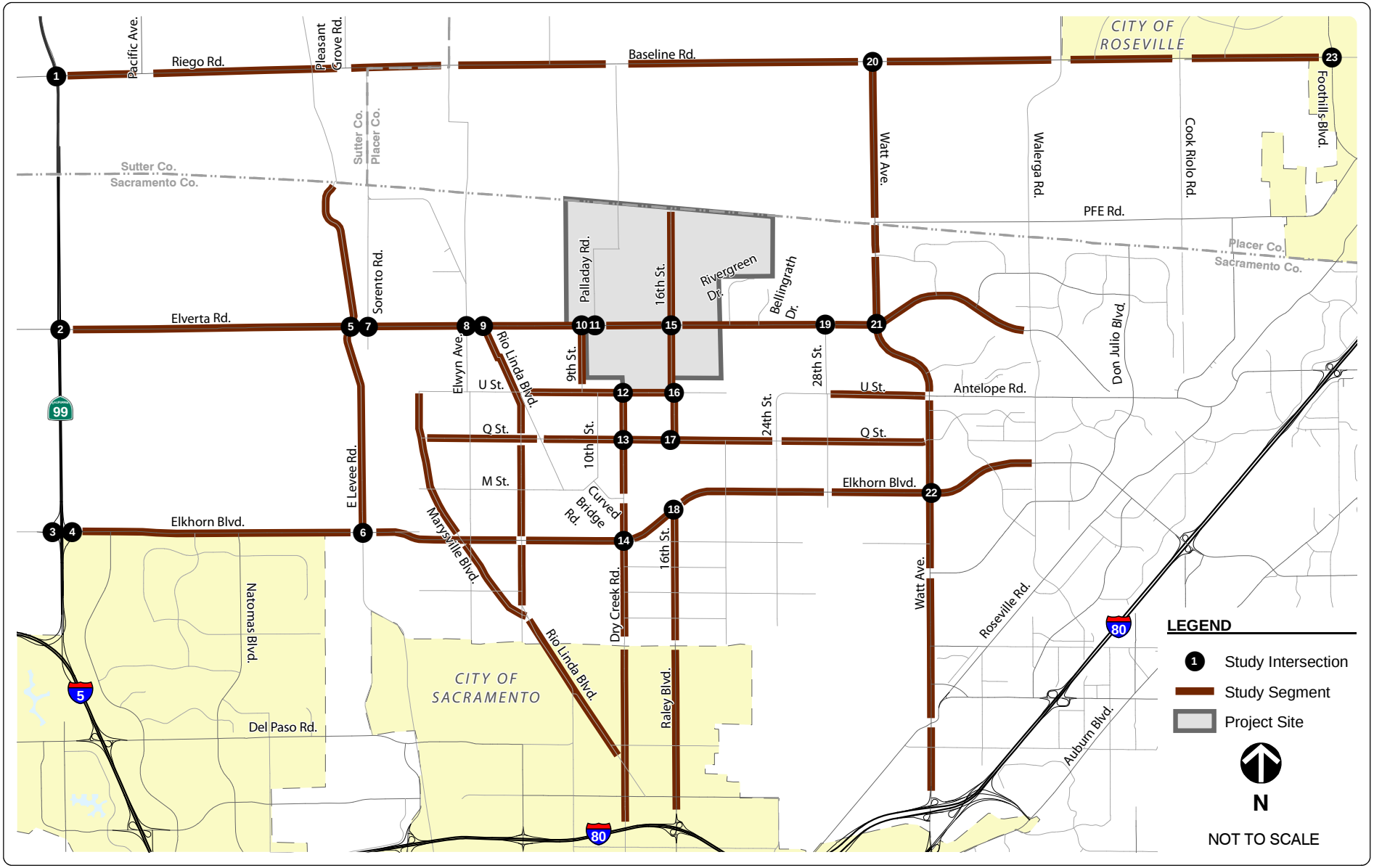
# Appendix F
## Transportation Analysis

# APPENDIX F
# Transportation and Traffic

**Note to reviewers:** The first part of this Appendix contains materials removed from the transportation and traffic review to streamline Section 3.14 and 4.14 of the EIS. The level of service (LOS) calculations sheets associated with the transportation and traffic analysis (500 pages+) are not provided in the paper version of the EIS. They are available on the CD version and online version of the EIS.

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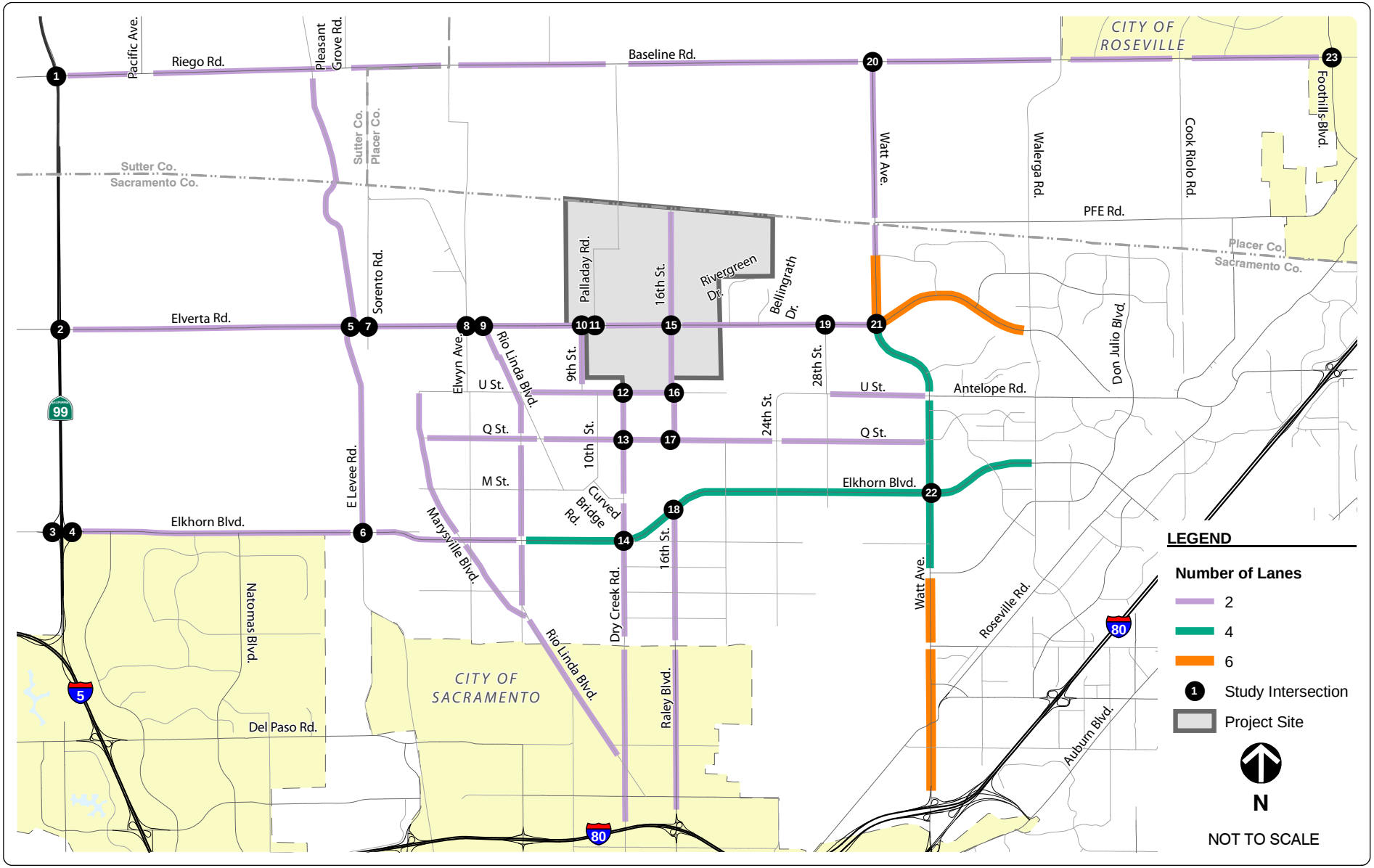
**STUDY AREA**
**FIGURE 3.14-1**

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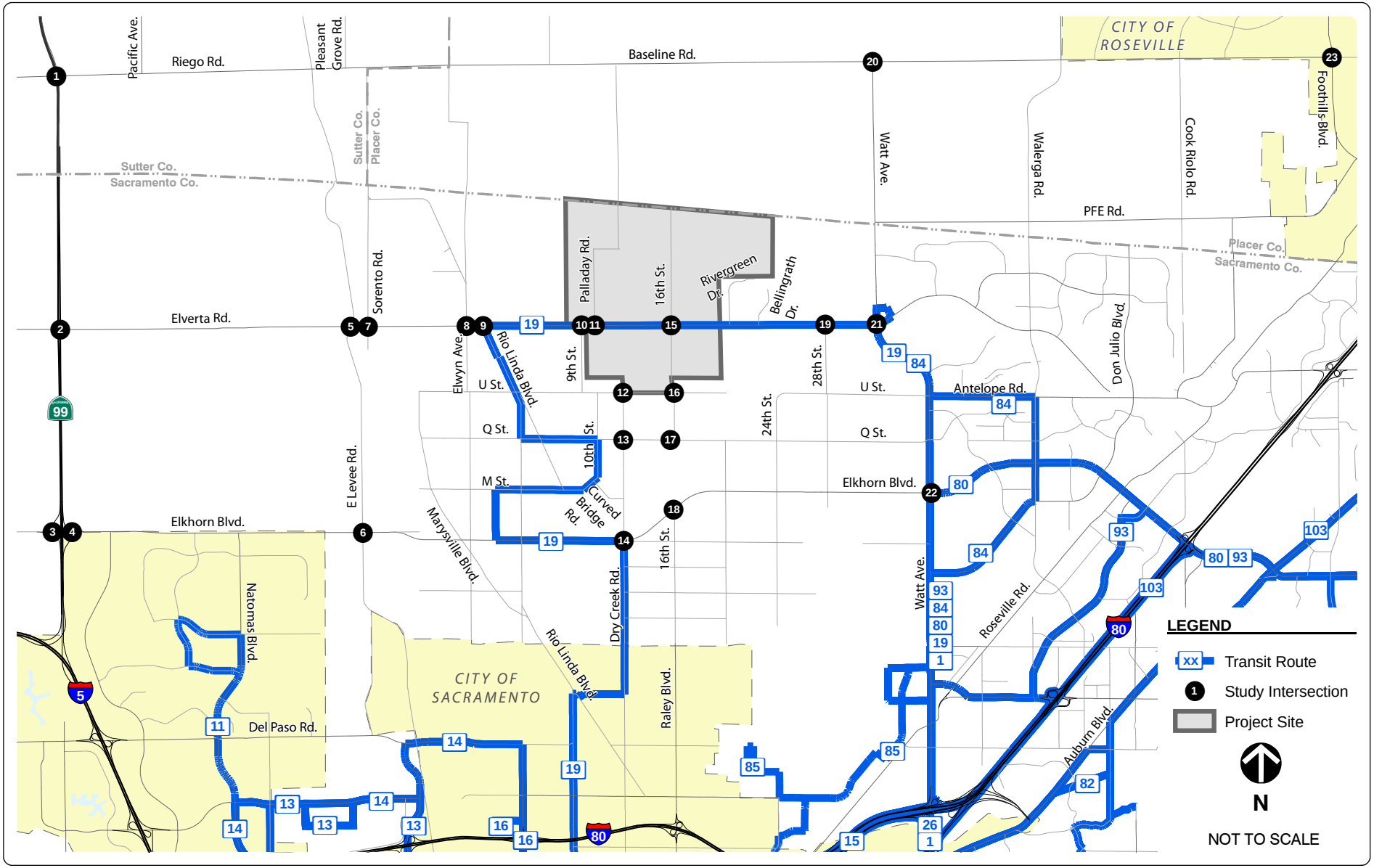
**NUMBER OF LANES - EXISTING CONDITIONS**

**FIGURE 3.14-2**

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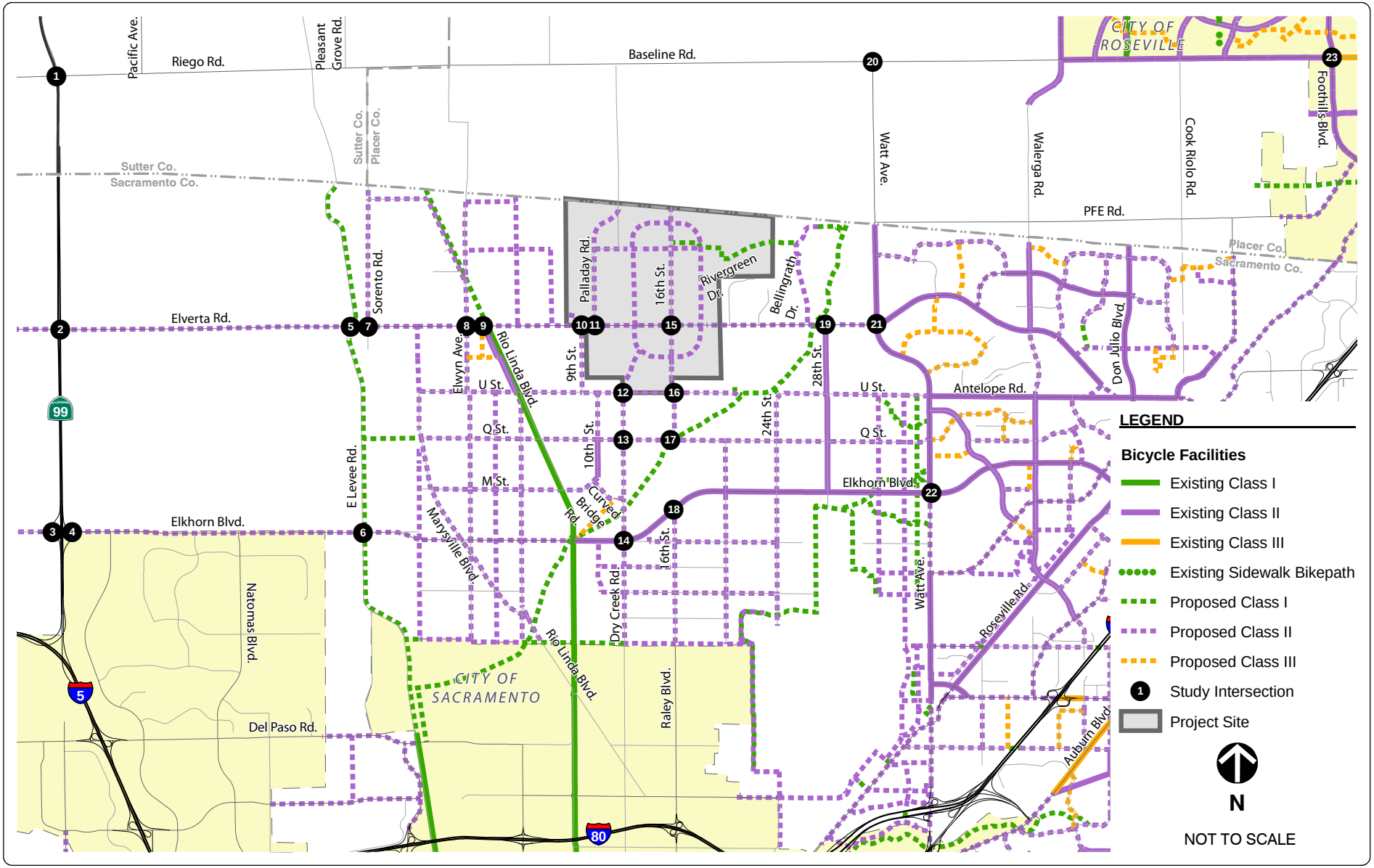
# EXISTING TRANSIT SERVICE

**FIGURE 3.14-3**

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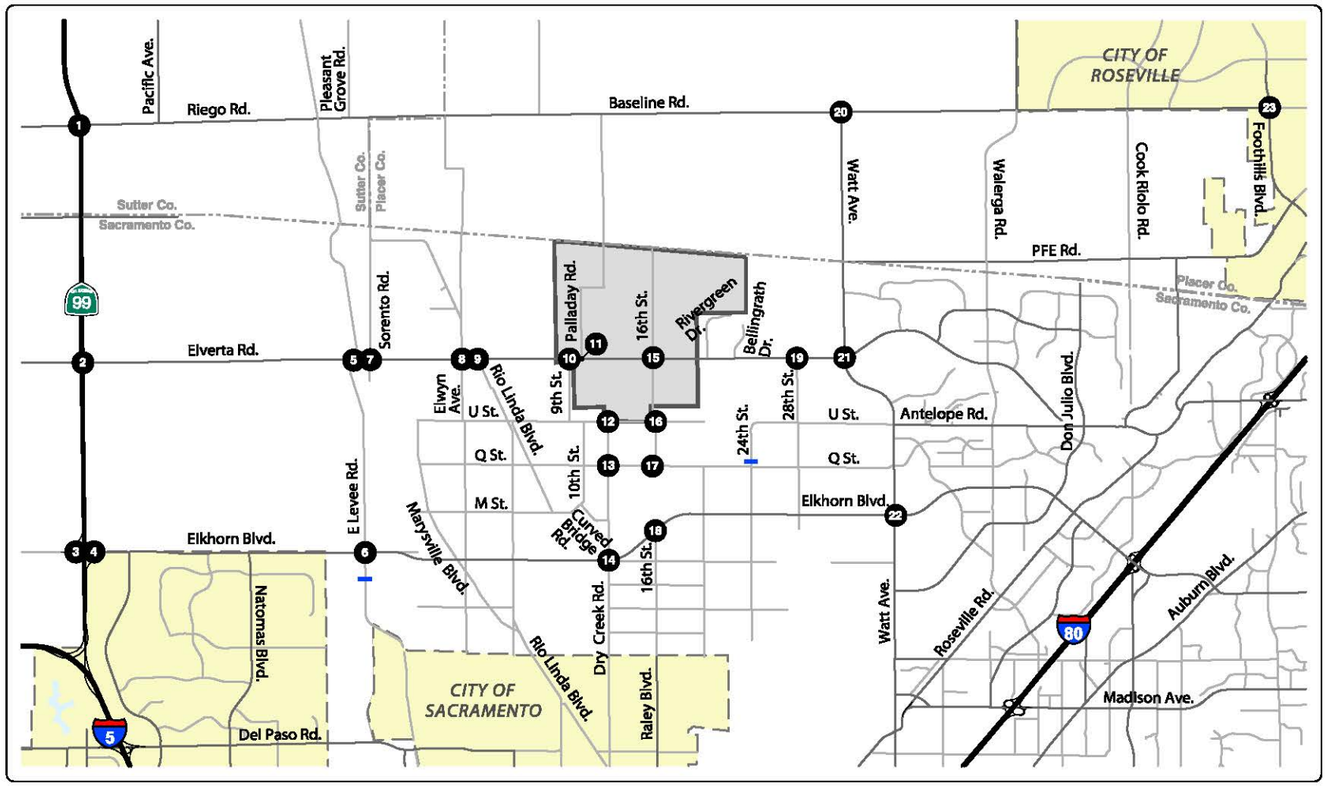
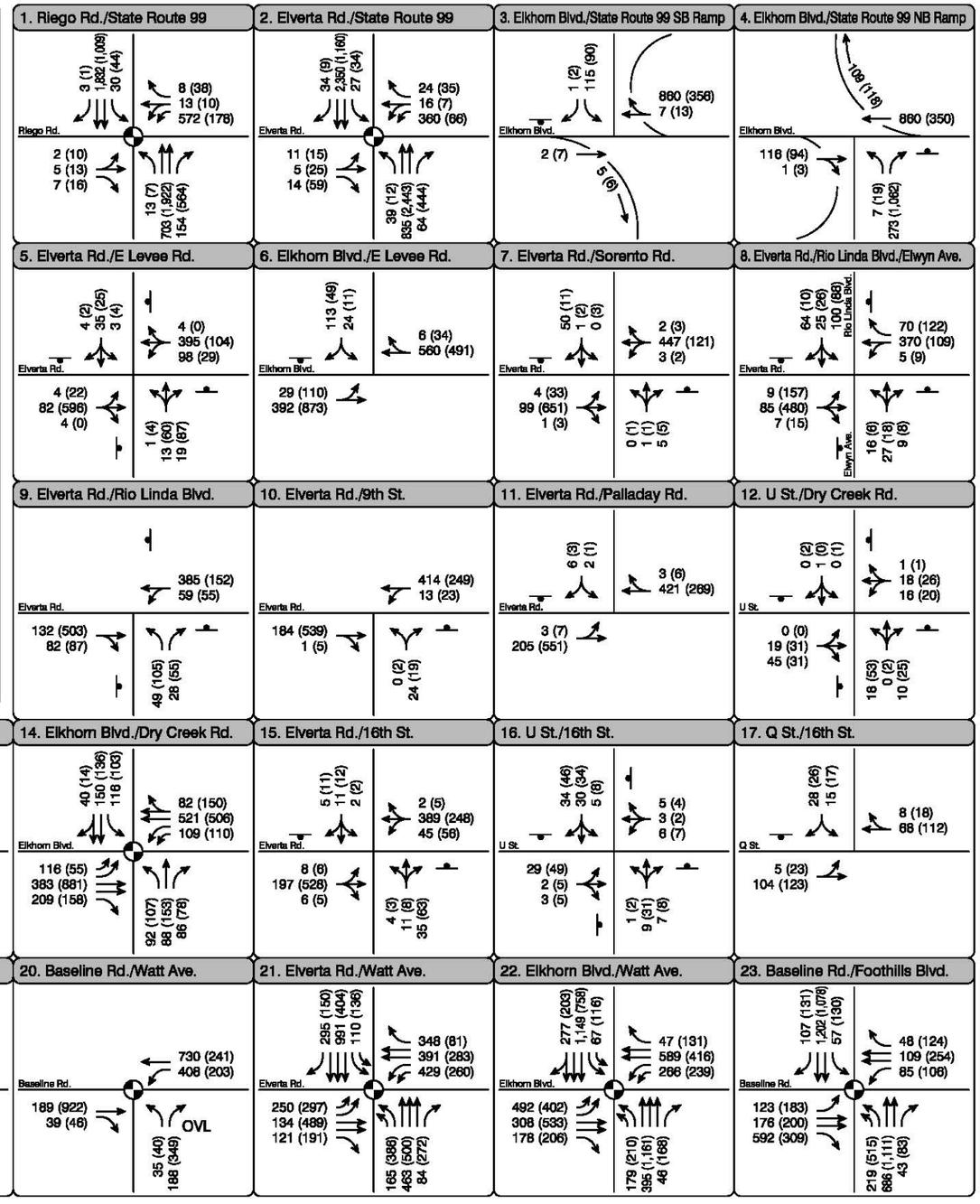
## EXISTING AND PLANNED BICYCLE FACILITIES

**FIGURE 3.14-4**




**LEGEND**

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- 1 Study Intersection
- Traffic Signal
- Stop Sign
- Project Site
- Road Barricade
- OVL Overlap Phasing

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NOT TO SCALE

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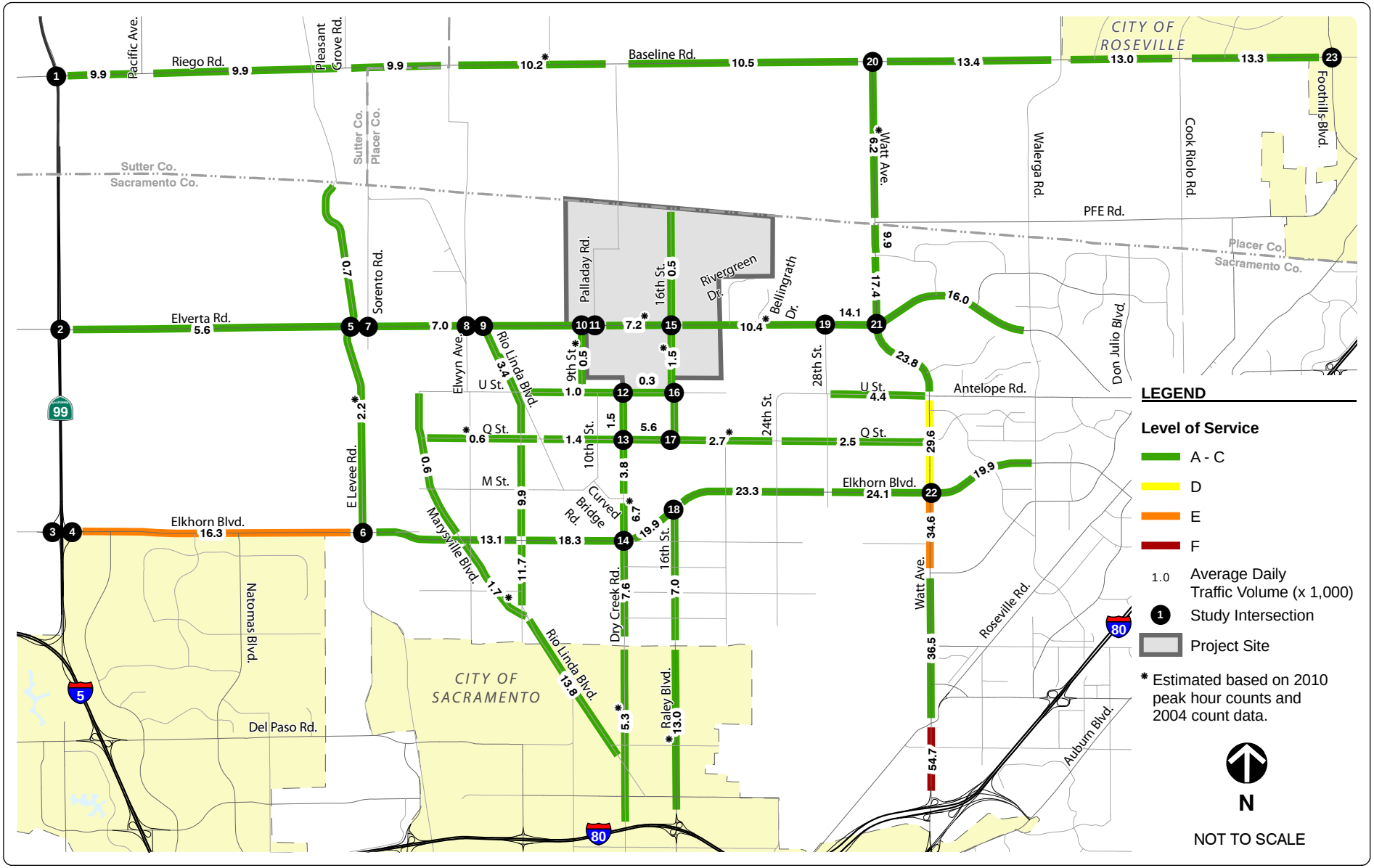
# PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING CONDITIONS

**FIGURE 3.14-5**

**TABLE 1**
**PEAK HOUR INTERSECTION LOS – EXISTING CONDITIONS**

| Intersection | | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | Delay (sec/veh) | LOS |
|---|---|---|---|---|---|---|
| 1 | SR 99 / Riego Road | Caltrans (E) | Traffic Signal | AM | 57 | E |
| | | | | PM | 21 | C |
| 2 | SR 99 / Elverta Road | Caltrans (E) | Traffic Signal | AM | 70 | E |
| | | | | PM | 26 | C |
| 3 | SR 99 SB Off-Ramp/Elkhorn | Caltrans (E) | Side Street Stop | AM | 15 | B |
| | | | | PM | 11 | B |
| 4 | SR 99 NB Off-Ramp/Elkhorn | Caltrans (E) | Side Street Stop | AM | 23 | C |
| | | | | PM | **141** | **F** |
| 5 | Elverta Road / E. Levee Rd | Sacramento Co. (E) | All Way Stop | AM | 15 | C |
| | | | | PM | 27 | D |
| 6 | Elkhorn Blvd / E. Levee Rd | Sacramento Co. (E) | Side Street Stop | AM | 21 | C |
| | | | | PM | 16 | C |
| 7 | Elverta Road / Sorento Rd | Sacramento Co. (E) | Side Street Stop | AM | 13 | B |
| | | | | PM | 29 | D |
| 8 | Elverta Road / Elwyn Road | Sacramento Co. (E) | All Way Stop | AM | 14 | B |
| | | | | PM | 37 | E |
| 9 | Elverta Rd / Rio Linda Blvd | Sacramento Co. (E) | All Way Stop | AM | 13 | B |
| | | | | PM | 19 | C |
| 10 | Elverta Road / 9th Street | Sacramento Co. (E) | Side Street Stop | AM | 10 | A |
| | | | | PM | 13 | B |
| 11 | Elverta Road / Palladay Rd | Sacramento Co. (E) | Side Street Stop | AM | 12 | B |
| | | | | PM | 12 | B |
| 12 | U Street / Dry Creek Road | Sacramento Co. (E) | All Way Stop | AM | 7 | A |
| | | | | PM | 8 | A |
| 13 | Q Street / Dry Creek Road | Sacramento Co. (E) | All Way Stop | AM | 9 | A |
| | | | | PM | 9 | A |
| 14 | Elkhorn Blvd/Dry Creek Rd | Sacramento Co. (E) | Traffic Signal | AM | 20 | B |
| | | | | PM | 20 | B |
| 15 | Elverta Road / 16th Street | Sacramento Co. (E) | Side Street Stop | AM | 16 | C |
| | | | | PM | 18 | C |
| 16 | U Street / 16th Street | Sacramento Co. (E) | All Way Stop | AM | 7 | A |
| | | | | PM | 8 | A |
| 17 | Q Street / 16th Street | Sacramento Co. (E) | Side Street Stop | AM | 9 | A |
| | | | | PM | 10 | A |
| 18 | Elkhorn Blvd / 16th Street | Sacramento Co. (E) | Traffic Signal | AM | 15 | B |
| | | | | PM | 64 | E |
| 19 | Elverta Road / 28th Street | Sacramento Co. (E) | Traffic Signal | AM | 69 | E |
| | | | | PM | **137** | **F** |
| 20 | Baseline Road / Watt Ave | County of Placer - Placer Vineyards (D) | Traffic Signal | AM | 76 | E |
| | | | | PM | 33 | C |
| 21 | Elverta Road / Watt Avenue | Sacramento Co. (E) | Traffic Signal | AM | 35 | C |
| | | | | PM | 31 | C |
| 22 | Elkhorn Blvd / Watt Avenue | Sacramento Co. (E) | Traffic Signal | AM | 52 | D |
| | | | | PM | 37 | D |
| 23 | Baseline Rd/Foothills Blvd | City of Roseville (C) | Traffic Signal | AM | **49** | **D** |
| | | | | PM | **40** | **D** |

Note: Bolded cells represent unacceptable operations.
SOURCE: Fehr & Peers, 2010

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# AVERAGE DAILY TRAFFIC VOLUMES AND LEVEL OF SERVICE - EXISTING CONDITIONS

**FIGURE 3.14-6**

**Table 2**
**Daily Roadway Segment LOS – Existing Conditions**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | Number of Lanes | ADT | V/C Ratio | LOS |
|---|---|---|---|---|---|---|
| Riego Road /Baseline Road | SR 99 to Pacific Avenue | County of Sutter (D) | 2 | 9,900 | 0.60 | C |
| | Pacific Avenue to Pleasant Grove Road (South) | County of Sutter (D) | 2 | 9,900 | 0.60 | C |
| | Pleasant Grove Road (South) to Locust Road | County of Placer - Placer Vineyards Frontage (D) | 2 | 9,900 | 0.60 | C |
| | Locust Road to Palladay Road | County of Placer - Placer Vineyards Frontage (D) | 2 | 10,200 | 0.57 | A |
| | Palladay Road to Watt Avenue | County of Placer - Placer Vineyards Frontage (D) | 2 | 10,500 | 0.58 | A |
| | Watt Avenue to Walerga Road | County of Placer - Placer Vineyards Frontage (D) | 2 | 13,400 | 0.74 | C |
| | Walerga Road to Cook-Riolo Road | County of Placer (C) | 2 | 13,000 | 0.72 | C |
| | Cook-Riolo Road to Foothills Boulevard | County of Placer (C) | 2 | 13,300 | 0.74 | C |
| Elverta Road | SR 99 to E. Levee Road | County of Sacramento - Rural (D) | 2 | 5,600 | 0.31 | A |
| | E. Levee Road to Palladay Road | County of Sacramento - Urban (E) | 2 | 7,000 | 0.39 | A |
| | Palladay Road to 16$^{th}$ Street | County of Sacramento - Urban (E) | 2 | 7,200 | 0.40 | A |
| | 16$^{th}$ Street to 28$^{th}$ Street | County of Sacramento - Urban (E) | 2 | 10,400 | 0.58 | A |
| | 28$^{th}$ Street to Watt Avenue | County of Sacramento - Urban (E) | 2 | 14,100 | 0.78 | C |
| | Watt Avenue to Walerga Road | County of Sacramento - Urban (E) | 6 | 16,000 | 0.30 | A |

**Table 2**
**Daily Roadway Segment LOS – Existing Conditions**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | Number of Lanes | ADT | V/C Ratio | LOS |
|---|---|---|---|---|---|---|
| Elkhorn Boulevard | SR 99 to E. Levee Road | County of Sacramento - Urban (E) | 2 | 16,300 | 0.91 | E |
| | E. Levee Road to Rio Linda Boulevard | County of Sacramento - Urban (E) | 2 | 13,100 | 0.73 | C |
| | Rio Linda Boulevard to Dry Creek Road | County of Sacramento - Urban (E) | 4 | 18,300 | 0.51 | A |
| | Dry Creek Road to 16th Street | County of Sacramento - Urban (E) | 4 | 19,900 | 0.55 | A |
| | 16th Street to 28th Street | County of Sacramento - Urban (E) | 4 | 23,300 | 0.65 | B |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 4 | 24,100 | 0.67 | B |
| | Watt Avenue to Walerga Road | County of Sacramento - Urban (E) | 4 | 19,900 | 0.55 | A |
| Watt Avenue | Baseline Road to PFE Road | County of Placer - Placer Vineyards Frontage (D) | 2 | 6,200 | 0.34 | A |
| | PFE Road to Black Eagle Drive | County of Sacramento - Urban (E) | 2 | 9,900 | 0.55 | A |
| | Black Eagle Drive to Elverta Road | County of Sacramento - Urban (E) | 6 | 17,400 | 0.32 | A |
| | Elverta Road to Antelope Road | County of Sacramento - Urban (E) | 4 | 23,800 | 0.66 | B |
| | Antelope Road to Elkhorn Boulevard | County of Sacramento - Urban (E) | 4 | 29,600 | 0.82 | D |
| | Elkhorn Boulevard to Don Julio Boulevard | County of Sacramento - Urban (E) | 4 | 34,600 | 0.96 | E |
| | Don Julio Boulevard to Roseville Road | County of Sacramento - Urban (E) | 6 | 36,500 | 0.68 | B |
| | Roseville Road to I-80 | County of Sacramento - Urban (E) | 6 | 54,700 | **1.01** | **F** |

**Table 2**
**Daily Roadway Segment LOS – Existing Conditions**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | Number of Lanes | ADT | V/C Ratio | LOS |
|---|---|---|---|---|---|---|
| U Street | Rio Linda Boulevard to Dry Creek Road | County of Sacramento - Urban (E) | 2 | 1,000 | 0.06 | A |
| | Dry Creek Road to 16th Street | County of Sacramento - Urban (E) | 2 | 300 | 0.02 | A |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 2 | 4,400 | 0.24 | A |
| Q Street | Marysville Boulevard to Rio Linda Boulevard | County of Sacramento - Urban (E) | 2 | 600 | 0.03 | A |
| | Rio Linda Boulevard to Dry Creek Road | County of Sacramento - Urban (E) | 2 | 1,400 | 0.08 | A |
| | Dry Creek Road to 16th Street | County of Sacramento - Urban (E) | 2 | 5,600 | 0.31 | A |
| | 16th Street to 24th Street | County of Sacramento - Urban (E) | 2 | 2,700 | 0.15 | A |
| | 24th Street to Watt Avenue | County of Sacramento - Urban (E) | 2 | 2,500 | 0.14 | A |
| East Levee Road | Sutter County Line to Elverta Road | County of Sacramento - Urban (E) | 2 | 700 | 0.04 | A |
| | Elverta Road to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 2,200 | 0.12 | A |
| Marysville Boulevard | Dry Creek Road to Rio Linda Boulevard | City of Sacramento (D) | 2 | 13,800 | 0.77 | C |
| | Rio Linda Boulevard to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 1,700 | 0.09 | A |
| | Elkhorn Boulevard to U Street | County of Sacramento - Urban (E) | 2 | 600 | 0.03 | A |

**Table 2**
**Daily Roadway Segment LOS – Existing Conditions**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | Number of Lanes | ADT | V/C Ratio | LOS |
|---|---|---|---|---|---|---|
| Rio Linda Blvd | Marysville Boulevard to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 11,700 | 0.65 | B |
| | Elkhorn Boulevard to Q Street | County of Sacramento - Urban (E) | 2 | 9,900 | 0.55 | A |
| | Q Street to Elverta Road | County of Sacramento - Urban (E) | 2 | 3,400 | 0.19 | A |
| 9th Street | Elverta Road to U Street | County of Sacramento - Urban (E) | 2 | 500 | 0.03 | A |
| Dry Creek Road | I-80 to Ascot Avenue | City of Sacramento (D) | 2 | 5,300 | 0.29 | A |
| | Ascot Avenue to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 7,600 | 0.42 | A |
| | Elkhorn Boulevard to Curved Bridge Road | County of Sacramento - Urban (E) | 2 | 6,700 | 0.37 | A |
| | Curved Bridge Road to Q Street | County of Sacramento - Urban (E) | 2 | 3,800 | 0.21 | A |
| | Q Street to U Street | County of Sacramento - Urban (E) | 2 | 1,500 | 0.08 | A |
| 16th Street | Ascot Avenue to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 7,000 | 0.39 | A |
| | Q Street to Elverta Road | County of Sacramento - Urban (E) | 2 | 1,500 | 0.08 | A |
| | Elverta Road to County Line | County of Sacramento - Urban (E) | 2 | 500 | 0.03 | A |
| Raley Blvd | I-80 to Ascot Avenue | City of Sacramento (D) | 2 | 13,000 | 0.72 | C |

Notes: Bolded cells represent unacceptable operations.
SOURCE: Fehr & Peers, 2010

**Table 3**
**Freeway Mainline LOS – Existing Conditions**

| Freeway | Segment | Peak Hour | Volume | Density (pc/ln/mi) | LOS |
|---|---|---|---|---|---|
| SR 99 SB | Sankey Road to Riego Road | AM | 1,865 | 17 | B |
| | | PM | 1,054 | 10 | A |
| | Riego Road to Elverta Road | AM | 2,411 | 22 | C |
| | | PM | 1,203 | 11 | B |
| | Elverta Road to Elkhorn Boulevard | AM | 2,724 | 25 | C |
| | | PM | 1,285 | 12 | B |
| | Elkhorn Boulevard to I-5 | AM | 3,473 | 33 | D |
| | | PM | 1,555 | 14 | B |
| SR 99 NB | I -5 to Elkhorn Boulevard | AM | 1,108 | 11 | B |
| | | PM | 3,859 | 42 | E |
| | Elkhorn Boulevard to Elverta Road | AM | 938 | 9 | A |
| | | PM | 2,899 | 28 | D |
| | Elverta Road to Riego Road | AM | 870 | 9 | A |
| | | PM | 2,493 | 24 | C |
| | Riego Road to Sankey Road | AM | 713 | 7 | A |
| | | PM | 1,970 | 19 | C |

SOURCE: Fehr & Peers, 2010.

**Table 4**
**Minimum Acceptable Level of Service by Jurisdiction**

| Jurisdiction | LOS Criteria |
|---|---|
| Sacramento County (within the Urban Service Boundary) | E |
| Sacramento County (outside the Urban Service Boundary) | D |
| City of Sacramento | D |
| Sutter County | D |
| Placer County | C |
| Placer County (Adjacent to Placer Vineyards) | D |
| City of Roseville | C |
| Caltrans (SR 99) | E |

SOURCE: Fehr & Peers, 2010.

**Table 5**
**Intersection LOS Criteria**

| LOS | Control Delay (sec/veh)[a] | | General Description |
|---|---|---|---|
| | Signalized Intersections | Unsignalized Intersections | |
| A | ≤ 10 | ≤ 10 | Little to no congestion or delays. |
| B | > 10 – 20 | > 10 – 15 | Limited congestion. Short delays. |
| C | > 20 – 35 | > 15 – 25 | Some congestion with average delays. |
| D | > 35 – 55 | > 25 – 35 | Significant congestion and delays. |
| E | > 55 – 80 | > 35 - 50 | Severe congestion and delays. |
| F | > 80 | > 50 | Total breakdown with extreme delays. |

[a] Control delay includes initial deceleration delay, queue move-up time, stopped delay, and acceleration delay and is measured for the overall intersection.

SOURCE: *Highway Capacity Manual* (Transportation Research Board 2000), Fehr & Peers 2010

**Table 6**
**Roadway Segment LOS Criteria**

| Facility Type | Number of Lanes | Daily Volume Threshold | | | | |
|---|---|---|---|---|---|---|
| | | LOS A | LOS B | LOS C | LOS D | LOS E |
| **Sutter County** | | | | | | |
| Urban Arterial [a] | 2 | - | - | 13,170 | 14,800 | 16,460 |
| | 4 | - | - | 26,340 | 29,640 | 32,930 |
| | 6 | - | - | 39,510 | 44,460 | 49,395 |
| **Placer County/Sacramento County/City of Sacramento** | | | | | | |
| Arterial – Moderate Access Control | 2 | 10,800 | 12,600 | 14,400 | 16,200 | 18,000 |
| | 4 | 21,600 | 25,200 | 28,800 | 32,400 | 36,000 |
| | 6 | 32,400 | 37,800 | 43,200 | 48,600 | 54,000 |

Both **Number of Lanes** and **Daily Volume Threshold** are two-way totals.

[a] Urban Arterial thresholds extrapolated for six-lane facilities.

SOURCES:

Sutter County General Plan, 1996

Placer County General Plan, 1994

Sacramento County Traffic Impact Analysis Guidelines, 2004

City of Sacramento General Plan, 2009

**Table 7**
**Freeway Mainline and Ramp Junction LOS Criteria**

| LOS | Mainline Density (pc/mi/ln) | Ramp Junction Density (pc/mi/ln) |
|---|---|---|
| A | ≤ 11 | ≤ 10.0 |
| B | > 11 – 18 | > 10 – 20 |
| C | > 18 – 26 | > 20 – 28 |
| D | > 26 – 35 | > 28 – 35 |
| E | > 35 – 45 | > 35 – 43[a] |
| F | Demand exceeds capacity | |

[a] The HCM 2000 does not define maximum density for ramp junctions under LOS E. Fehr & Peers uses the maximum density of 43 identified for weaving sections in the HCM 2000.

Density is measured in pc/mi/ln (passenger car per mile per lane).

SOURCE: *Highway Capacity Manual* (Transportation Research Board 2000)

**Table 8**
**Comparison of Land Use by Project Alternative**

| Land Use Type | Alternative | | | |
|---|---|---|---|---|
| | Preferred Alternative | Approved Specific Plan | Minimal Impact | No Permit |
| Single Family (dwelling units) | 5,317 | 5,317 | 4,221 | 827 |
| Multi-Family (dwelling units) | 873 | 873 | 1,969 | 0 |
| Total | 6,190 | 6,190 | 6,190 | 827 |
| Retail (acres) | 17.8 | 15.0 | 14.6 | 0 |
| Office (acres) | 3.7 | 4.4 | 3.9 | 0 |
| School (acres) | 19.5 | 20.2 | 10.0 | 0 |

Note: Multi-family land use is assumed to have a density of 20 units per acre or more.

SOURCE: RCH Group, February 2010.

## Project Trip Generation

The trip generation estimates were developed for each land use type for the Preferred Alternative. The estimates were developed by applying the trip rates from *Trip Generation*, 8th Edition (Institute of Transportation Engineers, 2008), then adjusted for internal and pass-by trips, as described below.

An *internal trip* is one that begins and ends within the project site, like a trip from home to a retail center, or from home to school. Since these trips do not leave the project site, they are deducted from the total external trip generation of the project. The retail, office, and school land uses would all attract trips from within the project site. Internalization rates were developed by considering the proposed land uses, the proximity of comparable land use, and trip purpose.

A *pass-by trip* occurs when a motorist stops en route to their primary destination. These trips usually occur at retail-based land uses, like gas stations or grocery stores. These types of land uses attract traffic that is already passing on the adjacent street; therefore, these are not "new" trips added to the roadway system. The amount of pass-by trips is a function of the type and size of the land use and the traffic volume on the adjacent street.

For the Preferred Alternative, 23 percent of all project trips are internal to the project site. Approximately 50 percent of retail trip ends, 40 percent of office trip ends, and 80 percent of school trip ends are expected to be internalized. These rates are based on the proposed project's land uses, the proximity of comparable land use, and trip purpose. The pass-by reduction is 15 percent in the AM peak hour and 25 percent for Daily and the PM peak hour. The pass-by reduction was applied after the internalization reduction.

The net trip generation of the project is developed by subtracting the internal and pass-by trips from the gross trip generation. **Table 9** (*next page*) displays the trip generation for the Preferred Alternative. The project trip generation for the other alternatives was developed in the same manner. **Table 10** displays the trip generation of all four project scenarios.

**Table 10**
**Comparison of Trip Generation by Project Alternative**

| Time Period | | Trips Generated | | | |
|---|---|---|---|---|---|
| | | Preferred Alternative | Approved Specific Plan | Minimal Impact | No Permit |
| AM Peak Hour | In | 914 | 918 | 910 | |
| | Out | 3,198 | 3,197 | 3,102 | |
| PM Peak Hour | In | 3,618 | 3,624 | 3,399 | |
| | Out | 2,072 | 2,081 | 1,937 | |
| Daily | Total | 54,444 | 54,621 | 51,890 | 7,914 |

SOURCE: Fehr & Peers, 2010.

**Table 11**
**SACMET Base Year Model Validation Results**

| Statistic | Target Value | Daily Base Year Model |
|---|---|---|
| Model / Count Ratio | 0.90 - 1.10 | 0.93 |
| % of Links Within Caltrans Maximum Deviations | >75% | 75% |
| % Root Mean Square Error | <40% | 30% |
| Correlation Coefficient | >0.88 | 0.95 |

SOURCE: Fehr & Peers, 2010.

**Table 9**
**Project Trip Generation – Preferred Alternative**

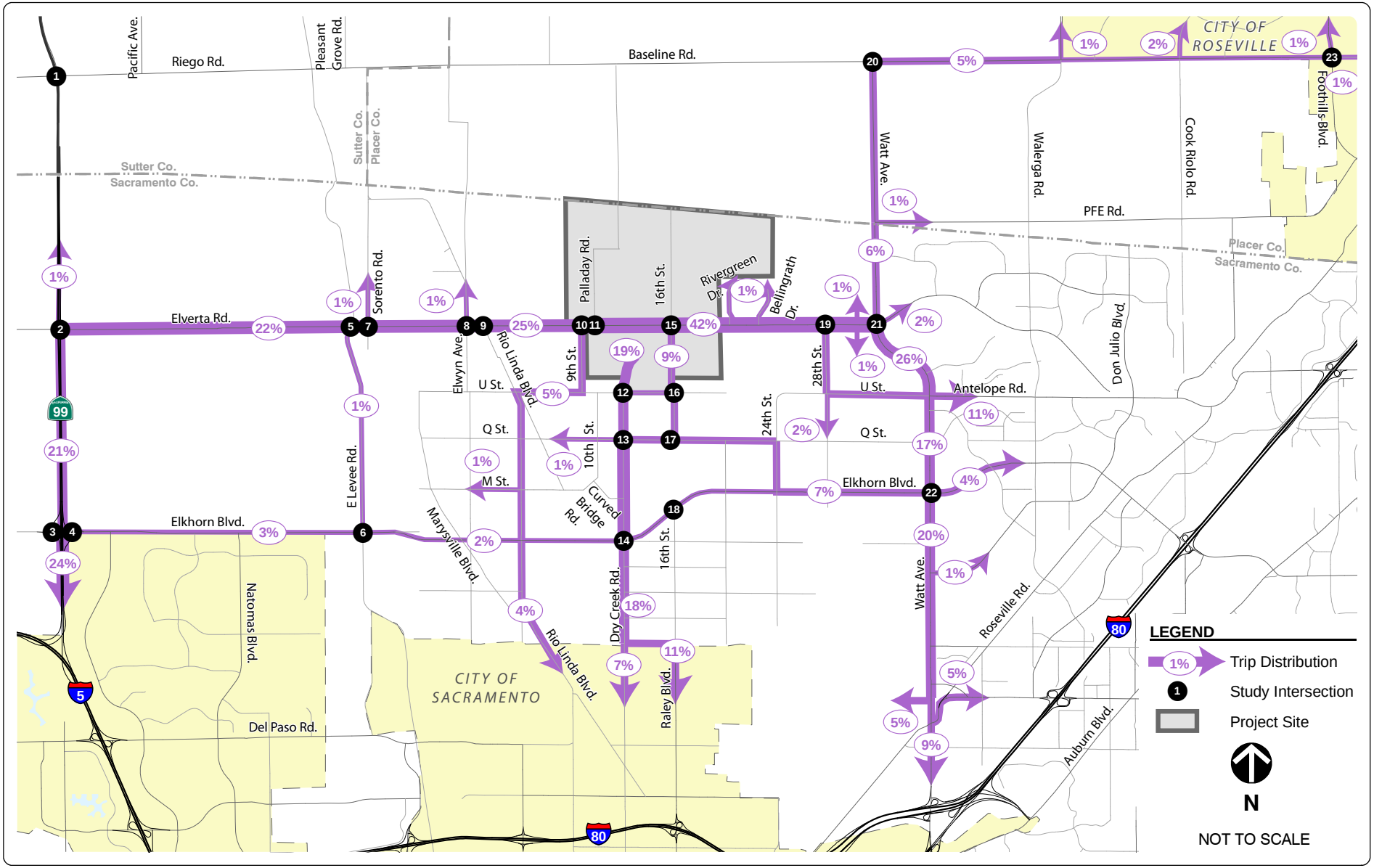
| Land Use | ITE Land Use Code | Amount | Daily | | AM Peak Hour | | | | PM Peak Hour | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Trips | | | | Trips | | |
| | | | Rate [a] | Trips | Rate | Total | In | Out | Rate | Total | In | Out |
| Single-Family Homes | 210 | 5,317 du | 9.57 | 50,884 | 0.75 | 3,988 | 997 | 2,991 | 1.01 | 5,370 | 3,383 | 1,987 |
| Apartments | 220 | 873 du | 6.65 | 5,805 | 0.51 | 445 | 89 | 356 | 0.62 | 541 | 352 | 189 |
| Retail | 820 | 233 ksf | 50.54 | 11,755 | 1.09 | 253 | 155 | 99 | 4.81 | 1,120 | 549 | 571 |
| Office | 710 | 48 ksf | 15.79 | 758 | 2.17 | 104 | 92 | 13 | 2.76 | 133 | 23 | 110 |
| School | 520 | 1,200 st | 1.29 | 1,548 | 0.45 | 540 | 297 | 243 | 0.15 | 180 | 88 | 92 |
| Gross Trip Generation | | | | 70,751 | | 5,331 | 1,629 | 3,701 | | 7,344 | 4,395 | 2,949 |
| Internalized Trip End Reduction | | | | -14,838 | | -1,202 | -704 | -496 | | -1,514 | -708 | -806 |
| Pass-by Trip Reduction | | | | -1,469 | | -19 | -12 | -7 | | -140 | -69 | -71 |
| Net Trip Generation | | | | 54,444 | | 4,110 | 914 | 3,198 | | 5,690 | 3,618 | 2,072 |
| Total Trip Reduction | | | | 23% | | 23% | 44% | 14% | | 23% | 18% | 30% |

[a] Residential and school trips are based on average rates, while retail and office trips are based on the best-fit equation of Trip Generation (Institute of Transportation Engineers, 2008).

du = dwelling units, ksf = thousand square feet, st = students

Retail and Office land use assumes a floor-to-area ratio (FAR) of 0.30.

SOURCES: RCH Group, February 2010 and Fehr & Peers, 2010.

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# PROJECT TRIP DISTRIBUTION - EXISTING CONDITIONS

**FIGURE 3.14-7**

## Cumulative Travel Demand Forecasts

The cumulative no project and cumulative plus project traffic forecasts were developed for each alternative using the most recent version of the SACMET regional TDF model that is maintained by the Sacramento Area Council of Governments (SACOG). This model is based on the SACOG *2035 Metropolitan Transportation Plan* (MTP).

As is the case with most regional TDF models, the SACMET model lacks sufficient traffic analysis zone (TAZ) and roadway network detail to produce reasonable peak hour forecasts for study intersections and freeway facilities for project-scale analysis. Therefore, Fehr & Peers made the following modifications to increase the detail of the model for project-level application:

- Disaggregated TAZs within the Elverta Specific Plan project site
- Added existing and future roadways within the study area
- Evaluated existing and cumulative land use

The SACMET model was used to develop cumulative no project and cumulative plus project forecasts.

Fehr & Peers used a traffic forecasting procedure known as the "difference method" to develop cumulative year (2035) traffic forecasts. For a given turning movement or roadway segment, this forecasting procedure is calculated as follows:

*Forecast = Existing Counts + (Future Year Model Volume – Base Year Model Volume)*

This method accounts for potential differences between the base year model and existing counts that could otherwise transfer to the future year traffic forecast.

Two key inputs of a travel demand model are the land use assumptions and the roadway network improvements. Both were evaluated for accuracy and coded into the TDF model.

### *Cumulative Land Use Assumptions*

Fehr & Peers has reviewed the cumulative land use assumptions from the latest version of the SACMET TDF model. We checked land use totals for future planned developments in the area and adjusted as necessary. Land use in the area west of SR 99 was increased to account for partial buildout of the planned Metro Air Parkway and Greenbriar developments. Land use adjustments were made to TAZs surrounding the study area to return each land use category closer to SACMET control totals. Table 11 compares the official SACMET control totals and the Elverta Specific Plan Preferred Alternative model assumptions.

Employment forecasted by SACOG in the Sutter Pointe and Natomas Joint Vision Area developments was reduced to help maintain the regional jobs/housing ratio.

**Table 12**
**Comparison of Cumulative Year Land Use Inputs**

| Model Land Use Inputs | Model | |
|---|---|---|
| | Official SACMET Land Use (2035) | Preferred Alternative Model Land Use (2035) |
| Total Households | 177,334 | 178,974 |
| Retail Employment | 46,119 | 47,300 |
| Total Non-Retail Employment | 160,248 | 165,769 |
| College Students | 2,500 | 2,500 |
| K-12 Students | 106,819 | 104,827 |
| Office Employment | 81,043 | 83,638 |
| Medical Employment | 11,208 | 11,708 |
| Educational Employment | 10,928 | 10,609 |
| Manufacturing / Other Employment | 57,069 | 59,814 |
| Single Family Households | 115,082 | 116,713 |
| Multi-Family Households < 5 Units | 15,513 | 16,714 |
| Multi-Family Households $\geq$ 5 Units | 46,739 | 46,739 |

Notes: Numbers represent area bounded by the Garden Highway to the west, Sankey Road/Placer Parkway, SR 65, I-80 and I-5/SR 99.

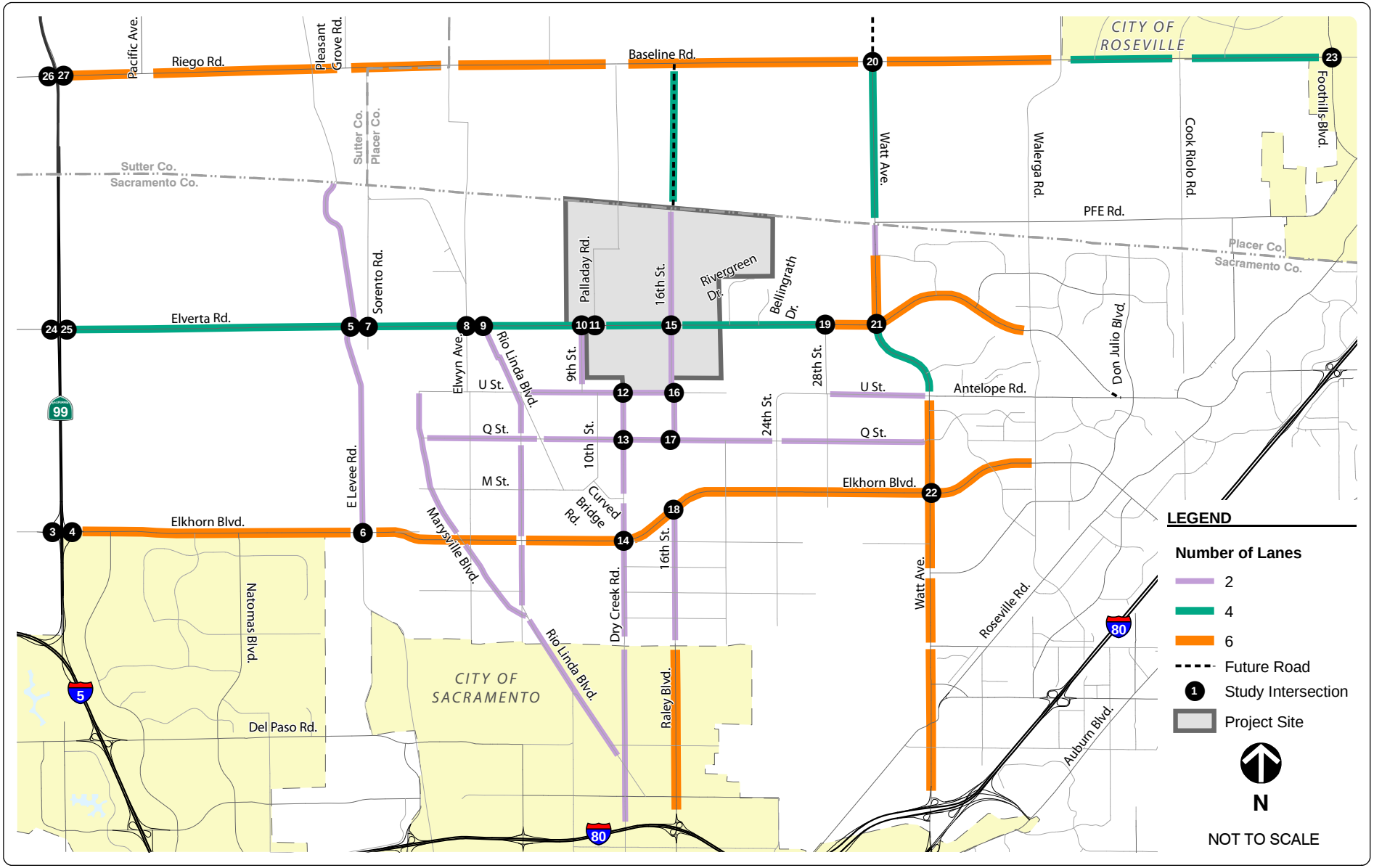
SOURCE: Fehr & Peers, 2010.

### *Cumulative Roadway Improvement Assumptions*

The funded "tier one" transportation improvements, as listed in the 2035 MTP, were included in the travel demand forecasting and operational analysis. Many improvements were identified within the study area. Some of the key projects include:

- Constructing two new interchanges along SR 99 at Elverta Road and Riego Road
- Widening Elkhorn Boulevard to six lanes from SR 99 to Don Julio Boulevard
- Widening Elverta Road to four lanes from SR 99 to Dutch Haven Boulevard and to six lanes from Dutch Haven Boulevard to Watt Avenue
- Widening Baseline Road/Riego Road to six lanes from SR 99 to Fiddyment Road
- Widening Watt Avenue to six lanes from I-80 to Antelope Road and to four lanes from PFE Road to Baseline Road, and extending Watt Avenue from Baseline Road to Blue Oaks Boulevard (four lanes)

The County of Sacramento has indicated the widening of 16$^{th}$ Street, including a new bridge over Dry Creek, may not be fully funded (based on email correspondence with Dean Blank at Sacramento County Department of Transportation, Sept. 2010); therefore, it will not be assumed for cumulative conditions. Fehr & Peers has verified that these projects and the others listed in the 2035 MTP Project List are included in the SACMET cumulative model roadway network and were added if necessary.

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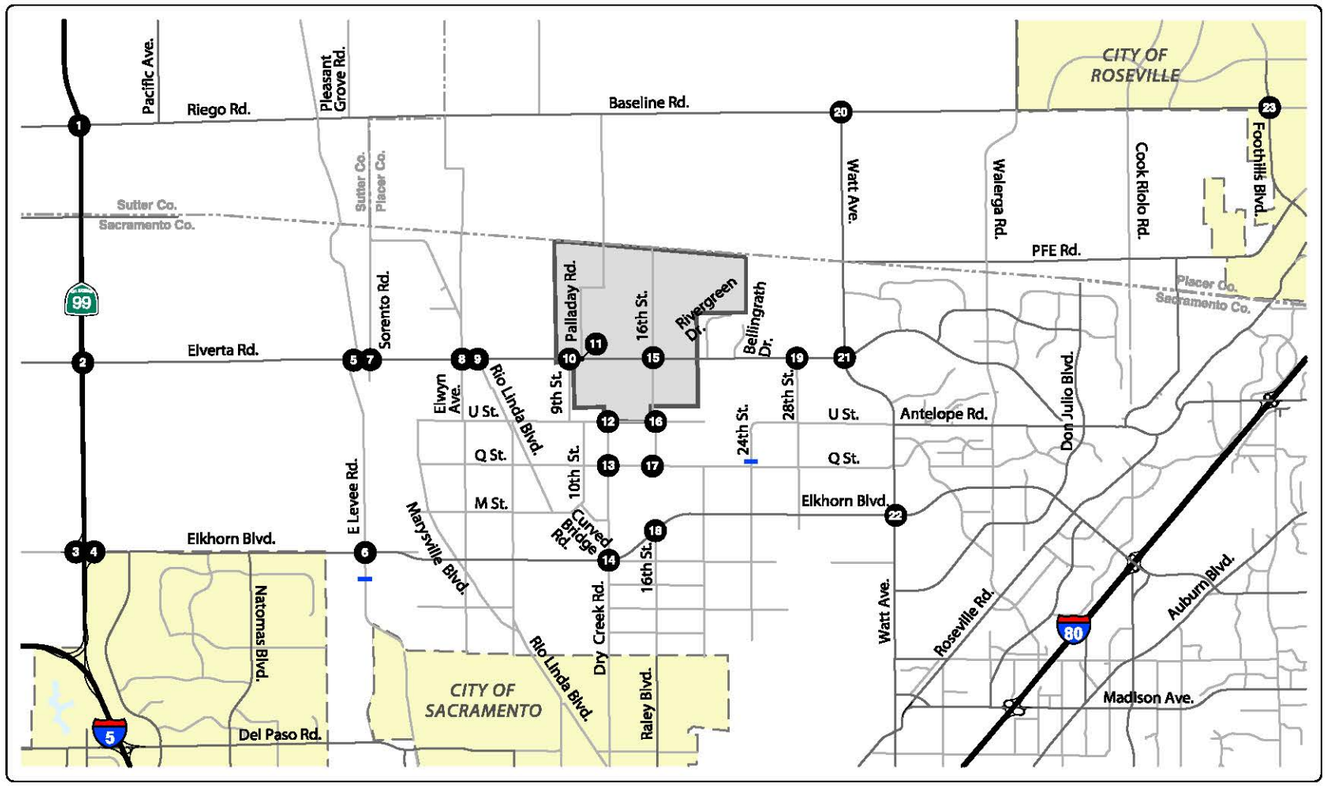
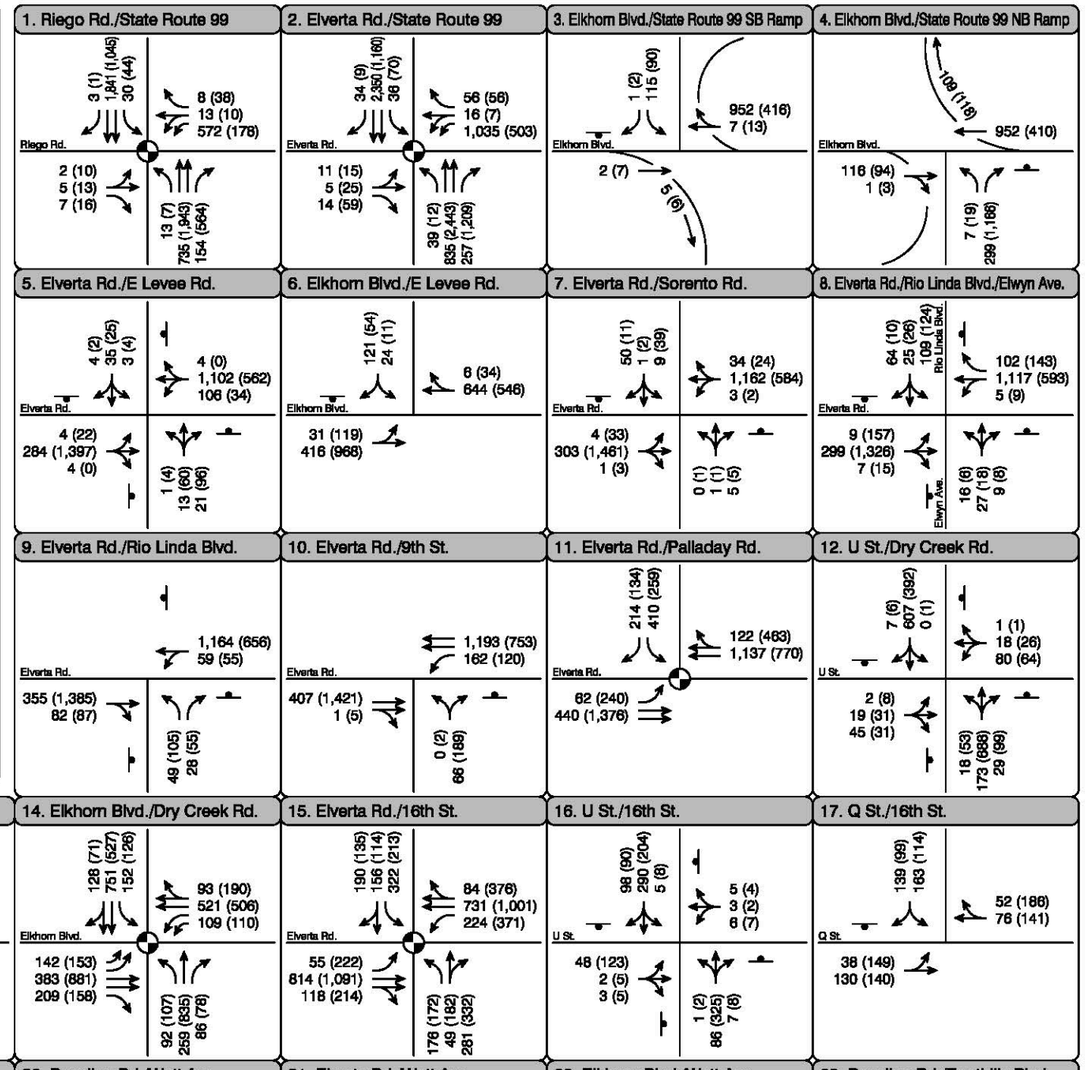
# NUMBER OF LANES - CUMULATIVE CONDITIONS

**FIGURE 3.14-8**




**LEGEND**

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- 1 Study Intersection
- Traffic Signal
- Stop Sign
- Project Site
- Road Barricade
- OVL Overlap Phasing

N

NOT TO SCALE

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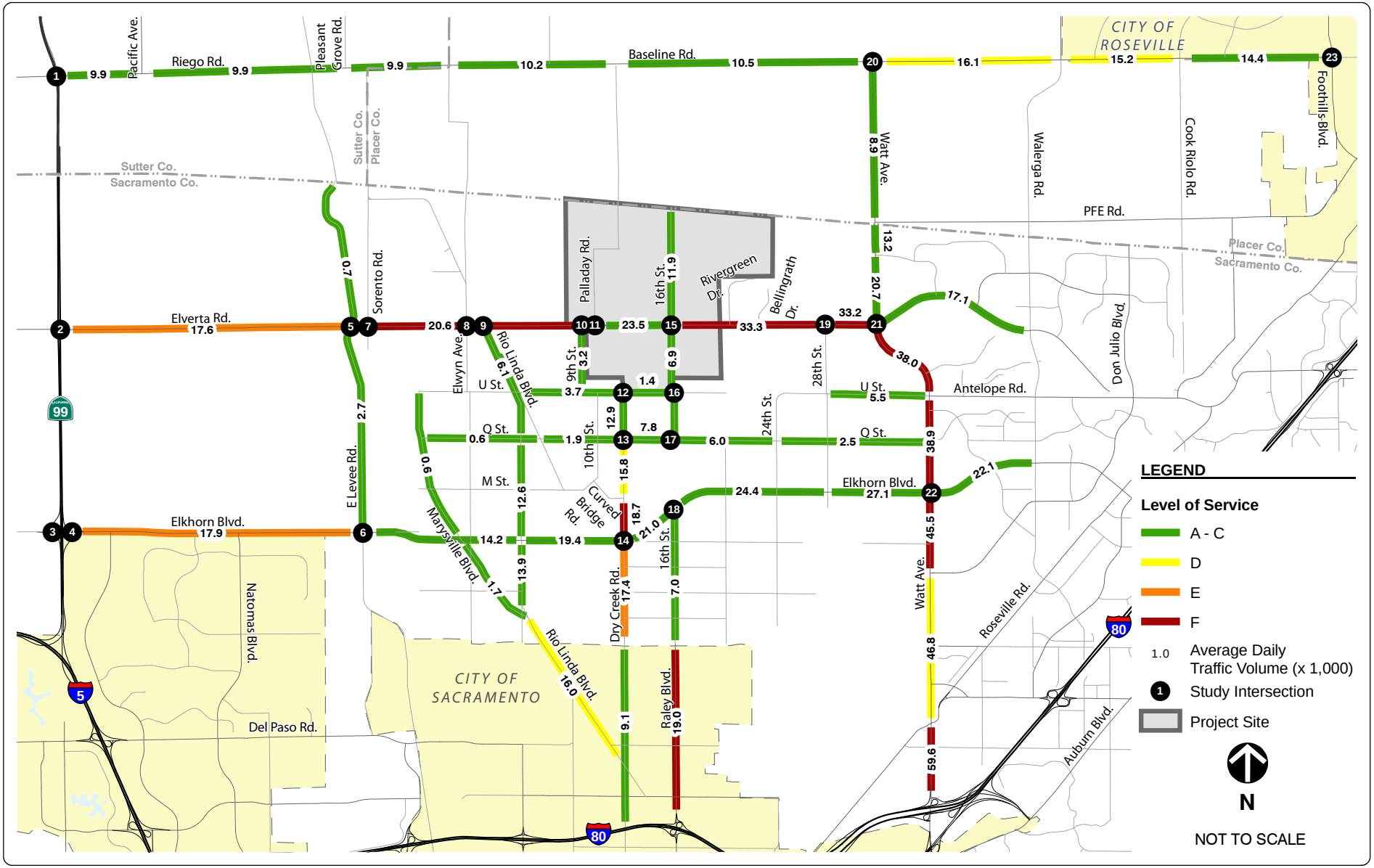
**PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS PREFERRED ALTERNATIVE CONDITIONS**

**FIGURE 3.14-9**

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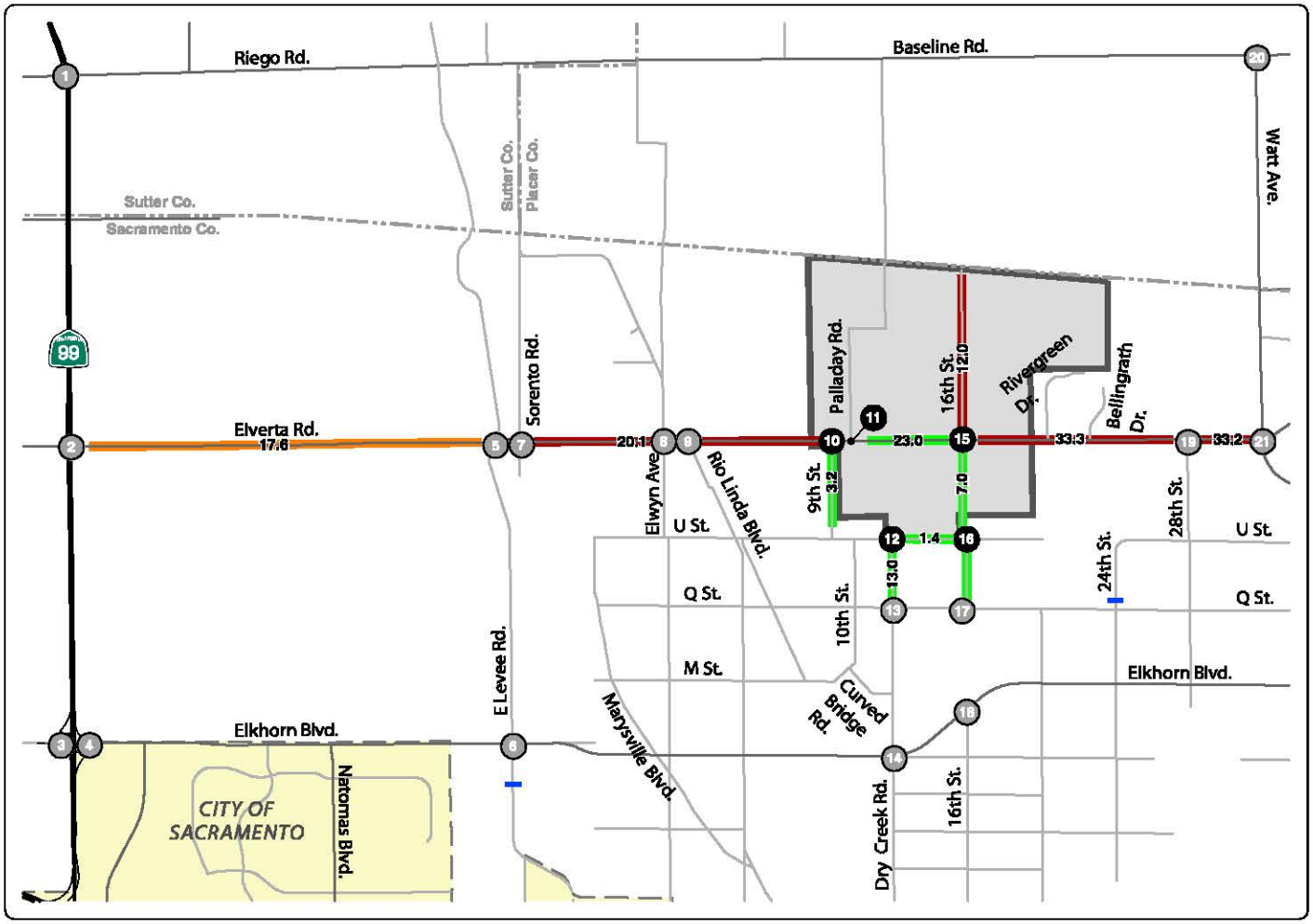
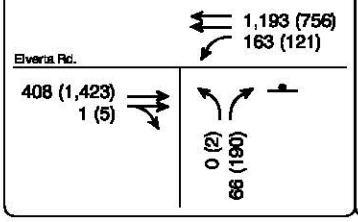
**AVERAGE DAILY TRAFFIC VOLUMES AND LEVEL OF SERVICE - EXISTING PLUS PREFERRED ALTERNATIVE CONDITIONS**

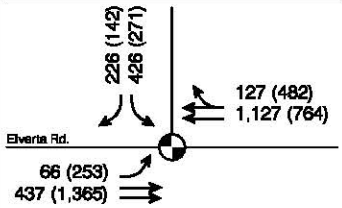
**FIGURE 3.14-10**



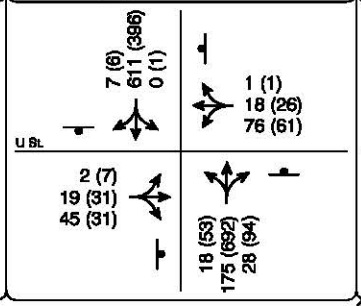

### 10. Elverta Rd./9th St.



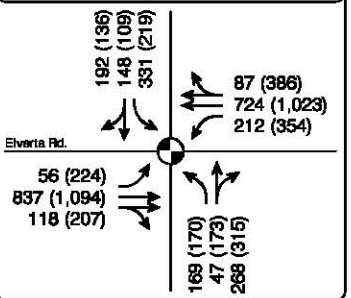

### 11. Elverta Rd./Palladay Rd.



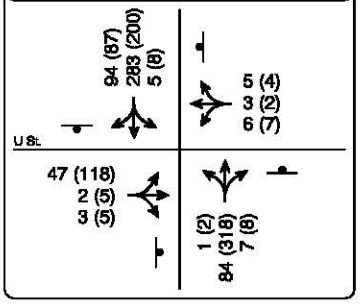

### 12. U St./Dry Creek Rd.




### 15. Elverta Rd./16th St.




### 16. U St./16th St.




**LEGEND**

**Level of Service**
- A - C
- D
- E
- F

1.0 Average Daily Traffic Volume (x 1,000)

Turn Lane

AM (PM) Peak Hour Traffic Volume

1 Study Intersection

1 Study Intersection not Analyzed in this Scenario

Traffic Signal

Stop Sign

Project Site

Road Barricade

N

NOT TO SCALE

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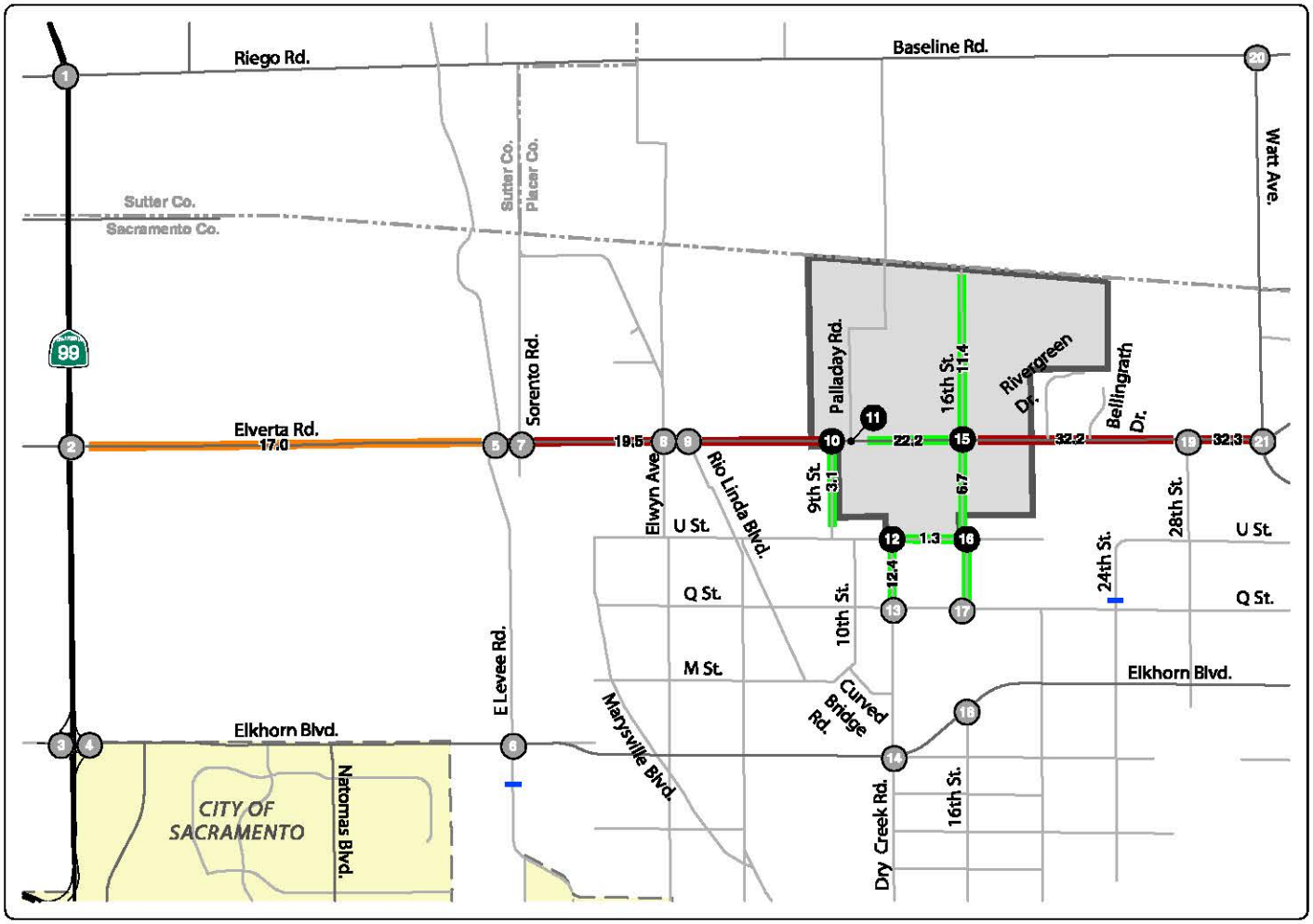
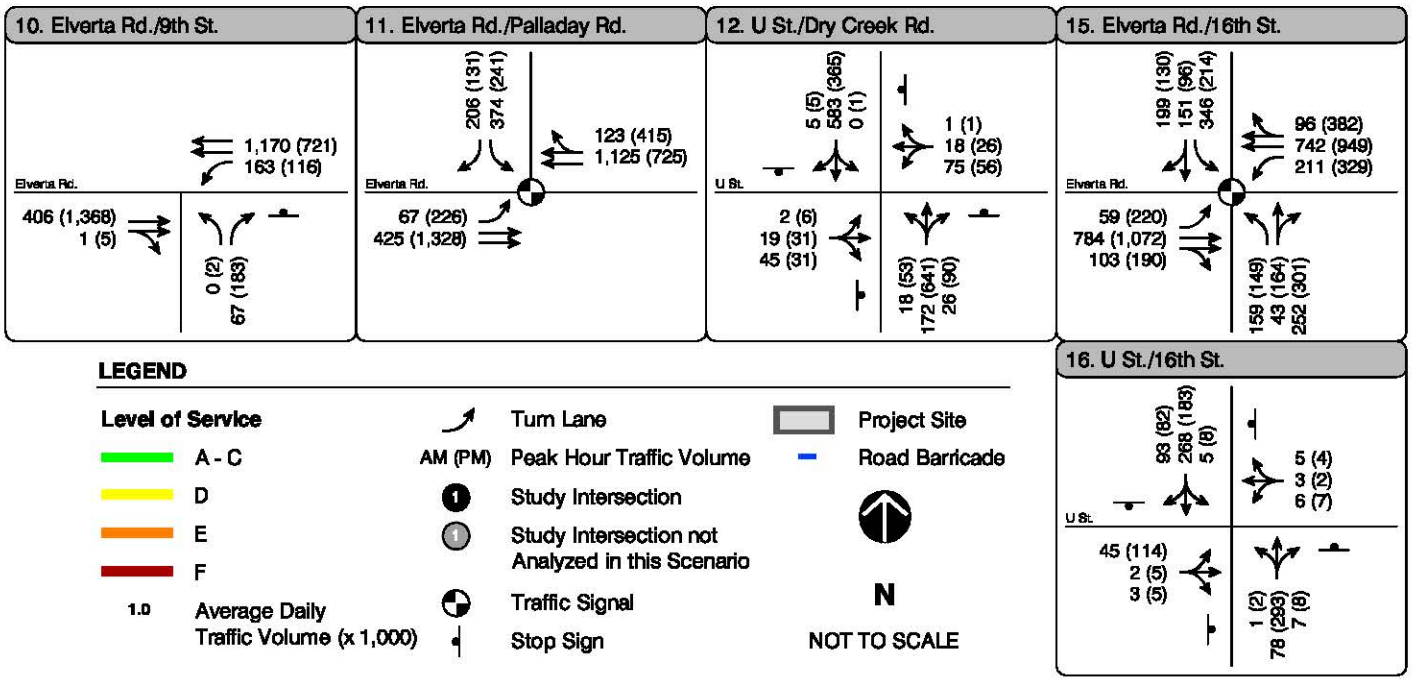
# AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS APPROVED SPECIFIC PLAN ALTERNATIVE

**FIGURE 3.14-11**

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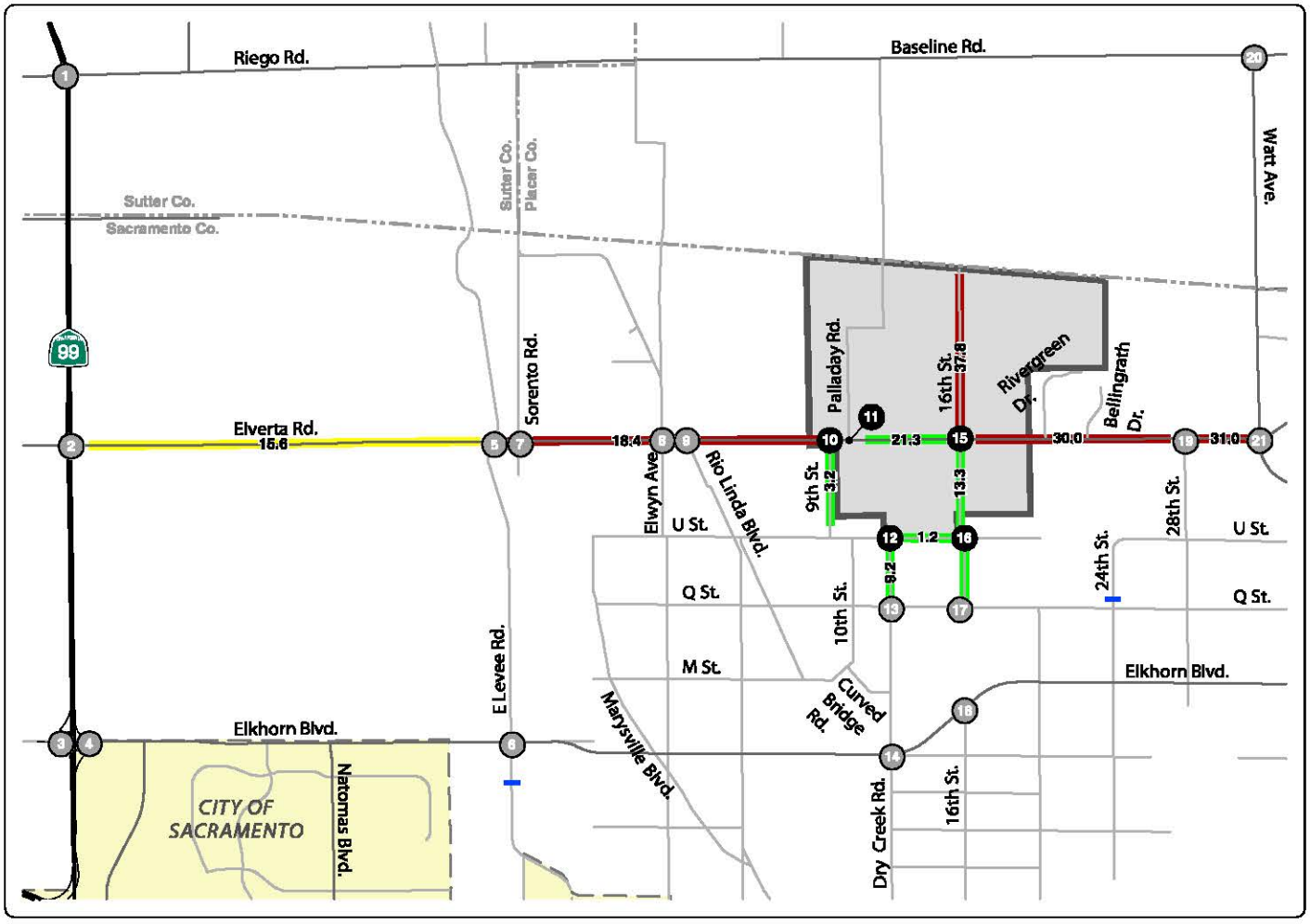
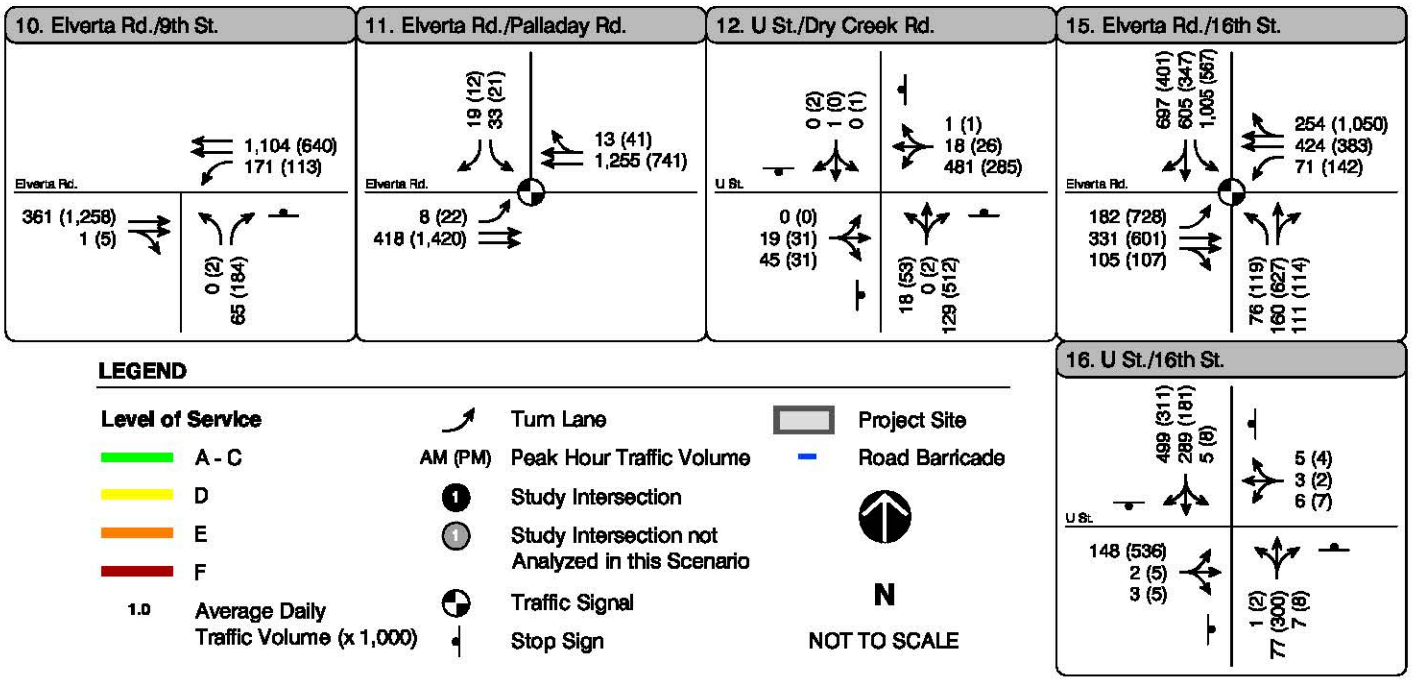
# AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS MINIMAL IMPACT ALTERNATIVE

**FIGURE 3.14-12**

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# AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS NO FEDERAL ACTION ALTERNATIVE

**FIGURE 3.14-13**

**Table 13**
**Peak Hour Intersection LOS – Existing Plus Preferred Alternative Conditions**

| | Intersection | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | Existing Conditions | | Existing Plus Preferred Alternative Conditions | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| 1 | SR 99 / Riego Road | Caltrans (E) | Traffic Signal | AM | 57 | E | 58 | E |
| | | | | PM | 21 | C | 22 | C |
| 2 | SR 99 / Elverta Road | Caltrans (E) | Traffic Signal | AM | 70 | E | **> 150** | **F** |
| | | | | PM | 26 | C | **82** | **F** |
| 3 | SR 99 SB Off-Ramp / Elkhorn Blvd | Caltrans (E) | Side Street Stop | AM | 15 | B | 16 | C |
| | | | | PM | 11 | B | 11 | B |
| 4 | SR 99 NB Off-Ramp / Elkhorn Blvd | Caltrans (E) | Side Street Stop | AM | 23 | C | 26 | D |
| | | | | PM | **141** | **F** | **> 150** | **F** |
| 5 | Elverta Road / E. Levee Road | County of Sacramento (E) | All Way Stop | AM | 15 | C | **> 150** | **F** |
| | | | | PM | 27 | D | **> 150** | **F** |
| 6 | Elkhorn Blvd / E. Levee Road | County of Sacramento (E) | Side Street Stop | AM | 21 | C | 26 | D |
| | | | | PM | 16 | C | 30 | D |
| 7 | Elverta Road / Sorento Road | County of Sacramento (E) | Side Street Stop | AM | 13 | B | 43 | E |
| | | | | PM | 29 | D | **> 150** | **F** |
| 8 | Elverta Road / Elwyn Road | County of Sacramento (E) | All Way Stop | AM | 14 | B | **> 150** | **F** |
| | | | | PM | 37 | E | **> 150** | **F** |
| 9 | Elverta Road / Rio Linda Blvd | County of Sacramento (E) | All Way Stop | AM | 13 | B | **> 150** | **F** |
| | | | | PM | 19 | C | **> 150** | **F** |
| 10 | Elverta Road / 9th Street | County of Sacramento (E) | Side Street Stop | AM | 10 | A | 11 | B |
| | | | | PM | 13 | B | 42 | E |
| 11 | Elverta Road / Palladay Road | County of Sacramento (E) | Traffic Signal | AM | 12 | B | 23 | C |
| | | | | PM | 12 | B | 20 | B |
| 12 | U Street / Dry Creek Road | County of Sacramento (E) | All Way Stop | AM | 7 | A | 29 | D |
| | | | | PM | 8 | A | **112** | **F** |
| 13 | Q Street / Dry Creek Road | County of Sacramento (E) | All Way Stop | AM | 9 | A | **118** | **F** |
| | | | | PM | 9 | A | **> 150** | **F** |
| 14 | Elkhorn Blvd / Dry Creek Road | County of Sacramento (E) | Traffic Signal | AM | 20 | B | 30 | C |
| | | | | PM | 20 | B | 70 | E |
| 15 | Elverta Road / 16th Street | County of Sacramento (E) | Traffic Signal | AM | 16 | C | 48 | D |
| | | | | PM | 18 | C | **131** | **F** |
| 16 | U Street / 16th Street | County of Sacramento (E) | All Way Stop | AM | 7 | A | 11 | B |
| | | | | PM | 8 | A | 12 | B |
| 17 | Q Street / 16th Street | County of Sacramento (E) | Side Street Stop | AM | 9 | A | 15 | B |
| | | | | PM | 10 | A | 24 | C |

**Table 13**
**Peak Hour Intersection LOS – Existing Plus Preferred Alternative Conditions**

| | Intersection | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | Existing Conditions | | Existing Plus Preferred Alternative Conditions | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| 18 | Elkhorn Blvd / 16th Street | County of Sacramento (E) | Traffic Signal | AM | 15 | B | 15 | B |
| | | | | PM | 64 | E | 67 | E |
| 19 | Elverta Road / 28th Street | County of Sacramento (E) | Traffic Signal | AM | 69 | E | **> 150** | **F** |
| | | | | PM | **137** | **F** | **> 150** | **F** |
| 20 | Baseline Road / Watt Avenue | County of Placer - Placer Vineyards (D) | Traffic Signal | AM | **76** | **E** | **95** | **F** |
| | | | | PM | 33 | C | 45 | D |
| 21 | Elverta Road / Watt Avenue | County of Sacramento (E) | Traffic Signal | AM | 35 | C | **127** | **F** |
| | | | | PM | 31 | C | **> 150** | **F** |
| 22 | Elkhorn Blvd / Watt Avenue | County of Sacramento (E) | Traffic Signal | AM | 52 | D | 49 | D |
| | | | | PM | 37 | D | 53 | D |
| 23 | Baseline Road / Foothills Blvd | City of Roseville (C) | Traffic Signal | AM | **49** | **D** | **49** | **D** |
| | | | | PM | **40** | **D** | **41** | **D** |

Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

SOURCE: Fehr & Peers, 2010.

**Table 14**
**Roadway Segment LOS – Existing Plus Preferred Alternative Conditions**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | Existing Conditions | | | Existing Plus Preferred Alternative | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS |
| Riego Road /Baseline Road | SR 99 to Pacific Avenue | County of Sutter (D) | 2 | 9,900 | 0.60 | C | 9,900 | 0.60 | C |
| | Pacific Avenue to Pleasant Grove Road (South) | County of Sutter (D) | 2 | 9,900 | 0.60 | C | 9,900 | 0.60 | C |
| | Pleasant Grove Road (South) to Locust Road | County of Placer - Placer Vineyards Frontage (D) | 2 | 9,900 | 0.60 | C | 9,900 | 0.60 | C |
| | Locust Road to Palladay Road | County of Placer - Placer Vineyards Frontage (D) | 2 | 10,200 | 0.57 | A | 10,200 | 0.57 | A |
| | Palladay Road to Watt Avenue | County of Placer - Placer Vineyards Frontage (D) | 2 | 10,500 | 0.58 | A | 10,500 | 0.58 | A |
| | Watt Avenue to Walerga Road | County of Placer - Placer Vineyards Frontage (D) | 2 | 13,400 | 0.74 | C | 16,100 | 0.89 | D |
| | Walerga Road to Cook-Riolo Road | County of Placer (C) | 2 | 13,000 | 0.72 | C | 15,200 | **0.84** | **D** |
| | Cook-Riolo Road to Foothills Boulevard | County of Placer (C) | 2 | 13,300 | 0.74 | C | 14,400 | 0.80 | C |
| Elverta Road | SR 99 to E. Levee Road | County of Sacramento - Rural (D) | 2 | 5,600 | 0.31 | A | 17,600 | **0.98** | **E** |
| | E. Levee Road to Palladay Road | County of Sacramento - Urban (E) | 2 | 7,000 | 0.39 | A | 20,600 | **1.14** | **F** |
| | Palladay Road to 16th Street | County of Sacramento - Urban (E) | 4 | 7,200 | 0.40 | A | 23,500 | 0.65 | B |
| | 16th Street to 28th Street | County of Sacramento - Urban (E) | 2 | 10,400 | 0.58 | A | 33,300 | **1.85** | **F** |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 2 | 14,100 | 0.78 | C | 33,200 | **1.84** | **F** |

**Table 14**
**Roadway Segment LOS – Existing Plus Preferred Alternative Conditions**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | Existing Conditions | | | Existing Plus Preferred Alternative | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS |
| | Watt Avenue to Walerga Road | County of Sacramento - Urban (E) | 6 | 16,000 | 0.30 | A | 17,100 | 0.32 | A |
| Elkhorn Boulevard | SR 99 to E. Levee Road | County of Sacramento - Urban (E) | 2 | 16,300 | 0.91 | E | 17,900 | 0.99 | E |
| | E. Levee Road to Rio Linda Boulevard | County of Sacramento - Urban (E) | 2 | 13,100 | 0.73 | C | 14,200 | 0.79 | C |
| | Rio Linda Boulevard to Dry Creek Road | County of Sacramento - Urban (E) | 4 | 18,300 | 0.51 | A | 19,400 | 0.54 | A |
| | Dry Creek Road to 16th Street | County of Sacramento - Urban (E) | 4 | 19,900 | 0.55 | A | 21,000 | 0.58 | A |
| | 16th Street to 28th Street | County of Sacramento - Urban (E) | 4 | 23,300 | 0.65 | B | 24,400 | 0.68 | B |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 4 | 24,100 | 0.67 | B | 27,100 | 0.75 | C |
| | Watt Avenue to Walerga Road | County of Sacramento - Urban (E) | 4 | 19,900 | 0.55 | A | 22,100 | 0.61 | B |
| Watt Avenue | Baseline Road to PFE Road | County of Placer - Placer Vineyards Frontage (D) | 2 | 6,200 | 0.34 | A | 8,900 | 0.49 | A |
| | PFE Road to Black Eagle Drive | County of Sacramento - Urban (E) | 2 | 9,900 | 0.55 | A | 13,200 | 0.73 | C |
| | Black Eagle Drive to Elverta Road | County of Sacramento - Urban (E) | 6 | 17,400 | 0.32 | A | 20,700 | 0.38 | A |
| | Elverta Road to Antelope Road | County of Sacramento - Urban (E) | 4 | 23,800 | 0.66 | B | 38,000 | **1.06** | **F** |
| | Antelope Road to Elkhorn Boulevard | County of Sacramento - Urban (E) | 4 | 29,600 | 0.82 | D | 38,900 | **1.08** | **F** |

**Table 14**
**Roadway Segment LOS – Existing Plus Preferred Alternative Conditions**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | Existing Conditions | | | Existing Plus Preferred Alternative | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS |
| | Elkhorn Boulevard to Don Julio Boulevard | County of Sacramento - Urban (E) | 4 | 34,600 | 0.96 | E | 45,500 | **1.26** | **F** |
| | Don Julio Boulevard to Roseville Road | County of Sacramento - Urban (E) | 6 | 36,500 | 0.68 | B | 46,800 | 0.87 | D |
| | Roseville Road to I-80 | County of Sacramento - Urban (E) | 6 | 54,700 | **1.01** | **F** | 59,600 | **1.10** | **F** |
| U Street | Rio Linda Boulevard to Dry Creek Road | County of Sacramento - Urban (E) | 2 | 1,000 | 0.06 | A | 3,700 | 0.21 | A |
| | Dry Creek Road to 16th Street | County of Sacramento - Urban (E) | 2 | 300 | 0.02 | A | 1,400 | 0.08 | A |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 2 | 4,400 | 0.24 | A | 5,500 | 0.31 | A |
| Q Street | Marysville Boulevard to Rio Linda Boulevard | County of Sacramento - Urban (E) | 2 | 600 | 0.03 | A | 600 | 0.03 | A |
| | Rio Linda Boulevard to Dry Creek Road | County of Sacramento - Urban (E) | 2 | 1,400 | 0.08 | A | 1,900 | 0.11 | A |
| | Dry Creek Road to 16th Street | County of Sacramento - Urban (E) | 2 | 5,600 | 0.31 | A | 7,800 | 0.43 | A |
| | 16th Street to 24th Street | County of Sacramento - Urban (E) | 2 | 2,700 | 0.15 | A | 6,000 | 0.33 | A |
| | 24th Street to Watt Avenue | County of Sacramento - Urban (E) | 2 | 2,500 | 0.14 | A | 2,500 | 0.14 | A |
| East Levee Road | Sutter County Line to Elverta Road | County of Sacramento - Urban (E) | 2 | 700 | 0.04 | A | 700 | 0.04 | A |
| | Elverta Road to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 2,200 | 0.12 | A | 2,700 | 0.15 | A |

**Table 14**
**Roadway Segment LOS – Existing Plus Preferred Alternative Conditions**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | Existing Conditions | | | Existing Plus Preferred Alternative | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS |
| Marysville Boulevard | Dry Creek Road to Rio Linda Boulevard | City of Sacramento (D) | 2 | 13,800 | 0.77 | C | 16,000 | 0.89 | D |
| | Rio Linda Boulevard to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 1,700 | 0.09 | A | 1,700 | 0.09 | A |
| | Elkhorn Boulevard to U Street | County of Sacramento - Urban (E) | 2 | 600 | 0.03 | A | 600 | 0.03 | A |
| Rio Linda Boulevard | Marysville Boulevard to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 11,700 | 0.65 | B | 13,900 | 0.77 | C |
| | Elkhorn Boulevard to Q Street | County of Sacramento - Urban (E) | 2 | 9,900 | 0.55 | A | 12,600 | 0.70 | B |
| | Q Street to Elverta Road | County of Sacramento - Urban (E) | 2 | 3,400 | 0.19 | A | 6,100 | 0.34 | A |
| 9th Street | Elverta Road to U Street | County of Sacramento - Urban (E) | 2 | 500 | 0.03 | A | 3,200 | 0.18 | A |
| Dry Creek Road | I-80 to Ascot Avenue | City of Sacramento (D) | 2 | 5,300 | 0.29 | A | 9,100 | 0.51 | A |
| | Ascot Avenue to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 7,600 | 0.42 | A | 17,400 | 0.97 | E |
| | Elkhorn Boulevard to Curved Bridge Road | County of Sacramento - Urban (E) | 2 | 6,700 | 0.37 | A | 18,700 | **1.04** | **F** |
| | Curved Bridge Road to Q Street | County of Sacramento - Urban (E) | 2 | 3,800 | 0.21 | A | 15,800 | 0.88 | D |
| | Q Street to U Street | County of Sacramento - Urban (E) | 2 | 1,500 | 0.08 | A | 12,900 | 0.72 | C |
| 16th Street | Ascot Avenue to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 7,000 | 0.39 | A | 7,000 | 0.39 | A |

**Table 14**
**Roadway Segment LOS – Existing Plus Preferred Alternative Conditions**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | Existing Conditions | | | Existing Plus Preferred Alternative | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS |
| | Q Street to Elverta Road | County of Sacramento - Urban (E) | 2 | 1,500 | 0.08 | A | 6,900 | 0.38 | A |
| | Elverta Road to County Line | County of Sacramento - Urban (E) | 2 | 500 | 0.03 | A | 11,900 | 0.66 | B |
| Raley Blvd | I-80 to Ascot Avenue | City of Sacramento (D) | 2 | 13,000 | 0.72 | C | 19,000 | **1.06** | **F** |

Notes: Bolded cells represent unacceptable operations.
Shaded cells indicate significant adverse effects.

SOURCE: Fehr & Peers, 2010.

**Table 15**
**Freeway Mainline LOS – Existing Conditions**

| Freeway | Segment | Peak Hour | Existing Conditions | | | Existing Plus Preferred Alternative | | |
|---|---|---|---|---|---|---|---|---|
| | | | Volume | Density (pc/ln/mi) | LOS | Volume | Density (pc/ln/mi) | LOS |
| SR 99 SB | Sankey Road to Riego Road | AM | 1,865 | 17 | B | 1,874 | 17 | B |
| | | PM | 1,054 | 10 | A | 1,090 | 10 | A |
| | Riego Road to Elverta Road | AM | 2,411 | 22 | C | 2,420 | 23 | C |
| | | PM | 1,203 | 11 | B | 1,239 | 11 | B |
| | Elverta Road to Elkhorn Boulevard | AM | 2,724 | 25 | C | 3,399 | 32 | C |
| | | PM | 1,285 | 12 | B | 1,722 | 16 | B |
| | Elkhorn Boulevard to I-5 | AM | 3,473 | 33 | D | 4,240 | **-** | **F** |
| | | PM | 1,555 | 14 | B | 2,052 | 19 | C |
| SR 99 NB | I -5 to Elkhorn Boulevard | AM | 1,108 | 11 | B | 1,327 | 13 | B |
| | | PM | 3,859 | 42 | E | 4,728 | **-** | **F** |
| | Elkhorn Boulevard to Elverta Road | AM | 938 | 9 | A | 1,131 | 11 | B |
| | | PM | 2,899 | 28 | D | 3,664 | 38 | E |
| | Elverta Road to Riego Road | AM | 870 | 9 | A | 902 | 9 | A |
| | | PM | 2,493 | 24 | C | 2,514 | 24 | C |
| | Riego Road to Sankey Road | AM | 713 | 7 | A | 745 | 8 | A |
| | | PM | 1,970 | 19 | C | 1,991 | 19 | C |

Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

"-" indicates the mainline segment failed one of the HCM capacity checks, resulting in LOS F.

SOURCE: Fehr & Peers, 2010.

**Table 16**
**Peak Hour Intersection LOS – Existing Plus Project Conditions**

| Intersection | | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | Existing Conditions | | Existing Plus Preferred Alternative | | Existing Plus Approved Specific Plan Alternative | | Existing Plus Minimal Impact Alternative | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | | |
| 10 | Elverta Road / 9th Street | County of Sacramento (E) | Side Street Stop | AM | 10 | A | 11 | B | 11 | B | 11 | B | | |
| | | | | PM | 13 | B | 42 | E | 43 | E | 35 | E | | |
| 11 | Elverta Road / Palladay Road | County of Sacramento (E) | Traffic Signal | AM | 12 | B | 23 | C | 23 | C | 21 | C | | |
| | | | | PM | 12 | B | 20 | B | 21 | C | 17 | B | | |
| 12 | U Street / Dry Creek Road | County of Sacramento (E) | All Way Stop | AM | 7 | A | 29 | D | 29 | D | 24 | C | | |
| | | | | PM | 8 | A | **112** | **F** | **111** | **F** | **83** | **F** | | |
| 15 | Elverta Road / 16th Street | County of Sacramento (E) | Traffic Signal | AM | 16 | C | 48 | D | 48 | D | 46 | D | | |
| | | | | PM | 18 | C | **131** | **F** | **130** | **F** | **114** | **F** | | |
| 16 | U Street / 16th Street | County of Sacramento (E) | All Way Stop | AM | 7 | A | 11 | B | 11 | B | 10 | B | | |
| | | | | PM | 8 | A | 12 | B | 12 | B | 11 | B | | |

Notes: Bolded cells represent unacceptable operations.

Shaded cells indicate significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

SOURCE: Fehr & Peers, 2010.

**Table 17: Roadway Segment LOS – Existing Plus Project Conditions**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | Existing Conditions | | | Existing Plus Preferred Alternative | | | Existing Plus Approved Specific Plan Alternative | | | Existing Plus Minimal Impact Alternative | | | Existing Plus No Permit Alternative | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS | ADT | V/C | LOS | ADT | V/C | LOS | ADT | V/C | LOS |
| Elverta Road | SR 99 to E. Levee Road | County of Sacramento - Rural (D) | 2 | 5,600 | 0.31 | A | 17,600 | **0.98** | **E** | 17,600 | **0.98** | **E** | 17,000 | **0.94** | **E** | 7,300 | 0.41 | A |
| | E. Levee Road to Palladay Road | County of Sacramento - Urban (E) | 2 | 7,000 | 0.39 | A | 20,600 | **1.14** | **F** | 20,100 | **1.12** | **F** | 19,500 | **1.08** | **F** | 9,000 | 0.50 | A |
| | Palladay Road to 16th Street | County of Sacramento - Urban (E) | 4 | 7,200 | 0.40 | A | 23,500 | 0.65 | B | 23,000 | 0.64 | B | 22,200 | 0.62 | B | 9,700 | 0.27 | A |
| | 16th Street to 28th Street | County of Sacramento - Urban (E) | 2 | 10,400 | 0.58 | A | 33,300 | **1.85** | **F** | 33,300 | **1.84** | **F** | 32,200 | **1.79** | **F** | 13,800 | 0.77 | C |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 2 | 14,100 | 0.78 | C | 33,200 | **1.84** | **F** | 33,200 | **1.84** | **F** | 32,300 | **1.79** | **F** | 17,000 | **0.94** | **E** |
| U Street | Dry Creek Road to 16th Street | County of Sacramento - Urban (E) | 2 | 300 | 0.02 | A | 1,400 | 0.08 | A | 1,400 | 0.08 | A | 1,300 | 0.07 | A | 500 | 0.03 | A |
| 9th Street | Elverta Road to U Street | County of Sacramento - Urban (E) | 2 | 500 | 0.03 | A | 3,200 | 0.18 | A | 3,200 | 0.18 | A | 3,100 | 0.17 | A | 1,000 | 0.06 | A |
| Dry Creek Road | Q Street to U Street | County of Sacramento - Urban (E) | 2 | 1,500 | 0.08 | A | 12,900 | 0.72 | C | 13,000 | 0.72 | C | 12,400 | 0.69 | B | 2,800 | 0.16 | A |
| 16th Street | Q Street to Elverta Road | County of Sacramento - Urban (E) | 2 | 1,500 | 0.08 | A | 6,900 | 0.38 | A | 7,000 | 0.39 | A | 6,700 | 0.37 | A | 3,600 | 0.20 | A |
| | Elverta Road to County Line | County of Sacramento - Urban (E) | 2 | 500 | 0.03 | A | 11,900 | 0.66 | B | 12,000 | 0.67 | B | 11,400 | 0.63 | B | 7,000 | 0.39 | A |

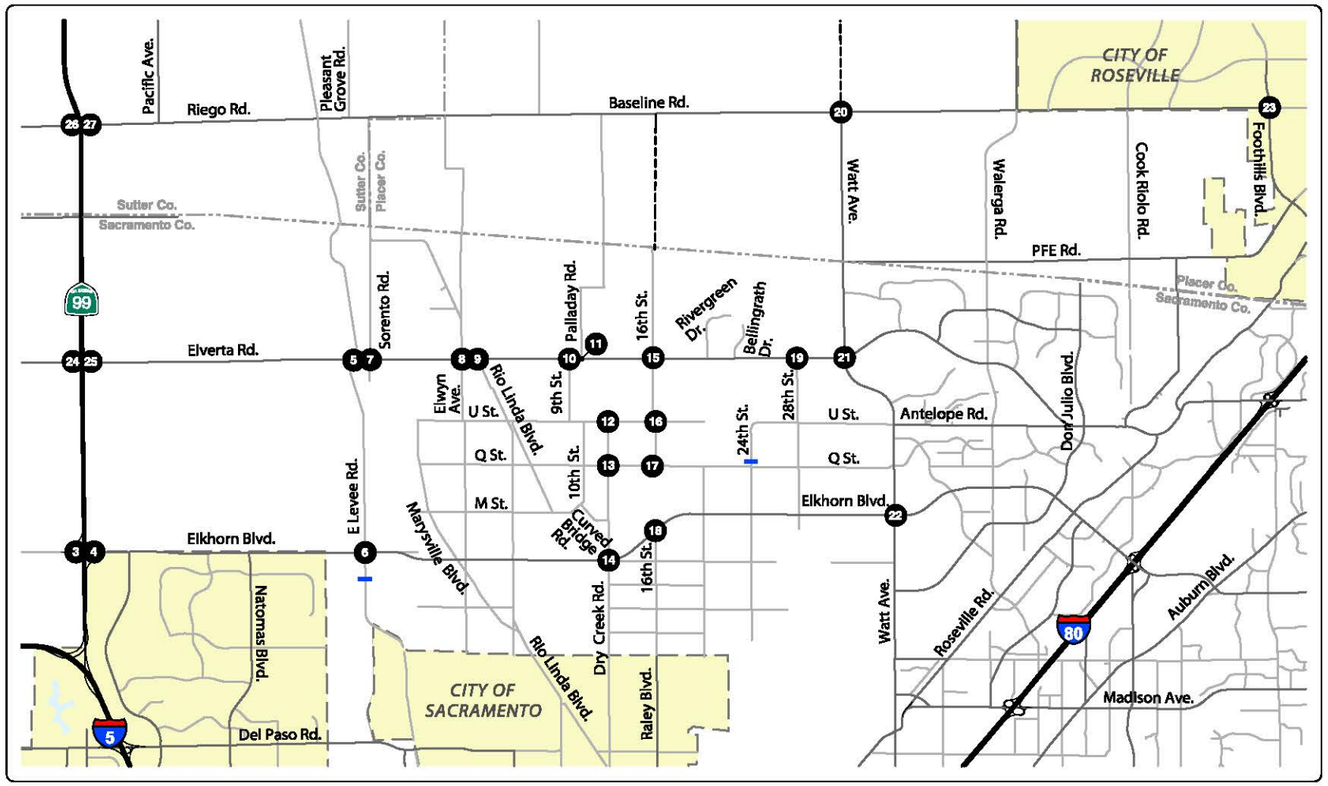
**Table 18**
**Traffic Signal Warrant Analysis – Existing Plus Project Conditions**

| Intersection | | Control | Peak Hour | Peak Hour Signal Warrant Met? | |
|---|---|---|---|---|---|
| | | | | Existing Conditions | Existing Plus Project Conditions[1] |
| 3 | SR 99 SB Off-Ramp / Elkhorn Blvd | Side Street Stop | AM | No | No |
| | | | PM | No | No |
| 4 | SR 99 NB Off-Ramp / Elkhorn Blvd | Side Street Stop | AM | **YES** | **YES** |
| | | | PM | **YES** | **YES** |
| 5 | Elverta Road / E. Levee Road | All Way Stop | AM | No | No |
| | | | PM | No | **YES** |
| 6 | Elkhorn Blvd / E. Levee Road | Side Street Stop | AM | No | No |
| | | | PM | No | No |
| 7 | Elverta Road / Sorento Road | Side Street Stop | AM | No | No |
| | | | PM | No | No |
| 8 | Elverta Road / Elwyn Road | All Way Stop | AM | No | **YES** |
| | | | PM | No | **YES** |
| 9 | Elverta Road / Rio Linda Blvd | All Way Stop | AM | No | No |
| | | | PM | No | **YES** |
| 10 | Elverta Road / 9th Street | Side Street Stop | AM | No | No |
| | | | PM | No | **YES** |
| 12 | U Street / Dry Creek Road | All Way Stop | AM | No | No |
| | | | PM | No | No |
| 13 | Q Street / Dry Creek Road | All Way Stop | AM | No | **YES** |
| | | | PM | No | **YES** |
| 16 | U Street / 16th Street | All Way Stop | AM | No | No |
| | | | PM | No | No[2] |
| 17 | Q Street / 16th Street | Side Street Stop | AM | No | No |
| | | | PM | No | No |

Notes: [1] Applies to all project alternatives unless otherwise noted.

[2] Traffic signal warranted under Existing Plus No Federal Action Alternative only.

SOURCE: Fehr & Peers, 2010.



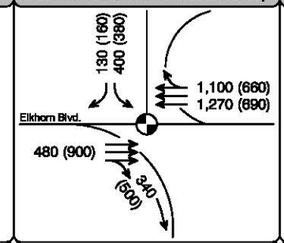

## 1. Riego Rd./State Route 99

**INTERSECTION DOES NOT EXIST UNDER THESE CONDITIONS**

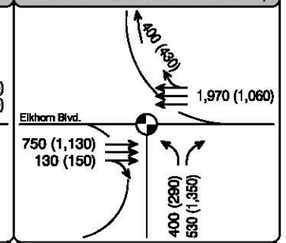
## 2. Elverta Rd./State Route 99

**INTERSECTION DOES NOT EXIST UNDER THESE CONDITIONS**

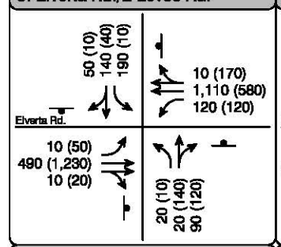
## 3. Elkhorn Blvd./State Route 99 SB Ramp



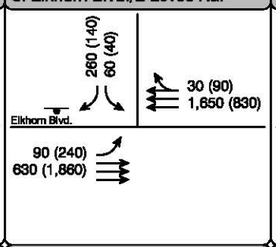

## 4. Elkhorn Blvd./State Route 99 NB Ramp



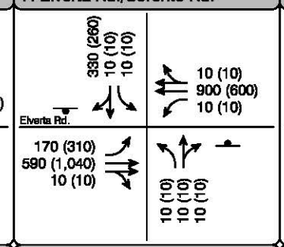

## 5. Elverta Rd./E Levee Rd.



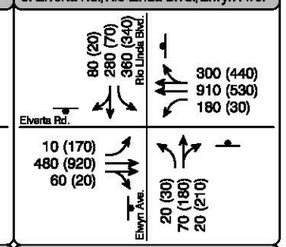

## 6. Elkhorn Blvd./E Levee Rd.



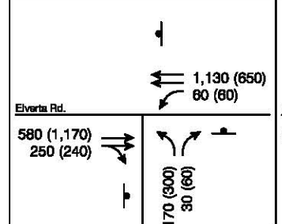

## 7. Elverta Rd./Sorento Rd.



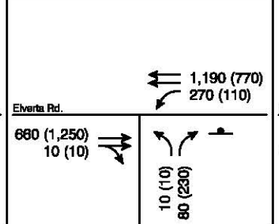

## 8. Elverta Rd./Rio Linda Blvd./Elwyn Ave.



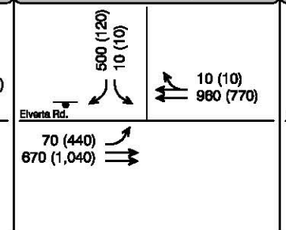

## 9. Elverta Rd./Rio Linda Blvd.



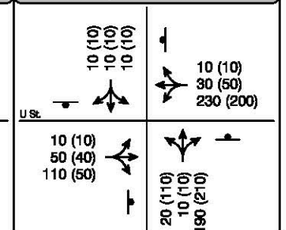

## 10. Elverta Rd./9th St.



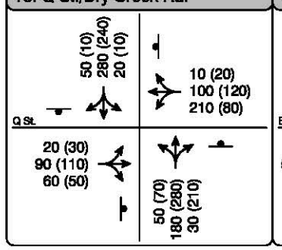

## 11. Elverta Rd./Palladay Rd.



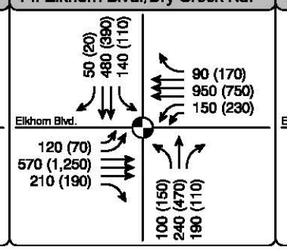

## 12. U St./Dry Creek Rd.



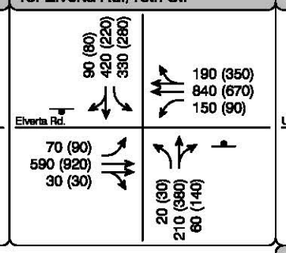

## 13. Q St./Dry Creek Rd.



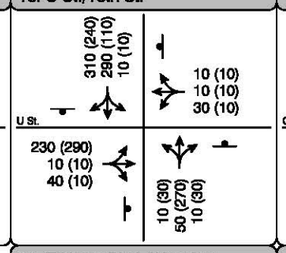

## 14. Elkhorn Blvd./Dry Creek Rd.



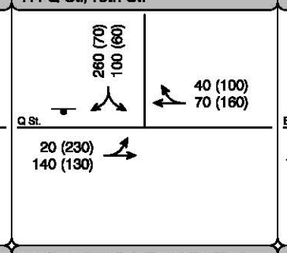

## 15. Elverta Rd./16th St.



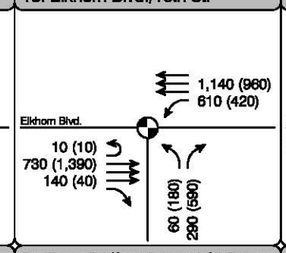

## 16. U St./16th St.



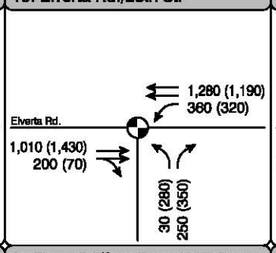

## 17. Q St./16th St.



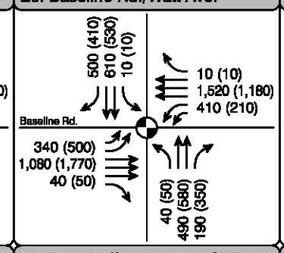

## 18. Elkhorn Blvd./16th St.



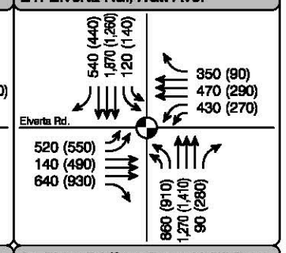

## 19. Elverta Rd./28th St.



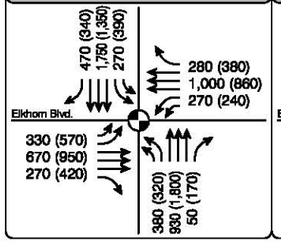

## 20. Baseline Rd./Watt Ave.



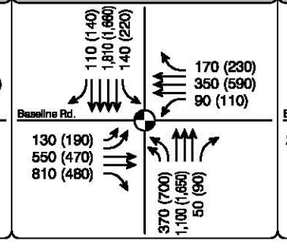

## 21. Elverta Rd./Watt Ave.



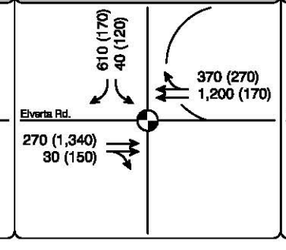

## 22. Elkhorn Blvd./Watt Ave.



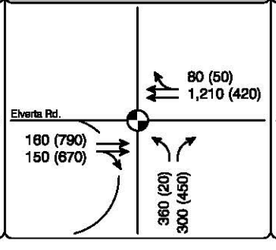

## 23. Baseline Rd./Foothills Blvd.



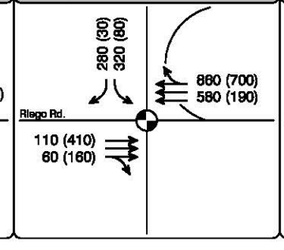

## 24. Elverta Rd./State Route 99 SB Ramp



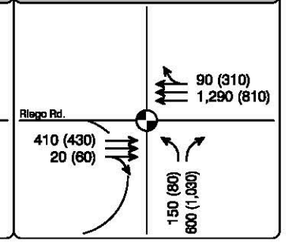

## 25. Elverta Rd./State Route 99 NB Ramp




## 26. Riego Rd./State Route 99 SB Ramp




## 27. Riego Rd./State Route 99 NB Ramp




**LEGEND**

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- 1 Study Intersection
- Traffic Signal
- Stop Sign
- Road Barricade
- --- Future Road

N

NOT TO SCALE

FEHR & PEERS
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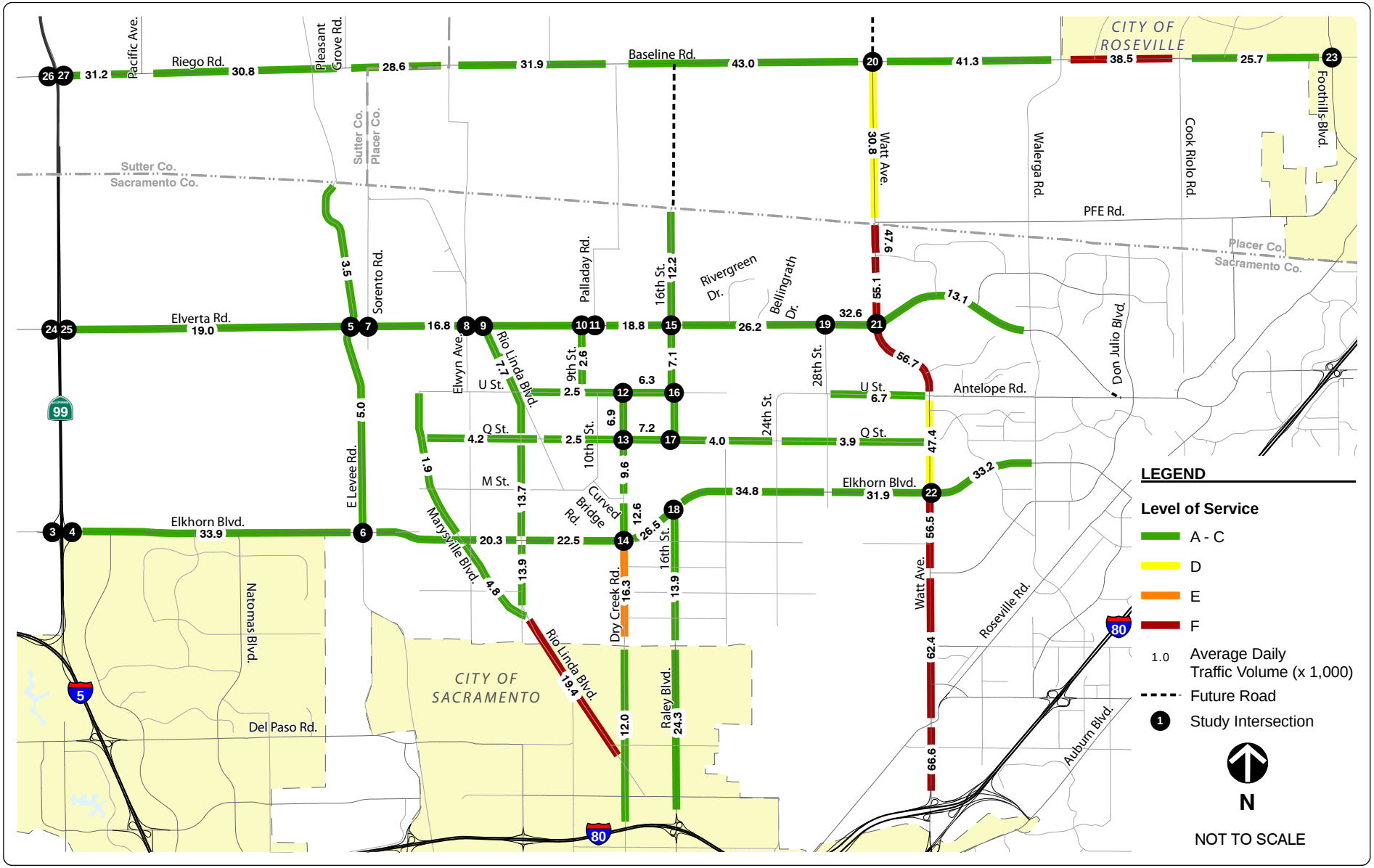
Nov 17, 2010 TR
\\FPSE2\Data2\2010Projects\RS_Projects\RS10_2824\CAD\fig314_14_phtv_cumunp_con2.dwg

# PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE NO PROJECT CONDITIONS

**FIGURE 3.14-14**

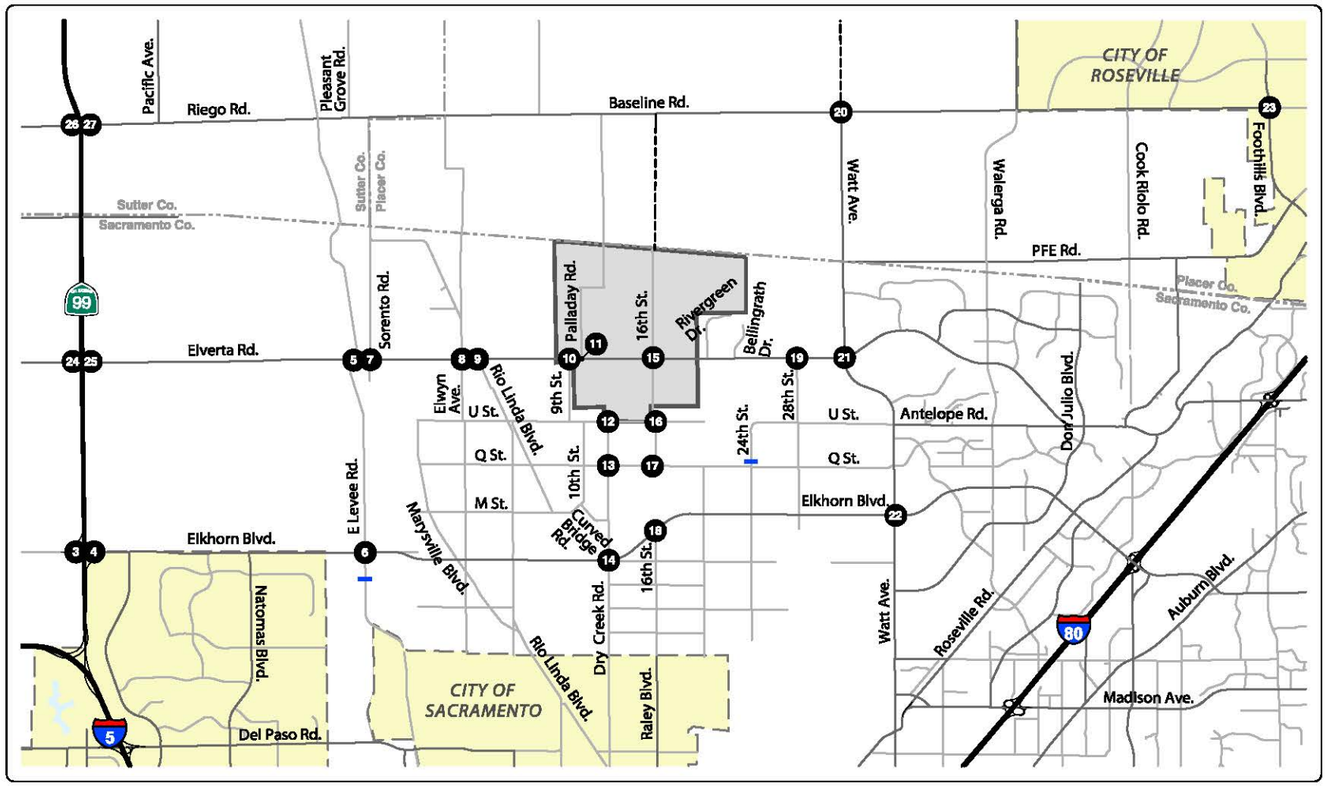



FEHR & PEERS
TRANSPORTATION CONSULTANTS

\\fpse2\data2\2010Projects\RS_Projects\RS10_2824\GIS_2010\MXD\fig314_15_cnp_los_adt2.mxd

**AVERAGE DAILY TRAFFIC VOLUMES AND LEVEL OF SERVICE - CUMULATIVE NO PROJECT CONDITIONS**

**FIGURE 3.14-15**



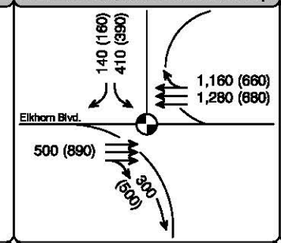

## 1. Riego Rd./State Route 99

**INTERSECTION DOES NOT EXIST UNDER THESE CONDITIONS**

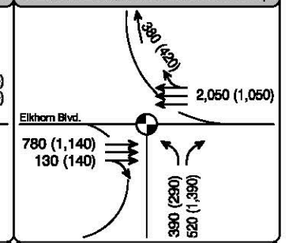
## 2. Elverta Rd./State Route 99

**INTERSECTION DOES NOT EXIST UNDER THESE CONDITIONS**

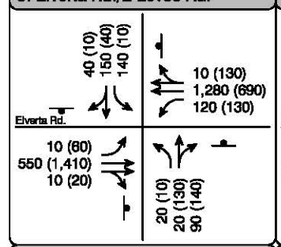
## 3. Elkhorn Blvd./State Route 99 SB Ramp



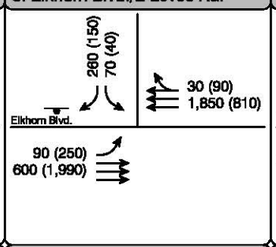

## 4. Elkhorn Blvd./State Route 99 NB Ramp



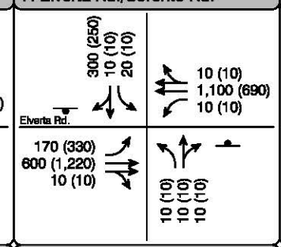

## 5. Elverta Rd./E Levee Rd.



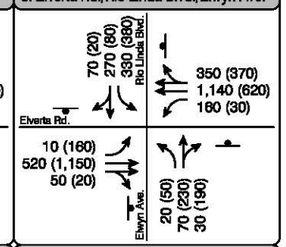

## 6. Elkhorn Blvd./E Levee Rd.



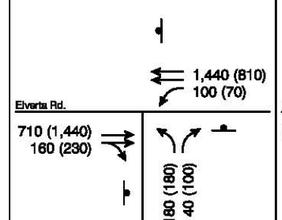

## 7. Elverta Rd./Sorento Rd.



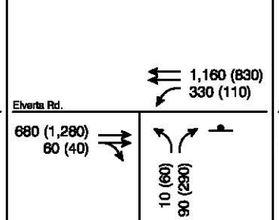

## 8. Elverta Rd./Rio Linda Blvd./Elwyn Ave.



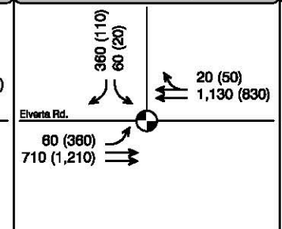

## 9. Elverta Rd./Rio Linda Blvd.



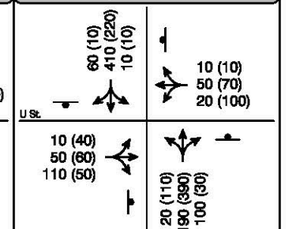

## 10. Elverta Rd./9th St.



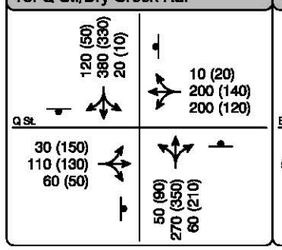

## 11. Elverta Rd./Palladay Rd.



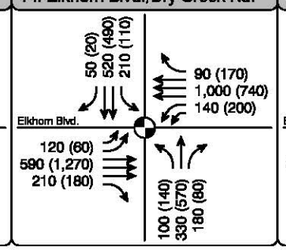

## 12. U St./Dry Creek Rd.



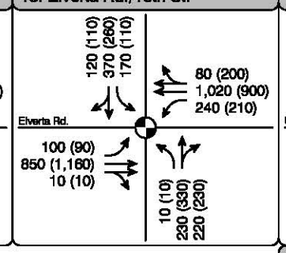

## 13. Q St./Dry Creek Rd.



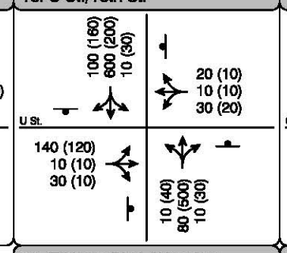

## 14. Elkhorn Blvd./Dry Creek Rd.



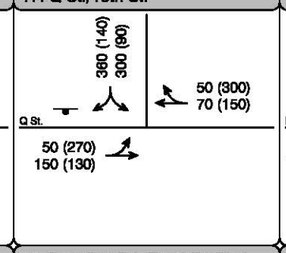

## 15. Elverta Rd./16th St.



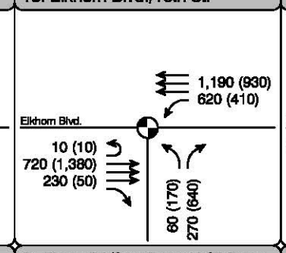

## 16. U St./16th St.



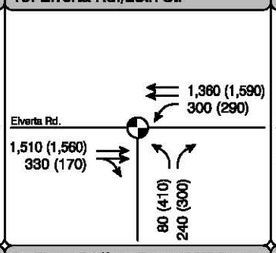

## 17. Q St./16th St.



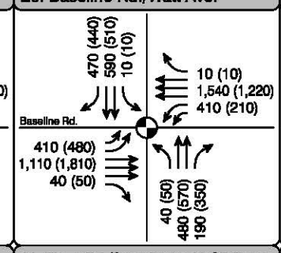

## 18. Elkhorn Blvd./16th St.



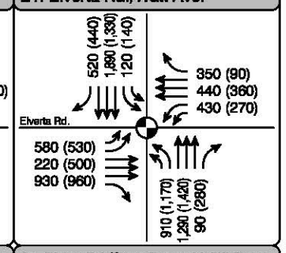

## 19. Elverta Rd./28th St.



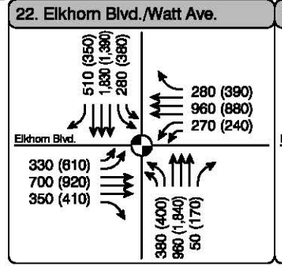

## 20. Baseline Rd./Watt Ave.



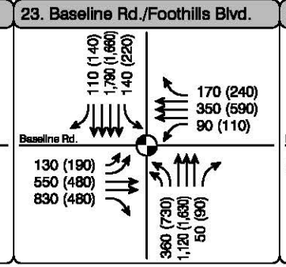

## 21. Elverta Rd./Watt Ave.



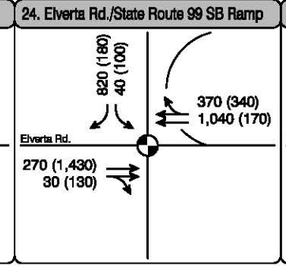

## 22. Elkhorn Blvd./Watt Ave.



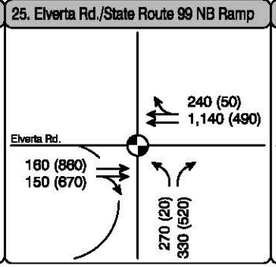

## 23. Baseline Rd./Foothills Blvd.



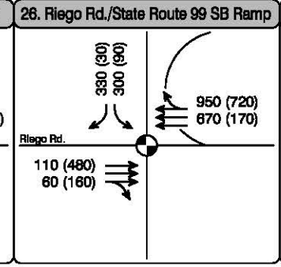

## 24. Elverta Rd./State Route 99 SB Ramp



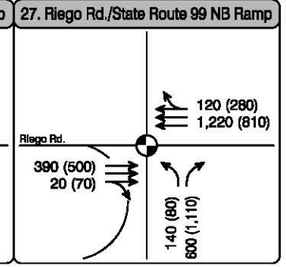

## 25. Elverta Rd./State Route 99 NB Ramp




## 26. Riego Rd./State Route 99 SB Ramp




## 27. Riego Rd./State Route 99 NB Ramp




**LEGEND**

- Turn Lane
- AM (PM) Peak Hour Traffic Volume
- 1 Study Intersection
- Traffic Signal
- Stop Sign
- Project Site
- Road Barricade
- Future Road

N

NOT TO SCALE

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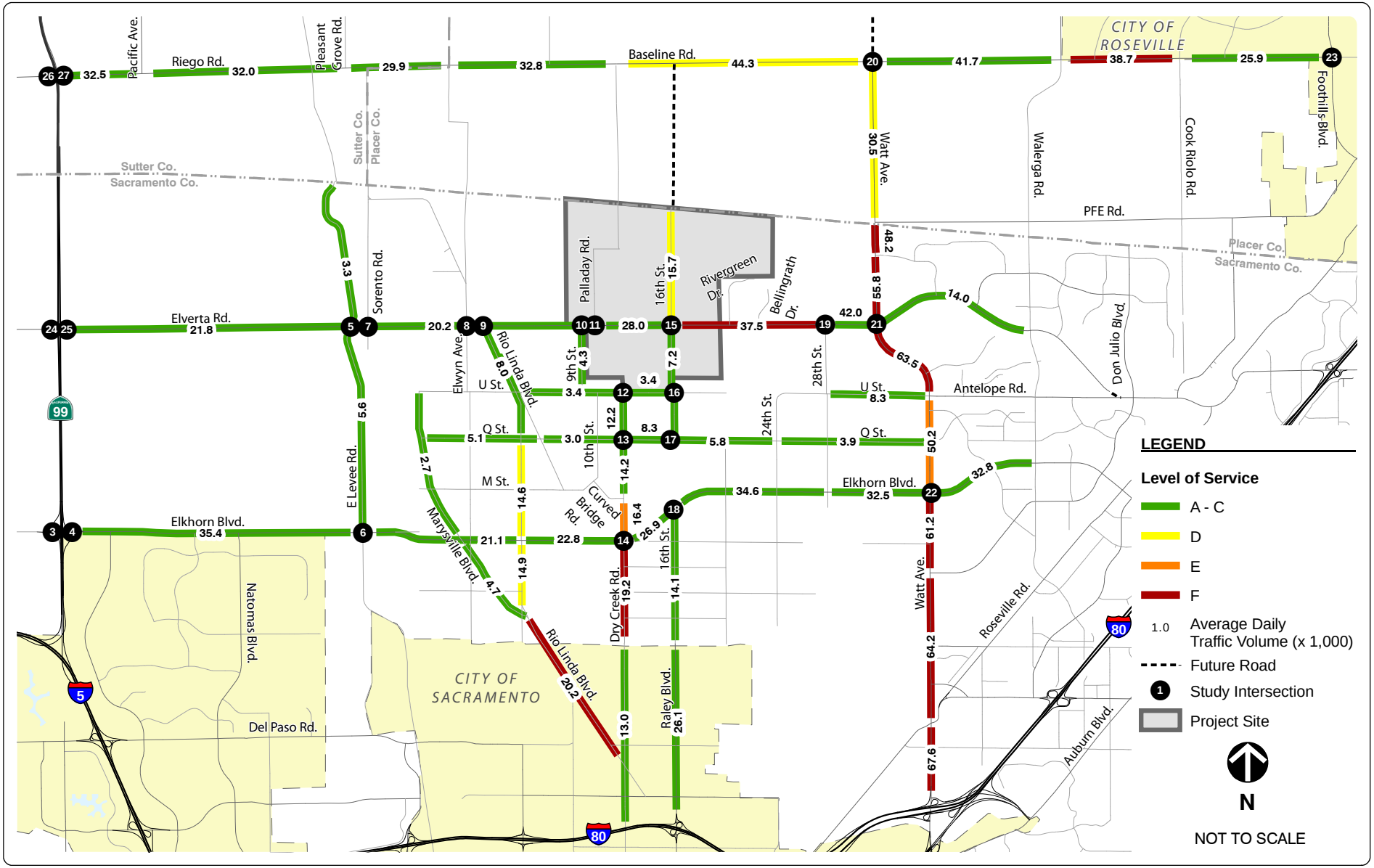
# PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS PREFERRED ALTERNATIVE CONDITIONS

**FIGURE 3.14-16**

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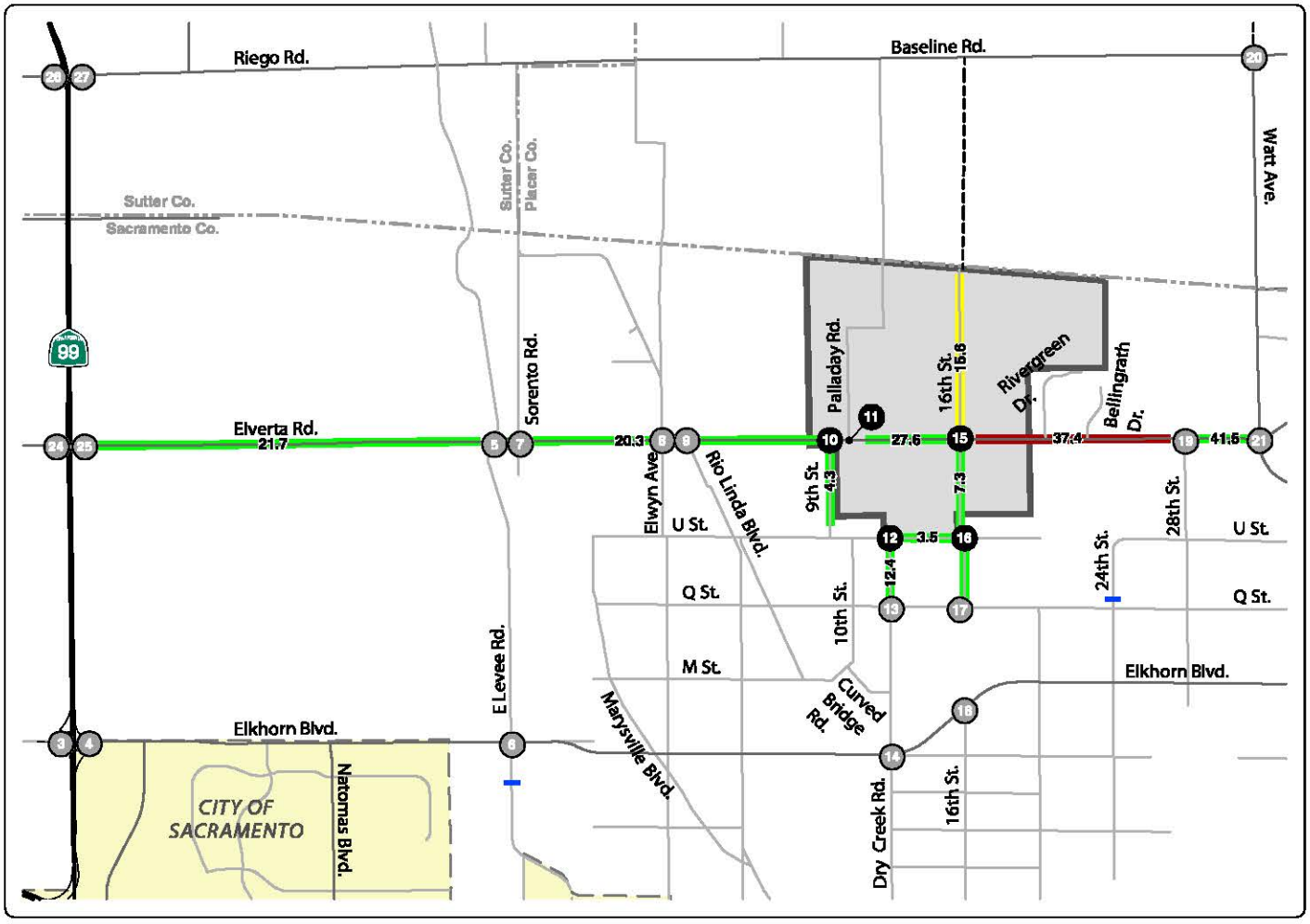
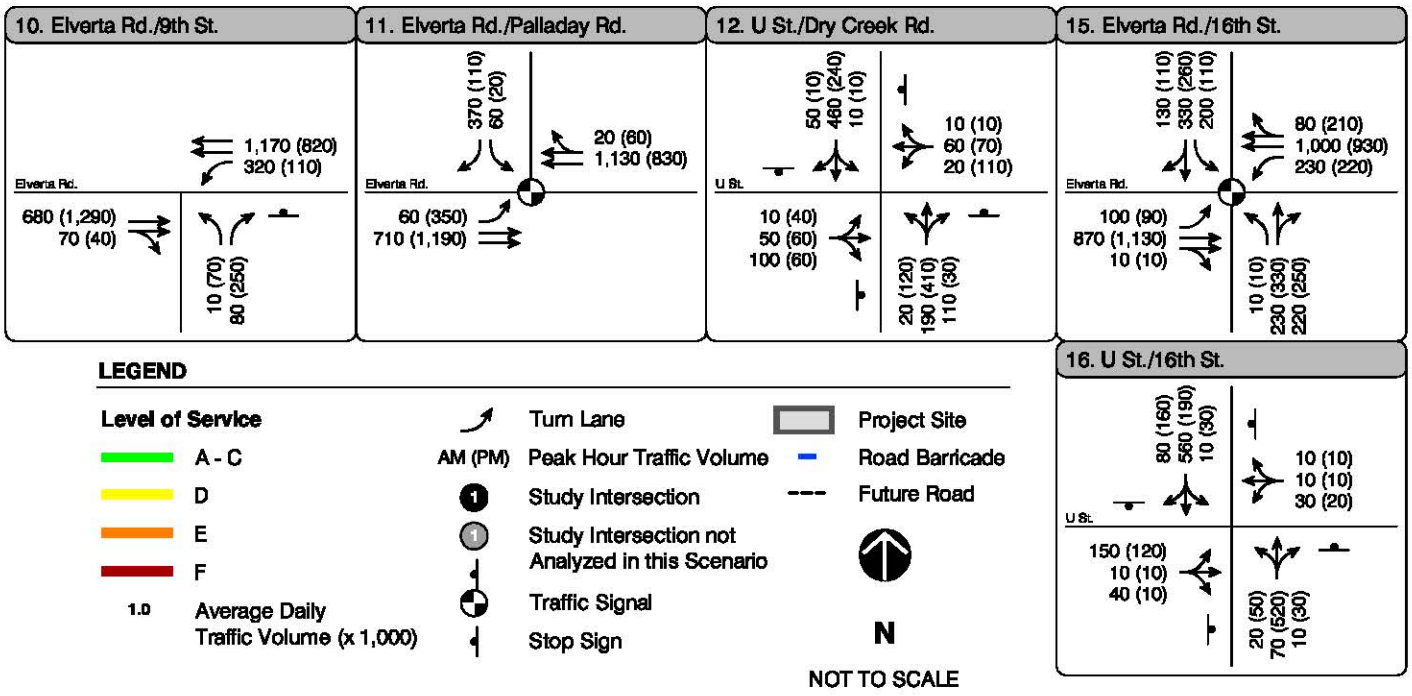
# AVERAGE DAILY TRAFFIC VOLUMES AND LEVEL OF SERVICE - CUMULATIVE PLUS PREFERRED ALTERNATIVE CONDITIONS

**FIGURE 3.14-17**

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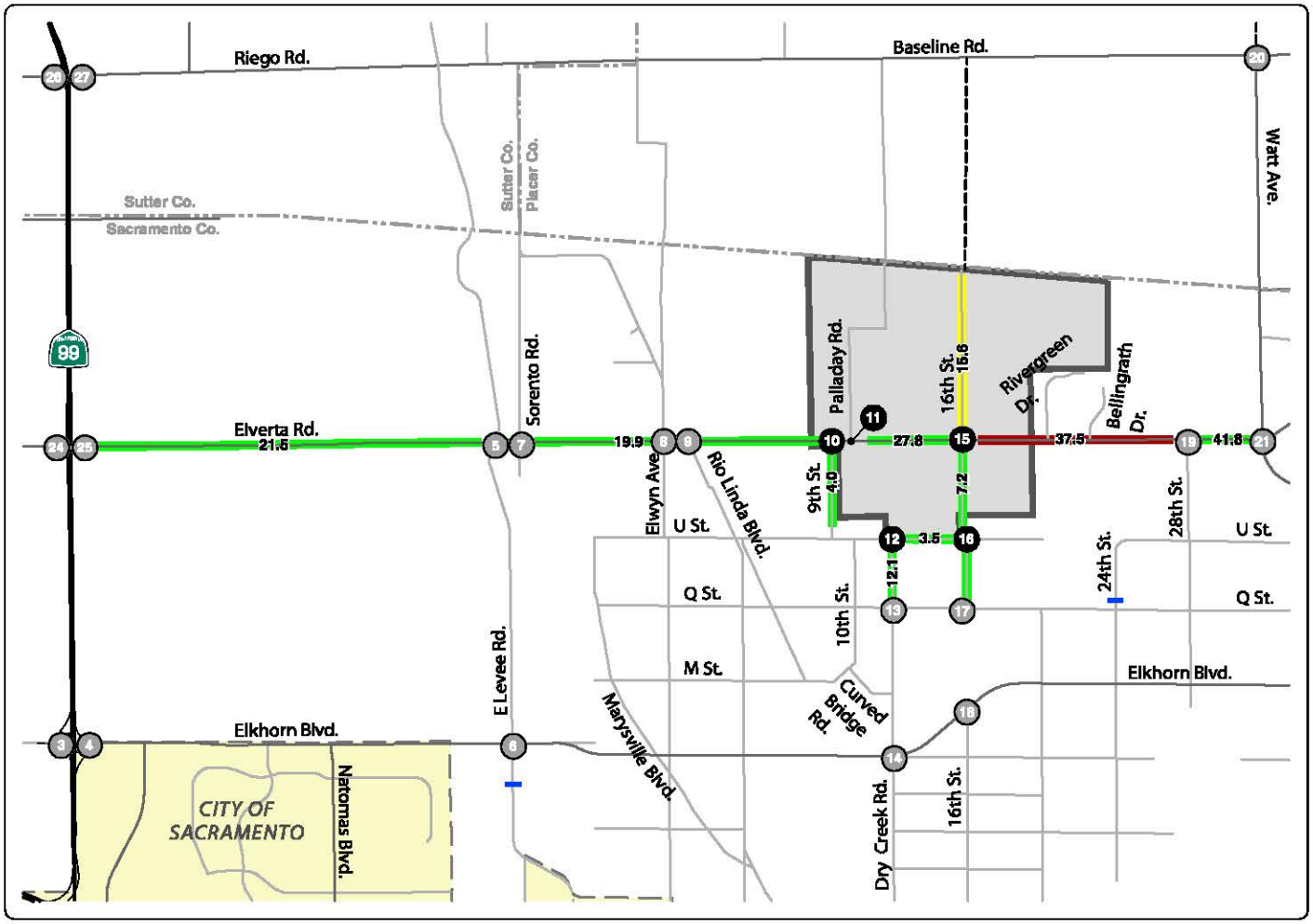
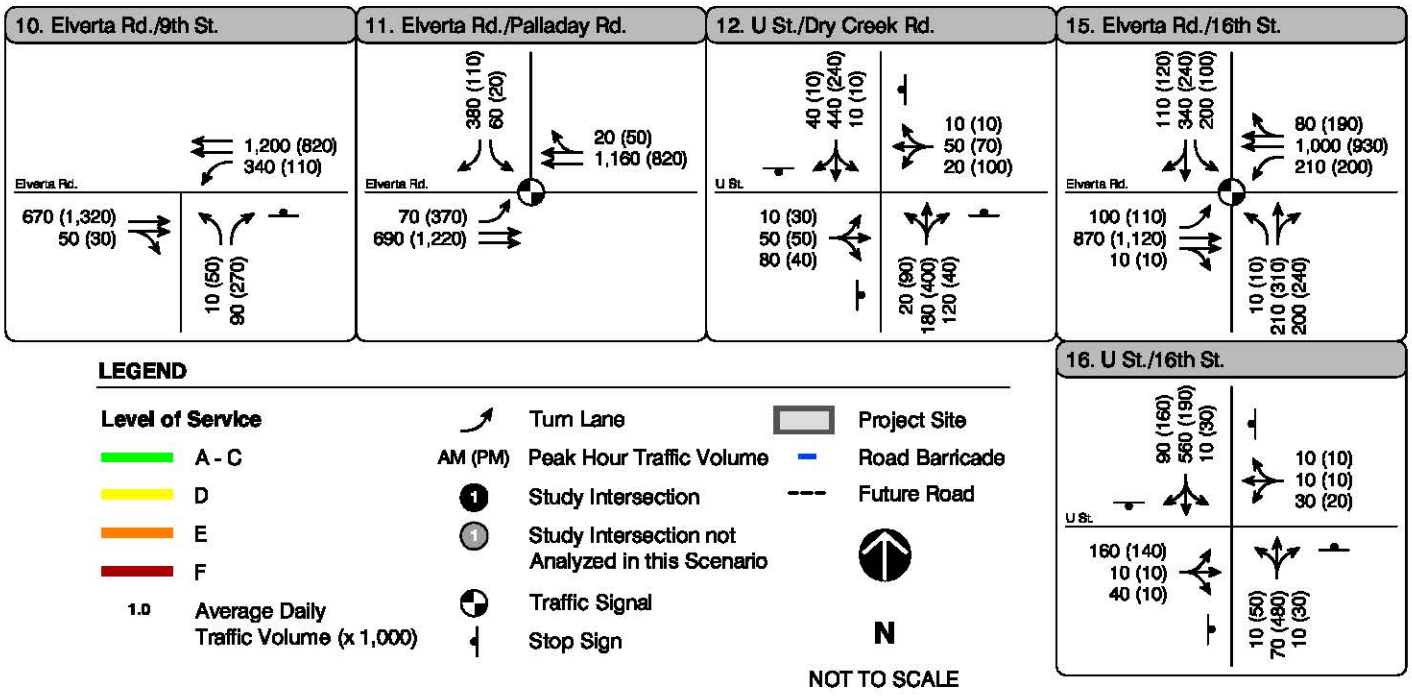
# AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS APPROVED SPECIFIC PLAN ALTERNATIVE

**FIGURE 3.14-18**




**LEGEND**

**Level of Service**
- A - C
- D
- E
- F

1.0 Average Daily Traffic Volume (x 1,000)

Turn Lane

AM (PM) Peak Hour Traffic Volume

1 Study Intersection

1 Study Intersection not Analyzed in this Scenario

Traffic Signal

Stop Sign

Project Site

Road Barricade

Future Road

N

NOT TO SCALE

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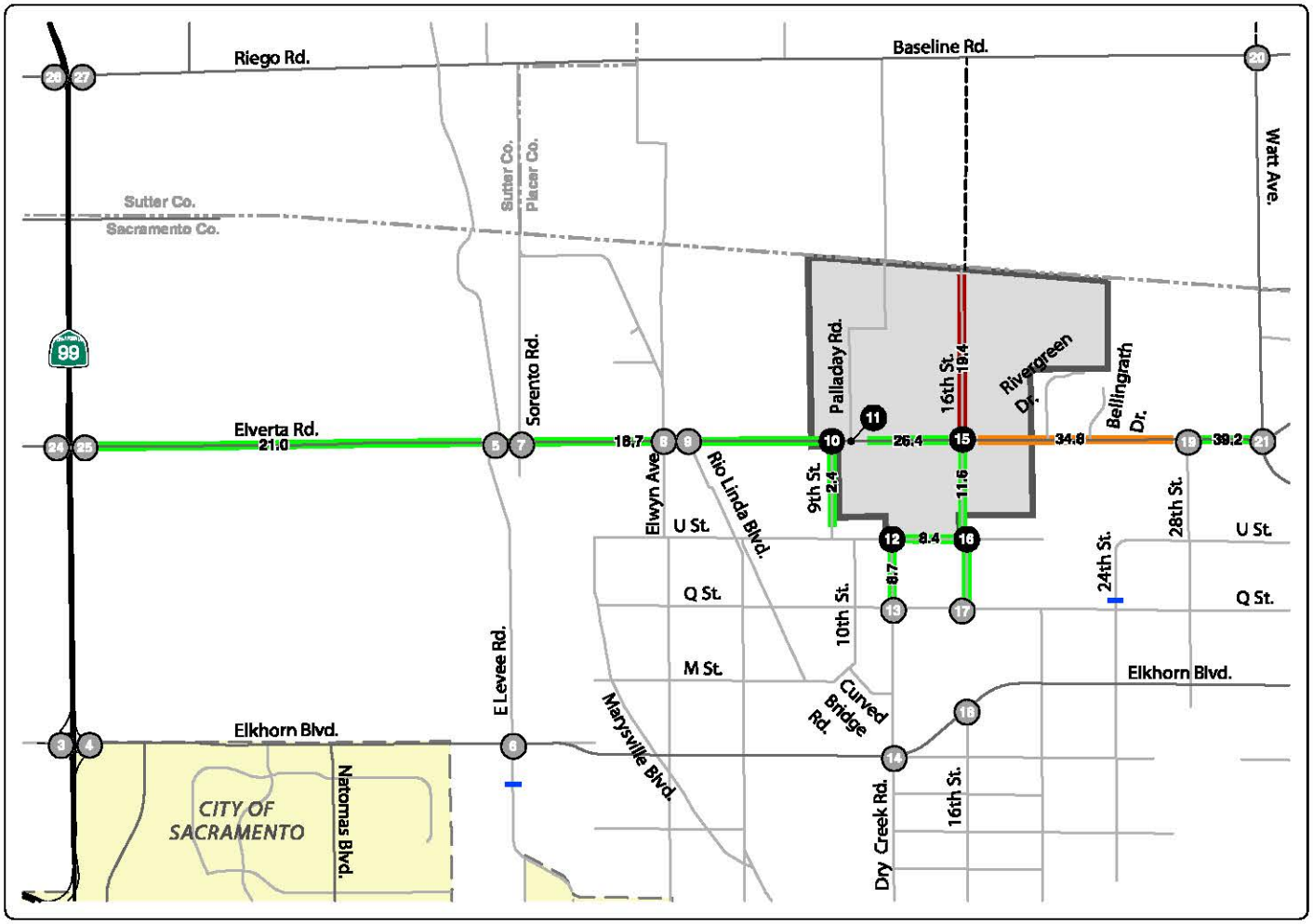
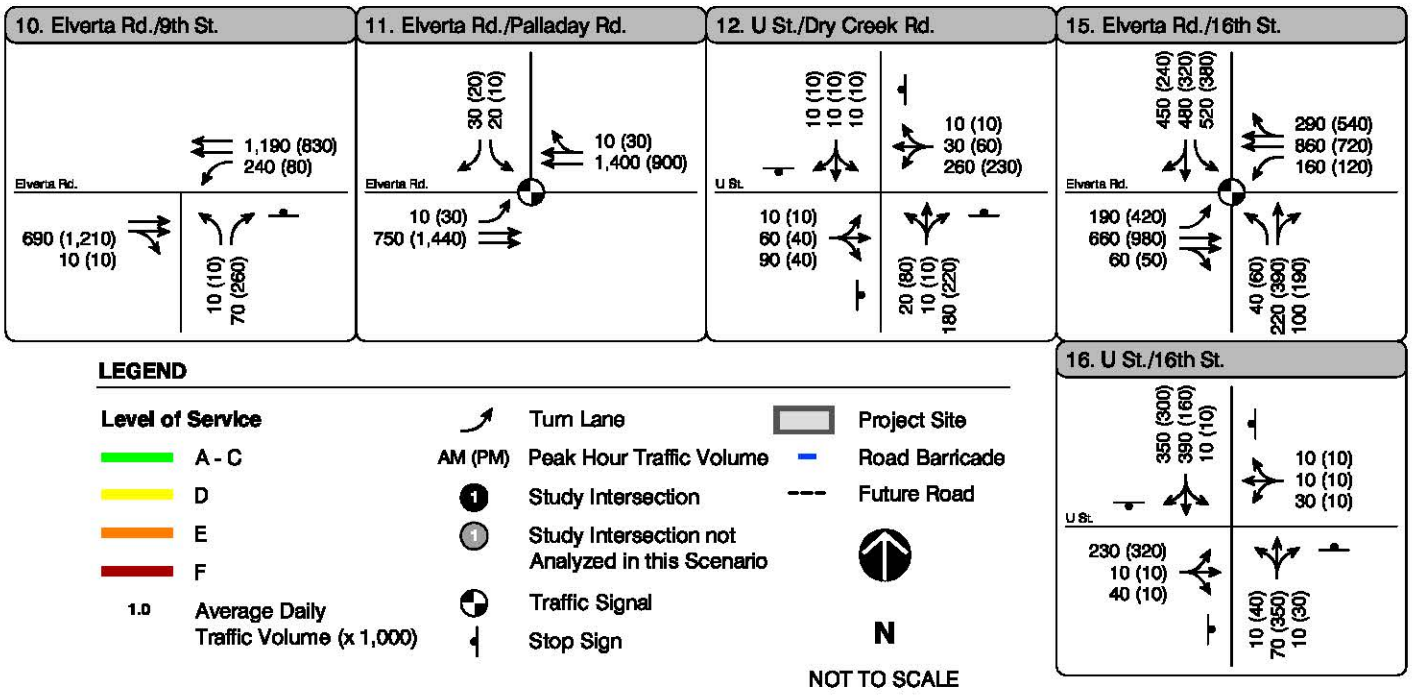
# AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS MINIMAL IMPACT ALTERNATIVE

**FIGURE 3.14-19**




**LEGEND**

**Level of Service**
- A - C
- D
- E
- F

1.0 Average Daily Traffic Volume (x 1,000)

Turn Lane

AM (PM) Peak Hour Traffic Volume

1 Study Intersection

1 Study Intersection not Analyzed in this Scenario

Traffic Signal

Stop Sign

Project Site

Road Barricade

Future Road

N

NOT TO SCALE

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# AVERAGE DAILY TRAFFIC VOLUMES, LEVEL OF SERVICE PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS NO FEDERAL ACTION ALTERNATIVE

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**FIGURE 3.14-20**

**Table 19**
**Peak Hour Intersection LOS – Cumulative Plus Preferred Alternative Conditions**

| | Intersection | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | Cumulative No Project Conditions | | Cumulative Plus Preferred Alternative Conditions | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| 3 | SR 99 SB Off-Ramp / Elkhorn Blvd | Caltrans (E) | Traffic Signal | AM | 14 | B | 15 | B |
| | | | | PM | 14 | B | 15 | B |
| 4 | SR 99 NB Off-Ramp / Elkhorn Blvd | Caltrans (E) | Traffic Signal | AM | 15 | B | 15 | B |
| | | | | PM | **96** | **F** | **103** | **F** |
| 5 | Elverta Road / E. Levee Road | County of Sacramento (E) | All Way Stop | AM | **102** | **F** | **>150** | **F** |
| | | | | PM | **144** | **F** | **>150** | **F** |
| 6 | Elkhorn Blvd / E. Levee Road | County of Sacramento (E) | Side Street Stop | AM | **>150** | **F** | **>150** | **F** |
| | | | | PM | **>150** | **F** | **>150** | **F** |
| 7 | Elverta Road / Sorento Road | County of Sacramento (E) | Side Street Stop | AM | **>150** | **F** | **>150** | **F** |
| | | | | PM | **>150** | **F** | **>150** | **F** |
| 8 | Elverta Road / Elwyn Road | County of Sacramento (E) | All Way Stop | AM | **139** | **F** | **>150** | **F** |
| | | | | PM | **>150** | **F** | **>150** | **F** |
| 9 | Elverta Road / Rio Linda Blvd | County of Sacramento (E) | All Way Stop | AM | **79** | **F** | **>150** | **F** |
| | | | | PM | **148** | **F** | **>150** | **F** |
| 10 | Elverta Road / 9th Street | County of Sacramento (E) | Side Street Stop | AM | **107** | **F** | **>150** | **F** |
| | | | | PM | **103** | **F** | **>150** | **F** |
| 11 | Elverta Road / Palladay Road | County of Sacramento (E) | Traffic Signal | AM | **68** | **F** | 12 | B |
| | | | | PM | **>150** | **F** | 11 | B |
| 12 | U Street / Dry Creek Road | County of Sacramento (E) | All Way Stop | AM | 10 | A | 16 | C |
| | | | | PM | 11 | B | 22 | C |
| 13 | Q Street / Dry Creek Road | County of Sacramento (E) | All Way Stop | AM | 17 | C | **80** | **F** |
| | | | | PM | 30 | D | **137** | **F** |
| 14 | Elkhorn Blvd / Dry Creek Road | County of Sacramento (E) | Traffic Signal | AM | 20 | C | 25 | C |
| | | | | PM | 41 | D | 41 | D |
| 15 | Elverta Road / 16th Street | County of Sacramento (E) | Traffic Signal | AM | **>150** | **F** | 46 | D |
| | | | | PM | **>150** | **F** | 58 | E |
| 16 | U Street / 16th Street | County of Sacramento (E) | All Way Stop | AM | 22 | C | 38 | E |
| | | | | PM | 15 | B | 21 | C |
| 17 | Q Street / 16th Street | County of Sacramento (E) | Side Street Stop | AM | 12 | B | 24 | B |
| | | | | PM | 17 | C | 32 | D |
| 18 | Elkhorn Blvd / 16th Street | County of Sacramento (E) | Traffic Signal | AM | 58 | E | 59 | E |
| | | | | PM | 50 | D | 48 | D |
| 19 | Elverta Road / 28th Street | County of Sacramento (E) | Traffic Signal | AM | 45 | D | **128** | **F** |
| | | | | PM | **92** | **F** | **>150** | **F** |
| 20 | Baseline Road / Watt Avenue | County of Placer - Placer Vineyards (D) | Traffic Signal | AM | 26 | C | 27 | C |
| | | | | PM | 25 | C | 25 | C |
| 21 | Elverta Road / Watt Avenue | County of Sacramento (E) | Traffic Signal | AM | **112** | **F** | **>150** | **F** |
| | | | | PM | **93** | **F** | **123** | **F** |

**Table 19**
**Peak Hour Intersection LOS – Cumulative Plus Preferred Alternative Conditions**

| | Intersection | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | Cumulative No Project Conditions | | Cumulative Plus Preferred Alternative Conditions | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| 22 | Elkhorn Blvd / Watt Avenue | County of Sacramento (E) | Traffic Signal | AM | 48 | D | 49 | D |
| | | | | PM | 57 | E | 62 | E |
| 23 | Baseline Road / Foothills Blvd | City of Roseville (C) | Traffic Signal | AM | **55** | **D** | **56** | **E** |
| | | | | PM | **45** | **D** | **46** | **D** |
| 24 | SR 99 SB Ramps / Elverta Road | Caltrans (E) | Traffic Signal | AM | 31 | C | 55 | D |
| | | | | PM | 7 | A | 7 | A |
| 25 | SR 99 NB Ramps / Elverta Road | Caltrans (E) | Traffic Signal | AM | 12 | B | 10 | B |
| | | | | PM | 12 | B | 16 | B |
| 26 | SR 99 SB Ramps / Riego Road | Caltrans (E) | Traffic Signal | AM | 9 | A | 9 | A |
| | | | | PM | 4 | A | 4 | A |
| 27 | SR 99 NB Ramps / Riego Road | Caltrans (E) | Traffic Signal | AM | 12 | B | 13 | B |
| | | | | PM | 35 | C | 47 | D |

Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

SOURCE: Fehr & Peers, 2010.

**Table 20**
**Roadway Segment LOS – Cumulative Plus Preferred Alternative Conditions**

| Roadway | Segment | Jurisdiction (Minimum LOS) | No. of Lanes | Cumulative No Project Conditions | | | Cumulative Plus Preferred Alternative | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS |
| Riego Road /Baseline Road | SR 99 to Pacific Avenue | County of Sutter (D) | 6 | 31,200 | 0.40 | C | 32,500 | 0.42 | C |
| | Pacific Avenue to Pleasant Grove Road (South) | County of Sutter (D) | 6 | 30,800 | 0.40 | C | 32,000 | 0.41 | C |
| | Pleasant Grove Road (South) to Locust Road | County of Placer - Placer Vineyards Frontage (D) | 6 | 28,600 | 0.53 | A | 29,900 | 0.55 | A |
| | Locust Road to Palladay Road | County of Placer - Placer Vineyards Frontage (D) | 6 | 31,900 | 0.59 | A | 32,800 | 0.61 | B |
| | Palladay Road to Watt Avenue | County of Placer - Placer Vineyards Frontage (D) | 6 | 43,000 | 0.80 | C | 44,300 | 0.82 | D |
| | Watt Avenue to Walerga Road | County of Placer - Placer Vineyards Frontage (D) | 6 | 41,300 | 0.76 | C | 41,700 | 0.77 | C |
| | Walerga Road to Cook-Riolo Road | County of Placer (C) | 4 | 38,500 | **1.07** | **F** | 38,700 | **1.08** | **F** |
| | Cook-Riolo Road to Foothills Boulevard | County of Placer (C) | 4 | 25,700 | 0.71 | C | 25,900 | 0.72 | C |
| Elverta Road | SR 99 to E. Levee Road | County of Sacramento - Rural (D) | 4 | 19,000 | 0.53 | A | 21,800 | 0.61 | B |
| | E. Levee Road to Palladay Road | County of Sacramento - Urban (E) | 4 | 16,800 | 0.47 | A | 20,200 | 0.56 | A |
| | Palladay Road to 16th Street | County of Sacramento - Urban (E) | 4 | 18,800 | 0.52 | A | 28,000 | 0.78 | C |
| | 16th Street to 28th Street | County of Sacramento - Urban (E) | 4 | 26,200 | 0.73 | C | 37,500 | **1.04** | **F** |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 6 | 32,600 | 0.60 | B | 42,000 | 0.78 | C |
| | Watt Avenue to Walerga Road | County of Sacramento - Urban (E) | 6 | 13,100 | 0.24 | A | 14,000 | 0.26 | A |

**Table 20**
**Roadway Segment LOS – Cumulative Plus Preferred Alternative Conditions**

| Roadway | Segment | Jurisdiction (Minimum LOS) | No. of Lanes | Cumulative No Project Conditions | | | Cumulative Plus Preferred Alternative | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS |
| Elkhorn Boulevard | SR 99 to E. Levee Road | County of Sacramento - Urban (E) | 6 | 33,900 | 0.63 | B | 35,400 | 0.66 | B |
| | E. Levee Road to Rio Linda Boulevard | County of Sacramento - Urban (E) | 6 | 20,300 | 0.38 | A | 21,100 | 0.39 | A |
| | Rio Linda Boulevard to Dry Creek Road | County of Sacramento - Urban (E) | 6 | 22,500 | 0.42 | A | 22,800 | 0.42 | A |
| | Dry Creek Road to 16th Street | County of Sacramento - Urban (E) | 6 | 26,500 | 0.49 | A | 26,900 | 0.50 | A |
| | 16th Street to 28th Street | County of Sacramento - Urban (E) | 6 | 34,800 | 0.64 | B | 34,600 | 0.64 | B |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 6 | 31,900 | 0.59 | A | 32,500 | 0.60 | B |
| | Watt Avenue to Walerga Road | County of Sacramento - Urban (E) | 6 | 33,200 | 0.61 | B | 32,800 | 0.61 | B |
| Watt Avenue | Baseline Road to PFE Road | County of Placer - Placer Vineyards Frontage (D) | 4 | 30,800 | 0.86 | D | 30,500 | 0.85 | D |
| | PFE Road to Black Eagle Drive | County of Sacramento - Urban (E) | 2 | 47,600 | **2.64** | **F** | 48,200 | **2.68** | **F** |
| | Black Eagle Drive to Elverta Road | County of Sacramento - Urban (E) | 6 | 55,100 | **1.02** | **F** | 55,800 | **1.03** | **F** |
| | Elverta Road to Antelope Road | County of Sacramento - Urban (E) | 4 | 56,700 | **1.58** | **F** | 63,500 | **1.76** | **F** |
| | Antelope Road to Elkhorn Boulevard | County of Sacramento - Urban (E) | 6 | 47,400 | 0.88 | D | 50,200 | 0.93 | E |
| | Elkhorn Boulevard to Don Julio Boulevard | County of Sacramento - Urban (E) | 6 | 56,500 | **1.05** | **F** | 61,200 | **1.13** | **F** |
| | Don Julio Boulevard to Roseville Road | County of Sacramento - Urban (E) | 6 | 62,400 | **1.16** | **F** | 64,200 | **1.19** | **F** |
| | Roseville Road to I-80 | County of Sacramento - Urban (E) | 6 | 66,600 | **1.23** | **F** | 67,600 | **1.25** | **F** |

**Table 20**
**Roadway Segment LOS – Cumulative Plus Preferred Alternative Conditions**

| Roadway | Segment | Jurisdiction (Minimum LOS) | No. of Lanes | Cumulative No Project Conditions | | | Cumulative Plus Preferred Alternative | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS |
| U Street | Rio Linda Boulevard to Dry Creek Road | County of Sacramento - Urban (E) | 2 | 2,500 | 0.14 | A | 3,400 | 0.19 | A |
| | Dry Creek Road to 16th Street | County of Sacramento - Urban (E) | 2 | 6,300 | 0.35 | A | 3,400 | 0.19 | A |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 2 | 6,700 | 0.37 | A | 8,300 | 0.46 | A |
| Q Street | Marysville Boulevard to Rio Linda Boulevard | County of Sacramento - Urban (E) | 2 | 4,200 | 0.23 | A | 5,100 | 0.28 | A |
| | Rio Linda Boulevard to Dry Creek Road | County of Sacramento - Urban (E) | 2 | 2,500 | 0.14 | A | 3,000 | 0.17 | A |
| | Dry Creek Road to 16th Street | County of Sacramento - Urban (E) | 2 | 7,200 | 0.40 | A | 8,300 | 0.46 | A |
| | 16th Street to 24th Street | County of Sacramento - Urban (E) | 2 | 4,000 | 0.22 | A | 5,800 | 0.32 | A |
| | 24th Street to Watt Avenue | County of Sacramento - Urban (E) | 2 | 3,900 | 0.22 | A | 3,900 | 0.22 | A |
| East Levee Road | Sutter County Line to Elverta Road | County of Sacramento - Urban (E) | 2 | 3,500 | 0.19 | A | 3,300 | 0.18 | A |
| | Elverta Road to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 5,000 | 0.28 | A | 5,600 | 0.31 | A |
| Marysville Boulevard | Dry Creek Road to Rio Linda Boulevard | City of Sacramento (D) | 2 | 19,400 | **1.08** | **F** | 20,200 | **1.12** | **F** |
| | Rio Linda Boulevard to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 4,800 | 0.27 | A | 4,700 | 0.26 | A |
| | Elkhorn Boulevard to U Street | County of Sacramento - Urban (E) | 2 | 1,900 | 0.11 | A | 2,700 | 0.15 | A |

**Table 20**
**Roadway Segment LOS – Cumulative Plus Preferred Alternative Conditions**

| Roadway | Segment | Jurisdiction (Minimum LOS) | No. of Lanes | Cumulative No Project Conditions | | | Cumulative Plus Preferred Alternative | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS |
| Rio Linda Blvd | Marysville Boulevard to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 13,900 | 0.77 | C | 14,900 | 0.83 | D |
| | Elkhorn Boulevard to Q Street | County of Sacramento - Urban (E) | 2 | 13,700 | 0.76 | C | 14,600 | 0.81 | D |
| | Q Street to Elverta Road | County of Sacramento - Urban (E) | 2 | 7,700 | 0.43 | A | 8,000 | 0.44 | A |
| 9th St | Elverta Road to U Street | County of Sacramento - Urban (E) | 2 | 2,600 | 0.14 | A | 4,300 | 0.24 | A |
| Dry Creek Road | I-80 to Ascot Avenue | City of Sacramento (D) | 2 | 12,000 | 0.67 | B | 13,000 | 0.72 | C |
| | Ascot Avenue to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 16,300 | 0.91 | E | 19,200 | **1.07** | **F** |
| | Elkhorn Boulevard to Curved Bridge Road | County of Sacramento - Urban (E) | 2 | 12,600 | 0.70 | B | 16,400 | 0.91 | E |
| | Curved Bridge Road to Q Street | County of Sacramento - Urban (E) | 2 | 9,600 | 0.53 | A | 14,200 | 0.79 | C |
| | Q Street to U Street | County of Sacramento - Urban (E) | 2 | 6,900 | 0.38 | A | 12,200 | 0.68 | B |
| 16th Street | Ascot Avenue to Elkhorn Boulevard | County of Sacramento - Urban (E) | 2 | 13,900 | 0.77 | C | 14,100 | 0.78 | C |
| | Q Street to Elverta Road | County of Sacramento - Urban (E) | 2 | 7,100 | 0.39 | A | 7,200 | 0.40 | A |
| | Elverta Road to County Line | County of Sacramento - Urban (E) | 2 | 12,200 | 0.68 | B | 15,700 | 0.87 | D |
| Raley Blvd | I-80 to Ascot Avenue | City of Sacramento (D) | 6 | 24,300 | 0.45 | A | 26,100 | 0.48 | A |

Notes: Bolded cells represent unacceptable operations.
Shaded cells represent significant adverse effects.

SOURCE: Fehr & Peers, 2010.

**Table 21**
**Freeway Mainline LOS – Cumulative Plus Preferred Alternative Conditions**

| Freeway | Segment | Peak Hour | Cumulative No Project Conditions | | | Cumulative Plus Preferred Alternative | | |
|---|---|---|---|---|---|---|---|---|
| | | | Volume | Density (pc/ln/mi) | LOS | Volume | Density (pc/ln/mi) | LOS |
| SR 99 SB | Sankey Road to Riego Road | AM | 4,670 | - | **F** | 4,630 | - | **F** |
| | | PM | 2,440 | 21 | C | 2,410 | 21 | C |
| | Riego Road to Elverta Road | AM | 4,990 | - | **F** | 5,010 | - | **F** |
| | | PM | 3,190 | 27 | D | 3,170 | 28 | D |
| | Elverta Road to Elkhorn Boulevard | AM | 4,740 | - | **F** | 4,550 | - | **F** |
| | | PM | 3,320 | 29 | D | 3,360 | 30 | D |
| | Elkhorn Boulevard to I-5 | AM | 5,650 | - | **F** | 5,460 | - | **F** |
| | | PM | 3,940 | 29 | D | 3,970 | 29 | D |
| SR 99 NB | I -5 to Elkhorn Boulevard | AM | 3,200 | 22 | C | 2,930 | 20 | C |
| | | PM | 5,940 | - | **F** | 6,100 | - | **F** |
| | Elkhorn Boulevard to Elverta Road | AM | 2,800 | 27 | D | 2,530 | 24 | C |
| | | PM | 4,880 | - | **F** | 4,980 | - | **F** |
| | Elverta Road to Riego Road | AM | 2,370 | 23 | C | 2,320 | 22 | C |
| | | PM | 5,130 | - | **F** | 5,160 | - | **F** |
| | Riego Road to Sankey Road | AM | 1,730 | 16 | B | 1,720 | 16 | B |
| | | PM | 4,390 | - | **F** | 4,320 | - | **F** |

Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

"-" indicates the mainline segment failed one of the HCM capacity checks, resulting in LOS F.

SOURCE: Fehr & Peers, 2010.

**Table 22:**
**Freeway Ramp Junction LOS – Cumulative Plus Preferred Alternative Conditions**

| Freeway | Ramp Junction | Peak Hour | Cumulative No Project Conditions | | Cumulative Plus Preferred Alternative | |
|---|---|---|---|---|---|---|
| | | | Density (pc/ln/mi) | LOS | Density (pc/ln/mi) | LOS |
| SR 99 SB | Elverta Road Loop On-Ramp Merge | AM | **-** | **F** | **-** | **F** |
| | | PM | 30 | D | 30 | D |
| | Elverta Road Slip On-Ramp Merge | AM | **-** | **F** | **-** | **F** |
| | | PM | 31 | D | 32 | D |
| | Elverta Road Off-Ramp Diverge | AM | **-** | **F** | **-** | **F** |
| | | PM | 31 | D | 32 | D |
| SR 99 NB | Elverta Road Loop On-Ramp Merge | AM | 24 | C | 23 | C |
| | | PM | **-** | **F** | **-** | **F** |
| | Elverta Road Slip On-Ramp Merge | AM | 25 | C | 25 | C |
| | | PM | **-** | **F** | **-** | **F** |
| | Elverta Road Off-Ramp Diverge | AM | 31 | D | 28 | C |
| | | PM | **-** | **F** | **-** | **F** |

Notes: Bolded cells represent unacceptable operations.
Shaded cells represent significant adverse effects.
"-" indicates the mainline segment failed one of the HCM capacity checks, resulting in LOS F.

SOURCE: Fehr & Peers, 2010.

**Table 23**
**Peak Hour Intersection LOS – Cumulative Plus Project Conditions**

| Intersection | | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | Cumulative No Project Conditions | | Cumulative Plus Preferred Alternative | | Cumulative Plus Approved Specific Plan Alternative | | Cumulative Plus Minimal Impact Alternative | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | | |
| 10 | Elverta Road / 9th Street | County of Sacramento (E) | Side Street Stop | AM | **107** | **F** | **>150** | **F** | **>150** | **F** | **>150** | **F** | | |
| | | | | PM | **103** | **F** | **>150** | **F** | **>150** | **F** | **>150** | **F** | | |
| 11 | Elverta Road / Palladay Road | County of Sacramento (E) | Traffic Signal | AM | **68** | **F** | 12 | B | 12 | B | 13 | B | | |
| | | | | PM | **>150** | **F** | 11 | B | 12 | B | 12 | B | | |
| 12 | U Street / Dry Creek Road | County of Sacramento (E) | All Way Stop | AM | 10 | A | 16 | C | 18 | C | 16 | C | | |
| | | | | PM | 11 | B | 22 | C | 29 | D | 21 | C | | |
| 15 | Elverta Road / 16th Street | County of Sacramento (E) | Traffic Signal | AM | **>150** | **F** | 46 | D | 49 | D | 45 | D | | |
| | | | | PM | **>150** | **F** | 58 | E | 58 | E | 54 | D | | |
| 16 | U Street / 16th Street | County of Sacramento (E) | All Way Stop | AM | 22 | C | 38 | E | 27 | D | 29 | D | | |
| | | | | PM | 15 | B | 21 | C | 24 | C | 21 | C | | |

Notes: Bolded cells represent unacceptable operations.
Shaded cells represent significant adverse effects.
>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

SOURCE: Fehr & Peers, 2010.

**Table 24**
**Roadway Segment LOS – Cumulative Plus Project Conditions**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | Cumulative No Project Conditions | | | Cumulative Plus Preferred Alternative | | | Cumulative Plus Approved Specific Plan Alternative | | | Cumulative Plus Minimal Impact Alternative | | | Cumulative Plus No Permit Alternative | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS | ADT | V/C | LOS | ADT | V/C | LOS | ADT | V/C | LOS |
| Elverta Road | SR 99 to E. Levee Road | County of Sacramento - Rural (D) | 4 | 19,000 | 0.53 | A | 21,800 | 0.61 | B | 21,700 | 0.60 | B | 21,500 | 0.60 | A | 21,700 | 0.60 | B |
| | E. Levee Road to Palladay Road | County of Sacramento - Urban (E) | 4 | 16,800 | 0.47 | A | 20,200 | 0.56 | A | 20,300 | 0.56 | A | 19,900 | 0.55 | A | 19,600 | 0.54 | A |
| | Palladay Road to 16th Street | County of Sacramento - Urban (E) | 4 | 18,800 | 0.52 | A | 28,000 | 0.78 | C | 27,600 | 0.77 | C | 27,800 | 0.77 | C | 22,000 | 0.61 | B |
| | 16th Street to 28th Street | County of Sacramento - Urban (E) | 4 | 26,200 | 0.73 | C | 37,500 | **1.04** | **F** | 37,400 | **1.04** | **F** | 37,500 | **1.04** | **F** | 28,300 | 0.79 | C |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 6 | 32,600 | 0.60 | B | 42,000 | 0.78 | C | 41,500 | 0.77 | C | 41,800 | 0.77 | C | 34,300 | 0.64 | B |
| U Street | Dry Creek Road to 16th Street | County of Sacramento - Urban (E) | 2 | 6,300 | 0.35 | A | 3,400 | 0.19 | A | 3,500 | 0.19 | A | 3,500 | 0.19 | A | 6,600 | 0.37 | A |
| gth Street | Elverta Road to U Street | County of Sacramento - Urban (E) | 2 | 2,600 | 0.14 | A | 4,300 | 0.24 | A | 4,300 | 0.24 | A | 4,000 | 0.22 | A | 3,000 | 0.17 | A |
| Dry Creek Road | Q Street to U Street | County of Sacramento - Urban (E) | 2 | 6,900 | 0.38 | A | 12,200 | 0.68 | B | 12,400 | 0.69 | B | 12,100 | 0.67 | B | 7,200 | 0.40 | A |
| 16th Street | Q Street to Elverta Road | County of Sacramento - Urban (E) | 2 | 7,100 | 0.39 | A | 7,200 | 0.40 | A | 7,300 | 0.41 | A | 7,200 | 0.40 | A | 8,000 | 0.44 | A |
| | Elverta Road to County Line | County of Sacramento - Urban (E) | 2 | 12,200 | 0.68 | B | 15,700 | 0.87 | D | 15,600 | 0.87 | D | 15,600 | 0.87 | D | 18,400 | **1.02** | **F** |

Notes: Bolded cells represent unacceptable operations.
Shaded cells represent significant adverse effects.

SOURCE: Fehr & Peers, 2010.

**Table 25**
**Traffic Signal Warrant Analysis – Cumulative Plus Project Conditions**

| Intersection | | Control | Peak Hour | Peak Hour Signal Warrant Met? | |
|---|---|---|---|---|---|
| | | | | Cumulative No Project Conditions | Cumulative Plus Project Conditions[1] |
| 5 | Elverta Road / E. Levee Road | All Way Stop | AM | **YES** | **YES** |
| | | | PM | **YES** | **YES** |
| 6 | Elkhorn Blvd / E. Levee Road | Side Street Stop | AM | **YES** | **YES** |
| | | | PM | **YES** | **YES** |
| 7 | Elverta Road / Sorento Road | Side Street Stop | AM | **YES** | **YES** |
| | | | PM | **YES** | **YES** |
| 8 | Elverta Road / Elwyn Road | All Way Stop | AM | **YES** | **YES** |
| | | | PM | **YES** | **YES** |
| 9 | Elverta Road / Rio Linda Blvd | All Way Stop | AM | **YES** | **YES** |
| | | | PM | **YES** | **YES** |
| 10 | Elverta Road / 9th Street | Side Street Stop | AM | No | **YES**[2] |
| | | | PM | **YES** | **YES** |
| 12 | U Street / Dry Creek Road | All Way Stop | AM | No | No |
| | | | PM | No | No |
| 13 | Q Street / Dry Creek Road | All Way Stop | AM | No | **YES** |
| | | | PM | No | **YES** |
| 16 | U Street / 16th Street | All Way Stop | AM | No | No[3] |
| | | | PM | No | No[3] |
| 17 | Q Street / 16th Street | Side Street Stop | AM | No | **YES** |
| | | | PM | No | No |

Notes: [1] Applies to all project alternatives unless otherwise noted.

[2] Traffic signal not warranted under Cumulative Plus No Federal Action Alternative or Cumulative Plus Approved Specific Plan.

[3] Traffic signal warranted under Cumulative Plus No Federal Action Alternative only.

SOURCE: Fehr & Peers, 2010.

**Table 26**
**Roadway Segment LOS – Existing Plus Preferred Alternative Conditions with Mitigation and Cumulative Plus Preferred Alternative Conditions with Mitigation**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | No Project (Alternative 5) | | | Preferred Alternative (Alternative 1) | | | Preferred Alternative with Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS | V/C | LOS |
| **Existing Conditions** | | | | | | | | | | | |
| Baseline Road | Walerga Road to Cook-Riolo Road | County of Placer (C) | 4 | 13,000 | 0.72 | C | 15,200 | **0.84** | **D** | 0.42 | A |
| Elverta Road | SR 99 to E. Levee Road | County of Sacramento – Rural (D) | 4 | 5,600 | 0.31 | A | 17,600 | **0.98** | **E** | 0.49 | A |
| | E. Levee Road to Palladay Road | County of Sacramento - Urban (E) | 4 | 7,000 | 0.39 | A | 20,600 | **1.14** | **F** | 0.57 | A |
| | 16th Street to 28th Street | County of Sacramento - Urban (E) | 4 | 10,400 | 0.58 | A | 33,300 | **1.85** | **F** | 0.93 | E |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 4 | 14,100 | 0.78 | C | 33,200 | **1.84** | **F** | 0.92 | E |
| Watt Avenue | Elverta Road to Antelope Road | County of Sacramento - Urban (E) | 6 | 23,800 | 0.66 | B | 38,000 | **1.06** | **F** | 0.70 | C |
| | Antelope Road to Elkhorn Boulevard | County of Sacramento - Urban (E) | 6 | 29,600 | 0.82 | D | 38,900 | **1.08** | **F** | 0.72 | C |
| | Elkhorn Boulevard to Don Julio Boulevard | County of Sacramento - Urban (E) | 6 | 34,600 | 0.96 | E | 45,500 | **1.26** | **F** | 0.84 | D |
| | Roseville Road to I-80 | County of Sacramento - Urban (E) | 6 | 54,700 | **1.01** | **F** | 59,600 | **1.10** | **F** | **1.10** | **F** |
| Dry Creek Road | Elkhorn Blvd to Curved Bridge Road | County of Sacramento - Urban (E) | 4 | 6,700 | 0.37 | A | 18,700 | **1.04** | **F** | 0.52 | A |
| Raley Blvd | I-80 to Ascot Avenue | City of Sacramento (D) | 4 | 13,000 | 0.72 | C | 19,000 | **1.06** | **F** | 0.53 | A |

**Table 26**
**Roadway Segment LOS – Existing Plus Preferred Alternative Conditions with Mitigation and Cumulative Plus Preferred Alternative Conditions with Mitigation**

| Roadway | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | No Project (Alternative 5) | | | Preferred Alternative (Alternative 1) | | | Preferred Alternative with Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS | V/C | LOS |
| **Cumulative Conditions** | | | | | | | | | | | |
| Elverta Road | 16th Street to 28th Street | County of Sacramento - Urban (E) | 6 | 26,200 | 0.73 | C | 37,500 | **1.04** | **F** | 0.69 | B |
| Watt Avenue | Elverta Road to Antelope Road | County of Sacramento - Urban (E) | 6 | 56,700 | **1.58** | **F** | 63,500 | **1.76** | **F** | **1.18** | **F** |
| | Elkhorn Boulevard to Don Julio Boulevard | County of Sacramento - Urban (E) | 6 | 56,500 | **1.05** | **F** | 61,200 | **1.13** | **F** | **1.13** | **F** |
| Dry Creek Road | Ascot Avenue to Elkhorn Boulevard | County of Sacramento - Urban (E) | 4 | 16,300 | 0.91 | E | 19,200 | **1.07** | **F** | 0.53 | A |

Notes: Bolded cells represent unacceptable operations.

Shaded cells indicate a significant adverse effect.

SOURCE: Fehr & Peers, 2010.

**Table 27**
**Peak Hour Intersection LOS – Existing Plus Preferred Alternative Conditions with Mitigation and Cumulative Plus Preferred Alternative Conditions with Mitigation**

| | Intersection | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | No Project (Alternative 5) | | Preferred Alternative (Alternative 1) | | Preferred Alternative With Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| **Existing Conditions** | | | | | | | | | | |
| 2 | SR 99 / Elverta Road | Caltrans (E) | Traffic Signal | AM | 70 | E | **> 150** | **F** | N/A[1] | N/A[1] |
| | | | | PM | 26 | C | **82** | **F** | N/A[1] | N/A[1] |
| 4 | SR 99 NB Off-Ramp / Elkhorn Boulevard | Caltrans (E) | Traffic Signal | AM | 23 | C | 26 | D | 13 | B |
| | | | | PM | **141** | **F** | **> 150** | **F** | 50 | D |
| 5 | Elverta Road / E. Levee Road | County of Sacramento (E) | Traffic Signal | AM | 15 | C | **> 150** | **F** | 14 | B |
| | | | | PM | 27 | D | **> 150** | **F** | 13 | B |
| 7 | Elverta Road / Sorento Road | County of Sacramento (E) | Traffic Signal | AM | 13 | B | 43 | E | 8 | A |
| | | | | PM | 29 | D | **> 150** | **F** | 17 | B |
| 8 | Elverta Road / Elwyn Road | County of Sacramento (E) | Traffic Signal | AM | 14 | B | **> 150** | **F** | 15 | B |
| | | | | PM | 37 | E | **> 150** | **F** | 19 | B |
| 9 | Elverta Road / Rio Linda Boulevard | County of Sacramento (E) | Traffic Signal | AM | 13 | B | **> 150** | **F** | 6 | A |
| | | | | PM | 19 | C | **> 150** | **F** | 11 | B |
| 12 | U Street / Dry Creek Road | County of Sacramento (E) | Traffic Signal | AM | 7 | A | 29 | D | 16 | B |
| | | | | PM | 8 | A | **112** | **F** | 19 | B |
| 13 | Q Street / Dry Creek Road | County of Sacramento (E) | Traffic Signal | AM | 9 | A | **118** | **F** | 26 | C |
| | | | | PM | 9 | A | **> 150** | **F** | 40 | D |
| 15 | Elverta Road / 16th Street | County of Sacramento (E) | Traffic Signal | AM | 16 | C | 48 | D | 43 | D |
| | | | | PM | 18 | C | **131** | **F** | 67 | E |
| 19 | Elverta Road / 28th Street | County of Sacramento (E) | Traffic Signal | AM | 69 | E | **> 150** | **F** | 16 | B |
| | | | | PM | **137** | **F** | **> 150** | **F** | 24 | C |
| 20 | Baseline Road / Watt Avenue | County of Placer - Placer Vineyards (D) | Traffic Signal | AM | **76** | **E** | **95** | **F** | 19 | B |
| | | | | PM | 33 | C | 45 | D | 45 | D |
| 21 | Elverta Road / Watt Avenue | County of Sacramento (E) | Traffic Signal | AM | 35 | C | **127** | **F** | 61 | E |
| | | | | PM | 31 | C | **> 150** | **F** | 73 | E |
| **Cumulative Conditions** | | | | | | | | | | |
| 4 | SR 99 NB Off-Ramp / Elkhorn Boulevard | Caltrans (E) | Traffic Signal | AM | 15 | B | 15 | B | 15 | B |
| | | | | PM | **96** | **F** | **103** | **F** | 29 | C |
| 5 | Elverta Road / E. Levee Road | County of Sacramento (E) | Traffic Signal | AM | **102** | **F** | **>150** | **F** | 22 | C |
| | | | | PM | **144** | **F** | **>150** | **F** | 22 | C |

**Table 27**
**Peak Hour Intersection LOS – Existing Plus Preferred Alternative Conditions with Mitigation and Cumulative Plus Preferred Alternative Conditions with Mitigation**

| Intersection | | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | No Project (Alternative 5) | | Preferred Alternative (Alternative 1) | | Preferred Alternative With Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| 6 | Elkhorn Blvd / E. Levee Road | County of Sacramento (E) | Traffic Signal | AM | **>150** | **F** | **>150** | **F** | 13 | B |
| | | | | PM | **>150** | **F** | **>150** | **F** | 9 | A |
| 7 | Elverta Road / Sorento Road | County of Sacramento (E) | Traffic Signal | AM | **>150** | **F** | **>150** | **F** | 20 | B |
| | | | | PM | **>150** | **F** | **>150** | **F** | 16 | B |
| 8 | Elverta Road / Elwyn Road | County of Sacramento (E) | Traffic Signal | AM | **139** | **F** | **>150** | **F** | 36 | D |
| | | | | PM | **>150** | **F** | **>150** | **F** | 61 | E |
| 9 | Elverta Road / Rio Linda Boulevard | County of Sacramento (E) | Traffic Signal | AM | **79** | **F** | **>150** | **F** | 9 | A |
| | | | | PM | **148** | **F** | **>150** | **F** | 13 | B |
| 10 | Elverta Road / 9th Street | County of Sacramento (E) | Traffic Signal | AM | **107** | **F** | **>150** | **F** | 9 | A |
| | | | | PM | **103** | **F** | **>150** | **F** | 13 | B |
| 13 | Q Street / Dry Creek Road | County of Sacramento (E) | Traffic Signal | AM | 17 | C | **80** | **F** | 27 | C |
| | | | | PM | 30 | D | **137** | **F** | 24 | C |
| 19 | Elverta Road / 28th Street | County of Sacramento (E) | Traffic Signal | AM | 45 | D | **128** | **F** | 27 | C |
| | | | | PM | **92** | **F** | **>150** | **F** | 57 | E |
| 21 | Elverta Road / Watt Avenue | County of Sacramento (E) | Traffic Signal | AM | **112** | **F** | **>150** | **F** | **107** | **F** |
| | | | | PM | **93** | **F** | **123** | **F** | 79 | E |

Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

[1] As mitigation, the project applicant shall pay its fair share towards the planned SR 99/Elverta Road interchange. The interchange is projected to operate at LOS D or better under cumulative plus project conditions, therefore it is expected to operate at least as well under this scenario.

SOURCE: Fehr & Peers, 2010.

**Table 28**
**Roadway Segment LOS – Existing Plus Approved Specific Plan Alternative Conditions with Mitigation and Cumulative Plus Approved Specific Plan Alternative Conditions with Mitigation**

| Road-way | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | No Project (Alternative 5) | | | Approved Specific Plan (Alternative 2) | | | Approved Specific Plan with Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS | V/C | LOS |
| **Existing Conditions** | | | | | | | | | | | |
| Baseline Road | Walerga Road to Cook-Riolo Road | County of Placer (C) | 4 | 13,000 | 0.72 | C | 15,200 | **0.84** | **D** | 0.42 | A |
| Elverta Road | SR 99 to E. Levee Road | County of Sacramento – Rural (D) | 4 | 5,600 | 0.31 | A | 17,600 | **0.98** | **E** | 0.49 | A |
| | E. Levee Road to Palladay Road | County of Sacramento - Urban (E) | 4 | 7,000 | 0.39 | A | 20,100 | **1.12** | **F** | 0.56 | A |
| | 16th Street to 28th Street | County of Sacramento - Urban (E) | 4 | 10,400 | 0.58 | A | 33,300 | **1.85** | **F** | 0.93 | E |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 4 | 14,100 | 0.78 | C | 33,200 | **1.84** | **F** | 0.92 | E |
| Watt Avenue | Elverta Road to Antelope Road | County of Sacramento - Urban (E) | 6 | 23,800 | 0.66 | B | 38,000 | **1.06** | **F** | 0.70 | C |
| | Antelope Road to Elkhorn Boulevard | County of Sacramento - Urban (E) | 6 | 29,600 | 0.82 | D | 38,900 | **1.08** | **F** | 0.72 | C |
| | Elkhorn Boulevard to Don Julio Boulevard | County of Sacramento - Urban (E) | 6 | 34,600 | 0.96 | E | 45,500 | **1.26** | **F** | 0.84 | D |

**Table 28**
**Roadway Segment LOS – Existing Plus Approved Specific Plan Alternative Conditions with Mitigation and Cumulative Plus Approved Specific Plan Alternative Conditions with Mitigation**

| Road-way | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | No Project (Alternative 5) | | | Approved Specific Plan (Alternative 2) | | | Approved Specific Plan with Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS | V/C | LOS |
| | Roseville Road to I-80 | County of Sacramento - Urban (E) | 6 | 54,700 | **1.01** | **F** | 59,600 | **1.10** | **F** | **1.10** | **F** |
| Dry Creek Road | Elkhorn Boulevard to Curved Bridge Road | County of Sacramento - Urban (E) | 4 | 6,700 | 0.37 | A | 18,700 | **1.04** | **F** | 0.52 | A |
| Raley Boulevard | I-80 to Ascot Avenue | City of Sacramento (D) | 4 | 13,000 | 0.72 | C | 19,000 | **1.06** | **F** | 0.53 | A |
| **Cumulative Conditions** | | | | | | | | | | | |
| Elverta Road | 16th Street to 28th Street | County of Sacramento - Urban (E) | 6 | 26,200 | 0.73 | C | 37,400 | **1.04** | **F** | 0.69 | B |
| Watt Avenue | Elverta Road to Antelope Road | County of Sacramento - Urban (E) | 6 | 56,700 | **1.58** | **F** | 63,100 | **1.75** | **F** | **1.17** | **F** |
| | Elkhorn Boulevard to Don Julio Boulevard | County of Sacramento - Urban (E) | 6 | 56,500 | **1.05** | **F** | 61,000 | **1.13** | **F** | **1.13** | **F** |
| Dry Creek Road | Ascot Avenue to Elkhorn Boulevard | County of Sacramento - Urban (E) | 4 | 16,300 | 0.91 | E | 19,600 | **1.09** | **F** | 0.54 | A |

Notes: Bolded cells represent unacceptable operations.
Shaded cells indicate a significant adverse effect.

SOURCE: Fehr & Peers, 2010.

**Table 29**
**Peak Hour Intersection LOS – Existing Plus Approved Specific Plan Alternative Conditions with Mitigation and Cumulative Plus Approved Specific Plan Alternative Conditions with Mitigation**

| | Intersection | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | No Project (Alternative 5) | | Approved Specific Plan Alternative (Alternative 2) | | Approved Specific Plan Alternative With Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| **Existing Conditions** | | | | | | | | | | |
| 2 | SR 99 / Elverta Road | Caltrans (E) | Traffic Signal | AM | 70 | E | **> 150** | **F** | N/A[1] | N/A[1] |
| | | | | PM | 26 | C | **82** | **F** | N/A[1] | N/A[1] |
| 4 | SR 99 NB Off-Ramp / Elkhorn Boulevard | Caltrans (E) | Traffic Signal | AM | 23 | C | 26 | D | 13 | B |
| | | | | PM | **141** | **F** | **> 150** | **F** | 50 | D |
| 5 | Elverta Road / E. Levee Road | County of Sacramento (E) | Traffic Signal | AM | 15 | C | **> 150** | **F** | 14 | B |
| | | | | PM | 27 | D | **> 150** | **F** | 13 | B |
| 7 | Elverta Road / Sorento Road | County of Sacramento (E) | Traffic Signal | AM | 13 | B | 43 | E | 8 | A |
| | | | | PM | 29 | D | **> 150** | **F** | 17 | B |
| 8 | Elverta Road / Elwyn Road | County of Sacramento (E) | Traffic Signal | AM | 14 | B | **> 150** | **F** | 15 | B |
| | | | | PM | 37 | E | **> 150** | **F** | 19 | B |
| 9 | Elverta Road / Rio Linda Boulevard | County of Sacramento (E) | Traffic Signal | AM | 13 | B | **> 150** | **F** | 6 | A |
| | | | | PM | 19 | C | **> 150** | **F** | 11 | B |
| 12 | U Street / Dry Creek Road | County of Sacramento (E) | Traffic Signal | AM | 7 | A | 29 | D | 16 | B |
| | | | | PM | 8 | A | **111** | **F** | 18 | B |
| 13 | Q Street / Dry Creek Road | County of Sacramento (E) | Traffic Signal | AM | 9 | A | **118** | **F** | 26 | C |
| | | | | PM | 9 | A | **> 150** | **F** | 40 | D |
| 15 | Elverta Road / 16th Street | County of Sacramento (E) | Traffic Signal | AM | 16 | C | 48 | D | 43 | D |
| | | | | PM | 18 | C | **130** | **F** | 66 | E |
| 19 | Elverta Road / 28th Street | County of Sacramento (E) | Traffic Signal | AM | 69 | E | **> 150** | **F** | 16 | B |
| | | | | PM | **137** | **F** | **> 150** | **F** | 24 | C |
| 20 | Baseline Road / Watt Avenue | County of Placer - Placer Vineyards (D) | Traffic Signal | AM | **76** | **E** | **95** | **F** | 19 | B |
| | | | | PM | 33 | C | 45 | D | 45 | D |
| 21 | Elverta Road / Watt Avenue | County of Sacramento (E) | Traffic Signal | AM | 35 | C | **127** | **F** | 61 | E |
| | | | | PM | 31 | C | **> 150** | **F** | 73 | E |
| **Cumulative Conditions** | | | | | | | | | | |
| 4 | SR 99 NB Off-Ramp / Elkhorn Boulevard | Caltrans (E) | Traffic Signal | AM | 15 | B | 15 | B | 15 | B |
| | | | | PM | **96** | **F** | **103** | **F** | 29 | C |
| 5 | Elverta Road / E. Levee Road | County of Sacramento (E) | Traffic Signal | AM | **102** | **F** | **>150** | **F** | 22 | C |
| | | | | PM | **144** | **F** | **>150** | **F** | 22 | C |

**Table 29**
**Peak Hour Intersection LOS – Existing Plus Approved Specific Plan Alternative Conditions with Mitigation and Cumulative Plus Approved Specific Plan Alternative Conditions with Mitigation**

| Intersection | | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | No Project (Alternative 5) | | Approved Specific Plan Alternative (Alternative 2) | | Approved Specific Plan Alternative With Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| 6 | Elkhorn Blvd / E. Levee Road | County of Sacramento (E) | Traffic Signal | AM | **>150** | **F** | **>150** | **F** | 13 | B |
| | | | | PM | **>150** | **F** | **>150** | **F** | 9 | A |
| 7 | Elverta Road / Sorento Road | County of Sacramento (E) | Traffic Signal | AM | **>150** | **F** | **>150** | **F** | 20 | B |
| | | | | PM | **>150** | **F** | **>150** | **F** | 16 | B |
| 8 | Elverta Road / Elwyn Road | County of Sacramento (E) | Traffic Signal | AM | **139** | **F** | **>150** | **F** | 36 | D |
| | | | | PM | **>150** | **F** | **>150** | **F** | 61 | E |
| 9 | Elverta Road / Rio Linda Boulevard | County of Sacramento (E) | Traffic Signal | AM | **79** | **F** | **>150** | **F** | 9 | A |
| | | | | PM | **148** | **F** | **>150** | **F** | 13 | B |
| 10 | Elverta Road / 9th Street | County of Sacramento (E) | Traffic Signal | AM | **107** | **F** | **>150** | **F** | 9 | A |
| | | | | PM | **103** | **F** | **>150** | **F** | 11 | B |
| 13 | Q Street / Dry Creek Road | County of Sacramento (E) | Traffic Signal | AM | 17 | C | **80** | **F** | 27 | C |
| | | | | PM | 30 | D | **137** | **F** | 24 | C |
| 19 | Elverta Road / 28th Street | County of Sacramento (E) | Traffic Signal | AM | 45 | D | **128** | **F** | 27 | C |
| | | | | PM | **92** | **F** | **>150** | **F** | 57 | E |
| 21 | Elverta Road / Watt Avenue | County of Sacramento (E) | Traffic Signal | AM | **112** | **F** | **>150** | **F** | **107** | **F** |
| | | | | PM | **93** | **F** | **123** | **F** | 79 | E |

Notes: Bolded cells represent unacceptable operations.

Shaded cells represent significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

[1] As mitigation, the project applicant shall pay its fair share towards the planned SR 99/Elverta Road interchange. The interchange is projected to operate at LOS D or better under cumulative plus project conditions, therefore it is expected to operate at least as well under this scenario.

SOURCE: Fehr & Peers, 2010.

**Table 30**
**Roadway Segment LOS – Existing Plus Minimal Impact Alternative Conditions with Mitigation and Cumulative Plus Minimal Impact Alternative Conditions with Mitigation**

| Road-way | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | No Project (Alternative 5) | | | Minimal Impact (Alternative 3) | | | Minimal Impact with Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS | V/C | LOS |
| **Existing Conditions** | | | | | | | | | | | |
| Baseline Road | Walerga Road to Cook-Riolo Road | County of Placer (C) | 4 | 13,000 | 0.72 | C | 15,100 | **0.84** | **D** | 0.42 | A |
| Elverta Road | SR 99 to E. Levee Road | County of Sacramento – Rural (D) | 4 | 5,600 | 0.31 | A | 17,000 | **0.94** | **E** | 0.47 | A |
| | E. Levee Road to Palladay Road | County of Sacramento - Urban (E) | 4 | 7,000 | 0.39 | A | 19,500 | **1.08** | **F** | 0.54 | A |
| | 16th Street to 28th Street | County of Sacramento - Urban (E) | 4 | 10,400 | 0.58 | A | 32,200 | **1.79** | **F** | 0.89 | D |
| | 28th Street to Watt Avenue | County of Sacramento - Urban (E) | 4 | 14,100 | 0.78 | C | 32,300 | **1.79** | **F** | 0.90 | D |
| Watt Avenue | Elverta Road to Antelope Road | County of Sacramento - Urban (E) | 6 | 23,800 | 0.66 | B | 37,300 | **1.04** | **F** | 0.69 | B |
| | Antelope Road to Elkhorn Boulevard | County of Sacramento - Urban (E) | 6 | 29,600 | 0.82 | D | 38,400 | **1.07** | **F** | 0.71 | C |
| | Elkhorn Boulevard to Don Julio Boulevard | County of Sacramento - Urban (E) | 6 | 34,600 | 0.96 | E | 45,000 | **1.25** | **F** | 0.83 | D |
| | Roseville Road to I-80 | County of Sacramento - Urban (E) | 6 | 54,700 | **1.01** | **F** | 59,400 | **1.10** | **F** | **1.10** | **F** |
| Dry Creek Road | Elkhorn Blvd to Curved Bridge Road | County of Sacramento - Urban (E) | 4 | 6,700 | 0.37 | A | 18,100 | **1.01** | **F** | 0.50 | A |

**Table 30**
**Roadway Segment LOS – Existing Plus Minimal Impact Alternative Conditions with Mitigation and Cumulative Plus Minimal Impact Alternative Conditions with Mitigation**

| Road-way | Segment | Jurisdiction (Minimum Acceptable LOS) | No. of Lanes | No Project (Alternative 5) | | | Minimal Impact (Alternative 3) | | | Minimal Impact with Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | ADT | V/C | LOS | ADT | V/C | LOS | V/C | LOS |
| Raley Boulevard | I-80 to Ascot Avenue | City of Sacramento (D) | 4 | 13,000 | 0.72 | C | 18,700 | **1.04** | **F** | 0.52 | A |
| **Cumulative Conditions** | | | | | | | | | | | |
| Elverta Road | 16th Street to 28th Street | County of Sacramento - Urban (E) | 6 | 26,200 | 0.73 | C | 37,500 | **1.04** | **F** | 0.69 | B |
| Watt Avenue | Elverta Road to Antelope Road | County of Sacramento - Urban (E) | 6 | 56,700 | **1.58** | **F** | 63,100 | **1.75** | **F** | **1.17** | **F** |
| | Elkhorn Boulevard to Don Julio Boulevard | County of Sacramento - Urban (E) | 6 | 56,500 | **1.05** | **F** | 61,000 | **1.13** | **F** | **1.13** | **F** |
| Dry Creek Road | Ascot Avenue to Elkhorn Boulevard | County of Sacramento - Urban (E) | 4 | 16,300 | 0.91 | E | 19,300 | **1.07** | **F** | 0.54 | A |

Notes: Bolded cells represent unacceptable operations.

Shaded cells indicate a significant adverse effect.

SOURCE: Fehr & Peers, 2010.

**Table 31**
**Peak Hour Intersection LOS – Existing Plus Minimal Impact Alternative Conditions with Mitigation and Cumulative Plus Minimal Impact Alternative Conditions with Mitigation**

| | Intersection | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | No Project (Alternative 5) | | Minimal Impact Alternative (Alternative 3) | | Minimal Impact Alternative With Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| **Existing Conditions** | | | | | | | | | | |
| 2 | SR 99 / Elverta Road | Caltrans (E) | Traffic Signal | AM | 70 | E | **> 150** | **F** | N/A[1] | N/A[1] |
| | | | | PM | 26 | C | **82** | **F** | N/A[1] | N/A[1] |
| 4 | SR 99 NB Off-Ramp / Elkhorn Boulevard | Caltrans (E) | Traffic Signal | AM | 23 | C | 26 | D | 13 | B |
| | | | | PM | **141** | **F** | **> 150** | **F** | 50 | D |
| 5 | Elverta Road / E. Levee Road | County of Sacramento (E) | Traffic Signal | AM | 15 | C | **> 150** | **F** | 14 | B |
| | | | | PM | 27 | D | **> 150** | **F** | 13 | B |
| 7 | Elverta Road / Sorento Road | County of Sacramento (E) | Traffic Signal | AM | 13 | B | 43 | E | 8 | A |
| | | | | PM | 29 | D | **> 150** | **F** | 17 | B |
| 8 | Elverta Road / Elwyn Road | County of Sacramento (E) | Traffic Signal | AM | 14 | B | **> 150** | **F** | 15 | B |
| | | | | PM | 37 | E | **> 150** | **F** | 19 | B |
| 9 | Elverta Road / Rio Linda Boulevard | County of Sacramento (E) | Traffic Signal | AM | 13 | B | **> 150** | **F** | 6 | A |
| | | | | PM | 19 | C | **> 150** | **F** | 11 | B |
| 12 | U Street / Dry Creek Road | County of Sacramento (E) | Traffic Signal | AM | 7 | A | 24 | C | 16 | B |
| | | | | PM | 8 | A | **83** | **F** | 18 | B |
| 13 | Q Street / Dry Creek Road | County of Sacramento (E) | Traffic Signal | AM | 9 | A | **118** | **F** | 26 | C |
| | | | | PM | 9 | A | **> 150** | **F** | 40 | D |
| 15 | Elverta Road / 16th Street | County of Sacramento (E) | Traffic Signal | AM | 16 | C | 46 | D | 42 | D |
| | | | | PM | 18 | C | **114** | **F** | 58 | E |
| 19 | Elverta Road / 28th Street | County of Sacramento (E) | Traffic Signal | AM | 69 | E | **> 150** | **F** | 16 | B |
| | | | | PM | **137** | **F** | **> 150** | **F** | 24 | C |
| 20 | Baseline Road / Watt Avenue | County of Placer - Placer Vineyards (D) | Traffic Signal | AM | **76** | **E** | **95** | **F** | 19 | B |
| | | | | PM | 33 | C | 45 | D | 45 | D |
| 21 | Elverta Road / Watt Avenue | County of Sacramento (E) | Traffic Signal | AM | 35 | C | **127** | **F** | 61 | E |
| | | | | PM | 31 | C | **> 150** | **F** | 73 | E |
| **Cumulative Conditions** | | | | | | | | | | |
| 4 | SR 99 NB Off-Ramp / Elkhorn Boulevard | Caltrans (E) | Traffic Signal | AM | 15 | B | 15 | B | 15 | C |
| | | | | PM | **96** | **F** | **103** | **F** | 29 | C |
| 5 | Elverta Road / E. Levee Road | County of Sacramento (E) | Traffic Signal | AM | **102** | **F** | **>150** | **F** | 22 | C |
| | | | | PM | **144** | **F** | **>150** | **F** | 22 | C |
| 6 | Elkhorn Boulevard/ E. Levee Road | County of Sacramento (E) | Traffic Signal | AM | **>150** | **F** | **>150** | **F** | 13 | B |
| | | | | PM | **>150** | **F** | **>150** | **F** | 9 | A |

**Table 31**
**Peak Hour Intersection LOS – Existing Plus Minimal Impact Alternative Conditions with Mitigation and Cumulative Plus Minimal Impact Alternative Conditions with Mitigation**

| Intersection | | Jurisdiction (Minimum Acceptable LOS) | Control | Peak Hour | No Project (Alternative 5) | | Minimal Impact Alternative (Alternative 3) | | Minimal Impact Alternative With Mitigation | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS | Delay (sec/veh) | LOS |
| 7 | Elverta Road / Sorento Road | County of Sacramento (E) | Traffic Signal | AM | **>150** | **F** | **>150** | **F** | 20 | B |
| | | | | PM | **>150** | **F** | **>150** | **F** | 16 | B |
| 8 | Elverta Road / Elwyn Road | County of Sacramento (E) | Traffic Signal | AM | **139** | **F** | **>150** | **F** | 36 | D |
| | | | | PM | **>150** | **F** | **>150** | **F** | 61 | E |
| 9 | Elverta Road / Rio Linda Boulevard | County of Sacramento (E) | Traffic Signal | AM | **79** | **F** | **>150** | **F** | 9 | A |
| | | | | PM | **148** | **F** | **>150** | **F** | 13 | B |
| 10 | Elverta Road / 9th Street | County of Sacramento (E) | Traffic Signal | AM | **107** | **F** | **>150** | **F** | 9 | A |
| | | | | PM | **103** | **F** | **>150** | **F** | 12 | B |
| 13 | Q Street / Dry Creek Road | County of Sacramento (E) | Traffic Signal | AM | 17 | C | **80** | **F** | 27 | C |
| | | | | PM | 30 | D | **137** | **F** | 24 | C |
| 19 | Elverta Road / 28th Street | County of Sacramento (E) | Traffic Signal | AM | 45 | D | **128** | **F** | 27 | C |
| | | | | PM | **92** | **F** | **>150** | **F** | 57 | E |
| 21 | Elverta Road / Watt Avenue | County of Sacramento (E) | Traffic Signal | AM | **112** | **F** | **>150** | **F** | **107** | **F** |
| | | | | PM | **93** | **F** | **123** | **F** | 79 | E |

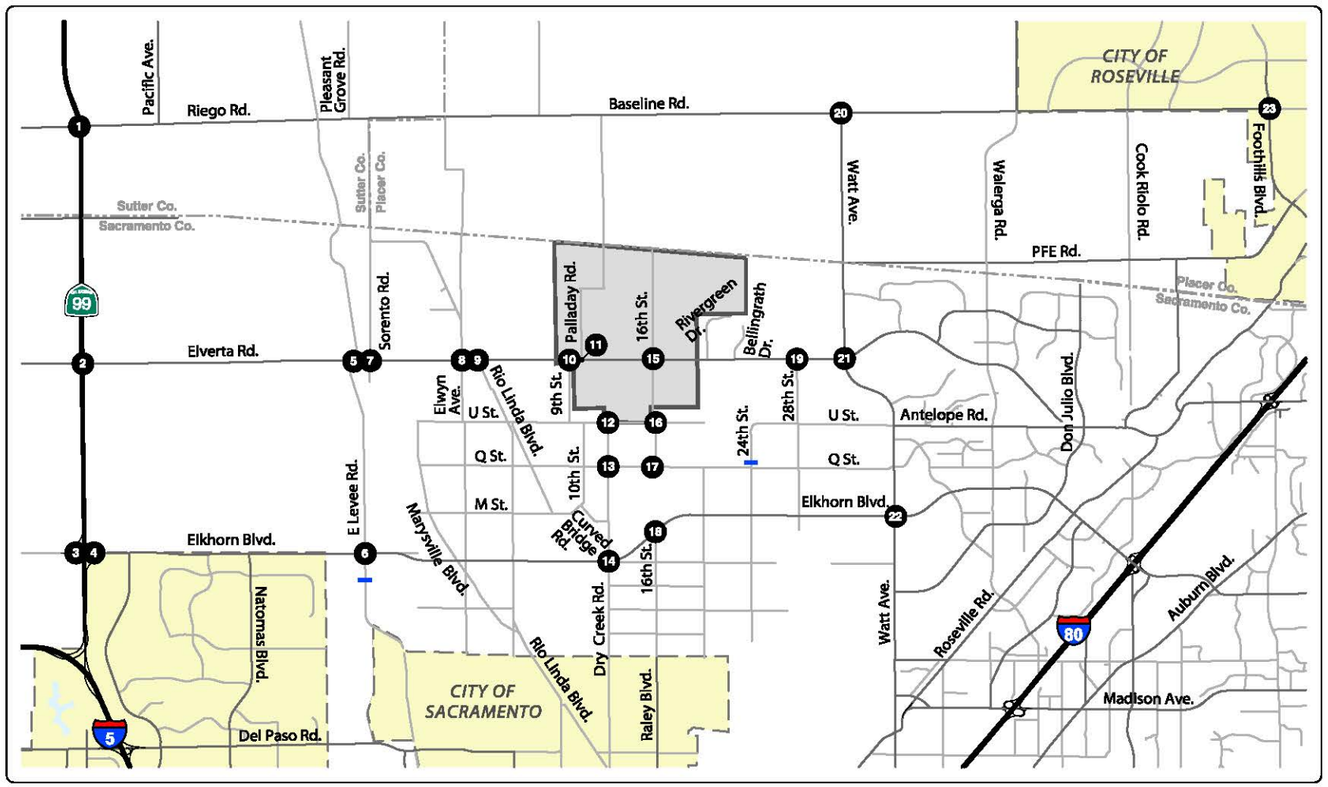
Notes: Bolded cells represent unacceptable operations.

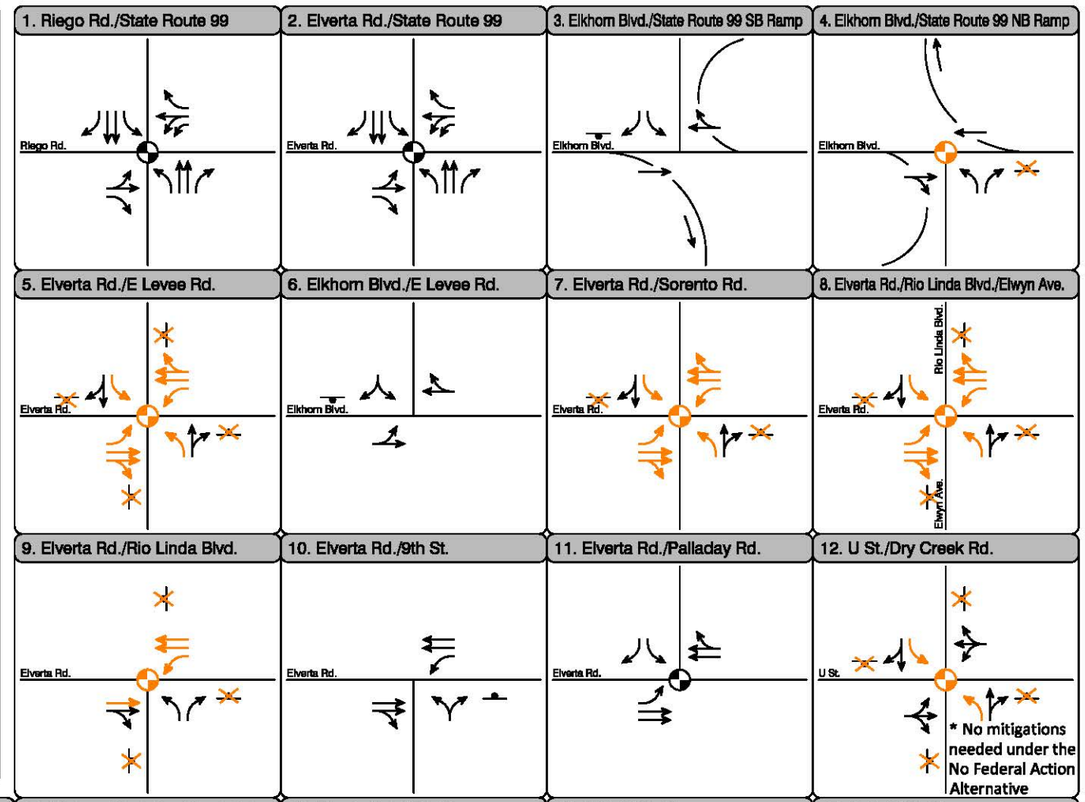
Shaded cells represent significant adverse effects.

>150 sec/veh of delay shown because inputs exceed analysis software's ability to produce reasonable delay estimates.

[1] As mitigation, the project applicant shall pay its fair share towards the planned SR 99/Elverta Road interchange. The interchange is projected to operate at LOS D or better under cumulative plus project conditions, therefore it is expected to operate at least as well under this scenario.

SOURCE: Fehr & Peers, 2010.




**LEGEND**

- Mitigation Measures
- OVL Mitigation for No Federal Action Alternative Only
- Turn Lane
- OVL Overlap Phasing
- Study Intersection
- Traffic Signal
- Stop Sign
- Project Site
- Road Barricade

Note: Mitigations apply to all project alternatives unless otherwise noted.

N

NOT TO SCALE

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Nov 22, 2010 TR
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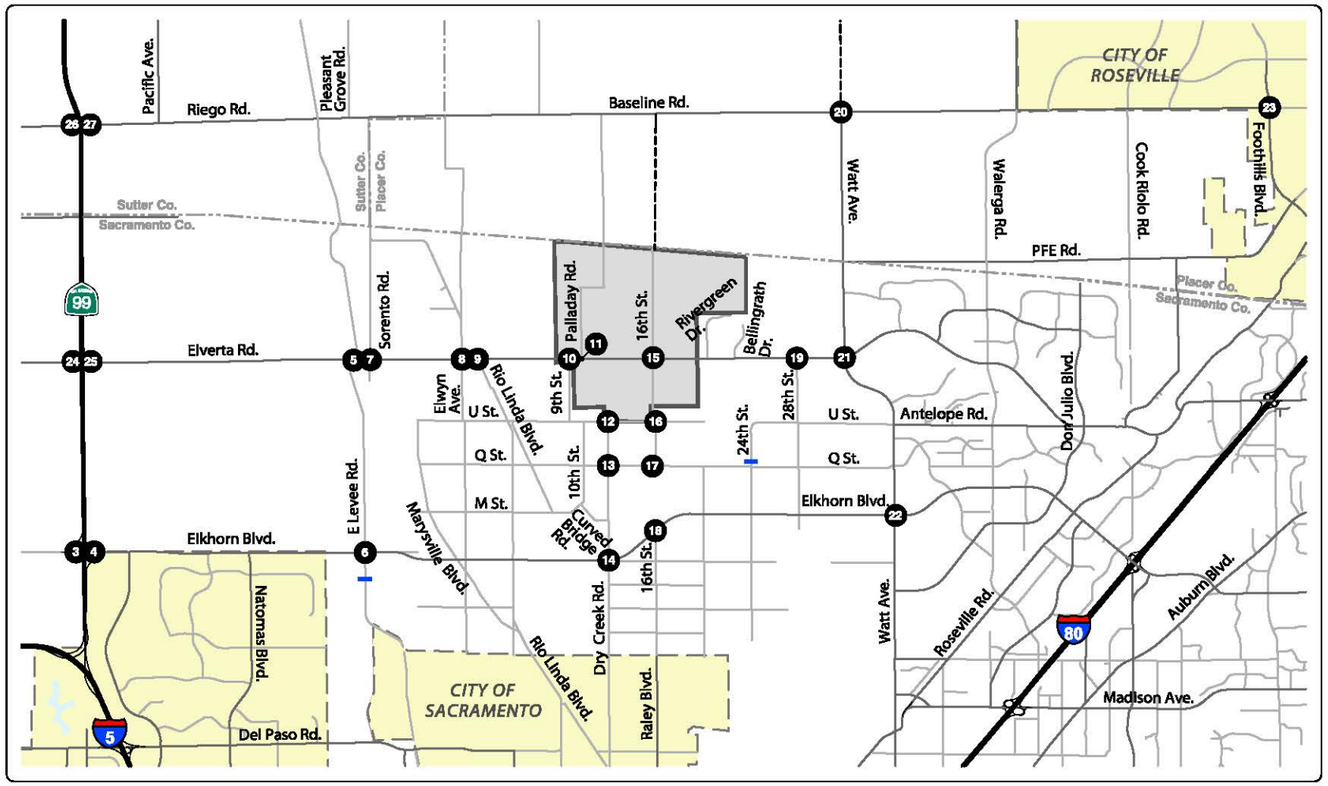
**PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - EXISTING PLUS PROJECT WITH MITIGATION**

**FIGURE 4.14-1**



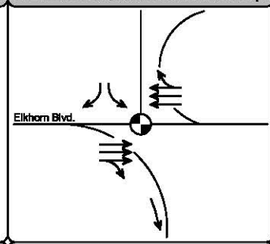

## 1. Riego Rd./State Route 99

**INTERSECTION DOES NOT EXIST UNDER THESE CONDITIONS**

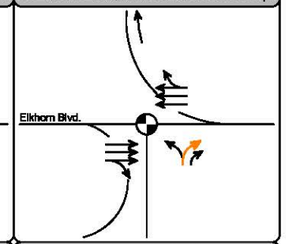
## 2. Elverta Rd./State Route 99

**INTERSECTION DOES NOT EXIST UNDER THESE CONDITIONS**

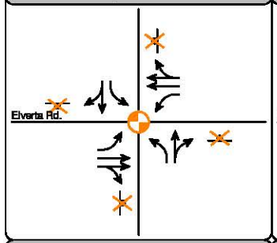
## 3. Elkhorn Blvd./State Route 99 SB Ramp



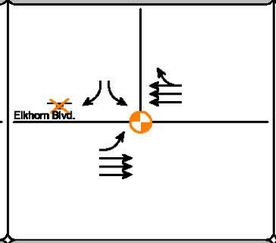

## 4. Elkhorn Blvd./State Route 99 NB Ramp



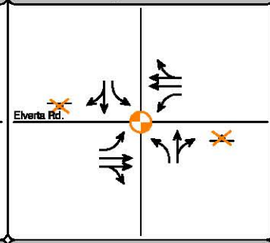

## 5. Elverta Rd./E Levee Rd.



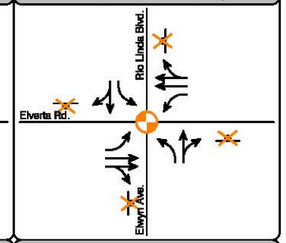

## 6. Elkhorn Blvd./E Levee Rd.



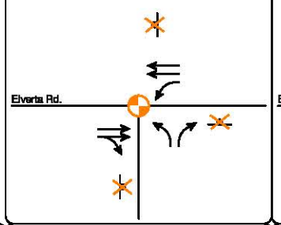

## 7. Elverta Rd./Sorento Rd.



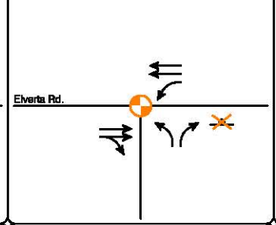

## 8. Elverta Rd./Rio Linda Blvd./Elwyn Ave.



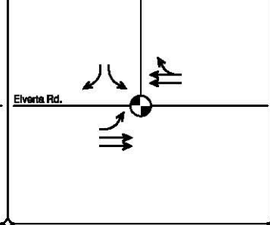

## 9. Elverta Rd./Rio Linda Blvd.



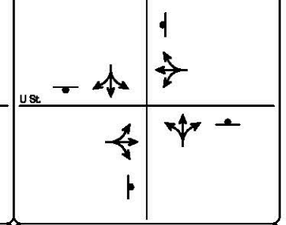

## 10. Elverta Rd./9th St.



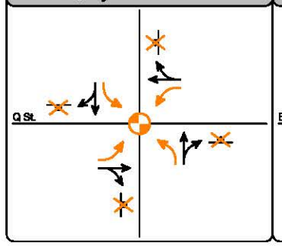

## 11. Elverta Rd./Palladay Rd.



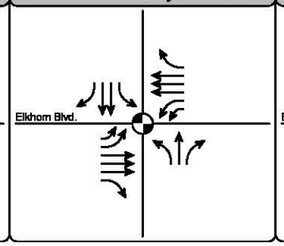

## 12. U St./Dry Creek Rd.



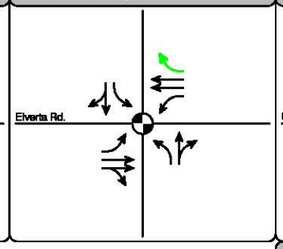

## 13. Q St./Dry Creek Rd.



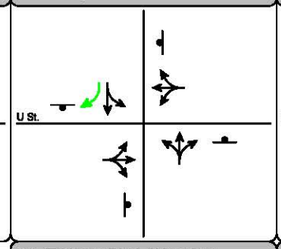

## 14. Elkhorn Blvd./Dry Creek Rd.



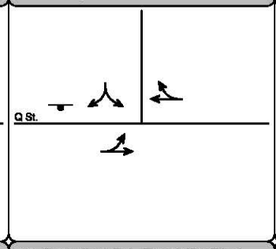

## 15. Elverta Rd./16th St.



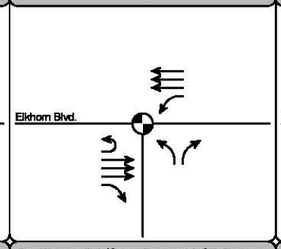

## 16. U St./16th St.



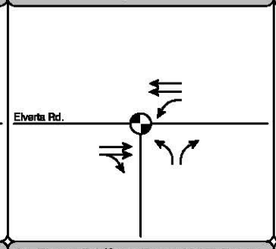

## 17. Q St./16th St.



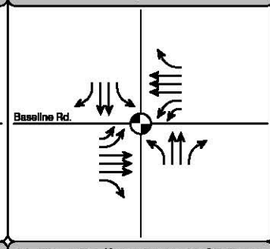

## 18. Elkhorn Blvd./16th St.



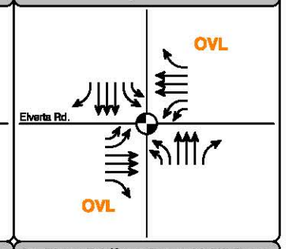

## 19. Elverta Rd./28th St.



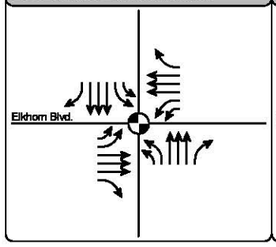

## 20. Baseline Rd./Watt Ave.



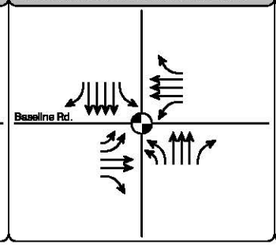

## 21. Elverta Rd./Watt Ave.



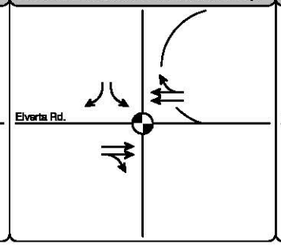

## 22. Elkhorn Blvd./Watt Ave.



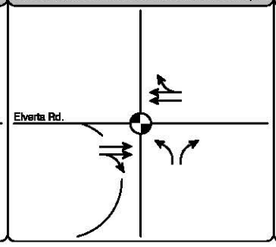

## 23. Baseline Rd./Foothills Blvd.



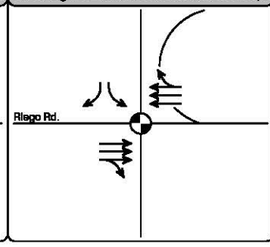

## 24. Elverta Rd./State Route 99 SB Ramp



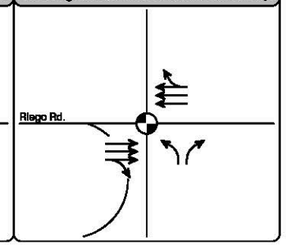

## 25. Elverta Rd./State Route 99 NB Ramp




## 26. Riego Rd./State Route 99 SB Ramp




## 27. Riego Rd./State Route 99 NB Ramp




**LEGEND**

- OVL — Mitigation Measures
- Mitigation for No Federal Action Alternative Only
- Turn Lane
- OVL — Overlap Phasing
- Study Intersection
- Traffic Signal
- Stop Sign
- Project Site
- Road Barricade
- Future Road

Note: Mitigations apply to all project alternatives unless otherwise noted.

N

NOT TO SCALE

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Nov 22, 2010 TR
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**PEAK HOUR TRAFFIC VOLUMES AND LANE CONFIGURATIONS - CUMULATIVE PLUS PROJECT WITH MITIGATION**

**FIGURE 4.14-2**

# Appendix A

# Existing Conditions

# Appendix A-1: Intersection Operations

# Existing Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1693 | 1583 | 1633 | 1641 | 1583 | 1467 | 2935 | 1357 | 1641 | 3374 | 1583 |
| Flt Permitted | | 0.99 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1693 | 1583 | 1633 | 1641 | 1583 | 1467 | 2935 | 1357 | 1641 | 3374 | 1583 |
| Volume (vph) | 2 | 5 | 7 | 572 | 13 | 8 | 13 | 703 | 154 | 30 | 1832 | 3 |
| Peak-hour factor, PHF | 0.61 | 0.61 | 0.61 | 0.87 | 0.87 | 0.87 | 0.95 | 0.95 | 0.95 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 3 | 8 | 11 | 657 | 15 | 9 | 14 | 740 | 162 | 35 | 2130 | 3 |
| RTOR Reduction (vph) | 0 | 0 | 10 | 0 | 0 | 7 | 0 | 0 | 64 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 11 | 1 | 329 | 343 | 2 | 14 | 740 | 98 | 35 | 2130 | 3 |
| Heavy Vehicles (%) | 2% | 14% | 2% | 5% | 5% | 2% | 23% | 23% | 19% | 10% | 7% | 2% |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 7 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 7 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | | 4.5 | 4.5 | 20.2 | 20.2 | 20.2 | 2.6 | 71.6 | 71.6 | 4.8 | 73.8 | 73.8 |
| Effective Green, g (s) | | 6.5 | 6.5 | 22.2 | 22.2 | 22.2 | 2.1 | 74.7 | 74.7 | 4.3 | 76.9 | 76.9 |
| Actuated g/C Ratio | | 0.05 | 0.05 | 0.18 | 0.18 | 0.18 | 0.02 | 0.60 | 0.60 | 0.03 | 0.62 | 0.62 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 3.5 | 7.1 | 7.1 | 3.5 | 7.1 | 7.1 |
| Vehicle Extension (s) | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 89 | 83 | 293 | 295 | 284 | 25 | 1772 | 819 | 57 | 2097 | 984 |
| v/s Ratio Prot | | c0.01 | | 0.20 | c0.21 | | 0.01 | 0.25 | | c0.02 | c0.63 | |
| v/s Ratio Perm | | | 0.00 | | | 0.00 | | | 0.07 | | | 0.00 |
| v/c Ratio | | 0.12 | 0.01 | 1.12 | 1.16 | 0.01 | 0.56 | 0.42 | 0.12 | 0.61 | 1.02 | 0.00 |
| Uniform Delay, d1 | | 55.9 | 55.5 | 50.8 | 50.8 | 41.7 | 60.3 | 13.0 | 10.5 | 58.9 | 23.4 | 8.9 |
| 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 | | 0.2 | 0.0 | 89.8 | 103.9 | 0.0 | 15.9 | 0.1 | 0.0 | 13.0 | 23.7 | 0.0 |
| Delay (s) | | 56.1 | 55.6 | 140.6 | 154.7 | 41.7 | 76.3 | 13.0 | 10.5 | 71.9 | 47.1 | 8.9 |
| Level of Service | | E | E | F | F | D | E | B | B | E | D | A |
| Approach Delay (s) | | 55.8 | | | 146.4 | | | 13.6 | | | 47.4 | |
| Approach LOS | | E | | | F | | | B | | | D | |

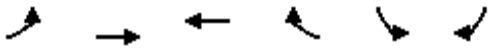
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 57.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 123.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | 1.00 | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1487 | 1335 | 1681 | 1687 | 1380 | 1492 | 2959 | 1482 | 1687 | 3406 | 1292 |
| Flt Permitted | | 0.97 | 1.00 | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1487 | 1335 | 1681 | 1687 | 1380 | 1492 | 2959 | 1482 | 1687 | 3406 | 1292 |
| Volume (vph) | 11 | 5 | 14 | 360 | 16 | 24 | 39 | 835 | 64 | 27 | 2350 | 34 |
| Peak-hour factor, PHF | 0.67 | 0.67 | 0.67 | 0.79 | 0.79 | 0.79 | 0.96 | 0.96 | 0.96 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 7 | 21 | 456 | 20 | 30 | 41 | 870 | 67 | 29 | 2554 | 37 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 0 | 26 | 0 | 0 | 20 | 0 | 0 | 5 |
| Lane Group Flow (vph) | 0 | 23 | 1 | 236 | 240 | 4 | 41 | 870 | 47 | 29 | 2554 | 32 |
| Heavy Vehicles (%) | 25% | 20% | 21% | 2% | 6% | 17% | 21% | 22% | 9% | 7% | 6% | 25% |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 7 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 7 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | | 6.5 | 6.5 | 21.0 | 21.0 | 21.0 | 8.3 | 123.7 | 123.7 | 6.8 | 122.2 | 122.2 |
| Effective Green, g (s) | | 8.5 | 8.5 | 23.0 | 23.0 | 23.0 | 7.8 | 126.8 | 126.8 | 6.3 | 125.3 | 125.3 |
| Actuated g/C Ratio | | 0.05 | 0.05 | 0.13 | 0.13 | 0.13 | 0.04 | 0.70 | 0.70 | 0.03 | 0.69 | 0.69 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 3.5 | 7.1 | 7.1 | 3.5 | 7.1 | 7.1 |
| Vehicle Extension (s) | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.2 | 2.0 | 2.0 | 2.2 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 70 | 63 | 214 | 215 | 176 | 64 | 2078 | 1041 | 59 | 2363 | 896 |
| v/s Ratio Prot | | c0.02 | | 0.14 | c0.14 | | c0.03 | 0.29 | | 0.02 | c0.75 | |
| v/s Ratio Perm | | | 0.00 | | | 0.00 | | | 0.03 | | | 0.02 |
| v/c Ratio | | 0.33 | 0.02 | 1.10 | 1.12 | 0.02 | 0.64 | 0.42 | 0.05 | 0.49 | 1.08 | 0.04 |
| Uniform Delay, d1 | | 83.3 | 82.1 | 78.8 | 78.8 | 69.0 | 85.0 | 11.3 | 8.3 | 85.6 | 27.6 | 8.7 |
| 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 | | 1.0 | 0.0 | 91.8 | 96.1 | 0.0 | 16.2 | 0.6 | 0.1 | 3.3 | 44.7 | 0.1 |
| Delay (s) | | 84.3 | 82.1 | 170.6 | 174.9 | 69.0 | 101.2 | 12.0 | 8.4 | 88.8 | 72.3 | 8.8 |
| Level of Service | | F | F | F | F | E | F | B | A | F | E | A |
| Approach Delay (s) | | 83.2 | | | 166.6 | | | 15.5 | | | 71.6 | |
| Approach LOS | | F | | | F | | | B | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 70.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 1.03 | | |
| Actuated Cycle Length (s) | 180.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 88.7% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 0 | 2 | 7 | 860 | 115 | 1 |
| Peak Hour Factor | 0.50 | 0.50 | 0.85 | 0.85 | 0.78 | 0.78 |
| Hourly flow rate (vph) | 0 | 4 | 8 | 1012 | 147 | 1 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 8 | | | | 518 | 514 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 8 | | | | 518 | 514 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 72 | 100 |
| cM capacity (veh/h) | 1612 | | | | 518 | 560 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 4 | 1020 | 147 | 1 |
| Volume Left | 0 | 0 | 147 | 0 |
| Volume Right | 0 | 1012 | 0 | 1 |
| cSH | 1700 | 1700 | 518 | 560 |
| Volume to Capacity | 0.00 | 0.60 | 0.28 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 29 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 14.7 | 11.4 |
| Lane LOS | | | B | B |
| Approach Delay (s) | 0.0 | 0.0 | 14.7 | |
| Approach LOS | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.9 | | |
| Intersection Capacity Utilization | 66.6% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 116 | 1 | 0 | 860 | 7 | 273 |
| Peak Hour Factor | 0.79 | 0.79 | 0.84 | 0.84 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 147 | 1 | 0 | 1024 | 8 | 297 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 147 | | 1171 | 147 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 147 | | 1171 | 147 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 96 | 67 |
| cM capacity (veh/h) | | | 1435 | | 213 | 899 |

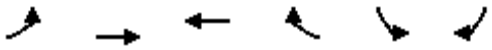
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 148 | 1024 | 8 | 297 |
| Volume Left | 0 | 0 | 8 | 0 |
| Volume Right | 1 | 0 | 0 | 297 |
| cSH | 1700 | 1700 | 213 | 899 |
| Volume to Capacity | 0.09 | 0.60 | 0.04 | 0.33 |
| Queue Length 95th (ft) | 0 | 0 | 3 | 36 |
| Control Delay (s) | 0.0 | 0.0 | 22.5 | 11.0 |
| Lane LOS | | | C | B |
| Approach Delay (s) | 0.0 | 0.0 | 11.3 | |
| Approach LOS | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.3 | | |
| Intersection Capacity Utilization | 55.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 4 | 82 | 4 | 98 | 395 | 4 | 1 | 13 | 19 | 3 | 35 | 4 |
| Peak Hour Factor | 0.68 | 0.68 | 0.68 | 0.85 | 0.85 | 0.85 | 0.75 | 0.75 | 0.75 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 6 | 121 | 6 | 115 | 465 | 5 | 1 | 17 | 25 | 4 | 42 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 132 | 585 | 44 | 51 |
| Volume Left (vph) | 6 | 115 | 1 | 4 |
| Volume Right (vph) | 6 | 5 | 25 | 5 |
| Hadj (s) | 0.08 | 0.08 | -0.31 | -0.01 |
| Departure Headway (s) | 4.9 | 4.4 | 5.3 | 5.6 |
| Degree Utilization, x | 0.18 | 0.72 | 0.07 | 0.08 |
| Capacity (veh/h) | 703 | 801 | 598 | 568 |
| Control Delay (s) | 9.0 | 17.8 | 8.7 | 9.1 |
| Approach Delay (s) | 9.0 | 17.8 | 8.7 | 9.1 |
| Approach LOS | A | C | A | A |

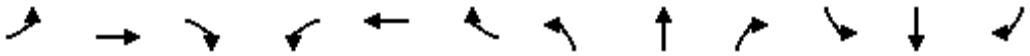
| Intersection Summary | | | |
|---|---|---|---|
| Delay | 15.3 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 43.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 29 | 392 | 560 | 6 | 24 | 113 |
| Peak Hour Factor | 0.96 | 0.96 | 0.89 | 0.89 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 30 | 408 | 629 | 7 | 30 | 141 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 636 | | | | 1101 | 633 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 636 | | | | 1101 | 633 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 97 | | | | 87 | 71 |
| cM capacity (veh/h) | 943 | | | | 227 | 480 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 439 | 636 | 171 |
| Volume Left | 30 | 0 | 30 |
| Volume Right | 0 | 7 | 141 |
| cSH | 943 | 1700 | 402 |
| Volume to Capacity | 0.03 | 0.37 | 0.43 |
| Queue Length 95th (ft) | 2 | 0 | 52 |
| Control Delay (s) | 1.0 | 0.0 | 20.5 |
| Lane LOS | A | | C |
| Approach Delay (s) | 1.0 | 0.0 | 20.5 |
| Approach LOS | | | C |

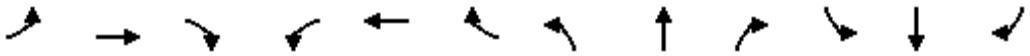
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.2 | | |
| Intersection Capacity Utilization | 59.5% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 4 | 99 | 1 | 3 | 447 | 2 | 0 | 1 | 5 | 0 | 1 | 50 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.82 | 0.82 | 0.82 | 0.63 | 0.63 | 0.63 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 4 | 109 | 1 | 4 | 545 | 2 | 0 | 2 | 8 | 0 | 1 | 59 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 548 | | | 110 | | | 731 | 673 | 109 | 681 | 672 | 546 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 548 | | | 110 | | | 731 | 673 | 109 | 681 | 672 | 546 |
| tC, single (s) | 4.1 | | | 4.3 | | | 7.1 | 6.5 | 6.5 | 7.1 | 6.8 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.4 | | | 3.5 | 4.0 | 3.5 | 3.5 | 4.2 | 3.3 |
| p0 queue free % | 100 | | | 100 | | | 100 | 100 | 99 | 100 | 100 | 89 |
| cM capacity (veh/h) | 1022 | | | 1349 | | | 298 | 374 | 885 | 358 | 347 | 537 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 114 | 551 | 10 | 60 |
| Volume Left | 4 | 4 | 0 | 0 |
| Volume Right | 1 | 2 | 8 | 59 |
| cSH | 1022 | 1349 | 721 | 532 |
| Volume to Capacity | 0.00 | 0.00 | 0.01 | 0.11 |
| Queue Length 95th (ft) | 0 | 0 | 1 | 9 |
| Control Delay (s) | 0.4 | 0.1 | 10.1 | 12.6 |
| Lane LOS | A | A | B | B |
| Approach Delay (s) | 0.4 | 0.1 | 10.1 | 12.6 |
| Approach LOS | | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.3 | | |
| Intersection Capacity Utilization | 34.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 9 | 85 | 7 | 5 | 370 | 70 | 16 | 27 | 9 | 100 | 25 | 64 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.76 | 0.76 | 0.76 | 0.81 | 0.81 | 0.81 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 11 | 100 | 8 | 7 | 487 | 92 | 20 | 33 | 11 | 116 | 29 | 74 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total (vph) | 119 | 493 | 92 | 64 | 220 |
| Volume Left (vph) | 11 | 7 | 0 | 20 | 116 |
| Volume Right (vph) | 8 | 0 | 92 | 11 | 74 |
| Hadj (s) | 0.10 | 0.04 | -0.50 | 0.07 | -0.04 |
| Departure Headway (s) | 5.6 | 5.0 | 3.2 | 6.0 | 5.6 |
| Degree Utilization, x | 0.18 | 0.68 | 0.08 | 0.11 | 0.34 |
| Capacity (veh/h) | 591 | 703 | 1121 | 514 | 589 |
| Control Delay (s) | 9.8 | 17.9 | 6.5 | 9.7 | 11.5 |
| Approach Delay (s) | 9.8 | 16.1 | | 9.7 | 11.5 |
| Approach LOS | A | C | | A | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 13.9 | | | |
| HCM Level of Service | B | | | |
| Intersection Capacity Utilization | 44.7% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 132 | 82 | 59 | 385 | 49 | 28 |
| Peak Hour Factor | 0.89 | 0.89 | 0.89 | 0.89 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 148 | 92 | 66 | 433 | 69 | 39 |

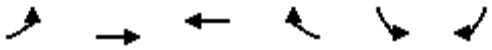
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 240 | 499 | 69 | 39 |
| Volume Left (vph) | 0 | 66 | 69 | 0 |
| Volume Right (vph) | 92 | 0 | 0 | 39 |
| Hadj (s) | -0.14 | 0.07 | 0.57 | -0.58 |
| Departure Headway (s) | 4.7 | 4.6 | 6.8 | 5.6 |
| Degree Utilization, x | 0.31 | 0.64 | 0.13 | 0.06 |
| Capacity (veh/h) | 740 | 765 | 474 | 573 |
| Control Delay (s) | 9.8 | 15.3 | 9.6 | 7.8 |
| Approach Delay (s) | 9.8 | 15.3 | 8.9 | |
| Approach LOS | A | C | A | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 12.9 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 48.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 184 | 1 | 13 | 414 | 0 | 24 |
| Peak Hour Factor | 0.86 | 0.86 | 0.94 | 0.94 | 0.60 | 0.60 |
| Hourly flow rate (vph) | 214 | 1 | 14 | 440 | 0 | 40 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 215 | | 683 | 215 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 215 | | 683 | 215 |
| tC, single (s) | | | 4.2 | | 6.4 | 6.3 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.3 | | 3.5 | 3.4 |
| p0 queue free % | | | 99 | | 100 | 95 |
| cM capacity (veh/h) | | | 1281 | | 411 | 811 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 215 | 454 | 40 |
| Volume Left | 0 | 14 | 0 |
| Volume Right | 1 | 0 | 40 |
| cSH | 1700 | 1281 | 811 |
| Volume to Capacity | 0.13 | 0.01 | 0.05 |
| Queue Length 95th (ft) | 0 | 1 | 4 |
| Control Delay (s) | 0.0 | 0.3 | 9.7 |
| Lane LOS | | A | A |
| Approach Delay (s) | 0.0 | 0.3 | 9.7 |
| Approach LOS | | | A |

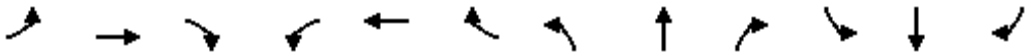
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.8 | | |
| Intersection Capacity Utilization | 42.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 3 | 205 | 421 | 3 | 2 | 6 |
| Peak Hour Factor | 0.85 | 0.85 | 0.93 | 0.93 | 0.65 | 0.65 |
| Hourly flow rate (vph) | 4 | 241 | 453 | 3 | 3 | 9 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 456 | | | | 703 | 454 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 456 | | | | 703 | 454 |
| tC, single (s) | 4.3 | | | | 6.4 | 6.5 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.4 | | | | 3.5 | 3.5 |
| p0 queue free % | 100 | | | | 99 | 98 |
| cM capacity (veh/h) | 994 | | | | 403 | 561 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 245 | 456 | 12 |
| Volume Left | 4 | 0 | 3 |
| Volume Right | 0 | 3 | 9 |
| cSH | 994 | 1700 | 511 |
| Volume to Capacity | 0.00 | 0.27 | 0.02 |
| Queue Length 95th (ft) | 0 | 0 | 2 |
| Control Delay (s) | 0.2 | 0.0 | 12.2 |
| Lane LOS | A | | B |
| Approach Delay (s) | 0.2 | 0.0 | 12.2 |
| Approach LOS | | | B |

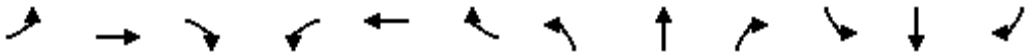
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.3 | | |
| Intersection Capacity Utilization | 32.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 19 | 45 | 16 | 18 | 1 | 18 | 0 | 10 | 0 | 1 | 0 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.86 | 0.86 | 0.86 | 0.67 | 0.67 | 0.67 | 0.50 | 0.50 | 0.50 |
| Hourly flow rate (vph) | 0 | 26 | 62 | 19 | 21 | 1 | 27 | 0 | 15 | 0 | 2 | 0 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 88 | 41 | 42 | 2 |
| Volume Left (vph) | 0 | 19 | 27 | 0 |
| Volume Right (vph) | 62 | 1 | 15 | 0 |
| Hadj (s) | -0.39 | 0.19 | 0.05 | 0.03 |
| Departure Headway (s) | 3.7 | 4.3 | 4.2 | 4.2 |
| Degree Utilization, x | 0.09 | 0.05 | 0.05 | 0.00 |
| Capacity (veh/h) | 967 | 829 | 821 | 819 |
| Control Delay (s) | 7.0 | 7.5 | 7.4 | 7.2 |
| Approach Delay (s) | 7.0 | 7.5 | 7.4 | 7.2 |
| Approach LOS | A | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.2 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 23.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 2 | 51 | 53 | 40 | 58 | 7 | 47 | 28 | 26 | 10 | 63 | 5 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.88 | 0.88 | 0.88 | 0.70 | 0.70 | 0.70 | 0.78 | 0.78 | 0.78 |
| Hourly flow rate (vph) | 2 | 60 | 62 | 45 | 66 | 8 | 67 | 40 | 37 | 13 | 81 | 6 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 125 | 119 | 144 | 100 |
| Volume Left (vph) | 2 | 45 | 67 | 13 |
| Volume Right (vph) | 62 | 8 | 37 | 6 |
| Hadj (s) | -0.21 | 0.08 | 0.00 | 0.02 |
| Departure Headway (s) | 4.4 | 4.7 | 4.6 | 4.7 |
| Degree Utilization, x | 0.15 | 0.16 | 0.18 | 0.13 |
| Capacity (veh/h) | 755 | 713 | 737 | 716 |
| Control Delay (s) | 8.2 | 8.6 | 8.6 | 8.4 |
| Approach Delay (s) | 8.2 | 8.6 | 8.6 | 8.4 |
| Approach LOS | A | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 8.5 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 31.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3433 | 3343 | 1538 | 3400 | 3368 | | 1736 | 1863 | 1538 | 1752 | 3427 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3433 | 3343 | 1538 | 3400 | 3368 | | 1736 | 1863 | 1538 | 1752 | 3427 | |
| Volume (vph) | 116 | 383 | 209 | 109 | 521 | 82 | 92 | 88 | 86 | 116 | 150 | 40 |
| Peak-hour factor, PHF | 0.72 | 0.72 | 0.72 | 0.90 | 0.90 | 0.90 | 0.63 | 0.63 | 0.63 | 0.84 | 0.84 | 0.84 |
| Adj. Flow (vph) | 161 | 532 | 290 | 121 | 579 | 91 | 146 | 140 | 137 | 138 | 179 | 48 |
| RTOR Reduction (vph) | 0 | 0 | 195 | 0 | 6 | 0 | 0 | 0 | 115 | 0 | 14 | 0 |
| Lane Group Flow (vph) | 161 | 532 | 95 | 121 | 664 | 0 | 146 | 140 | 22 | 138 | 213 | 0 |
| Heavy Vehicles (%) | 2% | 8% | 5% | 3% | 5% | 5% | 4% | 2% | 5% | 3% | 2% | 2% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 6 | | | | | | 8 | | | |
| Actuated Green, G (s) | 5.1 | 18.4 | 18.4 | 4.5 | 18.1 | | 7.1 | 8.4 | 8.4 | 6.9 | 8.0 | |
| Effective Green, g (s) | 5.9 | 19.5 | 19.5 | 6.0 | 19.6 | | 8.6 | 9.5 | 9.5 | 8.4 | 9.3 | |
| Actuated g/C Ratio | 0.10 | 0.33 | 0.33 | 0.10 | 0.33 | | 0.14 | 0.16 | 0.16 | 0.14 | 0.16 | |
| Clearance Time (s) | 4.8 | 5.1 | 5.1 | 5.5 | 5.5 | | 5.5 | 5.1 | 5.1 | 5.5 | 5.3 | |
| Vehicle Extension (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lane Grp Cap (vph) | 341 | 1097 | 505 | 343 | 1111 | | 251 | 298 | 246 | 248 | 537 | |
| v/s Ratio Prot | c0.05 | 0.16 | | 0.04 | c0.20 | | c0.08 | c0.08 | | 0.08 | 0.06 | |
| v/s Ratio Perm | | | 0.06 | | | | | | 0.01 | | | |
| v/c Ratio | 0.47 | 0.48 | 0.19 | 0.35 | 0.60 | | 0.58 | 0.47 | 0.09 | 0.56 | 0.40 | |
| Uniform Delay, d1 | 25.3 | 15.9 | 14.3 | 24.9 | 16.6 | | 23.7 | 22.7 | 21.3 | 23.8 | 22.5 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | 0.1 | 0.1 | 0.2 | 0.6 | | 2.2 | 0.4 | 0.1 | 1.5 | 0.2 | |
| Delay (s) | 25.7 | 16.1 | 14.4 | 25.1 | 17.2 | | 25.9 | 23.1 | 21.3 | 25.3 | 22.7 | |
| Level of Service | C | B | B | C | B | | C | C | C | C | C | |
| Approach Delay (s) | | 17.1 | | | 18.4 | | | 23.5 | | | 23.7 | |
| Approach LOS | | B | | | B | | | C | | | C | |

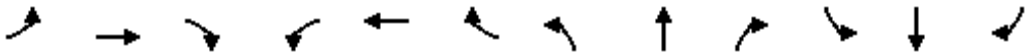
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.5 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.47 | | |
| Actuated Cycle Length (s) | 59.4 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 44.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 8 | 197 | 6 | 45 | 389 | 2 | 4 | 11 | 35 | 2 | 11 | 5 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.88 | 0.88 | 0.88 | 0.93 | 0.93 | 0.93 | 0.75 | 0.75 | 0.75 |
| Hourly flow rate (vph) | 9 | 216 | 7 | 51 | 442 | 2 | 4 | 12 | 38 | 3 | 15 | 7 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 444 | | | 223 | | | 797 | 784 | 220 | 826 | 786 | 443 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 444 | | | 223 | | | 797 | 784 | 220 | 826 | 786 | 443 |
| tC, single (s) | 4.2 | | | 4.2 | | | 7.1 | 6.6 | 6.2 | 7.3 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.3 | | | 3.5 | 4.1 | 3.3 | 3.7 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 96 | | | 98 | 96 | 95 | 99 | 95 | 99 |
| cM capacity (veh/h) | 1060 | | | 1305 | | | 280 | 302 | 817 | 237 | 309 | 615 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 232 | 495 | 54 | 24 |
| Volume Left | 9 | 51 | 4 | 3 |
| Volume Right | 7 | 2 | 38 | 7 |
| cSH | 1060 | 1305 | 535 | 345 |
| Volume to Capacity | 0.01 | 0.04 | 0.10 | 0.07 |
| Queue Length 95th (ft) | 1 | 3 | 8 | 6 |
| Control Delay (s) | 0.4 | 1.2 | 12.5 | 16.2 |
| Lane LOS | A | A | B | C |
| Approach Delay (s) | 0.4 | 1.2 | 12.5 | 16.2 |
| Approach LOS | | | B | C |

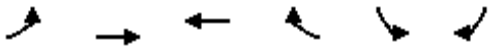
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.2 | | |
| Intersection Capacity Utilization | 47.9% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 29 | 2 | 3 | 6 | 3 | 5 | 1 | 9 | 7 | 5 | 30 | 34 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.67 | 0.67 | 0.67 | 0.92 | 0.92 | 0.92 | 0.82 | 0.82 | 0.82 |
| Hourly flow rate (vph) | 33 | 2 | 3 | 9 | 4 | 7 | 1 | 10 | 8 | 6 | 37 | 41 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 39 | 21 | 18 | 84 |
| Volume Left (vph) | 33 | 9 | 1 | 6 |
| Volume Right (vph) | 3 | 7 | 8 | 41 |
| Hadj (s) | 0.17 | -0.09 | -0.12 | -0.19 |
| Departure Headway (s) | 4.3 | 4.1 | 4.0 | 3.9 |
| Degree Utilization, x | 0.05 | 0.02 | 0.02 | 0.09 |
| Capacity (veh/h) | 813 | 860 | 874 | 914 |
| Control Delay (s) | 7.5 | 7.2 | 7.1 | 7.2 |
| Approach Delay (s) | 7.5 | 7.2 | 7.1 | 7.2 |
| Approach LOS | A | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.3 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 15.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 5 | 104 | 68 | 8 | 15 | 28 |
| Peak Hour Factor | 0.72 | 0.72 | 0.85 | 0.85 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 7 | 144 | 80 | 9 | 16 | 30 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 89 | | | | 243 | 85 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 89 | | | | 243 | 85 |
| tC, single (s) | 4.3 | | | | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.4 | | | | 3.6 | 3.3 |
| p0 queue free % | 100 | | | | 98 | 97 |
| cM capacity (veh/h) | 1400 | | | | 731 | 969 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 151 | 89 | 47 |
| Volume Left | 7 | 0 | 16 |
| Volume Right | 0 | 9 | 30 |
| cSH | 1400 | 1700 | 870 |
| Volume to Capacity | 0.00 | 0.05 | 0.05 |
| Queue Length 95th (ft) | 0 | 0 | 4 |
| Control Delay (s) | 0.4 | 0.0 | 9.4 |
| Lane LOS | A | | A |
| Approach Delay (s) | 0.4 | 0.0 | 9.4 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.7 | | |
| Intersection Capacity Utilization | 19.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBU | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1770 | 3471 | 1553 | 1736 | 3539 | 1583 | 1495 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1770 | 3471 | 1553 | 1736 | 3539 | 1583 | 1495 |
| Volume (vph) | 1 | 512 | 51 | 347 | 686 | 50 | 104 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.91 | 0.91 | 0.76 | 0.76 |
| Adj. Flow (vph) | 1 | 595 | 59 | 381 | 754 | 66 | 137 |
| RTOR Reduction (vph) | 0 | 0 | 36 | 0 | 0 | 0 | 121 |
| Lane Group Flow (vph) | 1 | 595 | 23 | 381 | 754 | 66 | 16 |
| Heavy Vehicles (%) | 2% | 4% | 4% | 4% | 2% | 14% | 8% |
| Turn Type | Prot | | Perm | Prot | | | Perm |
| Protected Phases | 1 | 6 | | 4 5 | 2 | 3 | |
| Permitted Phases | | | 6 | | | | 3 |
| Actuated Green, G (s) | 0.4 | 25.3 | 25.3 | 22.7 | 40.7 | 6.4 | 6.4 |
| Effective Green, g (s) | 1.1 | 26.4 | 26.4 | 22.7 | 41.8 | 7.8 | 7.8 |
| Actuated g/C Ratio | 0.02 | 0.38 | 0.38 | 0.33 | 0.61 | 0.11 | 0.11 |
| Clearance Time (s) | 4.7 | 5.1 | 5.1 | | 5.1 | 5.4 | 5.4 |
| Vehicle Extension (s) | 1.0 | 4.9 | 4.9 | | 4.9 | 1.0 | 1.0 |
| Lane Grp Cap (vph) | 28 | 1330 | 595 | 572 | 2147 | 179 | 169 |
| v/s Ratio Prot | 0.00 | c0.17 | | c0.22 | 0.21 | c0.04 | |
| v/s Ratio Perm | | | 0.01 | | | | 0.01 |
| v/c Ratio | 0.04 | 0.45 | 0.04 | 0.67 | 0.35 | 0.37 | 0.09 |
| Uniform Delay, d1 | 33.4 | 15.8 | 13.3 | 19.8 | 6.8 | 28.3 | 27.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.5 | 0.1 | 2.3 | 0.2 | 0.5 | 0.1 |
| Delay (s) | 33.6 | 16.3 | 13.4 | 22.1 | 7.0 | 28.7 | 27.5 |
| Level of Service | C | B | B | C | A | C | C |
| Approach Delay (s) | | 16.1 | | | 12.1 | 27.9 | |
| Approach LOS | | B | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.0 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.52 | | |
| Actuated Cycle Length (s) | 68.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 46.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.97 | | | 1.00 | 0.91 | |
| Flt Protected | 1.00 | | | 0.99 | 0.98 | |
| Satd. Flow (prot) | 1781 | | | 1840 | 1630 | |
| Flt Permitted | 1.00 | | | 0.99 | 0.98 | |
| Satd. Flow (perm) | 1781 | | | 1840 | 1630 | |
| Volume (vph) | 376 | 103 | 170 | 508 | 28 | 51 |
| Peak-hour factor, PHF | 0.82 | 0.82 | 0.85 | 0.85 | 0.76 | 0.76 |
| Adj. Flow (vph) | 459 | 126 | 200 | 598 | 37 | 67 |
| RTOR Reduction (vph) | 6 | 0 | 0 | 0 | 47 | 0 |
| Lane Group Flow (vph) | 579 | 0 | 0 | 798 | 57 | 0 |
| Heavy Vehicles (%) | 4% | 2% | 2% | 2% | 2% | 6% |
| Turn Type | | | Split | | | |
| Protected Phases | 2 | | 1 | 1 | 3 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 47.1 | | | 50.5 | 8.8 | |
| Effective Green, g (s) | 48.1 | | | 51.3 | 8.3 | |
| Actuated g/C Ratio | 0.38 | | | 0.41 | 0.07 | |
| Clearance Time (s) | 5.0 | | | 4.8 | 3.5 | |
| Vehicle Extension (s) | 6.8 | | | 6.3 | 2.0 | |
| Lane Grp Cap (vph) | 683 | | | 753 | 108 | |
| v/s Ratio Prot | c0.32 | | | c0.43 | c0.04 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 0.85 | | | 1.06 | 0.53 | |
| Uniform Delay, d1 | 35.3 | | | 37.1 | 56.7 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 11.3 | | | 49.8 | 2.5 | |
| Delay (s) | 46.6 | | | 86.8 | 59.2 | |
| Level of Service | D | | | F | E | |
| Approach Delay (s) | 46.6 | | | 86.8 | 59.2 | |
| Approach LOS | D | | | F | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 69.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.92 | | |
| Actuated Cycle Length (s) | 125.4 | Sum of lost time (s) | 17.7 |
| Intersection Capacity Utilization | 76.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1583 | 1770 | 1863 | 1770 | 1583 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1583 | 1770 | 1863 | 1770 | 1583 |
| Volume (vph) | 189 | 39 | 408 | 730 | 35 | 188 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.97 | 0.97 | 0.81 | 0.81 |
| Adj. Flow (vph) | 203 | 42 | 421 | 753 | 43 | 232 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 0 | 181 |
| Lane Group Flow (vph) | 203 | 26 | 421 | 753 | 43 | 51 |
| Turn Type | | Perm | Prot | | | pm+ov |
| Protected Phases | 2 | | 1 | 6 | 4 | 1 |
| Permitted Phases | | 2 | | | | 4 |
| Actuated Green, G (s) | 43.5 | 43.5 | 12.0 | 59.1 | 4.5 | 16.5 |
| Effective Green, g (s) | 45.5 | 45.5 | 11.6 | 61.1 | 4.8 | 16.4 |
| Actuated g/C Ratio | 0.62 | 0.62 | 0.16 | 0.83 | 0.06 | 0.22 |
| Clearance Time (s) | 6.0 | 6.0 | 3.6 | 6.0 | 4.3 | 3.6 |
| Vehicle Extension (s) | 2.0 | 2.0 | 1.0 | 2.0 | 1.0 | 1.0 |
| Lane Grp Cap (vph) | 1147 | 975 | 278 | 1540 | 115 | 437 |
| v/s Ratio Prot | 0.11 | | c0.24 | c0.40 | c0.02 | 0.02 |
| v/s Ratio Perm | | 0.02 | | | | 0.01 |
| v/c Ratio | 0.18 | 0.03 | 1.51 | 0.49 | 0.37 | 0.12 |
| Uniform Delay, d1 | 6.1 | 5.5 | 31.2 | 1.9 | 33.1 | 23.0 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.3 | 0.1 | 249.2 | 1.1 | 0.7 | 0.0 |
| Delay (s) | 6.5 | 5.6 | 280.3 | 3.0 | 33.9 | 23.0 |
| Level of Service | A | A | F | A | C | C |
| Approach Delay (s) | 6.3 | | | 102.4 | 24.7 | |
| Approach LOS | A | | | F | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 75.9 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.65 | | |
| Actuated Cycle Length (s) | 73.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 48.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 |
| Volume (vph) | 250 | 134 | 121 | 429 | 391 | 348 | 165 | 463 | 84 | 110 | 991 | 295 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 | 0.95 | 0.93 | 0.93 | 0.93 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 272 | 146 | 132 | 452 | 412 | 366 | 177 | 498 | 90 | 116 | 1043 | 311 |
| RTOR Reduction (vph) | 0 | 0 | 111 | 0 | 0 | 256 | 0 | 0 | 53 | 0 | 0 | 140 |
| Lane Group Flow (vph) | 272 | 146 | 21 | 452 | 412 | 110 | 177 | 498 | 37 | 116 | 1043 | 171 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.7 | 17.0 | 17.0 | 25.5 | 29.7 | 29.7 | 9.4 | 47.3 | 47.3 | 6.3 | 43.8 | 43.8 |
| Effective Green, g (s) | 14.2 | 18.6 | 18.6 | 27.0 | 31.4 | 31.4 | 10.9 | 48.8 | 48.8 | 7.8 | 45.7 | 45.7 |
| Actuated g/C Ratio | 0.12 | 0.16 | 0.16 | 0.23 | 0.27 | 0.27 | 0.09 | 0.41 | 0.41 | 0.07 | 0.39 | 0.39 |
| Clearance Time (s) | 5.5 | 5.6 | 5.6 | 5.5 | 5.7 | 5.7 | 5.5 | 5.5 | 5.5 | 5.5 | 5.9 | 5.9 |
| Vehicle Extension (s) | 1.0 | 5.0 | 5.0 | 1.0 | 5.9 | 5.9 | 1.0 | 5.4 | 5.4 | 1.0 | 5.4 | 5.4 |
| Lane Grp Cap (vph) | 412 | 557 | 249 | 784 | 940 | 421 | 317 | 2099 | 654 | 227 | 1966 | 612 |
| v/s Ratio Prot | c0.08 | 0.04 | | c0.13 | c0.12 | | c0.05 | c0.10 | | 0.03 | c0.21 | |
| v/s Ratio Perm | | | 0.01 | | | 0.07 | | | 0.02 | | | 0.11 |
| v/c Ratio | 0.66 | 0.26 | 0.08 | 0.58 | 0.44 | 0.26 | 0.56 | 0.24 | 0.06 | 0.51 | 0.53 | 0.28 |
| Uniform Delay, d1 | 49.7 | 43.8 | 42.5 | 40.5 | 36.1 | 34.2 | 51.3 | 22.6 | 20.9 | 53.4 | 28.0 | 24.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 3.1 | 0.5 | 0.3 | 0.6 | 0.9 | 0.9 | 1.2 | 0.1 | 0.1 | 0.8 | 0.6 | 0.6 |
| Delay (s) | 52.8 | 44.3 | 42.8 | 41.2 | 37.0 | 35.1 | 52.6 | 22.7 | 21.0 | 54.2 | 28.5 | 25.5 |
| Level of Service | D | D | D | D | D | D | D | C | C | D | C | C |
| Approach Delay (s) | | 48.1 | | | 38.0 | | | 29.4 | | | 29.9 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 34.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 118.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 55.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| 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) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 4937 | |
| 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) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 4937 | |
| Volume (vph) | 164 | 308 | 178 | 266 | 589 | 47 | 179 | 395 | 46 | 67 | 1149 | 277 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 | 0.95 |
| Growth Factor (vph) | 300% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Adj. Flow (vph) | 535 | 335 | 193 | 286 | 633 | 51 | 195 | 429 | 50 | 71 | 1209 | 292 |
| RTOR Reduction (vph) | 0 | 0 | 135 | 0 | 0 | 33 | 0 | 0 | 28 | 0 | 17 | 0 |
| Lane Group Flow (vph) | 535 | 335 | 58 | 286 | 633 | 18 | 195 | 429 | 22 | 71 | 1484 | 0 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 25.6 | 45.5 | 45.5 | 16.3 | 36.4 | 36.4 | 12.2 | 68.4 | 68.4 | 5.6 | 61.8 | |
| Effective Green, g (s) | 27.1 | 47.2 | 47.2 | 17.8 | 37.9 | 37.9 | 13.7 | 70.0 | 70.0 | 7.1 | 63.4 | |
| Actuated g/C Ratio | 0.17 | 0.30 | 0.30 | 0.11 | 0.24 | 0.24 | 0.09 | 0.44 | 0.44 | 0.04 | 0.40 | |
| Clearance Time (s) | 5.5 | 5.7 | 5.7 | 5.5 | 5.5 | 5.5 | 5.5 | 5.6 | 5.6 | 5.5 | 5.6 | |
| Vehicle Extension (s) | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | |
| Lane Grp Cap (vph) | 588 | 1057 | 473 | 387 | 848 | 379 | 297 | 2251 | 701 | 154 | 1980 | |
| v/s Ratio Prot | c0.16 | 0.09 | | 0.08 | c0.18 | | c0.06 | 0.08 | | 0.02 | c0.30 | |
| v/s Ratio Perm | | | 0.04 | | | 0.01 | | | 0.01 | | | |
| v/c Ratio | 0.91 | 0.32 | 0.12 | 0.74 | 0.75 | 0.05 | 0.66 | 0.19 | 0.03 | 0.46 | 0.75 | |
| Uniform Delay, d1 | 64.3 | 43.0 | 40.4 | 67.9 | 55.7 | 46.2 | 69.9 | 26.8 | 24.9 | 73.6 | 40.5 | |
| 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 | 17.7 | 0.4 | 0.2 | 6.3 | 4.3 | 0.1 | 4.0 | 0.1 | 0.0 | 0.8 | 1.9 | |
| Delay (s) | 82.0 | 43.3 | 40.6 | 74.2 | 59.9 | 46.3 | 73.9 | 26.9 | 24.9 | 74.4 | 42.4 | |
| Level of Service | F | D | D | E | E | D | E | C | C | E | D | |
| Approach Delay (s) | | 62.3 | | | 63.4 | | | 40.3 | | | 43.9 | |
| Approach LOS | | E | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.3 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 158.1 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 3433 | 3539 | 1583 | 1770 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 3433 | 3539 | 1583 | 1770 | 3539 | 1583 |
| Volume (vph) | 123 | 176 | 592 | 85 | 109 | 48 | 219 | 686 | 43 | 57 | 1202 | 107 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.74 | 0.74 | 0.74 | 0.88 | 0.88 | 0.88 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 135 | 193 | 651 | 115 | 147 | 65 | 249 | 780 | 49 | 58 | 1214 | 108 |
| RTOR Reduction (vph) | 0 | 0 | 181 | 0 | 0 | 47 | 0 | 0 | 28 | 0 | 0 | 53 |
| Lane Group Flow (vph) | 135 | 193 | 470 | 115 | 147 | 18 | 249 | 780 | 21 | 58 | 1214 | 55 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 13.1 | 33.0 | 33.0 | 10.7 | 31.6 | 31.6 | 12.5 | 49.0 | 49.0 | 7.3 | 43.8 | 43.8 |
| Effective Green, g (s) | 13.1 | 35.0 | 35.0 | 10.7 | 32.6 | 32.6 | 12.5 | 51.0 | 51.0 | 7.3 | 45.8 | 45.8 |
| Actuated g/C Ratio | 0.11 | 0.29 | 0.29 | 0.09 | 0.27 | 0.27 | 0.10 | 0.42 | 0.42 | 0.06 | 0.38 | 0.38 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 5.0 | 5.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.0 | 4.5 | 4.5 | 2.0 | 5.0 | 5.0 | 2.0 | 3.4 | 3.4 | 2.0 | 4.1 | 4.1 |
| Lane Grp Cap (vph) | 193 | 1032 | 462 | 158 | 961 | 430 | 358 | 1504 | 673 | 108 | 1351 | 604 |
| v/s Ratio Prot | c0.08 | 0.05 | | 0.06 | 0.04 | | c0.07 | 0.22 | | 0.03 | c0.34 | |
| v/s Ratio Perm | | | c0.30 | | | 0.01 | | | 0.01 | | | 0.03 |
| v/c Ratio | 0.70 | 0.19 | 1.02 | 0.73 | 0.15 | 0.04 | 0.70 | 0.52 | 0.03 | 0.54 | 0.90 | 0.09 |
| Uniform Delay, d1 | 51.6 | 31.8 | 42.5 | 53.2 | 33.2 | 32.2 | 51.9 | 25.4 | 20.1 | 54.7 | 34.9 | 23.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 8.6 | 0.2 | 46.1 | 13.2 | 0.2 | 0.1 | 4.7 | 1.3 | 0.1 | 2.6 | 9.7 | 0.3 |
| Delay (s) | 60.2 | 32.0 | 88.6 | 66.4 | 33.4 | 32.3 | 56.6 | 26.7 | 20.2 | 57.3 | 44.6 | 24.1 |
| Level of Service | E | C | F | E | C | C | E | C | C | E | D | C |
| Approach Delay (s) | | 73.5 | | | 44.8 | | | 33.3 | | | 43.6 | |
| Approach LOS | | E | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.5 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.87 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.98 | 1.00 | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1700 | 1292 | 1603 | 1594 | 1583 | 1770 | 3438 | 1538 | 1687 | 3195 | 1583 |
| Flt Permitted | | 0.98 | 1.00 | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1700 | 1292 | 1603 | 1594 | 1583 | 1770 | 3438 | 1538 | 1687 | 3195 | 1583 |
| Volume (vph) | 10 | 13 | 16 | 178 | 10 | 38 | 7 | 1922 | 564 | 44 | 1009 | 1 |
| Peak-hour factor, PHF | 0.76 | 0.76 | 0.76 | 0.83 | 0.83 | 0.83 | 0.95 | 0.95 | 0.95 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 13 | 17 | 21 | 214 | 12 | 46 | 7 | 2023 | 594 | 47 | 1085 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 0 | 41 | 0 | 0 | 102 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 30 | 1 | 117 | 109 | 5 | 7 | 2023 | 492 | 47 | 1085 | 1 |
| Heavy Vehicles (%) | 2% | 15% | 25% | 7% | 20% | 2% | 2% | 5% | 5% | 7% | 13% | 2% |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 7 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 7 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | | 5.0 | 5.0 | 11.7 | 11.7 | 11.7 | 1.0 | 76.9 | 76.9 | 6.6 | 82.5 | 82.5 |
| Effective Green, g (s) | | 7.0 | 7.0 | 13.7 | 13.7 | 13.7 | 0.5 | 80.0 | 80.0 | 6.1 | 85.6 | 85.6 |
| Actuated g/C Ratio | | 0.06 | 0.06 | 0.11 | 0.11 | 0.11 | 0.00 | 0.65 | 0.65 | 0.05 | 0.70 | 0.70 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 3.5 | 7.1 | 7.1 | 3.5 | 7.1 | 7.1 |
| Vehicle Extension (s) | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 97 | 74 | 179 | 178 | 177 | 7 | 2240 | 1002 | 84 | 2227 | 1103 |
| v/s Ratio Prot | | c0.02 | | c0.07 | 0.07 | | 0.00 | c0.59 | | c0.03 | 0.34 | |
| v/s Ratio Perm | | | 0.00 | | | 0.00 | | | 0.32 | | | 0.00 |
| v/c Ratio | | 0.31 | 0.02 | 0.65 | 0.61 | 0.03 | 1.00 | 0.90 | 0.49 | 0.56 | 0.49 | 0.00 |
| Uniform Delay, d1 | | 55.6 | 54.6 | 52.3 | 52.0 | 48.6 | 61.1 | 18.1 | 11.0 | 57.0 | 8.5 | 5.6 |
| 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 | | 0.7 | 0.0 | 6.4 | 4.3 | 0.0 | 340.2 | 5.5 | 0.1 | 4.5 | 0.1 | 0.0 |
| Delay (s) | | 56.2 | 54.7 | 58.7 | 56.4 | 48.6 | 401.3 | 23.6 | 11.1 | 61.6 | 8.6 | 5.6 |
| Level of Service | | E | D | E | E | D | F | C | B | E | A | A |
| Approach Delay (s) | | 55.6 | | | 56.0 | | | 21.8 | | | 10.8 | |
| Approach LOS | | E | | | E | | | C | | | B | |

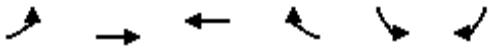
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 122.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 71.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.98 | 1.00 | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1714 | 1468 | 1665 | 1651 | 1524 | 1543 | 3406 | 1568 | 1612 | 3195 | 1324 |
| Flt Permitted | | 0.98 | 1.00 | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1714 | 1468 | 1665 | 1651 | 1524 | 1543 | 3406 | 1568 | 1612 | 3195 | 1324 |
| Volume (vph) | 15 | 25 | 59 | 66 | 7 | 35 | 12 | 2443 | 444 | 34 | 1160 | 9 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.85 | 0.85 | 0.85 | 0.97 | 0.97 | 0.97 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 17 | 28 | 67 | 78 | 8 | 41 | 12 | 2519 | 458 | 38 | 1289 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 63 | 0 | 0 | 39 | 0 | 0 | 48 | 0 | 0 | 2 |
| Lane Group Flow (vph) | 0 | 45 | 4 | 44 | 42 | 2 | 12 | 2519 | 410 | 38 | 1289 | 8 |
| Heavy Vehicles (%) | 20% | 2% | 10% | 3% | 14% | 6% | 17% | 6% | 3% | 12% | 13% | 22% |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 7 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 7 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | | 8.5 | 8.5 | 7.2 | 7.2 | 7.2 | 3.0 | 134.5 | 134.5 | 7.8 | 139.3 | 139.3 |
| Effective Green, g (s) | | 10.5 | 10.5 | 9.2 | 9.2 | 9.2 | 2.5 | 137.6 | 137.6 | 7.3 | 142.4 | 142.4 |
| Actuated g/C Ratio | | 0.06 | 0.06 | 0.05 | 0.05 | 0.05 | 0.01 | 0.76 | 0.76 | 0.04 | 0.79 | 0.79 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 3.5 | 7.1 | 7.1 | 3.5 | 7.1 | 7.1 |
| Vehicle Extension (s) | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.2 | 2.0 | 2.0 | 2.2 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 100 | 85 | 85 | 84 | 78 | 21 | 2595 | 1195 | 65 | 2519 | 1044 |
| v/s Ratio Prot | | c0.03 | | c0.03 | 0.03 | | 0.01 | c0.74 | | c0.02 | 0.40 | |
| v/s Ratio Perm | | | 0.00 | | | 0.00 | | | 0.26 | | | 0.01 |
| v/c Ratio | | 0.45 | 0.05 | 0.52 | 0.50 | 0.03 | 0.57 | 0.97 | 0.34 | 0.58 | 0.51 | 0.01 |
| Uniform Delay, d1 | | 82.3 | 80.3 | 83.5 | 83.5 | 81.4 | 88.5 | 19.7 | 6.9 | 85.2 | 6.8 | 4.1 |
| 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 | | 1.2 | 0.1 | 2.2 | 1.7 | 0.1 | 23.7 | 12.0 | 0.8 | 9.3 | 0.7 | 0.0 |
| Delay (s) | | 83.4 | 80.4 | 85.7 | 85.2 | 81.5 | 112.2 | 31.7 | 7.7 | 94.4 | 7.5 | 4.1 |
| Level of Service | | F | F | F | F | F | F | C | A | F | A | A |
| Approach Delay (s) | | 81.6 | | | 84.2 | | | 28.3 | | | 10.0 | |
| Approach LOS | | F | | | F | | | C | | | A | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 25.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.90 | | |
| Actuated Cycle Length (s) | 180.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 84.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 0 | 7 | 13 | 356 | 90 | 2 |
| Peak Hour Factor | 0.54 | 0.54 | 0.83 | 0.83 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 0 | 13 | 16 | 429 | 102 | 2 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 445 | | | | 243 | 230 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 445 | | | | 243 | 230 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 86 | 100 |
| cM capacity (veh/h) | 1116 | | | | 745 | 809 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 13 | 445 | 102 | 2 |
| Volume Left | 0 | 0 | 102 | 0 |
| Volume Right | 0 | 429 | 0 | 2 |
| cSH | 1700 | 1700 | 745 | 809 |
| Volume to Capacity | 0.01 | 0.26 | 0.14 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 12 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 10.6 | 9.5 |
| Lane LOS | | | B | A |
| Approach Delay (s) | 0.0 | 0.0 | 10.6 | |
| Approach LOS | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 34.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 94 | 3 | 0 | 350 | 19 | 1062 |
| Peak Hour Factor | 0.84 | 0.84 | 0.88 | 0.88 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 112 | 4 | 0 | 398 | 21 | 1180 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 115 | | 511 | 114 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 115 | | 511 | 114 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 96 | 0 |
| cM capacity (veh/h) | | | 1473 | | 522 | 939 |

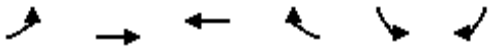
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 115 | 398 | 21 | 1180 |
| Volume Left | 0 | 0 | 21 | 0 |
| Volume Right | 4 | 0 | 0 | 1180 |
| cSH | 1700 | 1700 | 522 | 939 |
| Volume to Capacity | 0.07 | 0.23 | 0.04 | 1.26 |
| Queue Length 95th (ft) | 0 | 0 | 3 | 1023 |
| Control Delay (s) | 0.0 | 0.0 | 12.2 | 140.8 |
| Lane LOS | | | B | F |
| Approach Delay (s) | 0.0 | 0.0 | 138.5 | |
| Approach LOS | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 97.0 | | |
| Intersection Capacity Utilization | 77.6% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 22 | 596 | 0 | 29 | 104 | 0 | 4 | 60 | 87 | 4 | 25 | 2 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.92 | 0.92 | 0.92 | 0.97 | 0.97 | 0.97 | 0.70 | 0.70 | 0.70 |
| Hourly flow rate (vph) | 24 | 655 | 0 | 32 | 113 | 0 | 4 | 62 | 90 | 6 | 36 | 3 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 679 | 145 | 156 | 44 |
| Volume Left (vph) | 24 | 32 | 4 | 6 |
| Volume Right (vph) | 0 | 0 | 90 | 3 |
| Hadj (s) | 0.04 | 0.12 | -0.31 | 0.02 |
| Departure Headway (s) | 4.8 | 5.5 | 5.7 | 6.3 |
| Degree Utilization, x | 0.90 | 0.22 | 0.25 | 0.08 |
| Capacity (veh/h) | 742 | 623 | 598 | 529 |
| Control Delay (s) | 34.8 | 10.1 | 10.6 | 9.9 |
| Approach Delay (s) | 34.8 | 10.1 | 10.6 | 9.9 |
| Approach LOS | D | B | B | A |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 26.5 | | | |
| HCM Level of Service | D | | | |
| Intersection Capacity Utilization | 49.7% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 110 | 873 | 491 | 34 | 11 | 49 |
| Peak Hour Factor | 0.92 | 0.92 | 0.91 | 0.91 | 0.76 | 0.76 |
| Hourly flow rate (vph) | 120 | 949 | 540 | 37 | 14 | 64 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 577 | | | | 1746 | 558 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 577 | | | | 1746 | 558 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 88 | | | | 83 | 88 |
| cM capacity (veh/h) | 997 | | | | 83 | 529 |

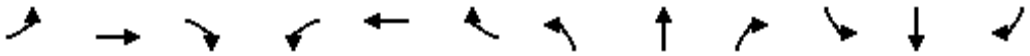
| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 1068 | 577 | 79 |
| Volume Left | 120 | 0 | 14 |
| Volume Right | 0 | 37 | 64 |
| cSH | 997 | 1700 | 267 |
| Volume to Capacity | 0.12 | 0.34 | 0.30 |
| Queue Length 95th (ft) | 10 | 0 | 30 |
| Control Delay (s) | 3.2 | 0.0 | 24.0 |
| Lane LOS | A | | C |
| Approach Delay (s) | 3.2 | 0.0 | 24.0 |
| Approach LOS | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.1 | | |
| Intersection Capacity Utilization | 93.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 33 | 651 | 3 | 2 | 121 | 3 | 1 | 1 | 5 | 3 | 2 | 11 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.88 | 0.45 | 0.45 | 0.45 | 0.71 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 38 | 740 | 3 | 2 | 138 | 3 | 2 | 2 | 11 | 4 | 3 | 15 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 141 | | | 743 | | | 977 | 962 | 741 | 972 | 962 | 139 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 141 | | | 743 | | | 977 | 962 | 741 | 972 | 962 | 139 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.8 | 6.2 | 7.1 | 6.8 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.2 | 3.3 | 3.5 | 4.2 | 3.4 |
| p0 queue free % | 97 | | | 100 | | | 99 | 99 | 97 | 98 | 99 | 98 |
| cM capacity (veh/h) | 1418 | | | 864 | | | 219 | 227 | 416 | 219 | 227 | 891 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 781 | 143 | 16 | 23 |
| Volume Left | 38 | 2 | 2 | 4 |
| Volume Right | 3 | 3 | 11 | 15 |
| cSH | 1418 | 864 | 334 | 459 |
| Volume to Capacity | 0.03 | 0.00 | 0.05 | 0.05 |
| Queue Length 95th (ft) | 2 | 0 | 4 | 4 |
| Control Delay (s) | 0.7 | 0.2 | 16.3 | 13.2 |
| Lane LOS | A | A | C | B |
| Approach Delay (s) | 0.7 | 0.2 | 16.3 | 13.2 |
| Approach LOS | | | C | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.2 | | |
| Intersection Capacity Utilization | 56.3% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 157 | 480 | 15 | 9 | 109 | 122 | 6 | 18 | 8 | 88 | 26 | 10 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.80 | 0.80 | 0.80 | 0.63 | 0.63 | 0.63 |
| Hourly flow rate (vph) | 174 | 533 | 17 | 10 | 118 | 133 | 8 | 22 | 10 | 140 | 41 | 16 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total (vph) | 724 | 128 | 133 | 40 | 197 |
| Volume Left (vph) | 174 | 10 | 0 | 8 | 140 |
| Volume Right (vph) | 17 | 0 | 133 | 10 | 16 |
| Hadj (s) | 0.07 | 0.10 | -0.57 | -0.08 | 0.16 |
| Departure Headway (s) | 5.0 | 5.8 | 3.2 | 6.6 | 6.4 |
| Degree Utilization, x | 1.00 | 0.21 | 0.12 | 0.07 | 0.35 |
| Capacity (veh/h) | 719 | 602 | 1121 | 529 | 555 |
| Control Delay (s) | 55.6 | 10.3 | 6.6 | 10.1 | 12.7 |
| Approach Delay (s) | 55.6 | 8.5 | | 10.1 | 12.7 |
| Approach LOS | F | A | | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 37.2 | | |
| HCM Level of Service | E | | |
| Intersection Capacity Utilization | 61.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 503 | 87 | 55 | 152 | 105 | 55 |
| Peak Hour Factor | 0.97 | 0.97 | 0.81 | 0.81 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 519 | 90 | 68 | 188 | 115 | 60 |

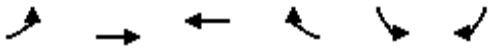
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 608 | 256 | 115 | 60 |
| Volume Left (vph) | 0 | 68 | 115 | 0 |
| Volume Right (vph) | 90 | 0 | 0 | 60 |
| Hadj (s) | -0.05 | 0.11 | 0.53 | -0.58 |
| Departure Headway (s) | 4.8 | 5.4 | 7.1 | 6.0 |
| Degree Utilization, x | 0.81 | 0.38 | 0.23 | 0.10 |
| Capacity (veh/h) | 736 | 641 | 475 | 556 |
| Control Delay (s) | 24.9 | 11.7 | 11.0 | 8.5 |
| Approach Delay (s) | 24.9 | 11.7 | 10.2 | |
| Approach LOS | C | B | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 19.2 | | |
| HCM Level of Service | C | | |
| Intersection Capacity Utilization | 58.6% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 539 | 5 | 23 | 249 | 2 | 19 |
| Peak Hour Factor | 0.95 | 0.95 | 0.89 | 0.89 | 0.58 | 0.58 |
| Hourly flow rate (vph) | 567 | 5 | 26 | 280 | 3 | 33 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 573 | | 901 | 570 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 573 | | 901 | 570 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 97 | | 99 | 94 |
| cM capacity (veh/h) | | | 1000 | | 300 | 521 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 |
|---|---|---|---|
| Volume Total | 573 | 306 | 36 |
| Volume Left | 0 | 26 | 3 |
| Volume Right | 5 | 0 | 33 |
| cSH | 1700 | 1000 | 487 |
| Volume to Capacity | 0.34 | 0.03 | 0.07 |
| Queue Length 95th (ft) | 0 | 2 | 6 |
| Control Delay (s) | 0.0 | 1.0 | 13.0 |
| Lane LOS | | A | B |
| Approach Delay (s) | 0.0 | 1.0 | 13.0 |
| Approach LOS | | | B |

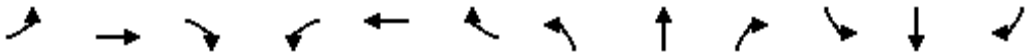
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.8 | | |
| Intersection Capacity Utilization | 42.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 7 | 551 | 269 | 6 | 1 | 3 |
| Peak Hour Factor | 0.97 | 0.97 | 0.92 | 0.92 | 0.50 | 0.50 |
| Hourly flow rate (vph) | 7 | 568 | 292 | 7 | 2 | 6 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 299 | | | | 878 | 296 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 299 | | | | 878 | 296 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 99 | | | | 99 | 99 |
| cM capacity (veh/h) | 1262 | | | | 317 | 744 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 575 | 299 | 8 |
| Volume Left | 7 | 0 | 2 |
| Volume Right | 0 | 7 | 6 |
| cSH | 1262 | 1700 | 556 |
| Volume to Capacity | 0.01 | 0.18 | 0.01 |
| Queue Length 95th (ft) | 0 | 0 | 1 |
| Control Delay (s) | 0.2 | 0.0 | 11.6 |
| Lane LOS | A | | B |
| Approach Delay (s) | 0.2 | 0.0 | 11.6 |
| Approach LOS | | | B |

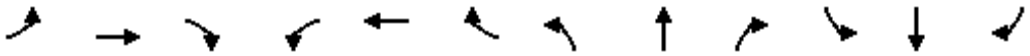
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 0.2 | | |
| Intersection Capacity Utilization | 44.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 0 | 31 | 31 | 20 | 26 | 1 | 53 | 2 | 25 | 1 | 0 | 2 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.90 | 0.90 | 0.90 | 0.83 | 0.83 | 0.83 | 0.38 | 0.38 | 0.38 |
| Hourly flow rate (vph) | 0 | 37 | 37 | 22 | 29 | 1 | 64 | 2 | 30 | 3 | 0 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 74 | 52 | 96 | 8 |
| Volume Left (vph) | 0 | 22 | 64 | 3 |
| Volume Right (vph) | 37 | 1 | 30 | 5 |
| Hadj (s) | -0.27 | 0.11 | -0.02 | -0.30 |
| Departure Headway (s) | 3.9 | 4.3 | 4.2 | 4.0 |
| Degree Utilization, x | 0.08 | 0.06 | 0.11 | 0.01 |
| Capacity (veh/h) | 889 | 811 | 834 | 868 |
| Control Delay (s) | 7.3 | 7.6 | 7.7 | 7.0 |
| Approach Delay (s) | 7.3 | 7.6 | 7.7 | 7.0 |
| Approach LOS | A | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.5 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 24.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 4 | 68 | 44 | 45 | 76 | 17 | 63 | 69 | 60 | 4 | 52 | 2 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.86 | 0.86 | 0.86 | 0.80 | 0.80 | 0.80 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 4 | 72 | 46 | 52 | 88 | 20 | 79 | 86 | 75 | 5 | 60 | 2 |

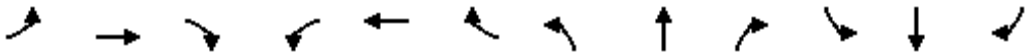
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 122 | 160 | 240 | 67 |
| Volume Left (vph) | 4 | 52 | 79 | 5 |
| Volume Right (vph) | 46 | 20 | 75 | 2 |
| Hadj (s) | -0.19 | 0.03 | -0.08 | 0.06 |
| Departure Headway (s) | 4.7 | 4.8 | 4.6 | 5.0 |
| Degree Utilization, x | 0.16 | 0.22 | 0.31 | 0.09 |
| Capacity (veh/h) | 707 | 691 | 739 | 663 |
| Control Delay (s) | 8.6 | 9.2 | 9.7 | 8.5 |
| Approach Delay (s) | 8.6 | 9.2 | 9.7 | 8.5 |
| Approach LOS | A | A | A | A |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | | 9.2 | | |
| HCM Level of Service | | A | | |
| Intersection Capacity Utilization | 38.3% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.99 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3303 | 3539 | 1583 | 3303 | 3377 | | 1770 | 1845 | 1583 | 1770 | 3445 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3303 | 3539 | 1583 | 3303 | 3377 | | 1770 | 1845 | 1583 | 1770 | 3445 | |
| Volume (vph) | 55 | 881 | 158 | 110 | 506 | 150 | 107 | 153 | 78 | 103 | 136 | 14 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.94 | 0.94 | 0.94 | 0.87 | 0.87 | 0.87 | 0.91 | 0.91 | 0.91 |
| Adj. Flow (vph) | 60 | 958 | 172 | 117 | 538 | 160 | 123 | 176 | 90 | 113 | 149 | 15 |
| RTOR Reduction (vph) | 0 | 0 | 58 | 0 | 11 | 0 | 0 | 0 | 76 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 60 | 958 | 114 | 117 | 687 | 0 | 123 | 176 | 14 | 113 | 160 | 0 |
| Heavy Vehicles (%) | 6% | 2% | 2% | 6% | 3% | 4% | 2% | 3% | 2% | 2% | 3% | 7% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 6 | | | | | | 8 | | | |
| Actuated Green, G (s) | 2.7 | 25.3 | 25.3 | 4.7 | 27.6 | | 6.8 | 9.6 | 9.6 | 6.5 | 9.1 | |
| Effective Green, g (s) | 3.5 | 26.4 | 26.4 | 6.2 | 29.1 | | 8.3 | 10.7 | 10.7 | 8.0 | 10.4 | |
| Actuated g/C Ratio | 0.05 | 0.39 | 0.39 | 0.09 | 0.43 | | 0.12 | 0.16 | 0.16 | 0.12 | 0.15 | |
| Clearance Time (s) | 4.8 | 5.1 | 5.1 | 5.5 | 5.5 | | 5.5 | 5.1 | 5.1 | 5.5 | 5.3 | |
| Vehicle Extension (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lane Grp Cap (vph) | 172 | 1388 | 621 | 304 | 1460 | | 218 | 293 | 252 | 210 | 532 | |
| v/s Ratio Prot | 0.02 | c0.27 | | c0.04 | c0.20 | | c0.07 | c0.10 | | 0.06 | 0.05 | |
| v/s Ratio Perm | | | 0.07 | | | | | | 0.01 | | | |
| v/c Ratio | 0.35 | 0.69 | 0.18 | 0.38 | 0.47 | | 0.56 | 0.60 | 0.06 | 0.54 | 0.30 | |
| Uniform Delay, d1 | 30.8 | 17.0 | 13.4 | 28.8 | 13.6 | | 27.8 | 26.3 | 24.0 | 27.9 | 25.2 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 0.4 | 1.2 | 0.1 | 0.3 | 0.1 | | 2.0 | 2.4 | 0.0 | 1.3 | 0.1 | |
| Delay (s) | 31.2 | 18.3 | 13.4 | 29.1 | 13.7 | | 29.8 | 28.7 | 24.1 | 29.2 | 25.3 | |
| Level of Service | C | B | B | C | B | | C | C | C | C | C | |
| Approach Delay (s) | | 18.2 | | | 15.9 | | | 28.0 | | | 26.9 | |
| Approach LOS | | B | | | B | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.8 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.61 | | |
| Actuated Cycle Length (s) | 67.3 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 54.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

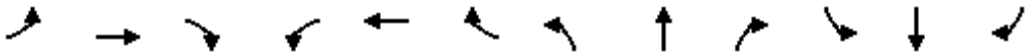
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 6 | 528 | 5 | 56 | 248 | 5 | 3 | 8 | 63 | 2 | 12 | 11 |
| Peak Hour Factor | 0.94 | 0.94 | 0.94 | 0.97 | 0.97 | 0.97 | 0.84 | 0.84 | 0.84 | 0.72 | 0.72 | 0.72 |
| Hourly flow rate (vph) | 6 | 562 | 5 | 58 | 256 | 5 | 4 | 10 | 75 | 3 | 17 | 15 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 261 | | | 567 | | | 974 | 953 | 564 | 1031 | 953 | 258 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 261 | | | 567 | | | 974 | 953 | 564 | 1031 | 953 | 258 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.3 | 7.1 | 6.7 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.4 | 3.5 | 4.2 | 3.3 |
| p0 queue free % | 100 | | | 94 | | | 98 | 96 | 86 | 98 | 93 | 98 |
| cM capacity (veh/h) | 1304 | | | 1005 | | | 204 | 243 | 517 | 167 | 229 | 780 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 573 | 319 | 88 | 35 |
| Volume Left | 6 | 58 | 4 | 3 |
| Volume Right | 5 | 5 | 75 | 15 |
| cSH | 1304 | 1005 | 437 | 319 |
| Volume to Capacity | 0.00 | 0.06 | 0.20 | 0.11 |
| Queue Length 95th (ft) | 0 | 5 | 19 | 9 |
| Control Delay (s) | 0.1 | 2.1 | 15.3 | 17.7 |
| Lane LOS | A | A | C | C |
| Approach Delay (s) | 0.1 | 2.1 | 15.3 | 17.7 |
| Approach LOS | | | C | C |

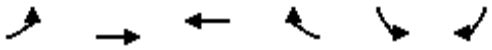
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.7 | | |
| Intersection Capacity Utilization | 60.0% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 49 | 5 | 5 | 7 | 2 | 4 | 2 | 31 | 8 | 8 | 34 | 46 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.75 | 0.75 | 0.75 | 0.79 | 0.79 | 0.79 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 56 | 6 | 6 | 9 | 3 | 5 | 3 | 39 | 10 | 9 | 37 | 50 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 68 | 17 | 52 | 96 |
| Volume Left (vph) | 56 | 9 | 3 | 9 |
| Volume Right (vph) | 6 | 5 | 10 | 50 |
| Hadj (s) | 0.20 | 0.08 | -0.07 | -0.24 |
| Departure Headway (s) | 4.4 | 4.4 | 4.1 | 3.9 |
| Degree Utilization, x | 0.08 | 0.02 | 0.06 | 0.10 |
| Capacity (veh/h) | 783 | 791 | 843 | 897 |
| Control Delay (s) | 7.8 | 7.5 | 7.4 | 7.4 |
| Approach Delay (s) | 7.8 | 7.5 | 7.4 | 7.4 |
| Approach LOS | A | A | A | A |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 7.5 | | |
| HCM Level of Service | A | | |
| Intersection Capacity Utilization | 19.2% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 23 | 123 | 112 | 18 | 17 | 26 |
| Peak Hour Factor | 0.83 | 0.83 | 0.88 | 0.88 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 28 | 148 | 127 | 20 | 20 | 31 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 148 | | | | 341 | 138 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 148 | | | | 341 | 138 |
| tC, single (s) | 4.1 | | | | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.6 | 3.3 |
| p0 queue free % | 98 | | | | 97 | 97 |
| cM capacity (veh/h) | 1434 | | | | 634 | 906 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 176 | 148 | 52 |
| Volume Left | 28 | 0 | 20 |
| Volume Right | 0 | 20 | 31 |
| cSH | 1434 | 1700 | 775 |
| Volume to Capacity | 0.02 | 0.09 | 0.07 |
| Queue Length 95th (ft) | 1 | 0 | 5 |
| Control Delay (s) | 1.3 | 0.0 | 10.0 |
| Lane LOS | A | | A |
| Approach Delay (s) | 1.3 | 0.0 | 10.0 |
| Approach LOS | | | A |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 28.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBU | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1770 | 3539 | 1538 | 1703 | 3505 | 1736 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1770 | 3539 | 1538 | 1703 | 3505 | 1736 | 1583 |
| Volume (vph) | 1 | 1006 | 38 | 154 | 670 | 101 | 300 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.89 | 0.89 | 0.94 | 0.94 |
| Adj. Flow (vph) | 1 | 1093 | 41 | 173 | 753 | 107 | 319 |
| RTOR Reduction (vph) | 0 | 0 | 8 | 0 | 0 | 0 | 233 |
| Lane Group Flow (vph) | 1 | 1093 | 33 | 173 | 753 | 107 | 86 |
| Heavy Vehicles (%) | 2% | 2% | 5% | 6% | 3% | 4% | 2% |
| Turn Type | Prot | | Perm | Prot | | | custom |
| Protected Phases | 1 | 6 | | 4 5 | 2 | 3 | 2 |
| Permitted Phases | | | 6 | | | | |
| Actuated Green, G (s) | 0.6 | 72.4 | 72.4 | 24.2 | 49.8 | 14.4 | 49.8 |
| Effective Green, g (s) | 1.3 | 73.5 | 73.5 | 23.7 | 50.9 | 15.8 | 50.9 |
| Actuated g/C Ratio | 0.01 | 0.39 | 0.39 | 0.13 | 0.27 | 0.08 | 0.27 |
| Clearance Time (s) | 4.7 | 5.1 | 5.1 | | 5.1 | 5.4 | 5.1 |
| Vehicle Extension (s) | 1.0 | 4.9 | 4.9 | | 4.9 | 1.0 | 4.9 |
| Lane Grp Cap (vph) | 12 | 1375 | 597 | 213 | 943 | 145 | 426 |
| v/s Ratio Prot | c0.00 | c0.31 | | c0.10 | c0.21 | c0.06 | 0.05 |
| v/s Ratio Perm | | | 0.02 | | | | |
| v/c Ratio | 0.08 | 0.79 | 0.06 | 0.81 | 0.80 | 0.74 | 0.20 |
| Uniform Delay, d1 | 93.4 | 51.2 | 36.2 | 80.6 | 64.4 | 84.7 | 53.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 1.1 | 3.7 | 0.1 | 19.5 | 5.5 | 15.5 | 0.5 |
| Delay (s) | 94.4 | 54.9 | 36.2 | 100.1 | 69.8 | 100.1 | 53.9 |
| Level of Service | F | D | D | F | E | F | D |
| Approach Delay (s) | | 54.3 | | | 75.5 | 65.5 | |
| Approach LOS | | D | | | E | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 64.1 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 189.2 | Sum of lost time (s) | 24.0 |
| Intersection Capacity Utilization | 61.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.99 | | | 1.00 | 0.92 | |
| Flt Protected | 1.00 | | | 0.99 | 0.98 | |
| Satd. Flow (prot) | 1843 | | | 1850 | 1684 | |
| Flt Permitted | 1.00 | | | 0.99 | 0.98 | |
| Satd. Flow (perm) | 1843 | | | 1850 | 1684 | |
| Volume (vph) | 678 | 58 | 84 | 546 | 132 | 171 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.93 | 0.93 | 0.87 | 0.87 |
| Adj. Flow (vph) | 737 | 63 | 90 | 587 | 152 | 197 |
| RTOR Reduction (vph) | 2 | 0 | 0 | 0 | 31 | 0 |
| Lane Group Flow (vph) | 798 | 0 | 0 | 677 | 318 | 0 |
| Turn Type | | | Split | | | |
| Protected Phases | 2 | | 1 | 1 | 3 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 50.1 | | | 50.1 | 20.0 | |
| Effective Green, g (s) | 51.1 | | | 50.9 | 19.5 | |
| Actuated g/C Ratio | 0.37 | | | 0.37 | 0.14 | |
| Clearance Time (s) | 5.0 | | | 4.8 | 3.5 | |
| Vehicle Extension (s) | 6.8 | | | 6.3 | 2.0 | |
| Lane Grp Cap (vph) | 676 | | | 676 | 236 | |
| v/s Ratio Prot | c0.43 | | | c0.37 | c0.19 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 1.18 | | | 1.00 | 1.35 | |
| Uniform Delay, d1 | 44.1 | | | 44.2 | 60.0 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 96.0 | | | 35.0 | 181.9 | |
| Delay (s) | 140.2 | | | 79.2 | 241.8 | |
| Level of Service | F | | | E | F | |
| Approach Delay (s) | 140.2 | | | 79.2 | 241.8 | |
| Approach LOS | F | | | E | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 137.0 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.13 | | |
| Actuated Cycle Length (s) | 139.4 | Sum of lost time (s) | 17.9 |
| Intersection Capacity Utilization | 100.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1583 | 1770 | 1863 | 1770 | 1583 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1583 | 1770 | 1863 | 1770 | 1583 |
| Volume (vph) | 922 | 46 | 203 | 241 | 40 | 349 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.79 | 0.79 | 0.86 | 0.86 |
| Adj. Flow (vph) | 960 | 48 | 257 | 305 | 47 | 406 |
| RTOR Reduction (vph) | 0 | 9 | 0 | 0 | 0 | 65 |
| Lane Group Flow (vph) | 960 | 39 | 257 | 305 | 47 | 341 |
| Turn Type | | Perm | Prot | | | pm+ov |
| Protected Phases | 2 | | 1 | 6 | 4 | 1 |
| Permitted Phases | | 2 | | | | 4 |
| Actuated Green, G (s) | 96.5 | 96.5 | 25.9 | 126.0 | 7.6 | 33.5 |
| Effective Green, g (s) | 98.5 | 98.5 | 25.5 | 128.0 | 7.9 | 33.4 |
| Actuated g/C Ratio | 0.68 | 0.68 | 0.18 | 0.89 | 0.05 | 0.23 |
| Clearance Time (s) | 6.0 | 6.0 | 3.6 | 6.0 | 4.3 | 3.6 |
| Vehicle Extension (s) | 2.0 | 2.0 | 1.0 | 2.0 | 1.0 | 1.0 |
| Lane Grp Cap (vph) | 1275 | 1084 | 314 | 1657 | 97 | 411 |
| v/s Ratio Prot | c0.52 | | 0.15 | 0.16 | 0.03 | c0.15 |
| v/s Ratio Perm | | 0.02 | | | | 0.07 |
| v/c Ratio | 0.75 | 0.04 | 0.82 | 0.18 | 0.48 | 0.83 |
| Uniform Delay, d1 | 14.8 | 7.3 | 57.0 | 1.1 | 66.0 | 52.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 4.1 | 0.1 | 14.5 | 0.2 | 1.4 | 12.4 |
| Delay (s) | 18.9 | 7.4 | 71.4 | 1.3 | 67.4 | 64.9 |
| Level of Service | B | A | E | A | E | E |
| Approach Delay (s) | 18.4 | | | 33.4 | 65.2 | |
| Approach LOS | B | | | C | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 33.0 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.77 | | |
| Actuated Cycle Length (s) | 143.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 76.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 |
| Volume (vph) | 297 | 489 | 191 | 260 | 283 | 81 | 386 | 500 | 272 | 136 | 404 | 150 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 | 0.95 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 319 | 526 | 205 | 283 | 308 | 88 | 406 | 526 | 286 | 148 | 439 | 163 |
| RTOR Reduction (vph) | 0 | 0 | 144 | 0 | 0 | 66 | 0 | 0 | 184 | 0 | 0 | 125 |
| Lane Group Flow (vph) | 319 | 526 | 61 | 283 | 308 | 22 | 406 | 526 | 102 | 148 | 439 | 38 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 12.2 | 23.2 | 23.2 | 11.2 | 22.1 | 22.1 | 18.2 | 32.6 | 32.6 | 6.4 | 20.4 | 20.4 |
| Effective Green, g (s) | 13.7 | 24.8 | 24.8 | 12.7 | 23.8 | 23.8 | 19.7 | 34.1 | 34.1 | 7.9 | 22.3 | 22.3 |
| Actuated g/C Ratio | 0.14 | 0.26 | 0.26 | 0.13 | 0.25 | 0.25 | 0.21 | 0.36 | 0.36 | 0.08 | 0.23 | 0.23 |
| Clearance Time (s) | 5.5 | 5.6 | 5.6 | 5.5 | 5.7 | 5.7 | 5.5 | 5.5 | 5.5 | 5.5 | 5.9 | 5.9 |
| Vehicle Extension (s) | 1.0 | 5.0 | 5.0 | 1.0 | 5.9 | 5.9 | 1.0 | 5.4 | 5.4 | 1.0 | 5.4 | 5.4 |
| Lane Grp Cap (vph) | 492 | 919 | 411 | 457 | 882 | 395 | 708 | 1816 | 565 | 284 | 1187 | 370 |
| v/s Ratio Prot | c0.09 | c0.15 | | 0.08 | 0.09 | | c0.12 | 0.10 | | 0.04 | c0.09 | |
| v/s Ratio Perm | | | 0.04 | | | 0.01 | | | 0.06 | | | 0.02 |
| v/c Ratio | 0.65 | 0.57 | 0.15 | 0.62 | 0.35 | 0.06 | 0.57 | 0.29 | 0.18 | 0.52 | 0.37 | 0.10 |
| Uniform Delay, d1 | 38.6 | 30.7 | 27.2 | 39.1 | 29.5 | 27.3 | 34.1 | 22.0 | 21.1 | 42.0 | 30.7 | 28.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 2.2 | 1.4 | 0.3 | 1.8 | 0.7 | 0.2 | 0.7 | 0.2 | 0.4 | 0.8 | 0.5 | 0.3 |
| Delay (s) | 40.8 | 32.1 | 27.6 | 40.9 | 30.1 | 27.5 | 34.8 | 22.2 | 21.5 | 42.8 | 31.2 | 29.0 |
| Level of Service | D | C | C | D | C | C | C | C | C | D | C | C |
| Approach Delay (s) | | 33.9 | | | 34.3 | | | 26.2 | | | 33.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 31.3 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.51 | | |
| Actuated Cycle Length (s) | 95.5 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 53.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.97 | |
| 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) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 4924 | |
| 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) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 4924 | |
| Volume (vph) | 402 | 533 | 206 | 239 | 416 | 131 | 210 | 1161 | 168 | 116 | 758 | 203 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 428 | 567 | 219 | 260 | 452 | 142 | 221 | 1222 | 177 | 122 | 798 | 214 |
| RTOR Reduction (vph) | 0 | 0 | 147 | 0 | 0 | 112 | 0 | 0 | 67 | 0 | 22 | 0 |
| Lane Group Flow (vph) | 428 | 567 | 72 | 260 | 452 | 30 | 221 | 1222 | 110 | 122 | 990 | 0 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 21.8 | 33.4 | 33.4 | 12.6 | 24.4 | 24.4 | 11.2 | 46.8 | 46.8 | 6.5 | 42.1 | |
| Effective Green, g (s) | 23.3 | 35.1 | 35.1 | 14.1 | 25.9 | 25.9 | 12.7 | 48.4 | 48.4 | 8.0 | 43.7 | |
| Actuated g/C Ratio | 0.19 | 0.29 | 0.29 | 0.12 | 0.21 | 0.21 | 0.10 | 0.40 | 0.40 | 0.07 | 0.36 | |
| Clearance Time (s) | 5.5 | 5.7 | 5.7 | 5.5 | 5.5 | 5.5 | 5.5 | 5.6 | 5.6 | 5.5 | 5.6 | |
| Vehicle Extension (s) | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | |
| Lane Grp Cap (vph) | 658 | 1022 | 457 | 398 | 754 | 337 | 359 | 2024 | 630 | 226 | 1770 | |
| v/s Ratio Prot | c0.12 | c0.16 | | 0.08 | 0.13 | | c0.06 | c0.24 | | 0.04 | 0.20 | |
| v/s Ratio Perm | | | 0.05 | | | 0.02 | | | 0.07 | | | |
| v/c Ratio | 0.65 | 0.55 | 0.16 | 0.65 | 0.60 | 0.09 | 0.62 | 0.60 | 0.17 | 0.54 | 0.56 | |
| Uniform Delay, d1 | 45.4 | 36.6 | 32.2 | 51.4 | 43.2 | 38.4 | 52.1 | 29.0 | 23.7 | 55.0 | 31.2 | |
| 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 | 1.8 | 1.1 | 0.3 | 2.9 | 1.9 | 0.2 | 2.2 | 0.7 | 0.3 | 1.2 | 0.6 | |
| Delay (s) | 47.2 | 37.7 | 32.6 | 54.3 | 45.1 | 38.6 | 54.3 | 29.7 | 23.9 | 56.3 | 31.9 | |
| Level of Service | D | D | C | D | D | D | D | C | C | E | C | |
| Approach Delay (s) | | 40.1 | | | 46.8 | | | 32.5 | | | 34.5 | |
| Approach LOS | | D | | | D | | | C | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 37.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.59 | | |
| Actuated Cycle Length (s) | 121.6 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 62.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 3433 | 3539 | 1583 | 1770 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 3433 | 3539 | 1583 | 1770 | 3539 | 1583 |
| Volume (vph) | 183 | 200 | 309 | 106 | 254 | 124 | 515 | 1111 | 83 | 130 | 1078 | 131 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 199 | 217 | 336 | 115 | 276 | 135 | 572 | 1234 | 92 | 144 | 1198 | 146 |
| RTOR Reduction (vph) | 0 | 0 | 284 | 0 | 0 | 120 | 0 | 0 | 41 | 0 | 0 | 65 |
| Lane Group Flow (vph) | 199 | 217 | 52 | 115 | 276 | 15 | 572 | 1234 | 51 | 144 | 1198 | 81 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 16.4 | 16.7 | 16.7 | 10.7 | 11.0 | 11.0 | 23.3 | 58.8 | 58.8 | 13.8 | 49.3 | 49.3 |
| Effective Green, g (s) | 16.4 | 18.7 | 18.7 | 10.7 | 13.0 | 13.0 | 23.3 | 60.8 | 60.8 | 13.8 | 51.3 | 51.3 |
| Actuated g/C Ratio | 0.14 | 0.16 | 0.16 | 0.09 | 0.11 | 0.11 | 0.19 | 0.51 | 0.51 | 0.12 | 0.43 | 0.43 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.0 | 4.5 | 4.5 | 2.0 | 5.0 | 5.0 | 2.0 | 3.4 | 3.4 | 2.0 | 4.1 | 4.1 |
| Lane Grp Cap (vph) | 242 | 551 | 247 | 158 | 383 | 171 | 667 | 1793 | 802 | 204 | 1513 | 677 |
| v/s Ratio Prot | c0.11 | 0.06 | | 0.06 | c0.08 | | c0.17 | 0.35 | | 0.08 | c0.34 | |
| v/s Ratio Perm | | | 0.03 | | | 0.01 | | | 0.03 | | | 0.05 |
| v/c Ratio | 0.82 | 0.39 | 0.21 | 0.73 | 0.72 | 0.09 | 0.86 | 0.69 | 0.06 | 0.71 | 0.79 | 0.12 |
| Uniform Delay, d1 | 50.4 | 45.6 | 44.2 | 53.2 | 51.7 | 48.2 | 46.7 | 22.4 | 15.1 | 51.1 | 29.7 | 20.7 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 18.8 | 0.8 | 0.7 | 13.2 | 8.0 | 0.5 | 10.2 | 2.2 | 0.2 | 8.7 | 4.3 | 0.4 |
| Delay (s) | 69.2 | 46.4 | 45.0 | 66.4 | 59.7 | 48.6 | 57.0 | 24.6 | 15.2 | 59.9 | 34.1 | 21.1 |
| Level of Service | E | D | D | E | E | D | E | C | B | E | C | C |
| Approach Delay (s) | | 51.8 | | | 58.3 | | | 33.9 | | | 35.3 | |
| Approach LOS | | D | | | E | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 40.0 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 75.0% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

# Appendix A-2: Freeway Operations

# Existing Conditions

**HCM 2000**
**Basic Freeway Segments**
**Capacity Analysis**

Jurisdiction Sacramento County | Agency or Company Caltrans
Analysis Year Existing | Date 10/4/2010
Analyst F&P | Project Description Elverta Specific Plan

*General Information* | *Flow Rate Calculation* | *Speed Calculation* | *Results*

| | Freeway/ Direction | From/To | Analysis Time Period | Volume (vph) | PHF | Lanes | Terrain | Truck/ Bus % | RV % | $E_T$ | $E_R$ | $f_{HV}$ | $f_P$ | Flow Rate $v_p$ (pcphpl) | Measured FFS (mph) | S (mph) | Density, D (pcplpm) | Level of Service |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | SR-99 SB | Sankey Road to Riego Road | AM | 1,865 | 0.92 | 2 | Level | 7% | 0% | 1.5 | 1.2 | 0.966 | 1.00 | 1,049 | 65.0 | 60.5 | **17.3** | **B** |
| 2 | SR 99 SB | Riego Road to Elverta Road | AM | 2,411 | 0.92 | 2 | Level | 7% | 0% | 1.5 | 1.2 | 0.966 | 1.00 | 1,356 | 65.0 | 60.5 | **22.4** | **C** |
| 3 | SR 99 SB | Elverta Road to Elkhorn Blvd | AM | 2,724 | 0.92 | 2 | Level | 7% | 0% | 1.5 | 1.2 | 0.966 | 1.00 | 1,532 | 65.0 | 60.5 | **25.3** | **C** |
| 4 | SR 99 SB | Elkhorn Blvd to I-5 | AM | 3,473 | 0.92 | 2 | Level | 7% | 0% | 1.5 | 1.2 | 0.966 | 1.00 | 1,954 | 65.0 | 58.9 | **33.2** | **D** |
| 5 | SR 99 NB | I-5 to Elkhorn Blvd | AM | 1,108 | 0.92 | 2 | Level | 23% | 0% | 1.5 | 1.2 | 0.897 | 1.00 | 671 | 65.0 | 60.5 | **11.1** | **B** |
| 6 | SR 99 NB | Elkhorn Blvd to Elverta Road | AM | 938 | 0.92 | 2 | Level | 23% | 0% | 1.5 | 1.2 | 0.897 | 1.00 | 568 | 65.0 | 60.5 | **9.4** | **A** |
| 7 | SR 99 NB | Elverta Road to Riego Road | AM | 870 | 0.92 | 2 | Level | 23% | 0% | 1.5 | 1.2 | 0.897 | 1.00 | 527 | 65.0 | 60.5 | **8.7** | **A** |
| 8 | SR 99 NB | Riego Road to Sankey Road | AM | 713 | 0.92 | 2 | Level | 23% | 0% | 1.5 | 1.2 | 0.897 | 1.00 | 432 | 65.0 | 60.5 | **7.1** | **A** |
| 1 | SR-99 SB | Sankey Road to Riego Road | PM | 1,054 | 0.92 | 2 | Level | 5% | 0% | 1.5 | 1.2 | 0.976 | 1.00 | 587 | 65.0 | 60.5 | **9.7** | **A** |
| 2 | SR 99 SB | Riego Road to Elverta Road | PM | 1,203 | 0.92 | 2 | Level | 5% | 0% | 1.5 | 1.2 | 0.976 | 1.00 | 670 | 65.0 | 60.5 | **11.1** | **B** |
| 3 | SR 99 SB | Elverta Road to Elkhorn Blvd | PM | 1,285 | 0.92 | 2 | Level | 5% | 0% | 1.5 | 1.2 | 0.976 | 1.00 | 716 | 65.0 | 60.5 | **11.8** | **B** |
| 4 | SR 99 SB | Elkhorn Blvd to I-5 | PM | 1,555 | 0.92 | 2 | Level | 5% | 0% | 1.5 | 1.2 | 0.976 | 1.00 | 866 | 65.0 | 60.5 | **14.3** | **B** |
| 5 | SR 99 NB | I-5 to Elkhorn Blvd | PM | 3,859 | 0.92 | 2 | Level | 13% | 0% | 1.5 | 1.2 | 0.939 | 1.00 | 2,234 | 65.0 | 53.4 | **41.8** | **E** |
| 6 | SR 99 NB | Elkhorn Blvd to Elverta Road | PM | 2,899 | 0.92 | 2 | Level | 13% | 0% | 1.5 | 1.2 | 0.939 | 1.00 | 1,678 | 65.0 | 60.5 | **27.8** | **D** |
| 7 | SR 99 NB | Elverta Road to Riego Road | PM | 2,493 | 0.92 | 2 | Level | 13% | 0% | 1.5 | 1.2 | 0.939 | 1.00 | 1,443 | 65.0 | 60.5 | **23.9** | **C** |
| 8 | SR 99 NB | Riego Road to Sankey Road | PM | 1,970 | 0.92 | 2 | Level | 13% | 0% | 1.5 | 1.2 | 0.939 | 1.00 | 1,140 | 65.0 | 60.5 | **18.8** | **C** |

# Appendix A-3: Peak Hour Signal Warrant Analysis

# Existing Conditions

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Sheet No 1 of 2

| | |
|---|---|
| Major Street | Elkhorn Boulevard |
| Minor Street | SR 99 SB Off-Ramp |

| | |
|---|---|
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | AM |

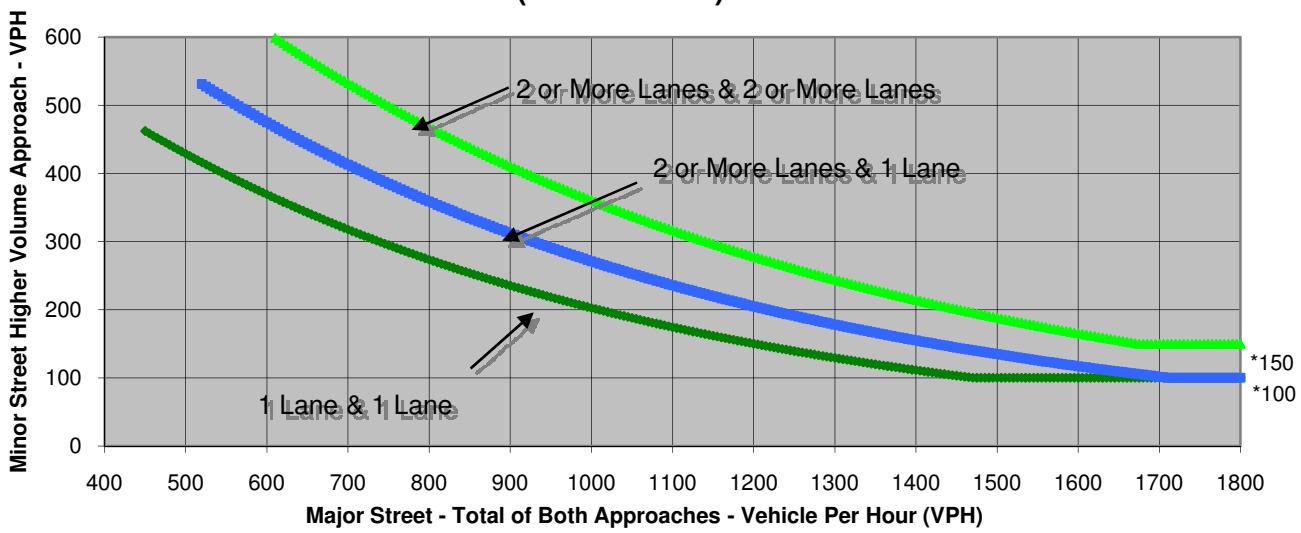
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 115 | 0 | 0 |
| Through | 0 | 0 | 2 | 7 |
| Right | 0 | 1 | 0 | 0 |
| Total | 0 | 116 | 2 | 7 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elkhorn Boulevard | SR 99 SB Off-Ramp | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 9 | 116 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 2 of 2

Project Elverta Specific Plan EIS
Scenario Existing Conditions
Peak Hour PM

Major Street Elkhorn Boulevard
Minor Street SR 99 SB Off-Ramp

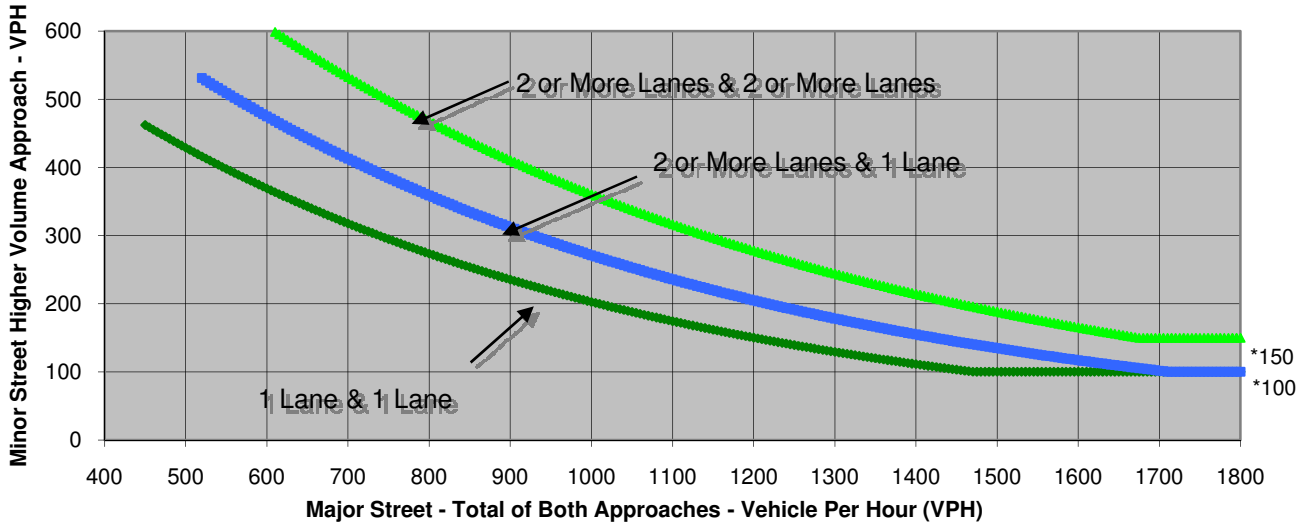
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 90 | 0 | 0 |
| Through | 0 | 0 | 7 | 13 |
| Right | 0 | 2 | 0 | 0 |
| Total | 0 | 92 | 7 | 13 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elkhorn Boulevard | SR 99 SB Off-Ramp | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 20 | 92 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

| | |
|---|---|
| Major Street | Elkhorn Boulevard |
| Minor Street | SR 99 NB Off-Ramp |

| | |
|---|---|
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | AM |

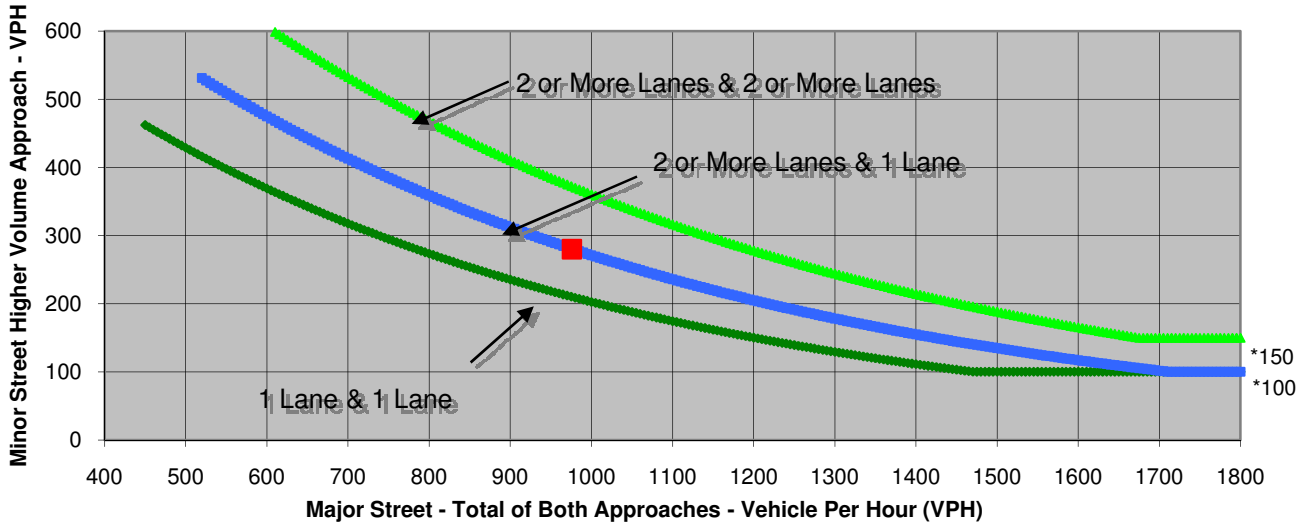
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 7 | 0 | 0 | 0 |
| Through | 0 | 0 | 116 | 860 |
| Right | 273 | 0 | 0 | 0 |
| Total | 280 | 0 | 116 | 860 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elkhorn Boulevard | SR 99 NB Off-Ramp | |
| **Number of Approach Lanes** | 1 | 1 | YES |
| **Traffic Volume (VPH) *** | 976 | 280 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 2 of 2

| | |
|---|---|
| Major Street | Elkhorn Boulevard |
| Minor Street | SR 99 NB Off-Ramp |

| | |
|---|---|
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | PM |

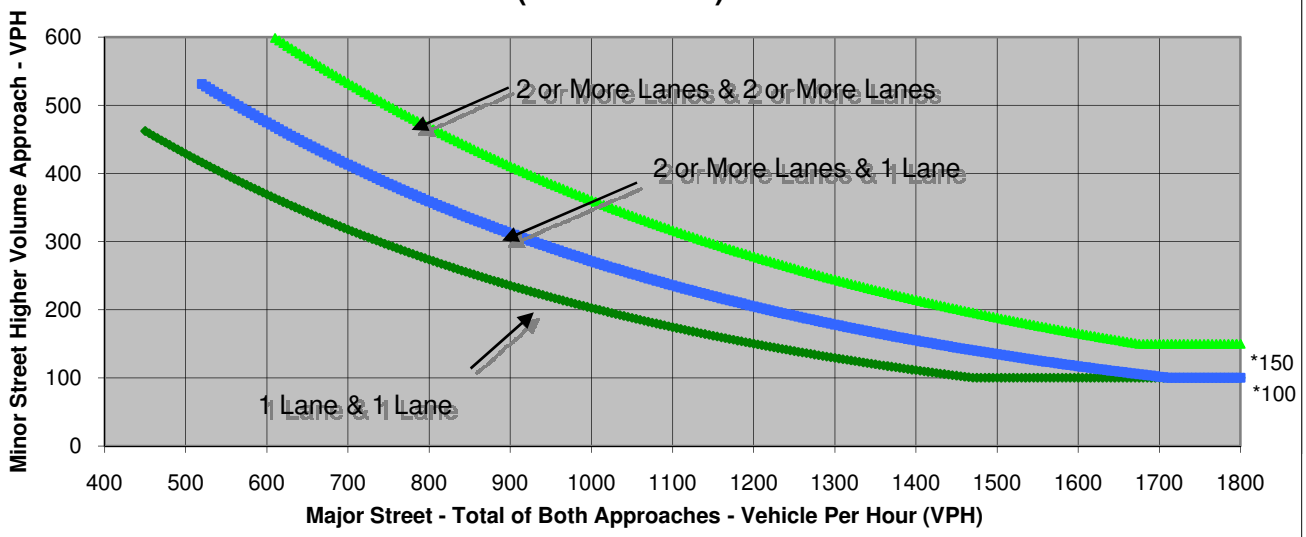
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 19 | 0 | 0 | 0 |
| Through | 0 | 0 | 94 | 350 |
| Right | 1,062 | 0 | 0 | 0 |
| Total | 1,081 | 0 | 94 | 350 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elkhorn Boulevard | SR 99 NB Off-Ramp | |
| **Number of Approach Lanes** | 1 | 1 | YES |
| **Traffic Volume (VPH) *** | 444 | 1,081 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 1 of 2

Project Elverta Specific Plan EIS
Scenario Existing Conditions
Peak Hour AM

Major Street Elverta Road
Minor Street E. Levee Road

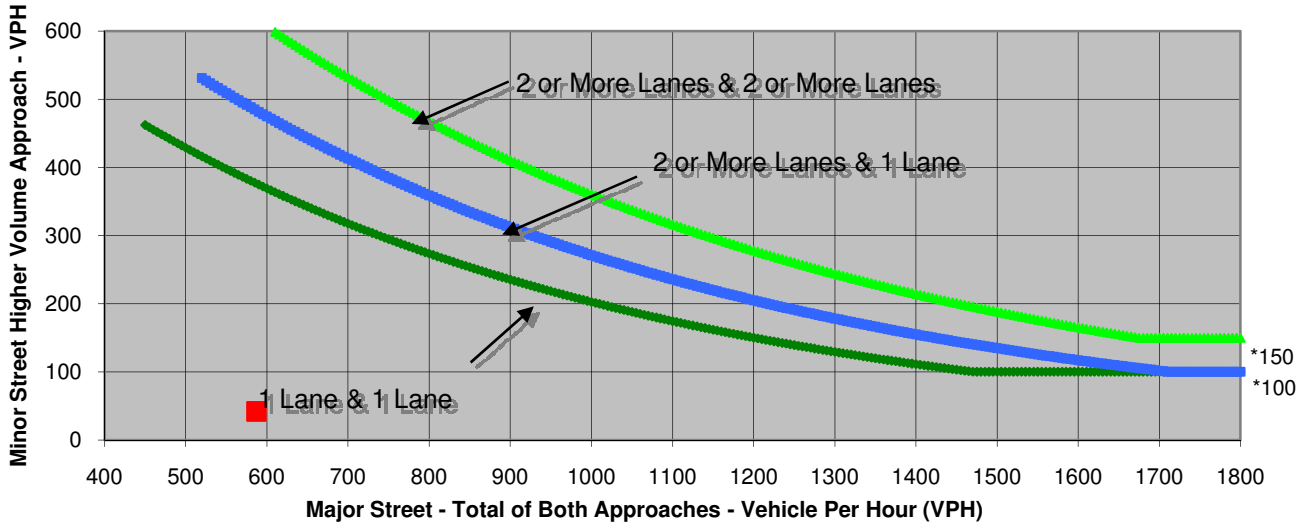
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 1 | 3 | 4 | 98 |
| Through | 13 | 35 | 82 | 395 |
| Right | 19 | 4 | 4 | 4 |
| Total | 33 | 42 | 90 | 497 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street<br>Elverta Road | Minor Street<br>E. Levee Road | Warrant Met |
|---|---|---|---|
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 587 | 42 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

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Sheet No 2 of 2

Project Elverta Specific Plan EIS
Scenario Existing Conditions
Peak Hour PM

Major Street Elverta Road
Minor Street E. Levee Road

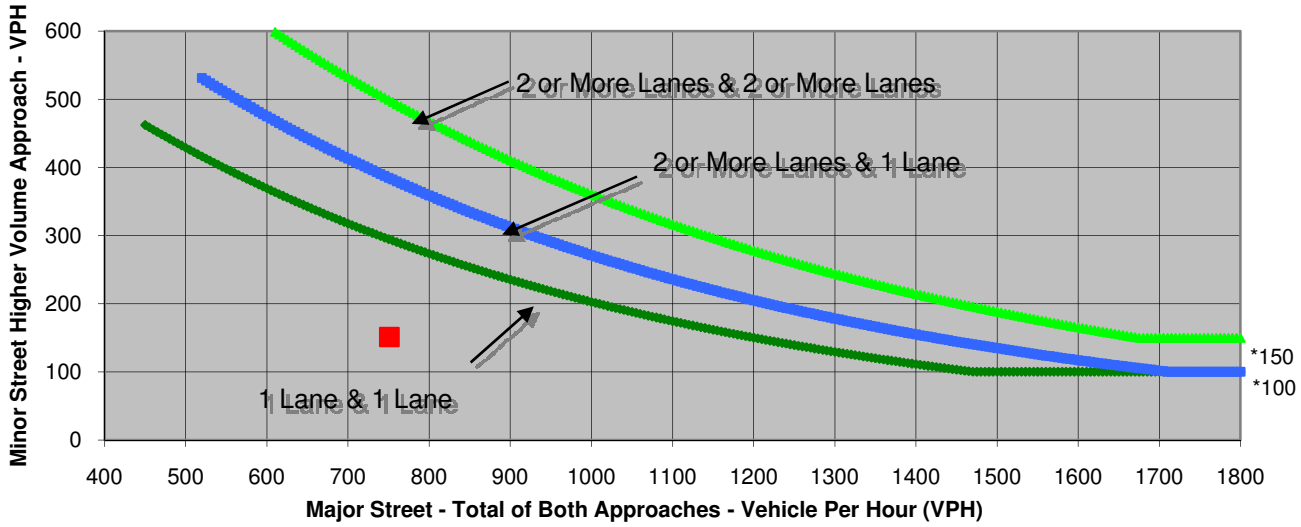
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 4 | 4 | 22 | 29 |
| Through | 60 | 25 | 596 | 104 |
| Right | 87 | 2 | 0 | 0 |
| Total | 151 | 31 | 618 | 133 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street<br>Elverta Road | Minor Street<br>E. Levee Road | Warrant Met |
|---|---|---|---|
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 751 | 151 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

| | |
|---|---|
| Major Street | Elkhorn Boulevard |
| Minor Street | E. Levee Road |
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | AM |

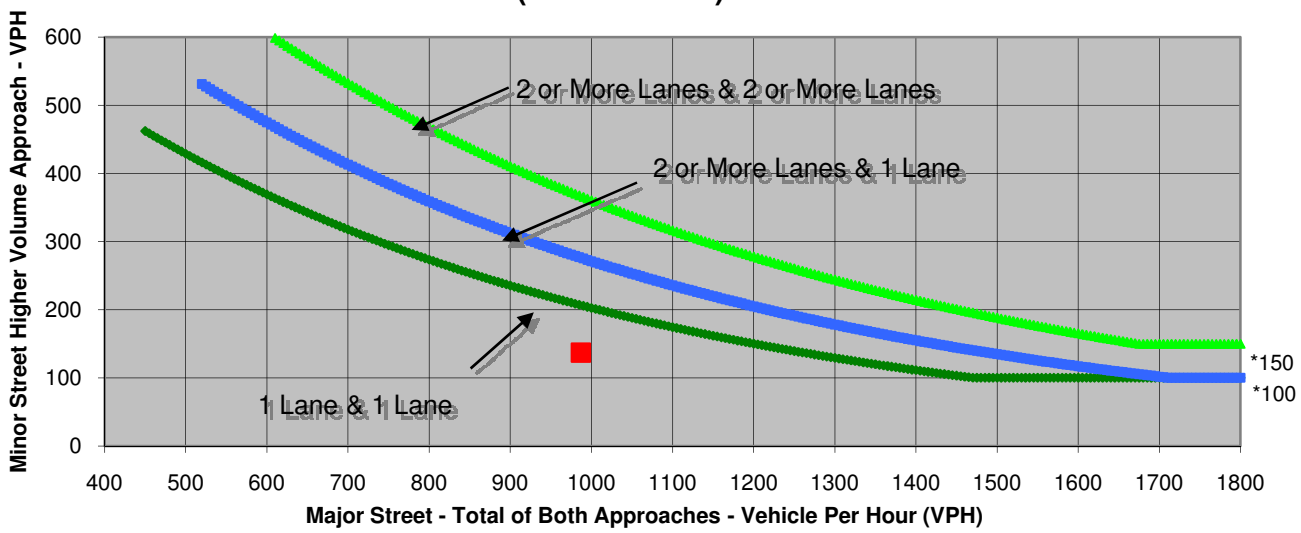
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 24 | 29 | 0 |
| Through | 0 | 0 | 392 | 560 |
| Right | 0 | 113 | 0 | 6 |
| Total | 0 | 137 | 421 | 566 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elkhorn Boulevard | E. Levee Road | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 987 | 137 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 2 of 2

| | |
|---|---|
| Major Street | Elkhorn Boulevard |
| Minor Street | E. Levee Road |
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | PM |

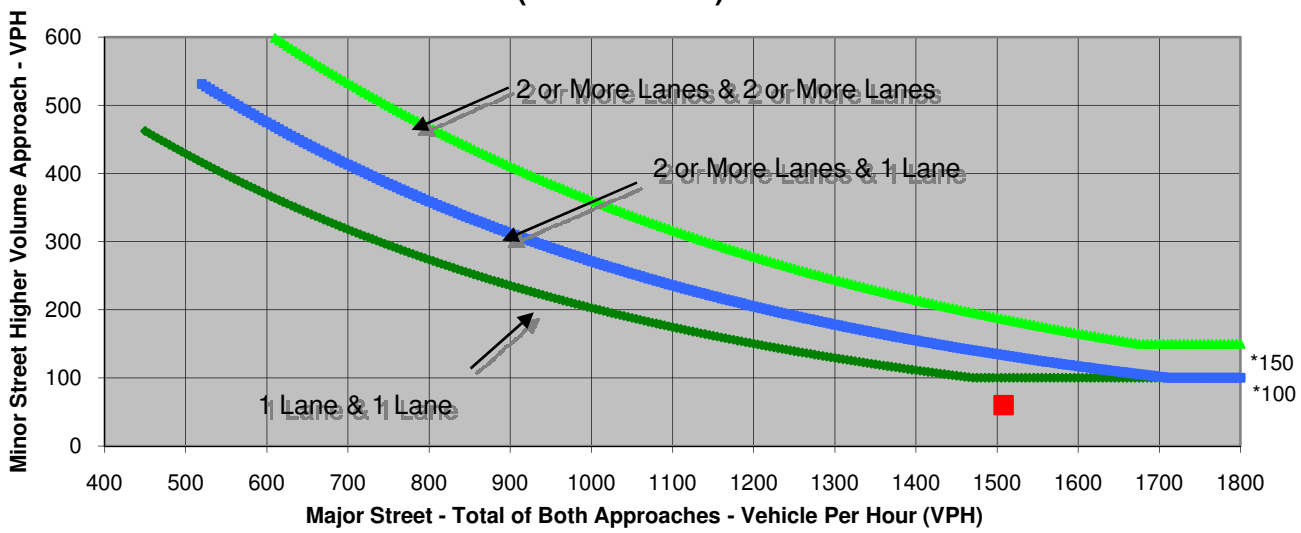
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 11 | 110 | 0 |
| Through | 0 | 0 | 873 | 491 |
| Right | 0 | 49 | 0 | 34 |
| Total | 0 | 60 | 983 | 525 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elkhorn Boulevard | E. Levee Road | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 1,508 | 60 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

| | |
|---|---|
| Major Street | Elverta Road |
| Minor Street | Sorento Road |
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | AM |

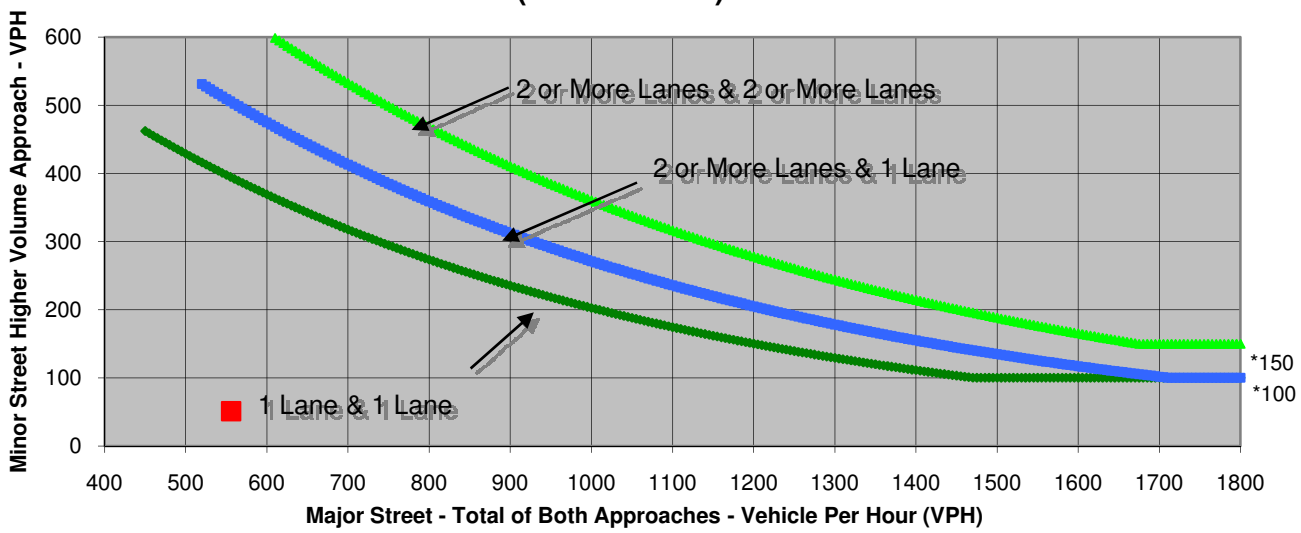
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 0 | 4 | 3 |
| Through | 1 | 1 | 99 | 447 |
| Right | 5 | 50 | 1 | 2 |
| Total | 6 | 51 | 104 | 452 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elverta Road | Sorento Road | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 556 | 51 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
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Sheet No 2 of 2

Project Elverta Specific Plan EIS
Scenario Existing Conditions
Peak Hour PM

Major Street Elverta Road
Minor Street Sorento Road

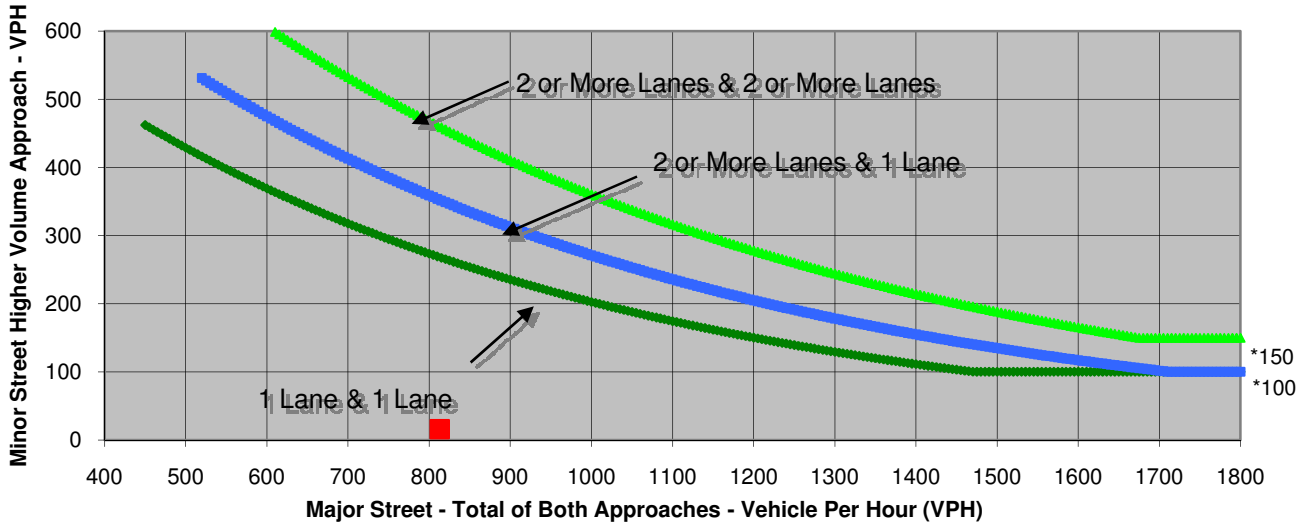
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 1 | 3 | 33 | 3 |
| Through | 1 | 2 | 651 | 121 |
| Right | 5 | 11 | 3 | 2 |
| Total | 7 | 16 | 687 | 126 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street<br>Elverta Road | Minor Street<br>Sorento Road | Warrant Met |
|---|---|---|---|
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 813 | 16 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

Project Elverta Specific Plan EIS
Scenario Existing Conditions
Peak Hour AM

Major Street Elverta Road
Minor Street Elwyn Road

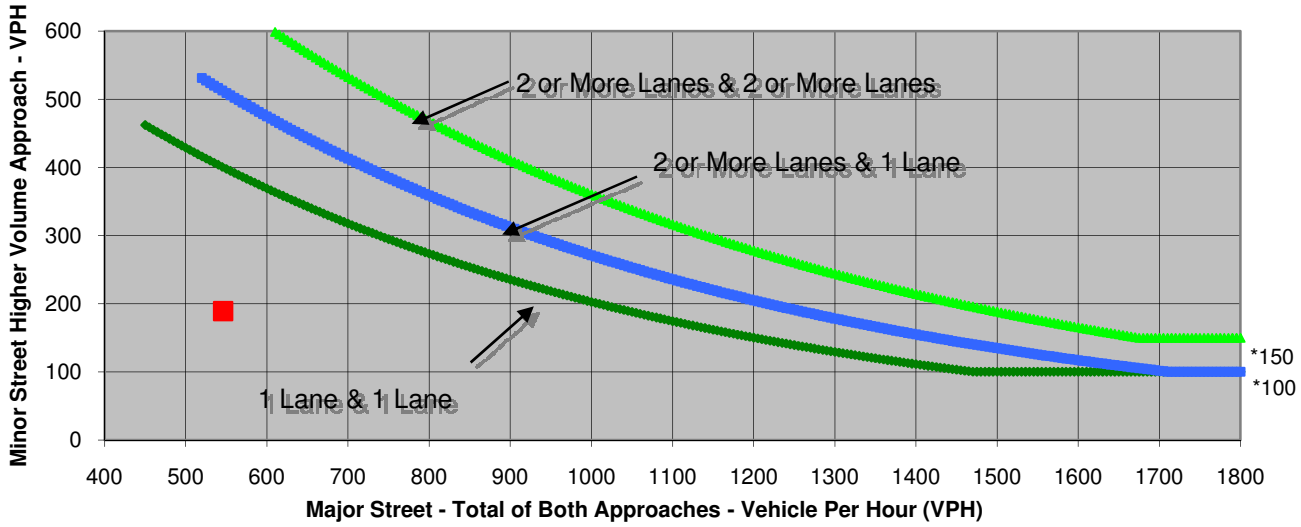
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 16 | 100 | 9 | 5 |
| Through | 27 | 25 | 85 | 370 |
| Right | 9 | 64 | 7 | 70 |
| Total | 52 | 189 | 101 | 445 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street<br>Elverta Road | Minor Street<br>Elwyn Road | Warrant Met |
|---|---|---|---|
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 546 | 189 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 2 of 2

Project Elverta Specific Plan EIS
Scenario Existing Conditions
Peak Hour PM

Major Street Elverta Road
Minor Street Elwyn Road

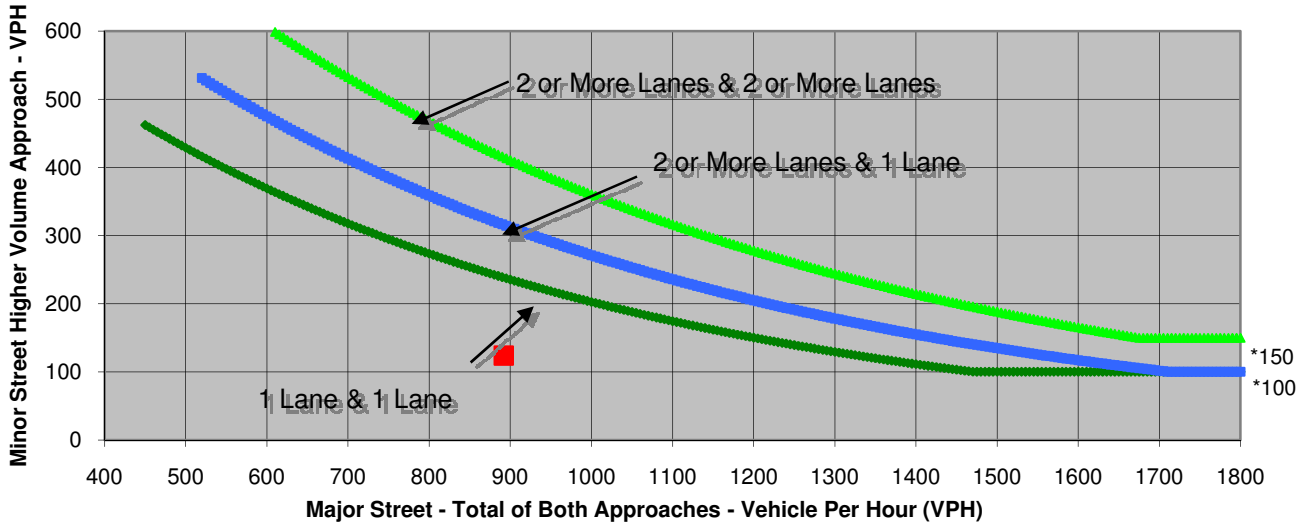
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 6 | 88 | 157 | 9 |
| Through | 18 | 26 | 480 | 109 |
| Right | 8 | 10 | 15 | 122 |
| Total | 32 | 124 | 652 | 240 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street<br>Elverta Road | Minor Street<br>Elwyn Road | Warrant Met |
|---|---|---|---|
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 892 | 124 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

| | |
|---|---|
| Major Street | Elverta Road |
| Minor Street | Rio Linda Blvd |
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | AM |

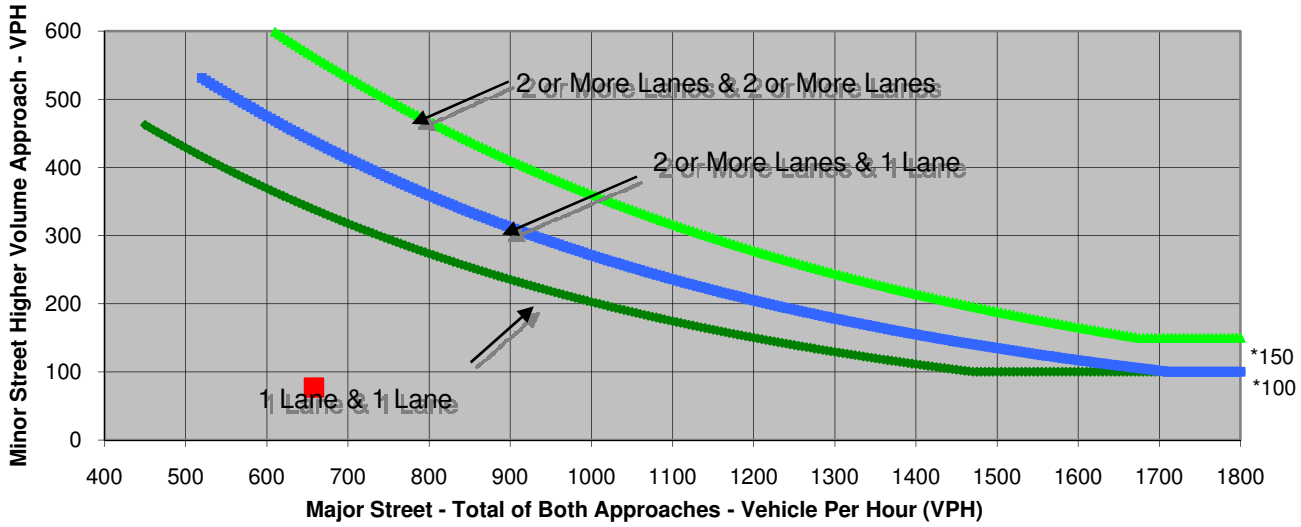
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 49 | 0 | 0 | 59 |
| Through | 0 | 0 | 132 | 385 |
| Right | 28 | 0 | 82 | 0 |
| Total | 77 | 0 | 214 | 444 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elverta Road | Rio Linda Blvd | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 658 | 77 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 2 of 2

| | |
|---|---|
| Major Street | Elverta Road |
| Minor Street | Rio Linda Blvd |
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | PM |

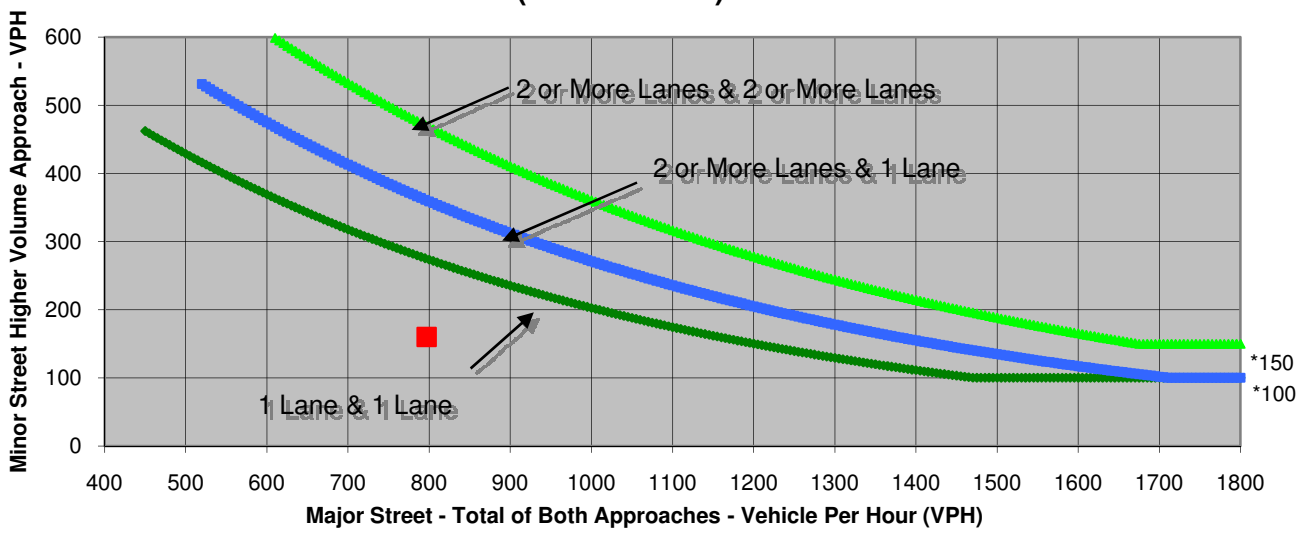
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 105 | 0 | 0 | 55 |
| Through | 0 | 0 | 503 | 152 |
| Right | 55 | 0 | 87 | 0 |
| Total | 160 | 0 | 590 | 207 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elverta Road | Rio Linda Blvd | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 797 | 160 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

| | |
|---|---|
| Major Street | Elverta Road |
| Minor Street | 9th Street |

| | |
|---|---|
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | AM |

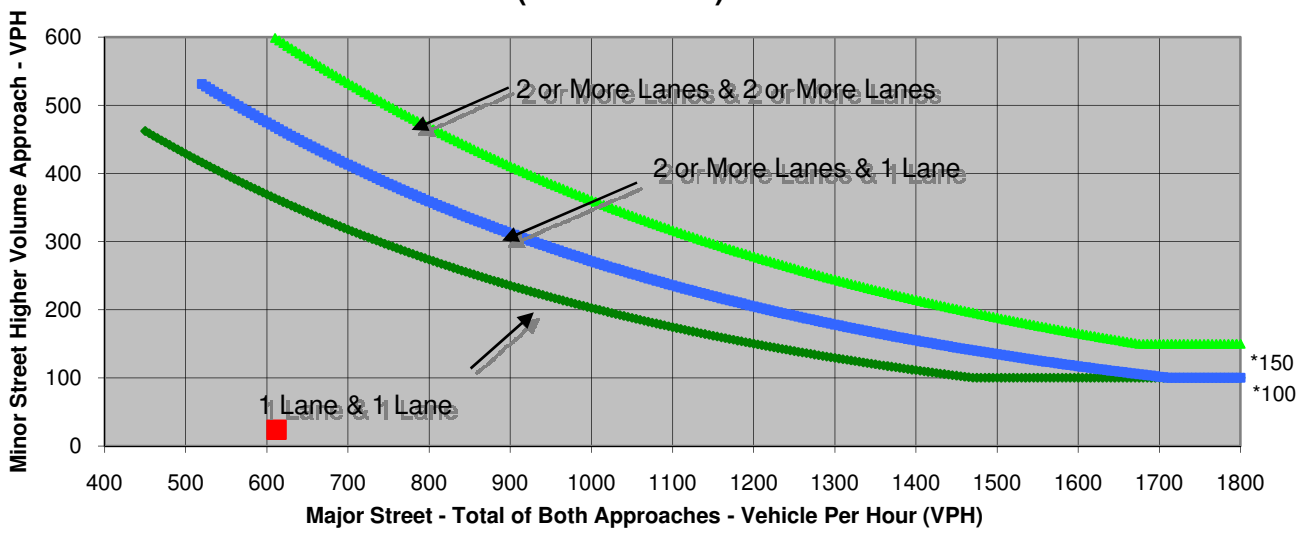
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 0 | 0 | 13 |
| Through | 0 | 0 | 184 | 414 |
| Right | 24 | 0 | 1 | 0 |
| Total | 24 | 0 | 185 | 427 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elverta Road | 9th Street | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 612 | 24 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 2 of 2

| | |
|---|---|
| Major Street | Elverta Road |
| Minor Street | 9th Street |
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | PM |

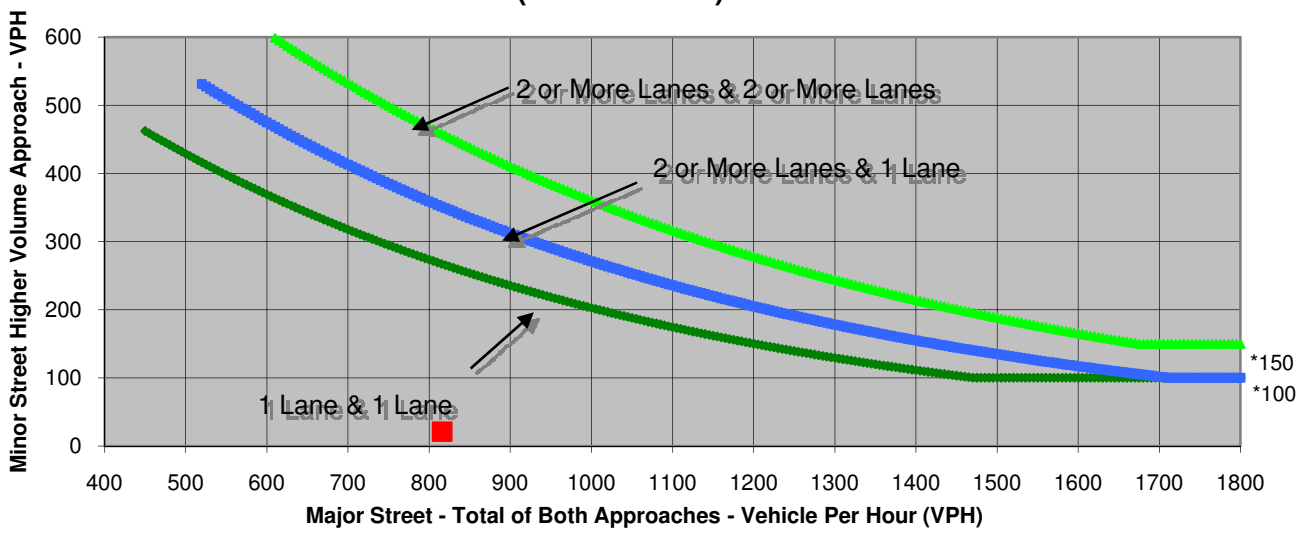
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 2 | 0 | 0 | 23 |
| Through | 0 | 0 | 539 | 249 |
| Right | 19 | 0 | 5 | 0 |
| Total | 21 | 0 | 544 | 272 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elverta Road | 9th Street | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 816 | 21 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

| | |
|---|---|
| Major Street | Elverta Road |
| Minor Street | Palladay Road |
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | AM |

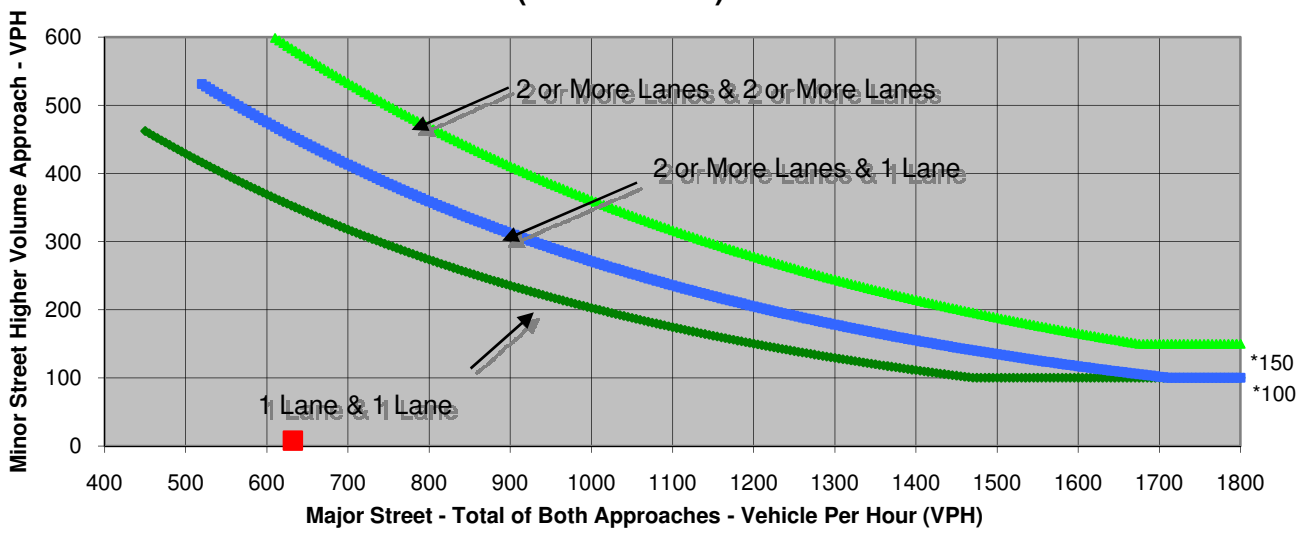
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 2 | 3 | 0 |
| Through | 0 | 0 | 205 | 421 |
| Right | 0 | 6 | 0 | 3 |
| Total | 0 | 8 | 208 | 424 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Elverta Road | Palladay Road | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 632 | 8 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

| | |
|---|---|
| Major Street | Dry Creek Road |
| Minor Street | U Street |
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | AM |

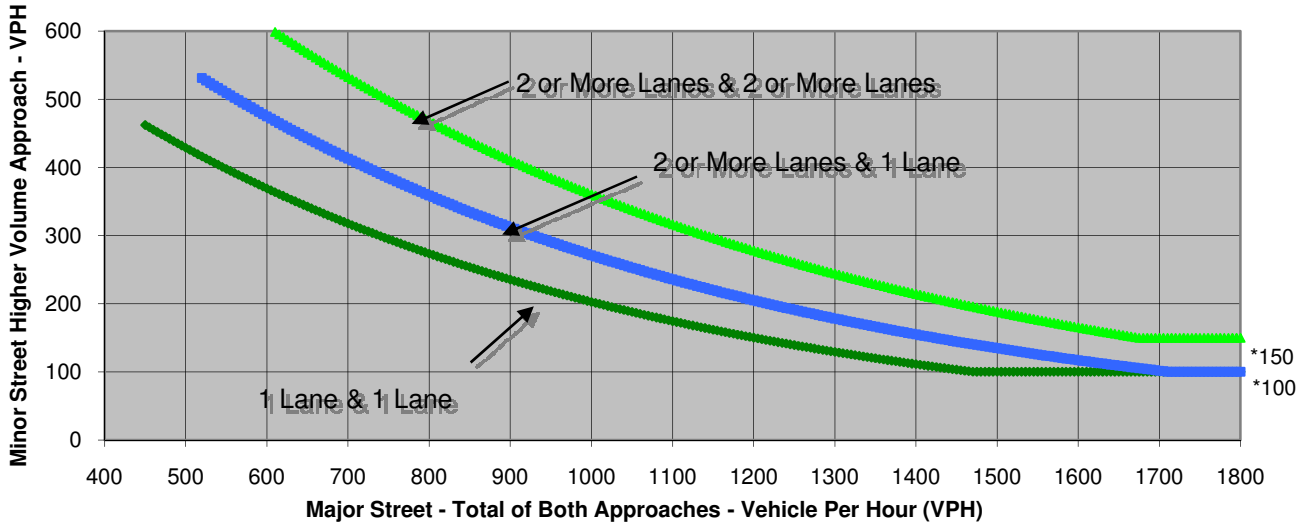
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 18 | 0 | 0 | 16 |
| Through | 0 | 1 | 19 | 18 |
| Right | 10 | 0 | 45 | 1 |
| Total | 28 | 1 | 64 | 35 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Dry Creek Road | U Street | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 29 | 64 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 2 of 2

| | |
|---|---|
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | PM |
| Major Street | Dry Creek Road |
| Minor Street | U Street |

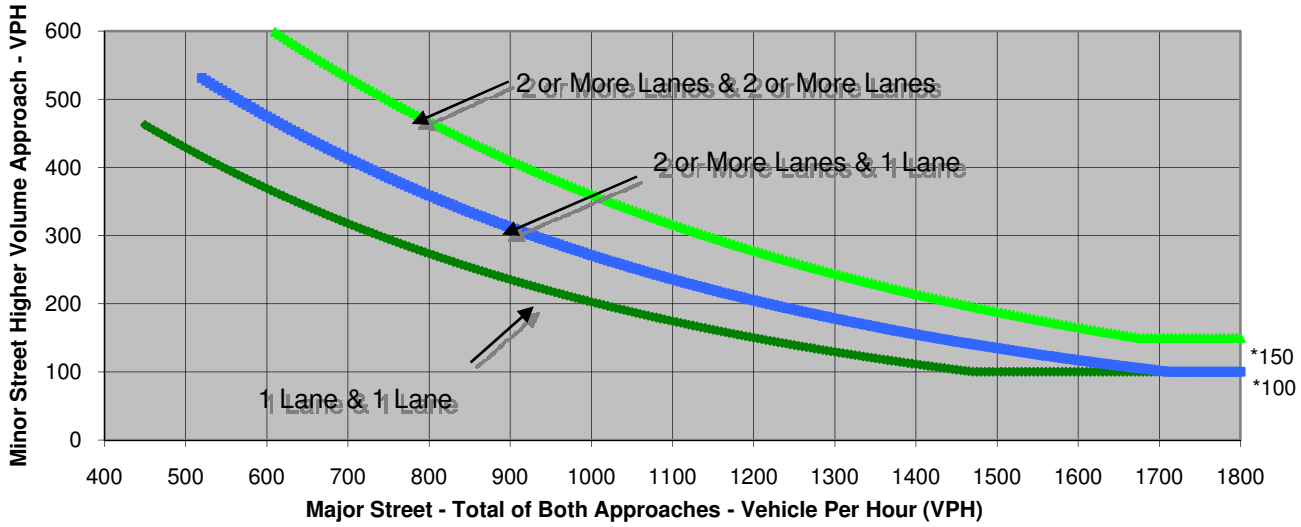
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 53 | 1 | 0 | 20 |
| Through | 2 | 0 | 31 | 26 |
| Right | 25 | 2 | 31 | 1 |
| Total | 80 | 3 | 62 | 47 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Dry Creek Road | U Street | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 83 | 62 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

| | |
|---|---|
| Major Street | Dry Creek Road |
| Minor Street | Q Street |
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | AM |

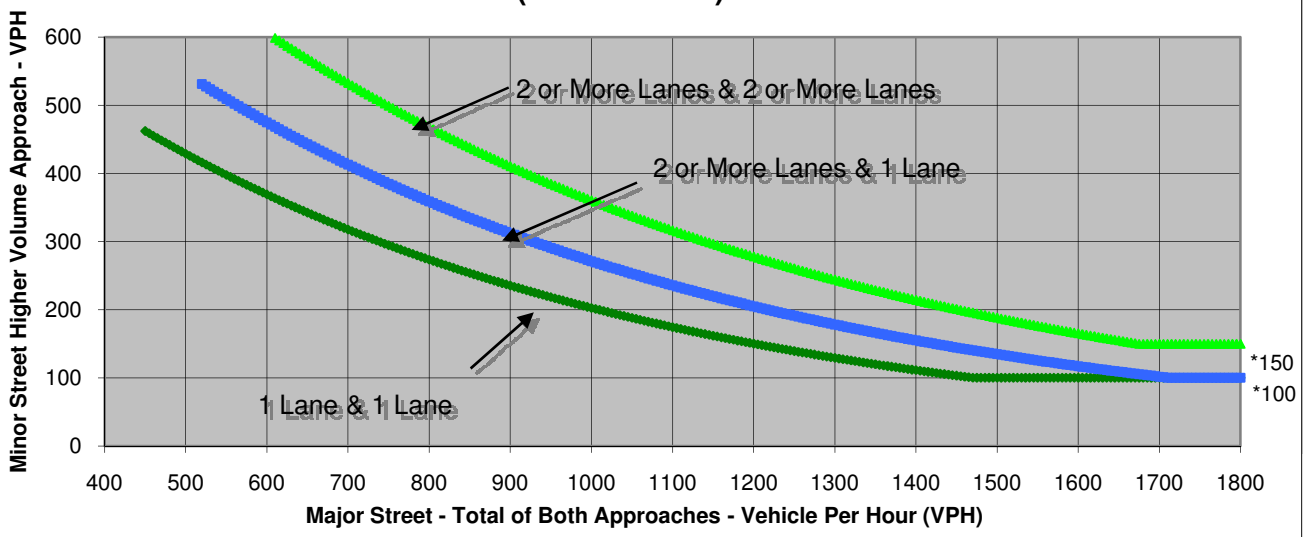
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 47 | 10 | 2 | 40 |
| Through | 28 | 63 | 51 | 58 |
| Right | 26 | 5 | 53 | 7 |
| Total | 101 | 78 | 106 | 105 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Dry Creek Road | Q Street | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 179 | 106 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 2 of 2

| | |
|---|---|
| Major Street | Dry Creek Road |
| Minor Street | Q Street |
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | PM |

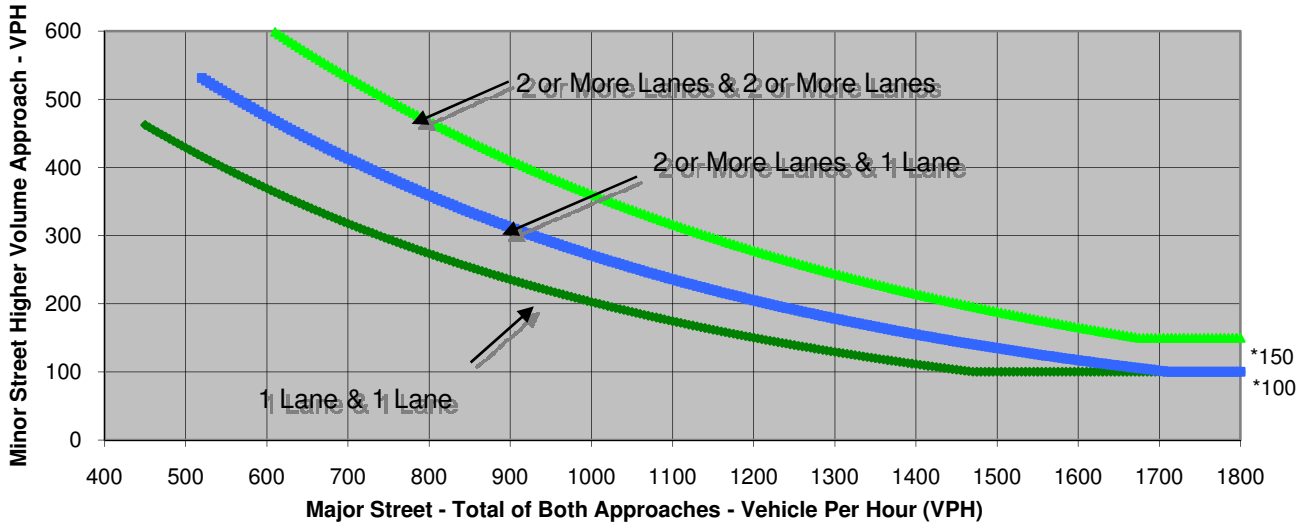
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 63 | 4 | 4 | 45 |
| Through | 69 | 52 | 68 | 76 |
| Right | 60 | 2 | 44 | 17 |
| Total | 192 | 58 | 116 | 138 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | Dry Creek Road | Q Street | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 250 | 138 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

| | |
|---|---|
| Major Street | 16th Street |
| Minor Street | U Street |
| Project | Elverta Specific Plan EIS |
| Scenario | Existing Conditions |
| Peak Hour | AM |

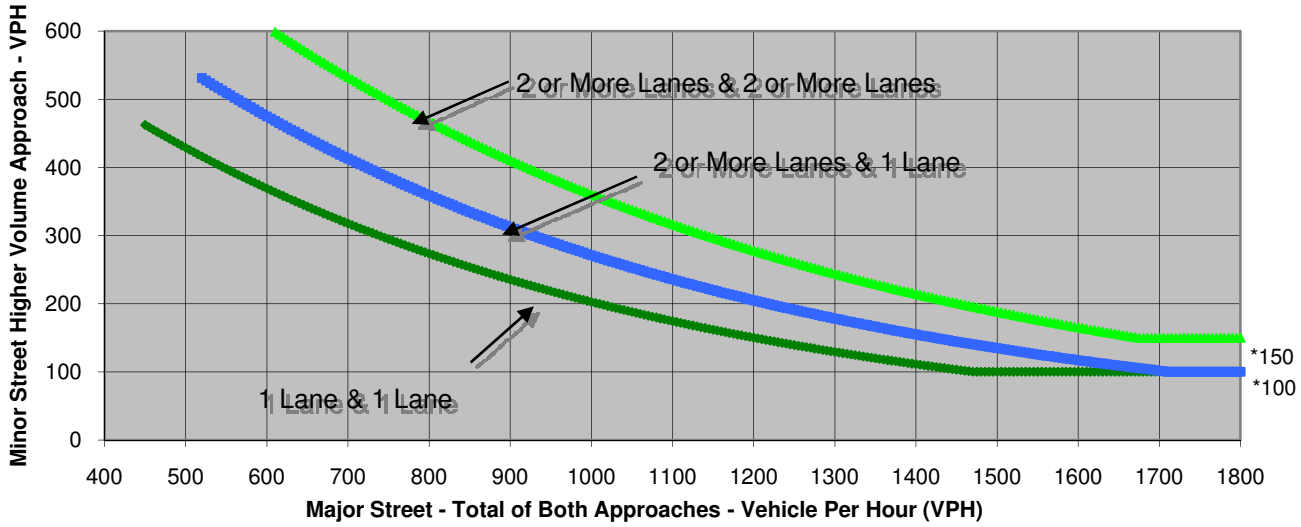
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 1 | 5 | 29 | 6 |
| Through | 9 | 30 | 2 | 3 |
| Right | 7 | 34 | 3 | 5 |
| Total | 17 | 69 | 34 | 14 |

Major Street Direction

| | |
|---|---|
| x | North/South |
| | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | 16th Street | U Street | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 86 | 34 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 2 of 2

Project Elverta Specific Plan EIS
Scenario Existing Conditions
Peak Hour PM

Major Street 16th Street
Minor Street U Street

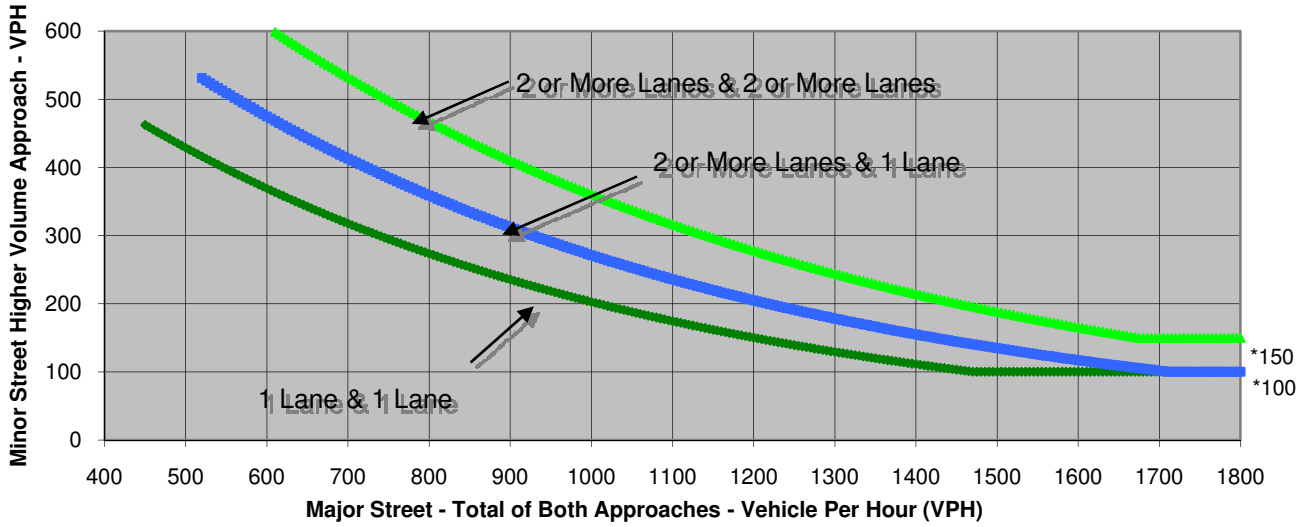
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 2 | 8 | 49 | 7 |
| Through | 31 | 34 | 5 | 2 |
| Right | 8 | 46 | 5 | 4 |
| Total | 41 | 88 | 59 | 13 |

Major Street Direction

x North/South
East/West

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | 16th Street | U Street | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 129 | 59 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 1 of 2

Project Elverta Specific Plan EIS
Scenario Existing Conditions
Peak Hour AM

Major Street 16th Street
Minor Street Q Street

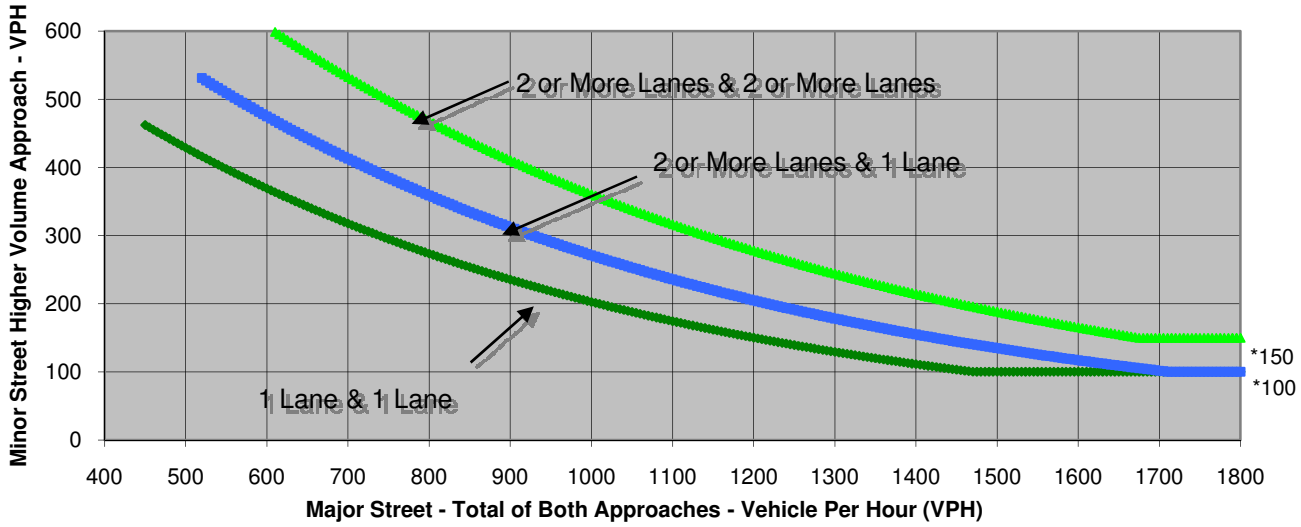
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 15 | 5 | 0 |
| Through | 0 | 0 | 104 | 68 |
| Right | 0 | 28 | 0 | 8 |
| Total | 0 | 43 | 109 | 76 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | 16th Street | Q Street | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 185 | 43 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 2 of 2

Project Elverta Specific Plan EIS
Scenario Existing Conditions
Peak Hour PM

Major Street 16th Street
Minor Street Q Street

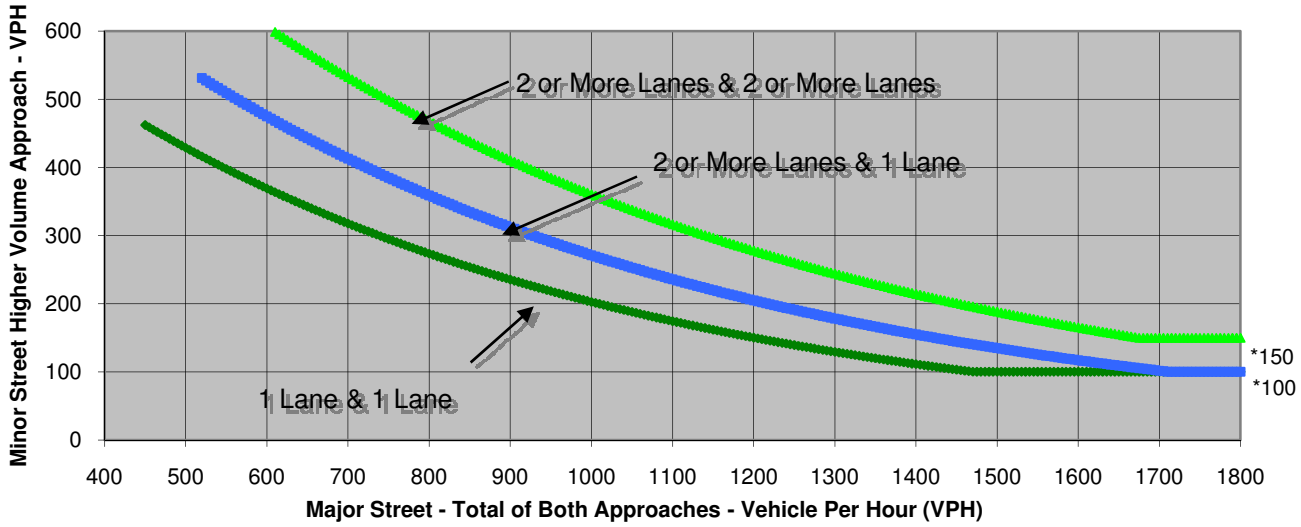
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 17 | 23 | 0 |
| Through | 0 | 0 | 123 | 112 |
| Right | 0 | 26 | 0 | 18 |
| Total | 0 | 43 | 146 | 130 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street | Minor Street | Warrant Met |
|---|---|---|---|
| | 16th Street | Q Street | |
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 276 | 43 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Sheet No 2 of 2

Project Elverta Specific Plan EIS
Scenario Existing Conditions
Peak Hour PM

Major Street Elverta Road
Minor Street Palladay Road

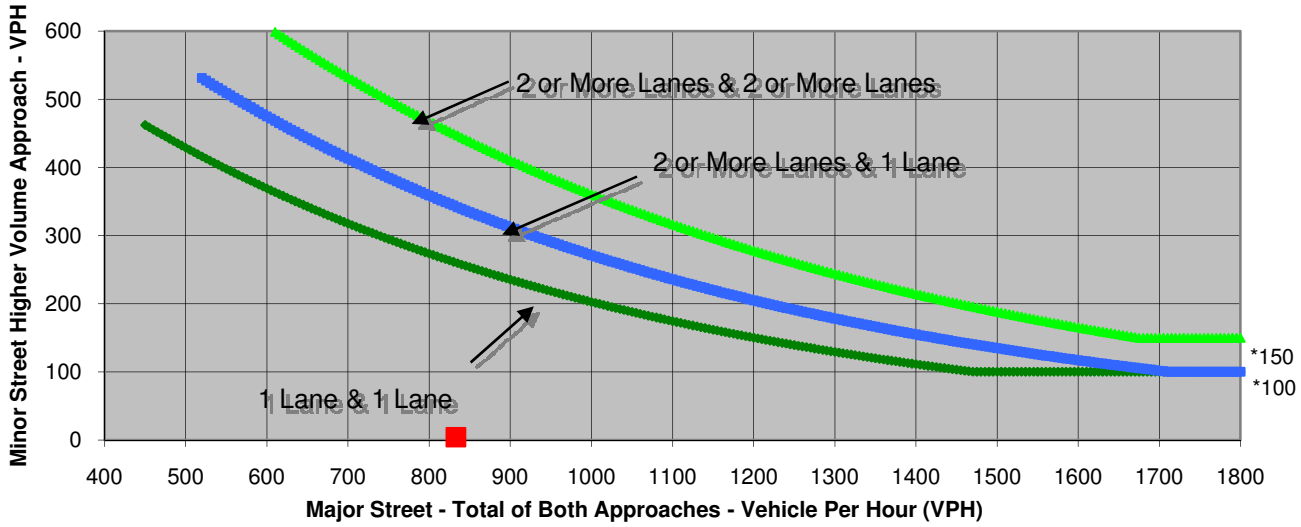
Turn Movement Volumes

| | NB | SB | EB | WB |
|---|---|---|---|---|
| Left | 0 | 1 | 7 | 0 |
| Through | 0 | 0 | 551 | 269 |
| Right | 0 | 3 | 0 | 6 |
| Total | 0 | 4 | 558 | 275 |

Major Street Direction

| | |
|---|---|
| | North/South |
| x | East/West |

**Figure 4C-3**
**Warrant 3, Peak Hour**
**(Urban Areas)**




* 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 APPROACHING WITH ONE LANE.

Source: *California Manual on Uniform Traffic Control Devices*, Caltrans, 2006

| | Major Street<br>Elverta Road | Minor Street<br>Palladay Road | Warrant Met |
|---|---|---|---|
| **Number of Approach Lanes** | 1 | 1 | NO |
| **Traffic Volume (VPH) *** | 833 | 4 | |

* Note: Traffic Volume for Major Street is Total Volume of Both Approaches.
Traffic Volume for Minor Street is the Volume of High Volume Approach.

# Appendix B

# Existing Plus Project Conditions

| Table A<br>SACMET Base Year Model Validation Results | | |
|---|---|---|
| **Statistic** | **Target Value** | **Daily Base Year Model** |
| Model / Count Ratio | 0.90 - 1.10 | 0.93 |
| % of Links Within Caltrans Maximum Deviations | >75% | 75% |
| % Root Mean Square Error | <40% | 30% |
| Correlation Coefficient | >0.88 | 0.95 |
| Source: Fehr & Peers, 2010. | | |

# Appendix B-1: Intersection Operations

## Existing Plus Preferred Alternative Conditions

## Existing Plus Approved Specific Plan Conditions

## Existing Plus Minimal Impact Conditions

## Existing Plus No Federal Action Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.99 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1693 | 1583 | 1633 | 1641 | 1583 | 1467 | 2935 | 1357 | 1641 | 3374 | 1583 |
| Flt Permitted | | 0.99 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1693 | 1583 | 1633 | 1641 | 1583 | 1467 | 2935 | 1357 | 1641 | 3374 | 1583 |
| Volume (vph) | 2 | 5 | 7 | 572 | 13 | 8 | 13 | 735 | 154 | 30 | 1841 | 3 |
| Peak-hour factor, PHF | 0.61 | 0.61 | 0.61 | 0.87 | 0.87 | 0.87 | 0.95 | 0.95 | 0.95 | 0.86 | 0.86 | 0.86 |
| Adj. Flow (vph) | 3 | 8 | 11 | 657 | 15 | 9 | 14 | 774 | 162 | 35 | 2141 | 3 |
| RTOR Reduction (vph) | 0 | 0 | 10 | 0 | 0 | 7 | 0 | 0 | 64 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 11 | 1 | 329 | 343 | 2 | 14 | 774 | 98 | 35 | 2141 | 3 |
| Heavy Vehicles (%) | 2% | 14% | 2% | 5% | 5% | 2% | 23% | 23% | 19% | 10% | 7% | 2% |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 7 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 7 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | | 4.5 | 4.5 | 20.2 | 20.2 | 20.2 | 2.6 | 71.6 | 71.6 | 4.8 | 73.8 | 73.8 |
| Effective Green, g (s) | | 6.5 | 6.5 | 22.2 | 22.2 | 22.2 | 2.1 | 74.7 | 74.7 | 4.3 | 76.9 | 76.9 |
| Actuated g/C Ratio | | 0.05 | 0.05 | 0.18 | 0.18 | 0.18 | 0.02 | 0.60 | 0.60 | 0.03 | 0.62 | 0.62 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 3.5 | 7.1 | 7.1 | 3.5 | 7.1 | 7.1 |
| Vehicle Extension (s) | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 89 | 83 | 293 | 295 | 284 | 25 | 1772 | 819 | 57 | 2097 | 984 |
| v/s Ratio Prot | | c0.01 | | 0.20 | c0.21 | | 0.01 | 0.26 | | c0.02 | c0.63 | |
| v/s Ratio Perm | | | 0.00 | | | 0.00 | | | 0.07 | | | 0.00 |
| v/c Ratio | | 0.12 | 0.01 | 1.12 | 1.16 | 0.01 | 0.56 | 0.44 | 0.12 | 0.61 | 1.02 | 0.00 |
| Uniform Delay, d1 | | 55.9 | 55.5 | 50.8 | 50.8 | 41.7 | 60.3 | 13.2 | 10.5 | 58.9 | 23.4 | 8.9 |
| 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 | | 0.2 | 0.0 | 89.8 | 103.9 | 0.0 | 15.9 | 0.1 | 0.0 | 13.0 | 25.1 | 0.0 |
| Delay (s) | | 56.1 | 55.6 | 140.6 | 154.7 | 41.7 | 76.3 | 13.2 | 10.5 | 71.9 | 48.5 | 8.9 |
| Level of Service | | E | E | F | F | D | E | B | B | E | D | A |
| Approach Delay (s) | | 55.8 | | | 146.4 | | | 13.7 | | | 48.9 | |
| Approach LOS | | E | | | F | | | B | | | D | |

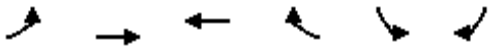
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 57.5 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.96 | | |
| Actuated Cycle Length (s) | 123.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 80.4% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1487 | 1335 | 1681 | 1686 | 1380 | 1492 | 2959 | 1482 | 1687 | 3406 | 1292 |
| Flt Permitted | | 0.97 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1487 | 1335 | 1681 | 1686 | 1380 | 1492 | 2959 | 1482 | 1687 | 3406 | 1292 |
| Volume (vph) | 11 | 5 | 14 | 1035 | 16 | 56 | 39 | 835 | 257 | 36 | 2350 | 34 |
| Peak-hour factor, PHF | 0.67 | 0.67 | 0.67 | 0.93 | 0.93 | 0.93 | 0.96 | 0.96 | 0.96 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 16 | 7 | 21 | 1113 | 17 | 60 | 41 | 870 | 268 | 39 | 2554 | 37 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 0 | 23 | 0 | 0 | 81 | 0 | 0 | 5 |
| Lane Group Flow (vph) | 0 | 23 | 1 | 561 | 569 | 37 | 41 | 870 | 187 | 39 | 2554 | 32 |
| Heavy Vehicles (%) | 25% | 20% | 21% | 2% | 6% | 17% | 21% | 22% | 9% | 7% | 6% | 25% |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 7 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 7 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | | 6.5 | 6.5 | 21.0 | 21.0 | 21.0 | 8.3 | 122.8 | 122.8 | 7.7 | 122.2 | 122.2 |
| Effective Green, g (s) | | 8.5 | 8.5 | 23.0 | 23.0 | 23.0 | 7.8 | 125.9 | 125.9 | 7.2 | 125.3 | 125.3 |
| Actuated g/C Ratio | | 0.05 | 0.05 | 0.13 | 0.13 | 0.13 | 0.04 | 0.70 | 0.70 | 0.04 | 0.69 | 0.69 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 3.5 | 7.1 | 7.1 | 3.5 | 7.1 | 7.1 |
| Vehicle Extension (s) | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.2 | 2.0 | 2.0 | 2.2 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 70 | 63 | 214 | 215 | 176 | 64 | 2063 | 1033 | 67 | 2363 | 896 |
| v/s Ratio Prot | | c0.02 | | 0.33 | c0.34 | | c0.03 | 0.29 | | 0.02 | c0.75 | |
| v/s Ratio Perm | | | 0.00 | | | 0.03 | | | 0.13 | | | 0.02 |
| v/c Ratio | | 0.33 | 0.02 | 2.62 | 2.65 | 0.21 | 0.64 | 0.42 | 0.18 | 0.58 | 1.08 | 0.04 |
| Uniform Delay, d1 | | 83.3 | 82.1 | 78.8 | 78.8 | 70.7 | 85.0 | 11.7 | 9.5 | 85.2 | 27.6 | 8.7 |
| 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 | | 1.0 | 0.0 | 743.0 | 754.2 | 0.2 | 16.2 | 0.6 | 0.4 | 8.9 | 44.7 | 0.1 |
| Delay (s) | | 84.3 | 82.1 | 821.8 | 833.0 | 70.9 | 101.2 | 12.4 | 9.9 | 94.1 | 72.3 | 8.8 |
| Level of Service | | F | F | F | F | E | F | B | A | F | E | A |
| Approach Delay (s) | | 83.2 | | | 789.3 | | | 14.9 | | | 71.7 | |
| Approach LOS | | F | | | F | | | B | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 227.9 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.24 | | |
| Actuated Cycle Length (s) | 180.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 107.4% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 0 | 2 | 7 | 952 | 115 | 1 |
| Peak Hour Factor | 0.50 | 0.50 | 0.85 | 0.85 | 0.78 | 0.78 |
| Hourly flow rate (vph) | 0 | 4 | 8 | 1120 | 147 | 1 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 960 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 8 | | | | 572 | 568 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 8 | | | | 572 | 568 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 69 | 100 |
| cM capacity (veh/h) | 1612 | | | | 482 | 522 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 4 | 1128 | 147 | 1 |
| Volume Left | 0 | 0 | 147 | 0 |
| Volume Right | 0 | 1120 | 0 | 1 |
| cSH | 1700 | 1700 | 482 | 522 |
| Volume to Capacity | 0.00 | 0.66 | 0.31 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 32 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 15.7 | 11.9 |
| Lane LOS | | | C | B |
| Approach Delay (s) | 0.0 | 0.0 | 15.7 | |
| Approach LOS | | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.8 | | |
| Intersection Capacity Utilization | 72.3% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 116 | 1 | 0 | 952 | 7 | 299 |
| Peak Hour Factor | 0.79 | 0.79 | 0.84 | 0.84 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 147 | 1 | 0 | 1133 | 8 | 325 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 147 | | 1281 | 147 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 147 | | 1281 | 147 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 96 | 64 |
| cM capacity (veh/h) | | | 1435 | | 183 | 899 |

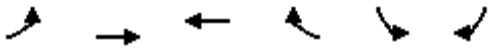
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 148 | 1133 | 8 | 325 |
| Volume Left | 0 | 0 | 8 | 0 |
| Volume Right | 1 | 0 | 0 | 325 |
| cSH | 1700 | 1700 | 183 | 899 |
| Volume to Capacity | 0.09 | 0.67 | 0.04 | 0.36 |
| Queue Length 95th (ft) | 0 | 0 | 3 | 41 |
| Control Delay (s) | 0.0 | 0.0 | 25.6 | 11.2 |
| Lane LOS | | | D | B |
| Approach Delay (s) | 0.0 | 0.0 | 11.6 | |
| Approach LOS | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.4 | | |
| Intersection Capacity Utilization | 60.1% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 4 | 284 | 4 | 106 | 1102 | 4 | 1 | 13 | 21 | 3 | 35 | 4 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.93 | 0.93 | 0.93 | 0.75 | 0.75 | 0.75 | 0.83 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 5 | 326 | 5 | 114 | 1185 | 4 | 1 | 17 | 28 | 4 | 42 | 5 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 336 | 1303 | 47 | 51 |
| Volume Left (vph) | 5 | 114 | 1 | 4 |
| Volume Right (vph) | 5 | 4 | 28 | 5 |
| Hadj (s) | 0.08 | 0.06 | -0.32 | -0.01 |
| Departure Headway (s) | 5.2 | 4.7 | 6.2 | 6.5 |
| Degree Utilization, x | 0.48 | 1.71 | 0.08 | 0.09 |
| Capacity (veh/h) | 688 | 767 | 546 | 519 |
| Control Delay (s) | 12.9 | 338.9 | 9.7 | 10.1 |
| Approach Delay (s) | 12.9 | 338.9 | 9.7 | 10.1 |
| Approach LOS | B | F | A | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 257.4 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 93.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 31 | 416 | 644 | 6 | 24 | 121 |
| Peak Hour Factor | 0.96 | 0.96 | 0.89 | 0.89 | 0.80 | 0.80 |
| Hourly flow rate (vph) | 32 | 433 | 724 | 7 | 30 | 151 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 730 | | | | 1225 | 727 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 730 | | | | 1225 | 727 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 96 | | | | 84 | 64 |
| cM capacity (veh/h) | 869 | | | | 190 | 424 |

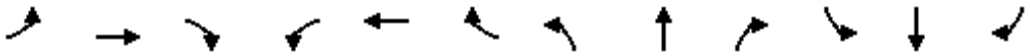
| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 466 | 730 | 181 |
| Volume Left | 32 | 0 | 30 |
| Volume Right | 0 | 7 | 151 |
| cSH | 869 | 1700 | 352 |
| Volume to Capacity | 0.04 | 0.43 | 0.51 |
| Queue Length 95th (ft) | 3 | 0 | 70 |
| Control Delay (s) | 1.1 | 0.0 | 25.6 |
| Lane LOS | A | | D |
| Approach Delay (s) | 1.1 | 0.0 | 25.6 |
| Approach LOS | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.7 | | |
| Intersection Capacity Utilization | 62.9% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 4 | 303 | 1 | 3 | 1162 | 34 | 0 | 1 | 5 | 9 | 1 | 50 |
| Peak Hour Factor | 0.91 | 0.91 | 0.91 | 0.93 | 0.93 | 0.93 | 0.63 | 0.63 | 0.63 | 0.85 | 0.85 | 0.85 |
| Hourly flow rate (vph) | 4 | 333 | 1 | 3 | 1249 | 37 | 0 | 2 | 8 | 11 | 1 | 59 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1286 | | | 334 | | | 1676 | 1635 | 334 | 1625 | 1617 | 1268 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1286 | | | 334 | | | 1676 | 1635 | 334 | 1625 | 1617 | 1268 |
| tC, single (s) | 4.1 | | | 4.3 | | | 7.1 | 6.5 | 6.5 | 7.1 | 6.8 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.4 | | | 3.5 | 4.0 | 3.5 | 3.5 | 4.2 | 3.3 |
| p0 queue free % | 99 | | | 100 | | | 100 | 98 | 99 | 87 | 99 | 71 |
| cM capacity (veh/h) | 539 | | | 1107 | | | 53 | 100 | 659 | 79 | 91 | 206 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 338 | 1289 | 10 | 71 |
| Volume Left | 4 | 3 | 0 | 11 |
| Volume Right | 1 | 37 | 8 | 59 |
| cSH | 539 | 1107 | 341 | 163 |
| Volume to Capacity | 0.01 | 0.00 | 0.03 | 0.43 |
| Queue Length 95th (ft) | 1 | 0 | 2 | 49 |
| Control Delay (s) | 0.3 | 0.1 | 15.9 | 42.8 |
| Lane LOS | A | A | C | E |
| Approach Delay (s) | 0.3 | 0.1 | 15.9 | 42.8 |
| Approach LOS | | | C | E |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 2.0 | | |
| Intersection Capacity Utilization | 81.9% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 9 | 299 | 7 | 5 | 1117 | 102 | 16 | 27 | 9 | 109 | 25 | 64 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.93 | 0.93 | 0.93 | 0.81 | 0.81 | 0.81 | 0.86 | 0.86 | 0.86 |
| Hourly flow rate (vph) | 10 | 344 | 8 | 5 | 1201 | 110 | 20 | 33 | 11 | 127 | 29 | 74 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total (vph) | 362 | 1206 | 110 | 64 | 230 |
| Volume Left (vph) | 10 | 5 | 0 | 20 | 127 |
| Volume Right (vph) | 8 | 0 | 110 | 11 | 74 |
| Hadj (s) | 0.09 | 0.03 | -0.50 | 0.07 | -0.02 |
| Departure Headway (s) | 6.1 | 5.7 | 3.2 | 7.5 | 6.8 |
| Degree Utilization, x | 0.61 | 1.90 | 0.10 | 0.13 | 0.43 |
| Capacity (veh/h) | 574 | 639 | 1121 | 426 | 507 |
| Control Delay (s) | 18.3 | 427.5 | 6.5 | 11.6 | 14.8 |
| Approach Delay (s) | 18.3 | 392.4 | | 11.6 | 14.8 |
| Approach LOS | C | F | | B | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 267.3 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 85.5% | ICU Level of Service | E | |
| Analysis Period (min) | 15 | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 355 | 82 | 59 | 1164 | 49 | 28 |
| Peak Hour Factor | 0.89 | 0.89 | 0.93 | 0.93 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 399 | 92 | 63 | 1252 | 69 | 39 |

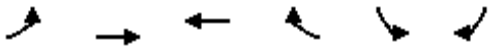
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 491 | 1315 | 69 | 39 |
| Volume Left (vph) | 0 | 63 | 69 | 0 |
| Volume Right (vph) | 92 | 0 | 0 | 39 |
| Hadj (s) | -0.02 | 0.05 | 0.57 | -0.58 |
| Departure Headway (s) | 5.2 | 5.0 | 7.8 | 6.6 |
| Degree Utilization, x | 0.70 | 1.83 | 0.15 | 0.07 |
| Capacity (veh/h) | 685 | 727 | 441 | 513 |
| Control Delay (s) | 19.4 | 390.5 | 11.0 | 9.0 |
| Approach Delay (s) | 19.4 | 390.5 | 10.2 | |
| Approach LOS | C | F | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 273.8 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 101.5% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 407 | 1 | 162 | 1193 | 0 | 66 |
| Peak Hour Factor | 0.87 | 0.87 | 0.94 | 0.94 | 0.60 | 0.60 |
| Hourly flow rate (vph) | 468 | 1 | 172 | 1269 | 0 | 110 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 714 | | |
| pX, platoon unblocked | | | | | 0.70 | |
| vC, conflicting volume | | | 469 | | 1448 | 234 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 469 | | 1215 | 234 |
| tC, single (s) | | | 4.4 | | 6.8 | 7.1 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.4 | | 3.5 | 3.4 |
| p0 queue free % | | | 83 | | 100 | 85 |
| cM capacity (veh/h) | | | 1003 | | 101 | 749 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 312 | 157 | 172 | 635 | 635 | 110 |
| Volume Left | 0 | 0 | 172 | 0 | 0 | 0 |
| Volume Right | 0 | 1 | 0 | 0 | 0 | 110 |
| cSH | 1700 | 1700 | 1003 | 1700 | 1700 | 749 |
| Volume to Capacity | 0.18 | 0.09 | 0.17 | 0.37 | 0.37 | 0.15 |
| Queue Length 95th (ft) | 0 | 0 | 15 | 0 | 0 | 13 |
| Control Delay (s) | 0.0 | 0.0 | 9.3 | 0.0 | 0.0 | 10.6 |
| Lane LOS | | | A | | | B |
| Approach Delay (s) | 0.0 | | 1.1 | | | 10.6 |
| Approach LOS | | | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 43.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.99 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1444 | 3471 | 3413 | | 1770 | 1292 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 1444 | 3471 | 3413 | | 1770 | 1292 |
| Volume (vph) | 62 | 440 | 1137 | 122 | 410 | 214 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.93 | 0.93 | 0.92 | 0.92 |
| Adj. Flow (vph) | 67 | 478 | 1223 | 131 | 446 | 233 |
| RTOR Reduction (vph) | 0 | 0 | 8 | 0 | 0 | 129 |
| Lane Group Flow (vph) | 67 | 478 | 1346 | 0 | 446 | 104 |
| Heavy Vehicles (%) | 25% | 4% | 2% | 25% | 2% | 25% |
| Turn Type | Prot | | | | | Perm |
| Protected Phases | 7 | 4 | 8 | | 6 | |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 5.5 | 46.5 | 37.0 | | 24.5 | 24.5 |
| Effective Green, g (s) | 5.5 | 46.5 | 37.0 | | 24.5 | 24.5 |
| Actuated g/C Ratio | 0.07 | 0.59 | 0.47 | | 0.31 | 0.31 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 101 | 2043 | 1598 | | 549 | 401 |
| v/s Ratio Prot | c0.05 | 0.14 | c0.39 | | c0.25 | |
| v/s Ratio Perm | | | | | | 0.08 |
| v/c Ratio | 0.66 | 0.23 | 0.84 | | 0.81 | 0.26 |
| Uniform Delay, d1 | 35.8 | 7.8 | 18.4 | | 25.1 | 20.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 15.2 | 0.1 | 4.2 | | 8.9 | 0.3 |
| Delay (s) | 51.0 | 7.8 | 22.7 | | 34.1 | 20.8 |
| Level of Service | D | A | C | | C | C |
| Approach Delay (s) | | 13.1 | 22.7 | | 29.5 | |
| Approach LOS | | B | C | | C | |

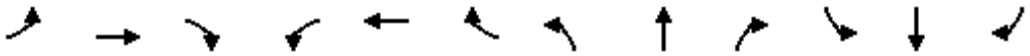
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 22.5 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 79.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 71.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 2 | 19 | 45 | 80 | 18 | 1 | 18 | 173 | 29 | 0 | 607 | 7 |
| Peak Hour Factor | 0.73 | 0.73 | 0.73 | 0.86 | 0.86 | 0.86 | 0.87 | 0.87 | 0.87 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 3 | 26 | 62 | 93 | 21 | 1 | 21 | 199 | 33 | 0 | 660 | 8 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 90 | 115 | 253 | 667 |
| Volume Left (vph) | 3 | 93 | 21 | 0 |
| Volume Right (vph) | 62 | 1 | 33 | 8 |
| Hadj (s) | -0.37 | 0.22 | -0.02 | 0.03 |
| Departure Headway (s) | 6.2 | 6.7 | 5.5 | 5.0 |
| Degree Utilization, x | 0.16 | 0.21 | 0.39 | 0.93 |
| Capacity (veh/h) | 543 | 506 | 632 | 713 |
| Control Delay (s) | 10.3 | 11.5 | 12.0 | 40.3 |
| Approach Delay (s) | 10.3 | 11.5 | 12.0 | 40.3 |
| Approach LOS | B | B | B | E |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 28.6 | | |
| HCM Level of Service | D | | |
| Intersection Capacity Utilization | 51.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 6 | 56 | 53 | 132 | 77 | 15 | 47 | 208 | 54 | 36 | 696 | 17 |
| Peak Hour Factor | 0.85 | 0.85 | 0.85 | 0.88 | 0.88 | 0.88 | 0.87 | 0.87 | 0.87 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 7 | 66 | 62 | 150 | 88 | 17 | 54 | 239 | 62 | 39 | 757 | 18 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 135 | 255 | 355 | 814 |
| Volume Left (vph) | 7 | 150 | 54 | 39 |
| Volume Right (vph) | 62 | 17 | 62 | 18 |
| Hadj (s) | -0.18 | 0.12 | -0.01 | 0.03 |
| Departure Headway (s) | 7.4 | 7.2 | 6.5 | 6.2 |
| Degree Utilization, x | 0.28 | 0.51 | 0.64 | 1.40 |
| Capacity (veh/h) | 434 | 472 | 529 | 581 |
| Control Delay (s) | 13.3 | 17.6 | 20.6 | 209.2 |
| Approach Delay (s) | 13.3 | 17.6 | 20.6 | 209.2 |
| Approach LOS | B | C | C | F |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 118.0 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 68.8% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3433 | 3343 | 1538 | 3400 | 3360 | | 1736 | 1863 | 1538 | 1752 | 3462 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3433 | 3343 | 1538 | 3400 | 3360 | | 1736 | 1863 | 1538 | 1752 | 3462 | |
| Volume (vph) | 142 | 383 | 209 | 109 | 521 | 93 | 92 | 259 | 86 | 152 | 751 | 128 |
| Peak-hour factor, PHF | 0.72 | 0.72 | 0.72 | 0.90 | 0.90 | 0.90 | 0.87 | 0.87 | 0.87 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 197 | 532 | 290 | 121 | 579 | 103 | 106 | 298 | 99 | 163 | 808 | 138 |
| RTOR Reduction (vph) | 0 | 0 | 207 | 0 | 7 | 0 | 0 | 0 | 65 | 0 | 7 | 0 |
| Lane Group Flow (vph) | 197 | 532 | 83 | 121 | 675 | 0 | 106 | 298 | 34 | 163 | 939 | 0 |
| Heavy Vehicles (%) | 2% | 8% | 5% | 3% | 5% | 5% | 4% | 2% | 5% | 3% | 2% | 2% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 6 | | | | | | 8 | | | |
| Actuated Green, G (s) | 7.0 | 23.7 | 23.7 | 5.4 | 22.4 | | 7.5 | 25.8 | 25.8 | 10.1 | 28.2 | |
| Effective Green, g (s) | 7.8 | 24.8 | 24.8 | 6.9 | 23.9 | | 9.0 | 26.9 | 26.9 | 11.6 | 29.5 | |
| Actuated g/C Ratio | 0.09 | 0.29 | 0.29 | 0.08 | 0.28 | | 0.10 | 0.31 | 0.31 | 0.13 | 0.34 | |
| Clearance Time (s) | 4.8 | 5.1 | 5.1 | 5.5 | 5.5 | | 5.5 | 5.1 | 5.1 | 5.5 | 5.3 | |
| Vehicle Extension (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lane Grp Cap (vph) | 311 | 962 | 442 | 272 | 932 | | 181 | 581 | 480 | 236 | 1185 | |
| v/s Ratio Prot | c0.06 | 0.16 | | 0.04 | c0.20 | | 0.06 | 0.16 | | c0.09 | c0.27 | |
| v/s Ratio Perm | | | 0.05 | | | | | | 0.02 | | | |
| v/c Ratio | 0.63 | 0.55 | 0.19 | 0.44 | 0.72 | | 0.59 | 0.51 | 0.07 | 0.69 | 0.79 | |
| Uniform Delay, d1 | 37.8 | 26.0 | 23.1 | 37.8 | 28.2 | | 36.8 | 24.3 | 20.9 | 35.6 | 25.6 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 3.1 | 0.4 | 0.1 | 0.4 | 2.4 | | 3.1 | 0.3 | 0.0 | 6.8 | 3.5 | |
| Delay (s) | 40.9 | 26.4 | 23.2 | 38.2 | 30.6 | | 39.9 | 24.6 | 20.9 | 42.4 | 29.1 | |
| Level of Service | D | C | C | D | C | | D | C | C | D | C | |
| Approach Delay (s) | | 28.3 | | | 31.7 | | | 27.1 | | | 31.0 | |
| Approach LOS | | C | | | C | | | C | | | C | |

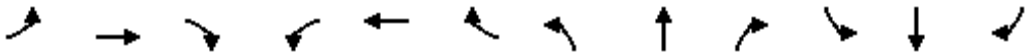
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 29.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.75 | | |
| Actuated Cycle Length (s) | 86.2 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 64.7% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.98 | | 1.00 | 0.87 | | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1597 | 3413 | | 1656 | 3454 | | 1770 | 1595 | | 1444 | 1709 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1597 | 3413 | | 1656 | 3454 | | 1770 | 1595 | | 1444 | 1709 | |
| Volume (vph) | 55 | 814 | 118 | 224 | 731 | 84 | 176 | 49 | 281 | 322 | 156 | 190 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.93 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 59 | 875 | 127 | 241 | 786 | 90 | 189 | 53 | 302 | 350 | 170 | 207 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 8 | 0 | 0 | 215 | 0 | 0 | 45 | 0 |
| Lane Group Flow (vph) | 59 | 991 | 0 | 241 | 868 | 0 | 189 | 140 | 0 | 350 | 332 | 0 |
| Heavy Vehicles (%) | 13% | 4% | 2% | 9% | 3% | 2% | 2% | 9% | 3% | 25% | 2% | 2% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 6.7 | 29.9 | | 14.0 | 37.2 | | 13.0 | 12.3 | | 24.1 | 23.4 | |
| Effective Green, g (s) | 6.7 | 29.9 | | 14.0 | 37.2 | | 13.0 | 12.3 | | 24.1 | 23.4 | |
| Actuated g/C Ratio | 0.07 | 0.31 | | 0.15 | 0.39 | | 0.13 | 0.13 | | 0.25 | 0.24 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 111 | 1060 | | 241 | 1334 | | 239 | 204 | | 361 | 415 | |
| v/s Ratio Prot | 0.04 | c0.29 | | c0.15 | 0.25 | | 0.11 | 0.09 | | c0.24 | c0.19 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 0.53 | 0.93 | | 1.00 | 0.65 | | 0.79 | 0.68 | | 0.97 | 0.80 | |
| Uniform Delay, d1 | 43.3 | 32.3 | | 41.1 | 24.2 | | 40.3 | 40.1 | | 35.7 | 34.2 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 4.8 | 14.5 | | 58.0 | 1.1 | | 16.2 | 9.1 | | 38.8 | 10.3 | |
| Delay (s) | 48.1 | 46.7 | | 99.1 | 25.4 | | 56.5 | 49.3 | | 74.5 | 44.5 | |
| Level of Service | D | D | | F | C | | E | D | | E | D | |
| Approach Delay (s) | | 46.8 | | | 41.3 | | | 51.8 | | | 59.0 | |
| Approach LOS | | D | | | D | | | D | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.91 | | |
| Actuated Cycle Length (s) | 96.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 89.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

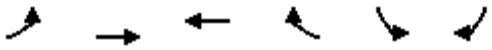
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 48 | 2 | 3 | 6 | 3 | 5 | 1 | 86 | 7 | 5 | 290 | 98 |
| Peak Hour Factor | 0.88 | 0.88 | 0.88 | 0.67 | 0.67 | 0.67 | 0.92 | 0.92 | 0.92 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 55 | 2 | 3 | 9 | 4 | 7 | 1 | 93 | 8 | 6 | 333 | 113 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 60 | 21 | 102 | 452 |
| Volume Left (vph) | 55 | 9 | 1 | 6 |
| Volume Right (vph) | 3 | 7 | 8 | 113 |
| Hadj (s) | 0.20 | -0.09 | 0.13 | -0.08 |
| Departure Headway (s) | 5.4 | 5.1 | 4.7 | 4.2 |
| Degree Utilization, x | 0.09 | 0.03 | 0.13 | 0.52 |
| Capacity (veh/h) | 605 | 619 | 730 | 844 |
| Control Delay (s) | 8.9 | 8.3 | 8.4 | 11.6 |
| Approach Delay (s) | 8.9 | 8.3 | 8.4 | 11.6 |
| Approach LOS | A | A | A | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 10.7 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 36.6% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 38 | 130 | 76 | 52 | 163 | 139 |
| Peak Hour Factor | 0.72 | 0.72 | 0.85 | 0.85 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 53 | 181 | 89 | 61 | 177 | 151 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 151 | | | | 406 | 120 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 151 | | | | 406 | 120 |
| tC, single (s) | 4.3 | | | | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.4 | | | | 3.6 | 3.3 |
| p0 queue free % | 96 | | | | 69 | 84 |
| cM capacity (veh/h) | 1328 | | | | 568 | 926 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 233 | 151 | 328 |
| Volume Left | 53 | 0 | 177 |
| Volume Right | 0 | 61 | 151 |
| cSH | 1328 | 1700 | 691 |
| Volume to Capacity | 0.04 | 0.09 | 0.48 |
| Queue Length 95th (ft) | 3 | 0 | 64 |
| Control Delay (s) | 2.0 | 0.0 | 14.8 |
| Lane LOS | A | | B |
| Approach Delay (s) | 2.0 | 0.0 | 14.8 |
| Approach LOS | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.5 | | |
| Intersection Capacity Utilization | 43.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBU | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1770 | 3471 | 1553 | 1736 | 3539 | 1583 | 1495 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1770 | 3471 | 1553 | 1736 | 3539 | 1583 | 1495 |
| Volume (vph) | 1 | 548 | 51 | 347 | 697 | 50 | 104 |
| Peak-hour factor, PHF | 0.86 | 0.86 | 0.86 | 0.91 | 0.91 | 0.76 | 0.76 |
| Adj. Flow (vph) | 1 | 637 | 59 | 381 | 766 | 66 | 137 |
| RTOR Reduction (vph) | 0 | 0 | 36 | 0 | 0 | 0 | 122 |
| Lane Group Flow (vph) | 1 | 637 | 23 | 381 | 766 | 66 | 15 |
| Heavy Vehicles (%) | 2% | 4% | 4% | 4% | 2% | 14% | 8% |
| Turn Type | Prot | | Perm | Prot | | | Perm |
| Protected Phases | 1 | 6 | | 4 5 | 2 | 3 | |
| Permitted Phases | | | 6 | | | | 3 |
| Actuated Green, G (s) | 0.4 | 26.4 | 26.4 | 23.0 | 42.1 | 6.4 | 6.4 |
| Effective Green, g (s) | 1.1 | 27.5 | 27.5 | 23.0 | 43.2 | 7.8 | 7.8 |
| Actuated g/C Ratio | 0.02 | 0.39 | 0.39 | 0.33 | 0.61 | 0.11 | 0.11 |
| Clearance Time (s) | 4.7 | 5.1 | 5.1 | | 5.1 | 5.4 | 5.4 |
| Vehicle Extension (s) | 1.0 | 4.9 | 4.9 | | 4.9 | 1.0 | 1.0 |
| Lane Grp Cap (vph) | 28 | 1358 | 608 | 568 | 2175 | 176 | 166 |
| v/s Ratio Prot | 0.00 | c0.18 | | c0.22 | 0.22 | c0.04 | |
| v/s Ratio Perm | | | 0.01 | | | | 0.01 |
| v/c Ratio | 0.04 | 0.47 | 0.04 | 0.67 | 0.35 | 0.38 | 0.09 |
| Uniform Delay, d1 | 34.1 | 16.0 | 13.2 | 20.4 | 6.7 | 29.0 | 28.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.2 | 0.5 | 0.1 | 2.5 | 0.2 | 0.5 | 0.1 |
| Delay (s) | 34.3 | 16.5 | 13.3 | 22.8 | 6.9 | 29.5 | 28.2 |
| Level of Service | C | B | B | C | A | C | C |
| Approach Delay (s) | | 16.2 | | | 12.2 | 28.6 | |
| Approach LOS | | B | | | B | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 15.2 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.54 | | |
| Actuated Cycle Length (s) | 70.3 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 47.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

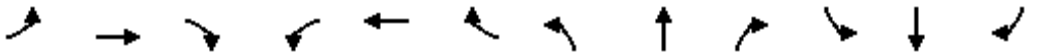
| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.98 | | | 1.00 | 0.94 | |
| Flt Protected | 1.00 | | | 0.99 | 0.97 | |
| Satd. Flow (prot) | 1799 | | | 1847 | 1677 | |
| Flt Permitted | 1.00 | | | 0.99 | 0.97 | |
| Satd. Flow (perm) | 1799 | | | 1847 | 1677 | |
| Volume (vph) | 1539 | 236 | 170 | 837 | 66 | 51 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.76 | 0.76 |
| Adj. Flow (vph) | 1655 | 254 | 183 | 900 | 87 | 67 |
| RTOR Reduction (vph) | 4 | 0 | 0 | 0 | 19 | 0 |
| Lane Group Flow (vph) | 1905 | 0 | 0 | 1083 | 135 | 0 |
| Heavy Vehicles (%) | 4% | 2% | 2% | 2% | 2% | 6% |
| Turn Type | | | Split | | | |
| Protected Phases | 2 | | 1 | 1 | 3 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 50.3 | | | 50.3 | 14.1 | |
| Effective Green, g (s) | 51.3 | | | 51.1 | 13.6 | |
| Actuated g/C Ratio | 0.38 | | | 0.38 | 0.10 | |
| Clearance Time (s) | 5.0 | | | 4.8 | 3.5 | |
| Vehicle Extension (s) | 6.8 | | | 6.3 | 2.0 | |
| Lane Grp Cap (vph) | 690 | | | 705 | 170 | |
| v/s Ratio Prot | c1.06 | | | c0.59 | c0.08 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 2.76 | | | 1.54 | 0.79 | |
| Uniform Delay, d1 | 41.3 | | | 41.4 | 58.7 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 796.7 | | | 248.4 | 20.8 | |
| Delay (s) | 837.9 | | | 289.7 | 79.5 | |
| Level of Service | F | | | F | E | |
| Approach Delay (s) | 837.9 | | | 289.7 | 79.5 | |
| Approach LOS | F | | | F | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 612.1 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.99 | | |
| Actuated Cycle Length (s) | 133.8 | Sum of lost time (s) | 17.8 |
| Intersection Capacity Utilization | 165.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1583 | 1770 | 1863 | 1770 | 1583 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1583 | 1770 | 1863 | 1770 | 1583 |
| Volume (vph) | 189 | 39 | 454 | 730 | 35 | 348 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.97 | 0.97 | 0.87 | 0.87 |
| Adj. Flow (vph) | 203 | 42 | 468 | 753 | 40 | 400 |
| RTOR Reduction (vph) | 0 | 16 | 0 | 0 | 0 | 311 |
| Lane Group Flow (vph) | 203 | 26 | 468 | 753 | 40 | 89 |
| Turn Type | | Perm | Prot | | | pm+ov |
| Protected Phases | 2 | | 1 | 6 | 4 | 1 |
| Permitted Phases | | 2 | | | | 4 |
| Actuated Green, G (s) | 43.5 | 43.5 | 12.0 | 59.1 | 4.5 | 16.5 |
| Effective Green, g (s) | 45.5 | 45.5 | 11.6 | 61.1 | 4.8 | 16.4 |
| Actuated g/C Ratio | 0.62 | 0.62 | 0.16 | 0.83 | 0.06 | 0.22 |
| Clearance Time (s) | 6.0 | 6.0 | 3.6 | 6.0 | 4.3 | 3.6 |
| Vehicle Extension (s) | 2.0 | 2.0 | 1.0 | 2.0 | 1.0 | 1.0 |
| Lane Grp Cap (vph) | 1147 | 975 | 278 | 1540 | 115 | 437 |
| v/s Ratio Prot | 0.11 | | c0.26 | c0.40 | c0.02 | 0.03 |
| v/s Ratio Perm | | 0.02 | | | | 0.02 |
| v/c Ratio | 0.18 | 0.03 | 1.68 | 0.49 | 0.35 | 0.20 |
| Uniform Delay, d1 | 6.1 | 5.5 | 31.2 | 1.9 | 33.1 | 23.4 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.3 | 0.1 | 322.8 | 1.1 | 0.7 | 0.1 |
| Delay (s) | 6.5 | 5.6 | 353.9 | 3.0 | 33.7 | 23.5 |
| Level of Service | A | A | F | A | C | C |
| Approach Delay (s) | 6.3 | | | 137.5 | 24.4 | |
| Approach LOS | A | | | F | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 94.5 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 0.68 | | |
| Actuated Cycle Length (s) | 73.9 | Sum of lost time (s) | 8.0 |
| Intersection Capacity Utilization | 48.4% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 |
| Volume (vph) | 442 | 198 | 964 | 429 | 409 | 348 | 403 | 463 | 84 | 110 | 991 | 350 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.95 | 0.95 | 0.95 | 0.93 | 0.93 | 0.93 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 475 | 213 | 1037 | 452 | 431 | 366 | 433 | 498 | 90 | 116 | 1043 | 368 |
| RTOR Reduction (vph) | 0 | 0 | 152 | 0 | 0 | 220 | 0 | 0 | 56 | 0 | 0 | 188 |
| Lane Group Flow (vph) | 475 | 213 | 885 | 452 | 431 | 146 | 433 | 498 | 34 | 116 | 1043 | 180 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 25.0 | 70.1 | 70.1 | 25.0 | 70.0 | 70.0 | 25.0 | 75.2 | 75.2 | 10.2 | 60.0 | 60.0 |
| Effective Green, g (s) | 26.5 | 71.7 | 71.7 | 26.5 | 71.7 | 71.7 | 26.5 | 76.7 | 76.7 | 11.7 | 61.9 | 61.9 |
| Actuated g/C Ratio | 0.13 | 0.35 | 0.35 | 0.13 | 0.35 | 0.35 | 0.13 | 0.38 | 0.38 | 0.06 | 0.31 | 0.31 |
| Clearance Time (s) | 5.5 | 5.6 | 5.6 | 5.5 | 5.7 | 5.7 | 5.5 | 5.5 | 5.5 | 5.5 | 5.9 | 5.9 |
| Vehicle Extension (s) | 1.0 | 5.0 | 5.0 | 1.0 | 5.9 | 5.9 | 1.0 | 5.4 | 5.4 | 1.0 | 5.4 | 5.4 |
| Lane Grp Cap (vph) | 449 | 1252 | 560 | 449 | 1252 | 560 | 449 | 1925 | 599 | 198 | 1554 | 484 |
| v/s Ratio Prot | c0.14 | 0.06 | | 0.13 | 0.12 | | c0.13 | 0.10 | | 0.03 | c0.21 | |
| v/s Ratio Perm | | | c0.56 | | | 0.09 | | | 0.02 | | | 0.11 |
| v/c Ratio | 1.06 | 0.17 | 1.58 | 1.01 | 0.34 | 0.26 | 0.96 | 0.26 | 0.06 | 0.59 | 0.67 | 0.37 |
| Uniform Delay, d1 | 88.0 | 45.0 | 65.4 | 88.0 | 48.2 | 46.6 | 87.6 | 43.4 | 40.0 | 93.1 | 61.5 | 55.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 58.6 | 0.1 | 269.8 | 44.1 | 0.5 | 0.7 | 33.0 | 0.2 | 0.1 | 2.8 | 1.6 | 1.1 |
| Delay (s) | 146.7 | 45.1 | 335.2 | 132.2 | 48.6 | 47.3 | 120.5 | 43.5 | 40.1 | 95.9 | 63.1 | 56.3 |
| Level of Service | F | D | F | F | D | D | F | D | D | F | E | E |
| Approach Delay (s) | | 247.5 | | | 78.5 | | | 75.9 | | | 63.9 | |
| Approach LOS | | F | | | E | | | E | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 126.8 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.12 | | |
| Actuated Cycle Length (s) | 202.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 101.1% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| 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) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 4975 | |
| 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) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 4975 | |
| Volume (vph) | 164 | 374 | 322 | 266 | 609 | 64 | 222 | 535 | 46 | 129 | 1648 | 277 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.93 | 0.93 | 0.93 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 178 | 407 | 350 | 286 | 655 | 69 | 241 | 582 | 50 | 136 | 1735 | 292 |
| RTOR Reduction (vph) | 0 | 0 | 186 | 0 | 0 | 42 | 0 | 0 | 25 | 0 | 9 | 0 |
| Lane Group Flow (vph) | 178 | 407 | 164 | 286 | 655 | 27 | 241 | 582 | 25 | 136 | 2018 | 0 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 11.4 | 32.2 | 32.2 | 16.3 | 37.3 | 37.3 | 14.2 | 75.4 | 75.4 | 9.5 | 70.7 | |
| Effective Green, g (s) | 12.9 | 33.9 | 33.9 | 17.8 | 38.8 | 38.8 | 15.7 | 77.0 | 77.0 | 11.0 | 72.3 | |
| Actuated g/C Ratio | 0.08 | 0.22 | 0.22 | 0.11 | 0.25 | 0.25 | 0.10 | 0.49 | 0.49 | 0.07 | 0.46 | |
| Clearance Time (s) | 5.5 | 5.7 | 5.7 | 5.5 | 5.5 | 5.5 | 5.5 | 5.6 | 5.6 | 5.5 | 5.6 | |
| Vehicle Extension (s) | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | |
| Lane Grp Cap (vph) | 284 | 771 | 345 | 392 | 882 | 394 | 346 | 2515 | 783 | 243 | 2310 | |
| v/s Ratio Prot | 0.05 | 0.11 | | c0.08 | c0.19 | | c0.07 | 0.11 | | 0.04 | c0.41 | |
| v/s Ratio Perm | | | 0.10 | | | 0.02 | | | 0.02 | | | |
| v/c Ratio | 0.63 | 0.53 | 0.47 | 0.73 | 0.74 | 0.07 | 0.70 | 0.23 | 0.03 | 0.56 | 0.87 | |
| Uniform Delay, d1 | 69.1 | 53.8 | 53.1 | 66.6 | 53.8 | 44.6 | 67.7 | 22.5 | 20.2 | 70.0 | 37.6 | |
| 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 | 3.1 | 1.2 | 2.1 | 5.7 | 4.0 | 0.1 | 4.9 | 0.1 | 0.0 | 1.6 | 4.3 | |
| Delay (s) | 72.2 | 55.0 | 55.2 | 72.3 | 57.9 | 44.8 | 72.6 | 22.6 | 20.2 | 71.6 | 41.9 | |
| Level of Service | E | E | E | E | E | D | E | C | C | E | D | |
| Approach Delay (s) | | 58.4 | | | 61.1 | | | 36.2 | | | 43.8 | |
| Approach LOS | | E | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.7 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.79 | | |
| Actuated Cycle Length (s) | 155.7 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 79.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 3433 | 3539 | 1583 | 1770 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 3433 | 3539 | 1583 | 1770 | 3539 | 1583 |
| Volume (vph) | 155 | 208 | 592 | 85 | 118 | 48 | 219 | 686 | 43 | 57 | 1202 | 116 |
| Peak-hour factor, PHF | 0.91 | 0.91 | 0.91 | 0.74 | 0.74 | 0.74 | 0.88 | 0.88 | 0.88 | 0.99 | 0.99 | 0.99 |
| Adj. Flow (vph) | 170 | 229 | 651 | 115 | 159 | 65 | 249 | 780 | 49 | 58 | 1214 | 117 |
| RTOR Reduction (vph) | 0 | 0 | 181 | 0 | 0 | 49 | 0 | 0 | 28 | 0 | 0 | 58 |
| Lane Group Flow (vph) | 170 | 229 | 470 | 115 | 159 | 16 | 249 | 780 | 21 | 58 | 1214 | 59 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 15.4 | 33.0 | 33.0 | 10.7 | 29.3 | 29.3 | 12.5 | 49.0 | 49.0 | 7.3 | 43.8 | 43.8 |
| Effective Green, g (s) | 15.4 | 35.0 | 35.0 | 10.7 | 30.3 | 30.3 | 12.5 | 51.0 | 51.0 | 7.3 | 45.8 | 45.8 |
| Actuated g/C Ratio | 0.13 | 0.29 | 0.29 | 0.09 | 0.25 | 0.25 | 0.10 | 0.42 | 0.42 | 0.06 | 0.38 | 0.38 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 5.0 | 5.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.0 | 4.5 | 4.5 | 2.0 | 5.0 | 5.0 | 2.0 | 3.4 | 3.4 | 2.0 | 4.1 | 4.1 |
| Lane Grp Cap (vph) | 227 | 1032 | 462 | 158 | 894 | 400 | 358 | 1504 | 673 | 108 | 1351 | 604 |
| v/s Ratio Prot | c0.10 | 0.06 | | 0.06 | 0.04 | | c0.07 | 0.22 | | 0.03 | c0.34 | |
| v/s Ratio Perm | | | c0.30 | | | 0.01 | | | 0.01 | | | 0.04 |
| v/c Ratio | 0.75 | 0.22 | 1.02 | 0.73 | 0.18 | 0.04 | 0.70 | 0.52 | 0.03 | 0.54 | 0.90 | 0.10 |
| Uniform Delay, d1 | 50.4 | 32.2 | 42.5 | 53.2 | 35.1 | 33.9 | 51.9 | 25.4 | 20.1 | 54.7 | 34.9 | 23.8 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 11.2 | 0.2 | 46.1 | 13.2 | 0.2 | 0.1 | 4.7 | 1.3 | 0.1 | 2.6 | 9.7 | 0.3 |
| Delay (s) | 61.6 | 32.4 | 88.6 | 66.4 | 35.3 | 34.0 | 56.6 | 26.7 | 20.2 | 57.3 | 44.6 | 24.2 |
| Level of Service | E | C | F | E | D | C | E | C | C | E | D | C |
| Approach Delay (s) | | 72.0 | | | 45.6 | | | 33.3 | | | 43.4 | |
| Approach LOS | | E | | | D | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 48.6 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 84.6% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.98 | 1.00 | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1700 | 1292 | 1603 | 1594 | 1583 | 1770 | 3438 | 1538 | 1687 | 3195 | 1583 |
| Flt Permitted | | 0.98 | 1.00 | 0.95 | 0.96 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1700 | 1292 | 1603 | 1594 | 1583 | 1770 | 3438 | 1538 | 1687 | 3195 | 1583 |
| Volume (vph) | 10 | 13 | 16 | 178 | 10 | 38 | 7 | 1943 | 564 | 44 | 1045 | 1 |
| Peak-hour factor, PHF | 0.76 | 0.76 | 0.76 | 0.83 | 0.83 | 0.83 | 0.95 | 0.95 | 0.95 | 0.93 | 0.93 | 0.93 |
| Adj. Flow (vph) | 13 | 17 | 21 | 214 | 12 | 46 | 7 | 2045 | 594 | 47 | 1124 | 1 |
| RTOR Reduction (vph) | 0 | 0 | 20 | 0 | 0 | 41 | 0 | 0 | 101 | 0 | 0 | 0 |
| Lane Group Flow (vph) | 0 | 30 | 1 | 117 | 109 | 5 | 7 | 2045 | 493 | 47 | 1124 | 1 |
| Heavy Vehicles (%) | 2% | 15% | 25% | 7% | 20% | 2% | 2% | 5% | 5% | 7% | 13% | 2% |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 7 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 7 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | | 5.0 | 5.0 | 11.7 | 11.7 | 11.7 | 1.0 | 76.9 | 76.9 | 6.6 | 82.5 | 82.5 |
| Effective Green, g (s) | | 7.0 | 7.0 | 13.7 | 13.7 | 13.7 | 0.5 | 80.0 | 80.0 | 6.1 | 85.6 | 85.6 |
| Actuated g/C Ratio | | 0.06 | 0.06 | 0.11 | 0.11 | 0.11 | 0.00 | 0.65 | 0.65 | 0.05 | 0.70 | 0.70 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 3.5 | 7.1 | 7.1 | 3.5 | 7.1 | 7.1 |
| Vehicle Extension (s) | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 97 | 74 | 179 | 178 | 177 | 7 | 2240 | 1002 | 84 | 2227 | 1103 |
| v/s Ratio Prot | | c0.02 | | c0.07 | 0.07 | | 0.00 | c0.59 | | c0.03 | 0.35 | |
| v/s Ratio Perm | | | 0.00 | | | 0.00 | | | 0.32 | | | 0.00 |
| v/c Ratio | | 0.31 | 0.02 | 0.65 | 0.61 | 0.03 | 1.00 | 0.91 | 0.49 | 0.56 | 0.50 | 0.00 |
| Uniform Delay, d1 | | 55.6 | 54.6 | 52.3 | 52.0 | 48.6 | 61.1 | 18.4 | 11.0 | 57.0 | 8.7 | 5.6 |
| 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 | | 0.7 | 0.0 | 6.4 | 4.3 | 0.0 | 340.2 | 6.1 | 0.1 | 4.5 | 0.1 | 0.0 |
| Delay (s) | | 56.2 | 54.7 | 58.7 | 56.4 | 48.6 | 401.3 | 24.5 | 11.1 | 61.6 | 8.8 | 5.6 |
| Level of Service | | E | D | E | E | D | F | C | B | E | A | A |
| Approach Delay (s) | | 55.6 | | | 56.0 | | | 22.5 | | | 10.9 | |
| Approach LOS | | E | | | E | | | C | | | B | |

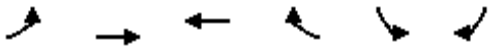
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 21.8 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.82 | | |
| Actuated Cycle Length (s) | 122.8 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 72.2% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | | 1.00 | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 |
| Frt | | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 |
| Flt Protected | | 0.98 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | | 1714 | 1468 | 1665 | 1666 | 1524 | 1543 | 3406 | 1568 | 1612 | 3195 | 1324 |
| Flt Permitted | | 0.98 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | | 1714 | 1468 | 1665 | 1666 | 1524 | 1543 | 3406 | 1568 | 1612 | 3195 | 1324 |
| Volume (vph) | 15 | 25 | 59 | 503 | 7 | 56 | 12 | 2443 | 1209 | 70 | 1160 | 9 |
| Peak-hour factor, PHF | 0.88 | 0.88 | 0.88 | 0.92 | 0.92 | 0.92 | 0.97 | 0.97 | 0.97 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 17 | 28 | 67 | 547 | 8 | 61 | 12 | 2519 | 1246 | 78 | 1289 | 10 |
| RTOR Reduction (vph) | 0 | 0 | 63 | 0 | 0 | 50 | 0 | 0 | 185 | 0 | 0 | 3 |
| Lane Group Flow (vph) | 0 | 45 | 4 | 284 | 271 | 11 | 12 | 2519 | 1061 | 78 | 1289 | 7 |
| Heavy Vehicles (%) | 20% | 2% | 10% | 3% | 14% | 6% | 17% | 6% | 3% | 12% | 13% | 22% |
| Turn Type | Split | | Perm | Split | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 7 | | 8 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 7 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | | 8.5 | 8.5 | 21.0 | 21.0 | 21.0 | 3.0 | 116.8 | 116.8 | 11.7 | 125.5 | 125.5 |
| Effective Green, g (s) | | 10.5 | 10.5 | 23.0 | 23.0 | 23.0 | 2.5 | 119.9 | 119.9 | 11.2 | 128.6 | 128.6 |
| Actuated g/C Ratio | | 0.06 | 0.06 | 0.13 | 0.13 | 0.13 | 0.01 | 0.66 | 0.66 | 0.06 | 0.71 | 0.71 |
| Clearance Time (s) | | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 | 3.5 | 7.1 | 7.1 | 3.5 | 7.1 | 7.1 |
| Vehicle Extension (s) | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 2.2 | 2.0 | 2.0 | 2.2 | 2.0 | 2.0 |
| Lane Grp Cap (vph) | | 100 | 85 | 212 | 212 | 194 | 21 | 2261 | 1041 | 100 | 2275 | 943 |
| v/s Ratio Prot | | c0.03 | | c0.17 | 0.16 | | 0.01 | c0.74 | | c0.05 | 0.40 | |
| v/s Ratio Perm | | | 0.00 | | | 0.01 | | | 0.68 | | | 0.01 |
| v/c Ratio | | 0.45 | 0.05 | 1.34 | 1.28 | 0.06 | 0.57 | 1.11 | 1.02 | 0.78 | 0.57 | 0.01 |
| Uniform Delay, d1 | | 82.3 | 80.3 | 78.8 | 78.8 | 69.3 | 88.5 | 30.3 | 30.3 | 83.5 | 12.5 | 7.5 |
| 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 | | 1.2 | 0.1 | 181.1 | 156.5 | 0.0 | 23.7 | 58.2 | 32.8 | 29.9 | 1.0 | 0.0 |
| Delay (s) | | 83.4 | 80.4 | 259.9 | 235.3 | 69.3 | 112.2 | 88.6 | 63.1 | 113.4 | 13.6 | 7.5 |
| Level of Service | | F | F | F | F | E | F | F | E | F | B | A |
| Approach Delay (s) | | 81.6 | | | 230.2 | | | 80.2 | | | 19.2 | |
| Approach LOS | | F | | | F | | | F | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 81.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.08 | | |
| Actuated Cycle Length (s) | 180.6 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 95.0% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

c Critical Lane Group



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 0 | 7 | 13 | 416 | 90 | 2 |
| Peak Hour Factor | 0.54 | 0.54 | 0.83 | 0.83 | 0.88 | 0.88 |
| Hourly flow rate (vph) | 0 | 13 | 16 | 501 | 102 | 2 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | 960 | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 517 | | | | 279 | 266 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 517 | | | | 279 | 266 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 100 | | | | 86 | 100 |
| cM capacity (veh/h) | 1049 | | | | 711 | 772 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 | SB 2 |
|---|---|---|---|---|
| Volume Total | 13 | 517 | 102 | 2 |
| Volume Left | 0 | 0 | 102 | 0 |
| Volume Right | 0 | 501 | 0 | 2 |
| cSH | 1700 | 1700 | 711 | 772 |
| Volume to Capacity | 0.01 | 0.30 | 0.14 | 0.00 |
| Queue Length 95th (ft) | 0 | 0 | 13 | 0 |
| Control Delay (s) | 0.0 | 0.0 | 10.9 | 9.7 |
| Lane LOS | | | B | A |
| Approach Delay (s) | 0.0 | 0.0 | 10.9 | |
| Approach LOS | | | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.8 | | |
| Intersection Capacity Utilization | 38.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 94 | 3 | 0 | 410 | 19 | 1166 |
| Peak Hour Factor | 0.84 | 0.84 | 0.88 | 0.88 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 112 | 4 | 0 | 466 | 21 | 1296 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 115 | | 580 | 114 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 115 | | 580 | 114 |
| tC, single (s) | | | 4.1 | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 100 | | 96 | 0 |
| cM capacity (veh/h) | | | 1473 | | 477 | 939 |

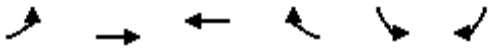
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total | 115 | 466 | 21 | 1296 |
| Volume Left | 0 | 0 | 21 | 0 |
| Volume Right | 4 | 0 | 0 | 1296 |
| cSH | 1700 | 1700 | 477 | 939 |
| Volume to Capacity | 0.07 | 0.27 | 0.04 | 1.38 |
| Queue Length 95th (ft) | 0 | 0 | 3 | 1341 |
| Control Delay (s) | 0.0 | 0.0 | 12.9 | 192.6 |
| Lane LOS | | | B | F |
| Approach Delay (s) | 0.0 | 0.0 | 189.8 | |
| Approach LOS | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 131.6 | | |
| Intersection Capacity Utilization | 84.0% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 22 | 1397 | 0 | 34 | 562 | 0 | 4 | 60 | 96 | 4 | 25 | 2 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.92 | 0.92 | 0.92 | 0.97 | 0.97 | 0.97 | 0.70 | 0.70 | 0.70 |
| Hourly flow rate (vph) | 24 | 1502 | 0 | 37 | 611 | 0 | 4 | 62 | 99 | 6 | 36 | 3 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 1526 | 648 | 165 | 44 |
| Volume Left (vph) | 24 | 37 | 4 | 6 |
| Volume Right (vph) | 0 | 0 | 99 | 3 |
| Hadj (s) | 0.04 | 0.09 | -0.32 | 0.02 |
| Departure Headway (s) | 5.7 | 5.7 | 6.9 | 7.8 |
| Degree Utilization, x | 2.41 | 1.03 | 0.32 | 0.10 |
| Capacity (veh/h) | 637 | 631 | 512 | 438 |
| Control Delay (s) | 652.7 | 68.5 | 13.1 | 11.7 |
| Approach Delay (s) | 652.7 | 68.5 | 13.1 | 11.7 |
| Approach LOS | F | F | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 437.7 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 96.6% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 119 | 968 | 546 | 34 | 11 | 54 |
| Peak Hour Factor | 0.92 | 0.92 | 0.91 | 0.91 | 0.76 | 0.76 |
| Hourly flow rate (vph) | 129 | 1052 | 600 | 37 | 14 | 71 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 637 | | | | 1930 | 619 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 637 | | | | 1930 | 619 |
| tC, single (s) | 4.1 | | | | 6.4 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.5 | 3.3 |
| p0 queue free % | 86 | | | | 77 | 85 |
| cM capacity (veh/h) | 946 | | | | 63 | 489 |

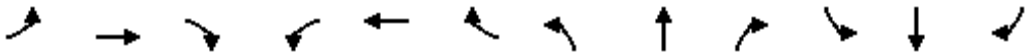
| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 1182 | 637 | 86 |
| Volume Left | 129 | 0 | 14 |
| Volume Right | 0 | 37 | 71 |
| cSH | 946 | 1700 | 228 |
| Volume to Capacity | 0.14 | 0.37 | 0.38 |
| Queue Length 95th (ft) | 12 | 0 | 41 |
| Control Delay (s) | 4.0 | 0.0 | 30.0 |
| Lane LOS | A | | D |
| Approach Delay (s) | 4.0 | 0.0 | 30.0 |
| Approach LOS | | | D |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 3.9 | | |
| Intersection Capacity Utilization | 102.3% | ICU Level of Service | G |
| Analysis Period (min) | 15 | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Volume (veh/h) | 33 | 1461 | 3 | 2 | 584 | 24 | 1 | 1 | 5 | 39 | 2 | 11 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.92 | 0.92 | 0.92 | 0.45 | 0.45 | 0.45 | 0.71 | 0.71 | 0.71 |
| Hourly flow rate (vph) | 35 | 1571 | 3 | 2 | 635 | 26 | 2 | 2 | 11 | 55 | 3 | 15 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 661 | | | 1574 | | | 2313 | 2309 | 1573 | 2308 | 2297 | 648 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 661 | | | 1574 | | | 2313 | 2309 | 1573 | 2308 | 2297 | 648 |
| tC, single (s) | 4.2 | | | 4.1 | | | 7.1 | 6.8 | 6.2 | 7.1 | 6.8 | 6.3 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.3 | | | 2.2 | | | 3.5 | 4.2 | 3.3 | 3.5 | 4.2 | 3.4 |
| p0 queue free % | 96 | | | 99 | | | 90 | 93 | 92 | 0 | 91 | 97 |
| cM capacity (veh/h) | 909 | | | 418 | | | 23 | 31 | 136 | 23 | 32 | 458 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 1610 | 663 | 16 | 73 |
| Volume Left | 35 | 2 | 2 | 55 |
| Volume Right | 3 | 26 | 11 | 15 |
| cSH | 909 | 418 | 62 | 29 |
| Volume to Capacity | 0.04 | 0.01 | 0.25 | 2.56 |
| Queue Length 95th (ft) | 3 | 0 | 22 | 218 |
| Control Delay (s) | 4.9 | 0.2 | 80.7 | 999.8 |
| Lane LOS | A | A | F | F |
| Approach Delay (s) | 4.9 | 0.2 | 80.7 | 999.8 |
| Approach LOS | | | F | F |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 34.9 | | |
| Intersection Capacity Utilization | 117.5% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 157 | 1326 | 15 | 9 | 593 | 143 | 6 | 18 | 8 | 124 | 26 | 10 |
| Peak Hour Factor | 0.93 | 0.93 | 0.93 | 0.92 | 0.92 | 0.92 | 0.80 | 0.80 | 0.80 | 0.63 | 0.63 | 0.63 |
| Hourly flow rate (vph) | 169 | 1426 | 16 | 10 | 645 | 155 | 8 | 22 | 10 | 197 | 41 | 16 |

| Direction, Lane # | EB 1 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|
| Volume Total (vph) | 1611 | 654 | 155 | 40 | 254 |
| Volume Left (vph) | 169 | 10 | 0 | 8 | 197 |
| Volume Right (vph) | 16 | 0 | 155 | 10 | 16 |
| Hadj (s) | 0.05 | 0.09 | -0.57 | -0.08 | 0.18 |
| Departure Headway (s) | 6.2 | 6.2 | 3.2 | 8.3 | 7.4 |
| Degree Utilization, x | 2.76 | 1.13 | 0.14 | 0.09 | 0.52 |
| Capacity (veh/h) | 596 | 585 | 1121 | 412 | 476 |
| Control Delay (s) | 810.7 | 101.1 | 6.7 | 12.1 | 18.2 |
| Approach Delay (s) | 810.7 | 83.0 | | 12.1 | 18.2 |
| Approach LOS | F | F | | B | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 507.7 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 136.6% | ICU Level of Service | H | |
| Analysis Period (min) | 15 | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Stop | | | Stop | Stop | |
| Volume (vph) | 1385 | 87 | 55 | 656 | 105 | 55 |
| Peak Hour Factor | 0.97 | 0.97 | 0.92 | 0.92 | 0.91 | 0.91 |
| Hourly flow rate (vph) | 1428 | 90 | 60 | 713 | 115 | 60 |

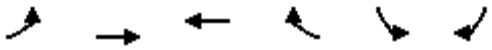
| Direction, Lane # | EB 1 | WB 1 | NB 1 | NB 2 |
|---|---|---|---|---|
| Volume Total (vph) | 1518 | 773 | 115 | 60 |
| Volume Left (vph) | 0 | 60 | 115 | 0 |
| Volume Right (vph) | 90 | 0 | 0 | 60 |
| Hadj (s) | 0.00 | 0.07 | 0.53 | -0.58 |
| Departure Headway (s) | 5.5 | 5.6 | 8.1 | 7.0 |
| Degree Utilization, x | 2.31 | 1.19 | 0.26 | 0.12 |
| Capacity (veh/h) | 664 | 657 | 438 | 507 |
| Control Delay (s) | 607.8 | 121.2 | 12.7 | 9.7 |
| Approach Delay (s) | 607.8 | 121.2 | 11.7 | |
| Approach LOS | F | F | B | |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 412.8 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 92.5% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 1421 | 5 | 120 | 753 | 2 | 189 |
| Peak Hour Factor | 0.95 | 0.95 | 0.92 | 0.92 | 0.83 | 0.83 |
| Hourly flow rate (vph) | 1496 | 5 | 130 | 818 | 2 | 228 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 714 | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | | | 1501 | | 2169 | 751 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 1501 | | 2169 | 751 |
| tC, single (s) | | | 4.1 | | 6.8 | 6.9 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.2 | | 3.5 | 3.3 |
| p0 queue free % | | | 71 | | 91 | 36 |
| cM capacity (veh/h) | | | 442 | | 28 | 354 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 997 | 504 | 130 | 409 | 409 | 230 |
| Volume Left | 0 | 0 | 130 | 0 | 0 | 2 |
| Volume Right | 0 | 5 | 0 | 0 | 0 | 228 |
| cSH | 1700 | 1700 | 442 | 1700 | 1700 | 315 |
| Volume to Capacity | 0.59 | 0.30 | 0.29 | 0.24 | 0.24 | 0.73 |
| Queue Length 95th (ft) | 0 | 0 | 30 | 0 | 0 | 134 |
| Control Delay (s) | 0.0 | 0.0 | 16.5 | 0.0 | 0.0 | 41.9 |
| Lane LOS | | | C | | | E |
| Approach Delay (s) | 0.0 | | 2.3 | | | 41.9 |
| Approach LOS | | | | | | E |

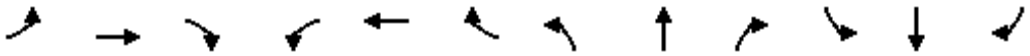
| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 4.4 | | |
| Intersection Capacity Utilization | 67.9% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.94 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1770 | 3539 | 3320 | | 1770 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 1770 | 3539 | 3320 | | 1770 | 1583 |
| Volume (vph) | 240 | 1376 | 770 | 463 | 259 | 134 |
| Peak-hour factor, PHF | 0.97 | 0.97 | 0.93 | 0.93 | 0.87 | 0.87 |
| Adj. Flow (vph) | 247 | 1419 | 828 | 498 | 298 | 154 |
| RTOR Reduction (vph) | 0 | 0 | 90 | 0 | 0 | 120 |
| Lane Group Flow (vph) | 247 | 1419 | 1236 | 0 | 298 | 34 |
| Heavy Vehicles (%) | 2% | 2% | 3% | 2% | 2% | 2% |
| Turn Type | Prot | | | | | Perm |
| Protected Phases | 7 | 4 | 8 | | 6 | |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 15.3 | 54.5 | 35.2 | | 17.7 | 17.7 |
| Effective Green, g (s) | 15.3 | 54.5 | 35.2 | | 17.7 | 17.7 |
| Actuated g/C Ratio | 0.19 | 0.68 | 0.44 | | 0.22 | 0.22 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 338 | 2405 | 1457 | | 391 | 349 |
| v/s Ratio Prot | c0.14 | 0.40 | c0.37 | | c0.17 | |
| v/s Ratio Perm | | | | | | 0.02 |
| v/c Ratio | 0.73 | 0.59 | 0.85 | | 0.76 | 0.10 |
| Uniform Delay, d1 | 30.5 | 6.9 | 20.1 | | 29.3 | 24.9 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.9 | 0.4 | 4.8 | | 8.5 | 0.1 |
| Delay (s) | 38.4 | 7.3 | 24.9 | | 37.8 | 25.0 |
| Level of Service | D | A | C | | D | C |
| Approach Delay (s) | | 11.9 | 24.9 | | 33.4 | |
| Approach LOS | | B | C | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 19.7 | HCM Level of Service | B |
| HCM Volume to Capacity ratio | 0.80 | | |
| Actuated Cycle Length (s) | 80.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 73.8% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |

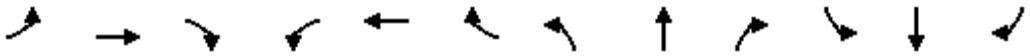
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 8 | 31 | 31 | 64 | 26 | 1 | 53 | 688 | 99 | 1 | 392 | 6 |
| Peak Hour Factor | 0.84 | 0.84 | 0.84 | 0.90 | 0.90 | 0.90 | 0.92 | 0.92 | 0.92 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 10 | 37 | 37 | 71 | 29 | 1 | 58 | 748 | 108 | 1 | 451 | 7 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 83 | 101 | 913 | 459 |
| Volume Left (vph) | 10 | 71 | 58 | 1 |
| Volume Right (vph) | 37 | 1 | 108 | 7 |
| Hadj (s) | -0.21 | 0.17 | -0.02 | 0.03 |
| Departure Headway (s) | 6.9 | 7.1 | 5.3 | 5.5 |
| Degree Utilization, x | 0.16 | 0.20 | 1.34 | 0.71 |
| Capacity (veh/h) | 482 | 466 | 686 | 633 |
| Control Delay (s) | 11.1 | 11.9 | 177.9 | 20.8 |
| Approach Delay (s) | 11.1 | 11.9 | 177.9 | 20.8 |
| Approach LOS | B | B | F | C |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 111.9 | | |
| HCM Level of Service | F | | |
| Intersection Capacity Utilization | 87.8% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 18 | 90 | 44 | 105 | 89 | 46 | 63 | 786 | 164 | 21 | 463 | 10 |
| Peak Hour Factor | 0.95 | 0.95 | 0.95 | 0.87 | 0.87 | 0.87 | 0.92 | 0.92 | 0.92 | 0.87 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 19 | 95 | 46 | 121 | 102 | 53 | 68 | 854 | 178 | 24 | 532 | 11 |

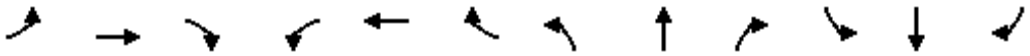
| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 160 | 276 | 1101 | 568 |
| Volume Left (vph) | 19 | 121 | 68 | 24 |
| Volume Right (vph) | 46 | 53 | 178 | 11 |
| Hadj (s) | -0.12 | 0.02 | -0.04 | 0.06 |
| Departure Headway (s) | 8.4 | 8.0 | 7.0 | 7.1 |
| Degree Utilization, x | 0.37 | 0.61 | 2.14 | 1.12 |
| Capacity (veh/h) | 401 | 441 | 524 | 511 |
| Control Delay (s) | 16.4 | 22.7 | 534.1 | 101.7 |
| Approach Delay (s) | 16.4 | 22.7 | 534.1 | 101.7 |
| Approach LOS | C | C | F | F |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Delay | 311.1 | | | |
| HCM Level of Service | F | | | |
| Intersection Capacity Utilization | 107.1% | ICU Level of Service | G | |
| Analysis Period (min) | 15 | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | | 1.00 | 1.00 | 1.00 | 1.00 | 0.95 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 0.96 | | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (prot) | 3303 | 3539 | 1583 | 3303 | 3352 | | 1770 | 1845 | 1583 | 1770 | 3427 | |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | |
| Satd. Flow (perm) | 3303 | 3539 | 1583 | 3303 | 3352 | | 1770 | 1845 | 1583 | 1770 | 3427 | |
| Volume (vph) | 153 | 881 | 158 | 110 | 506 | 190 | 107 | 835 | 78 | 126 | 527 | 71 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.94 | 0.94 | 0.94 | 0.93 | 0.93 | 0.93 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 166 | 958 | 172 | 117 | 538 | 202 | 115 | 898 | 84 | 137 | 573 | 77 |
| RTOR Reduction (vph) | 0 | 0 | 68 | 0 | 20 | 0 | 0 | 0 | 15 | 0 | 4 | 0 |
| Lane Group Flow (vph) | 166 | 958 | 104 | 117 | 720 | 0 | 115 | 898 | 69 | 137 | 646 | 0 |
| Heavy Vehicles (%) | 6% | 2% | 2% | 6% | 3% | 4% | 2% | 3% | 2% | 2% | 3% | 7% |
| Turn Type | Prot | | Perm | Prot | | | Prot | | Perm | Prot | | |
| Protected Phases | 1 | 6 | | 5 | 2 | | 3 | 8 | | 7 | 4 | |
| Permitted Phases | | | 6 | | | | | | 8 | | | |
| Actuated Green, G (s) | 11.6 | 47.8 | 47.8 | 9.2 | 45.7 | | 14.0 | 71.3 | 71.3 | 15.9 | 73.0 | |
| Effective Green, g (s) | 12.4 | 48.9 | 48.9 | 10.7 | 47.2 | | 15.5 | 72.4 | 72.4 | 17.4 | 74.3 | |
| Actuated g/C Ratio | 0.07 | 0.30 | 0.30 | 0.06 | 0.29 | | 0.09 | 0.44 | 0.44 | 0.11 | 0.45 | |
| Clearance Time (s) | 4.8 | 5.1 | 5.1 | 5.5 | 5.5 | | 5.5 | 5.1 | 5.1 | 5.5 | 5.3 | |
| Vehicle Extension (s) | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | |
| Lane Grp Cap (vph) | 248 | 1046 | 468 | 214 | 957 | | 166 | 808 | 693 | 186 | 1539 | |
| v/s Ratio Prot | c0.05 | c0.27 | | 0.04 | 0.21 | | 0.06 | c0.49 | | c0.08 | 0.19 | |
| v/s Ratio Perm | | | 0.07 | | | | | | 0.04 | | | |
| v/c Ratio | 0.67 | 0.92 | 0.22 | 0.55 | 0.75 | | 0.69 | 1.11 | 0.10 | 0.74 | 0.42 | |
| Uniform Delay, d1 | 74.5 | 56.3 | 43.9 | 75.0 | 53.8 | | 72.6 | 46.5 | 27.3 | 71.8 | 30.9 | |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | |
| Incremental Delay, d2 | 5.2 | 11.9 | 0.1 | 1.5 | 3.0 | | 9.6 | 66.8 | 0.0 | 12.3 | 0.1 | |
| Delay (s) | 79.7 | 68.2 | 44.0 | 76.5 | 56.8 | | 82.3 | 113.3 | 27.4 | 84.0 | 31.0 | |
| Level of Service | E | E | D | E | E | | F | F | C | F | C | |
| Approach Delay (s) | | 66.5 | | | 59.5 | | | 103.5 | | | 40.2 | |
| Approach LOS | | E | | | E | | | F | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 69.9 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.95 | | |
| Actuated Cycle Length (s) | 165.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 91.9% | ICU Level of Service | F |
| Analysis Period (min) | 15 | | |

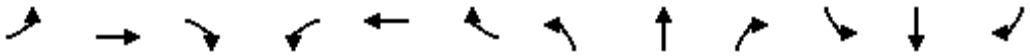
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | 0.95 | | 1.00 | 0.95 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Frt | 1.00 | 0.98 | | 1.00 | 0.96 | | 1.00 | 0.90 | | 1.00 | 0.92 | |
| Flt Protected | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (prot) | 1770 | 3452 | | 1770 | 3238 | | 1770 | 1641 | | 1770 | 1603 | |
| Flt Permitted | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | | 0.95 | 1.00 | |
| Satd. Flow (perm) | 1770 | 3452 | | 1770 | 3238 | | 1770 | 1641 | | 1770 | 1603 | |
| Volume (vph) | 222 | 1091 | 214 | 371 | 1001 | 376 | 172 | 182 | 332 | 213 | 114 | 135 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.97 | 0.97 | 0.97 | 0.92 | 0.92 | 0.92 | 0.87 | 0.87 | 0.87 |
| Adj. Flow (vph) | 236 | 1161 | 228 | 382 | 1032 | 388 | 187 | 198 | 361 | 245 | 131 | 155 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 26 | 0 | 0 | 44 | 0 | 0 | 28 | 0 |
| Lane Group Flow (vph) | 236 | 1378 | 0 | 382 | 1394 | 0 | 187 | 515 | 0 | 245 | 258 | 0 |
| Heavy Vehicles (%) | 2% | 2% | 2% | 2% | 2% | 20% | 2% | 2% | 6% | 2% | 17% | 2% |
| Turn Type | Prot | | | Prot | | | Prot | | | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | | | | | | | | | | |
| Actuated Green, G (s) | 17.0 | 50.0 | | 27.0 | 60.0 | | 18.6 | 40.0 | | 17.0 | 38.4 | |
| Effective Green, g (s) | 17.0 | 50.0 | | 27.0 | 60.0 | | 18.6 | 40.0 | | 17.0 | 38.4 | |
| Actuated g/C Ratio | 0.11 | 0.33 | | 0.18 | 0.40 | | 0.12 | 0.27 | | 0.11 | 0.26 | |
| Clearance Time (s) | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | | 4.0 | 4.0 | |
| Vehicle Extension (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| Lane Grp Cap (vph) | 201 | 1151 | | 319 | 1295 | | 219 | 438 | | 201 | 410 | |
| v/s Ratio Prot | 0.13 | c0.40 | | c0.22 | 0.43 | | 0.11 | c0.31 | | c0.14 | 0.16 | |
| v/s Ratio Perm | | | | | | | | | | | | |
| v/c Ratio | 1.17 | 1.20 | | 1.20 | 1.08 | | 0.85 | 1.18 | | 1.22 | 0.63 | |
| Uniform Delay, d1 | 66.5 | 50.0 | | 61.5 | 45.0 | | 64.4 | 55.0 | | 66.5 | 49.5 | |
| Progression Factor | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 118.3 | 97.5 | | 115.3 | 48.4 | | 26.1 | 100.7 | | 134.9 | 7.1 | |
| Delay (s) | 184.8 | 147.5 | | 176.8 | 93.4 | | 90.5 | 155.7 | | 201.4 | 56.6 | |
| Level of Service | F | F | | F | F | | F | F | | F | E | |
| Approach Delay (s) | | 152.9 | | | 111.1 | | | 139.4 | | | 123.4 | |
| Approach LOS | | F | | | F | | | F | | | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 131.4 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.16 | | |
| Actuated Cycle Length (s) | 150.0 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 112.6% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |

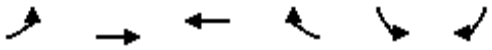
c Critical Lane Group



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Sign Control | | Stop | | | Stop | | | Stop | | | Stop | |
| Volume (vph) | 123 | 5 | 5 | 7 | 2 | 4 | 2 | 325 | 8 | 8 | 204 | 90 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.75 | 0.75 | 0.75 | 0.87 | 0.87 | 0.87 | 0.92 | 0.92 | 0.92 |
| Hourly flow rate (vph) | 141 | 6 | 6 | 9 | 3 | 5 | 2 | 374 | 9 | 9 | 222 | 98 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total (vph) | 153 | 17 | 385 | 328 |
| Volume Left (vph) | 141 | 9 | 2 | 9 |
| Volume Right (vph) | 6 | 5 | 9 | 98 |
| Hadj (s) | 0.24 | 0.08 | 0.02 | -0.13 |
| Departure Headway (s) | 5.9 | 6.0 | 4.9 | 4.8 |
| Degree Utilization, x | 0.25 | 0.03 | 0.52 | 0.44 |
| Capacity (veh/h) | 552 | 487 | 716 | 719 |
| Control Delay (s) | 10.8 | 9.2 | 13.0 | 11.5 |
| Approach Delay (s) | 10.8 | 9.2 | 13.0 | 11.5 |
| Approach LOS | B | A | B | B |

| Intersection Summary | | | |
|---|---|---|---|
| Delay | 12.0 | | |
| HCM Level of Service | B | | |
| Intersection Capacity Utilization | 40.3% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | | Free | Free | | Stop | |
| Grade | | 0% | 0% | | 0% | |
| Volume (veh/h) | 149 | 140 | 141 | 186 | 114 | 99 |
| Peak Hour Factor | 0.87 | 0.87 | 0.88 | 0.88 | 0.87 | 0.87 |
| Hourly flow rate (vph) | 171 | 161 | 160 | 211 | 131 | 114 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 372 | | | | 769 | 266 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 372 | | | | 769 | 266 |
| tC, single (s) | 4.1 | | | | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | | | 3.6 | 3.3 |
| p0 queue free % | 86 | | | | 58 | 85 |
| cM capacity (veh/h) | 1187 | | | | 311 | 768 |

| Direction, Lane # | EB 1 | WB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 332 | 372 | 245 |
| Volume Left | 171 | 0 | 131 |
| Volume Right | 0 | 211 | 114 |
| cSH | 1187 | 1700 | 430 |
| Volume to Capacity | 0.14 | 0.22 | 0.57 |
| Queue Length 95th (ft) | 13 | 0 | 86 |
| Control Delay (s) | 5.1 | 0.0 | 23.9 |
| Lane LOS | A | | C |
| Approach Delay (s) | 5.1 | 0.0 | 23.9 |
| Approach LOS | | | C |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 7.9 | | |
| Intersection Capacity Utilization | 56.8% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

| Movement | EBU | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1770 | 3539 | 1538 | 1703 | 3505 | 1736 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1770 | 3539 | 1538 | 1703 | 3505 | 1736 | 1583 |
| Volume (vph) | 1 | 1029 | 38 | 154 | 710 | 101 | 300 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.89 | 0.89 | 0.94 | 0.94 |
| Adj. Flow (vph) | 1 | 1118 | 41 | 173 | 798 | 107 | 319 |
| RTOR Reduction (vph) | 0 | 0 | 8 | 0 | 0 | 0 | 228 |
| Lane Group Flow (vph) | 1 | 1118 | 33 | 173 | 798 | 107 | 91 |
| Heavy Vehicles (%) | 2% | 2% | 5% | 6% | 3% | 4% | 2% |
| Turn Type | Prot | | Perm | Prot | | | custom |
| Protected Phases | 1 | 6 | | 4 5 | 2 | 3 | 2 |
| Permitted Phases | | | 6 | | | | |
| Actuated Green, G (s) | 0.7 | 72.1 | 72.1 | 24.5 | 54.2 | 14.7 | 54.2 |
| Effective Green, g (s) | 1.4 | 73.2 | 73.2 | 24.0 | 55.3 | 16.1 | 55.3 |
| Actuated g/C Ratio | 0.01 | 0.38 | 0.38 | 0.12 | 0.29 | 0.08 | 0.29 |
| Clearance Time (s) | 4.7 | 5.1 | 5.1 | | 5.1 | 5.4 | 5.1 |
| Vehicle Extension (s) | 1.0 | 4.9 | 4.9 | | 4.9 | 1.0 | 4.9 |
| Lane Grp Cap (vph) | 13 | 1335 | 580 | 211 | 999 | 144 | 451 |
| v/s Ratio Prot | c0.00 | c0.32 | | c0.10 | c0.23 | c0.06 | 0.06 |
| v/s Ratio Perm | | | 0.02 | | | | |
| v/c Ratio | 0.08 | 0.84 | 0.06 | 0.82 | 0.80 | 0.74 | 0.20 |
| Uniform Delay, d1 | 95.7 | 55.0 | 38.4 | 82.9 | 64.2 | 86.9 | 52.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 0.9 | 5.3 | 0.1 | 20.4 | 5.2 | 16.5 | 0.4 |
| Delay (s) | 96.6 | 60.2 | 38.5 | 103.3 | 69.4 | 103.4 | 53.1 |
| Level of Service | F | E | D | F | E | F | D |
| Approach Delay (s) | | 59.5 | | | 75.4 | 65.7 | |
| Approach LOS | | E | | | E | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 66.6 | HCM Level of Service | E |
| HCM Volume to Capacity ratio | 0.81 | | |
| Actuated Cycle Length (s) | 194.0 | Sum of lost time (s) | 24.0 |
| Intersection Capacity Utilization | 63.7% | ICU Level of Service | B |
| Analysis Period (min) | 15 | | |

c Critical Lane Group

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | | | 4.0 | 4.0 | |
| Lane Util. Factor | 1.00 | | | 1.00 | 1.00 | |
| Frt | 0.99 | | | 1.00 | 0.95 | |
| Flt Protected | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (prot) | 1840 | | | 1859 | 1714 | |
| Flt Permitted | 1.00 | | | 1.00 | 0.97 | |
| Satd. Flow (perm) | 1840 | | | 1859 | 1714 | |
| Volume (vph) | 1430 | 144 | 84 | 1863 | 283 | 171 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.93 | 0.87 | 0.87 |
| Adj. Flow (vph) | 1538 | 155 | 90 | 2003 | 325 | 197 |
| RTOR Reduction (vph) | 3 | 0 | 0 | 0 | 15 | 0 |
| Lane Group Flow (vph) | 1690 | 0 | 0 | 2093 | 507 | 0 |
| Turn Type | | | Split | | | |
| Protected Phases | 2 | | 1 | 1 | 3 | |
| Permitted Phases | | | | | | |
| Actuated Green, G (s) | 50.1 | | | 50.1 | 20.0 | |
| Effective Green, g (s) | 51.1 | | | 50.9 | 19.5 | |
| Actuated g/C Ratio | 0.37 | | | 0.37 | 0.14 | |
| Clearance Time (s) | 5.0 | | | 4.8 | 3.5 | |
| Vehicle Extension (s) | 6.8 | | | 6.3 | 2.0 | |
| Lane Grp Cap (vph) | 674 | | | 679 | 240 | |
| v/s Ratio Prot | c0.92 | | | c1.13 | c0.30 | |
| v/s Ratio Perm | | | | | | |
| v/c Ratio | 2.51 | | | 3.08 | 2.11 | |
| Uniform Delay, d1 | 44.1 | | | 44.2 | 60.0 | |
| Progression Factor | 1.00 | | | 1.00 | 1.00 | |
| Incremental Delay, d2 | 683.1 | | | 941.0 | 515.2 | |
| Delay (s) | 727.2 | | | 985.3 | 575.1 | |
| Level of Service | F | | | F | F | |
| Approach Delay (s) | 727.2 | | | 985.3 | 575.1 | |
| Approach LOS | F | | | F | F | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 834.2 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 2.69 | | |
| Actuated Cycle Length (s) | 139.4 | Sum of lost time (s) | 17.9 |
| Intersection Capacity Utilization | 199.1% | ICU Level of Service | H |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | 1.00 | 0.85 | 1.00 | 1.00 | 1.00 | 0.85 |
| Flt Protected | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (prot) | 1863 | 1583 | 1770 | 1863 | 1770 | 1583 |
| Flt Permitted | 1.00 | 1.00 | 0.95 | 1.00 | 0.95 | 1.00 |
| Satd. Flow (perm) | 1863 | 1583 | 1770 | 1863 | 1770 | 1583 |
| Volume (vph) | 922 | 46 | 384 | 241 | 40 | 453 |
| Peak-hour factor, PHF | 0.96 | 0.96 | 0.92 | 0.92 | 0.87 | 0.87 |
| Adj. Flow (vph) | 960 | 48 | 417 | 262 | 46 | 521 |
| RTOR Reduction (vph) | 0 | 11 | 0 | 0 | 0 | 59 |
| Lane Group Flow (vph) | 960 | 37 | 417 | 262 | 46 | 462 |
| Turn Type | | Perm | Prot | | | pm+ov |
| Protected Phases | 2 | | 1 | 6 | 4 | 1 |
| Permitted Phases | | 2 | | | | 4 |
| Actuated Green, G (s) | 86.7 | 86.7 | 35.8 | 126.1 | 7.5 | 43.3 |
| Effective Green, g (s) | 88.7 | 88.7 | 35.4 | 128.1 | 7.8 | 43.2 |
| Actuated g/C Ratio | 0.62 | 0.62 | 0.25 | 0.89 | 0.05 | 0.30 |
| Clearance Time (s) | 6.0 | 6.0 | 3.6 | 6.0 | 4.3 | 3.6 |
| Vehicle Extension (s) | 2.0 | 2.0 | 1.0 | 2.0 | 1.0 | 1.0 |
| Lane Grp Cap (vph) | 1148 | 976 | 435 | 1658 | 96 | 519 |
| v/s Ratio Prot | c0.52 | | c0.24 | 0.14 | 0.03 | c0.22 |
| v/s Ratio Perm | | 0.02 | | | | 0.07 |
| v/c Ratio | 0.84 | 0.04 | 0.96 | 0.16 | 0.48 | 0.89 |
| Uniform Delay, d1 | 21.9 | 10.8 | 53.5 | 1.0 | 66.1 | 48.1 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.3 | 0.1 | 32.1 | 0.2 | 1.4 | 16.4 |
| Delay (s) | 29.1 | 10.9 | 85.6 | 1.2 | 67.4 | 64.5 |
| Level of Service | C | B | F | A | E | E |
| Approach Delay (s) | 28.3 | | | 53.0 | 64.7 | |
| Approach LOS | C | | | D | E | |

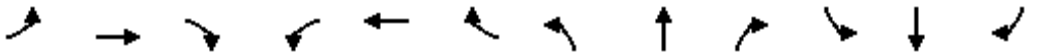
| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 44.9 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.88 | | |
| Actuated Cycle Length (s) | 143.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 83.2% | ICU Level of Service | E |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 5085 | 1583 |
| Volume (vph) | 421 | 530 | 736 | 260 | 355 | 81 | 1341 | 500 | 272 | 136 | 404 | 367 |
| Peak-hour factor, PHF | 0.93 | 0.93 | 0.93 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 | 0.95 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 453 | 570 | 791 | 283 | 386 | 88 | 1412 | 526 | 286 | 148 | 439 | 399 |
| RTOR Reduction (vph) | 0 | 0 | 202 | 0 | 0 | 53 | 0 | 0 | 210 | 0 | 0 | 299 |
| Lane Group Flow (vph) | 453 | 570 | 589 | 283 | 386 | 35 | 1412 | 526 | 76 | 148 | 439 | 100 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 25.1 | 70.3 | 70.3 | 16.5 | 61.6 | 61.6 | 25.1 | 41.0 | 41.0 | 10.3 | 25.8 | 25.8 |
| Effective Green, g (s) | 26.6 | 71.9 | 71.9 | 18.0 | 63.3 | 63.3 | 26.6 | 42.5 | 42.5 | 11.8 | 27.7 | 27.7 |
| Actuated g/C Ratio | 0.17 | 0.45 | 0.45 | 0.11 | 0.40 | 0.40 | 0.17 | 0.27 | 0.27 | 0.07 | 0.17 | 0.17 |
| Clearance Time (s) | 5.5 | 5.6 | 5.6 | 5.5 | 5.7 | 5.7 | 5.5 | 5.5 | 5.5 | 5.5 | 5.9 | 5.9 |
| Vehicle Extension (s) | 1.0 | 5.0 | 5.0 | 1.0 | 5.9 | 5.9 | 1.0 | 5.4 | 5.4 | 1.0 | 5.4 | 5.4 |
| Lane Grp Cap (vph) | 570 | 1588 | 710 | 386 | 1398 | 625 | 570 | 1349 | 420 | 253 | 879 | 274 |
| v/s Ratio Prot | c0.13 | 0.16 | | 0.08 | 0.11 | | c0.41 | 0.10 | | 0.04 | c0.09 | |
| v/s Ratio Perm | | | c0.37 | | | 0.02 | | | 0.05 | | | 0.06 |
| v/c Ratio | 0.79 | 0.36 | 0.83 | 0.73 | 0.28 | 0.06 | 2.48 | 0.39 | 0.18 | 0.58 | 0.50 | 0.37 |
| Uniform Delay, d1 | 64.2 | 29.0 | 38.8 | 68.8 | 32.9 | 30.0 | 66.8 | 48.2 | 45.4 | 71.8 | 60.0 | 58.5 |
| Progression Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Incremental Delay, d2 | 7.0 | 0.3 | 8.9 | 6.1 | 0.3 | 0.1 | 670.0 | 0.4 | 0.5 | 2.2 | 1.1 | 2.0 |
| Delay (s) | 71.2 | 29.3 | 47.7 | 74.9 | 33.2 | 30.1 | 736.8 | 48.7 | 45.9 | 74.0 | 61.0 | 60.5 |
| Level of Service | E | C | D | E | C | C | F | D | D | E | E | E |
| Approach Delay (s) | | 47.8 | | | 48.4 | | | 485.2 | | | 62.8 | |
| Approach LOS | | D | | | D | | | F | | | E | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 218.7 | HCM Level of Service | F |
| HCM Volume to Capacity ratio | 1.05 | | |
| Actuated Cycle Length (s) | 160.2 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 81.5% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | |
| Lane Util. Factor | 0.97 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 0.97 | 0.91 | 1.00 | 0.97 | 0.91 | |
| Frt | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 1.00 | 0.85 | 1.00 | 0.98 | |
| 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) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 4965 | |
| 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) | 3433 | 3539 | 1583 | 3433 | 3539 | 1583 | 3433 | 5085 | 1583 | 3433 | 4965 | |
| Volume (vph) | 402 | 577 | 299 | 239 | 492 | 200 | 371 | 1727 | 168 | 155 | 1081 | 203 |
| Peak-hour factor, PHF | 0.94 | 0.94 | 0.94 | 0.92 | 0.92 | 0.92 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 |
| Adj. Flow (vph) | 428 | 614 | 318 | 260 | 535 | 217 | 391 | 1818 | 177 | 163 | 1138 | 214 |
| RTOR Reduction (vph) | 0 | 0 | 181 | 0 | 0 | 169 | 0 | 0 | 41 | 0 | 12 | 0 |
| Lane Group Flow (vph) | 428 | 614 | 137 | 260 | 535 | 48 | 391 | 1818 | 136 | 163 | 1340 | 0 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | |
| Actuated Green, G (s) | 24.7 | 43.7 | 43.7 | 15.9 | 35.1 | 35.1 | 21.8 | 73.7 | 73.7 | 11.3 | 63.2 | |
| Effective Green, g (s) | 26.2 | 45.4 | 45.4 | 17.4 | 36.6 | 36.6 | 23.3 | 75.3 | 75.3 | 12.8 | 64.8 | |
| Actuated g/C Ratio | 0.16 | 0.27 | 0.27 | 0.10 | 0.22 | 0.22 | 0.14 | 0.45 | 0.45 | 0.08 | 0.39 | |
| Clearance Time (s) | 5.5 | 5.7 | 5.7 | 5.5 | 5.5 | 5.5 | 5.5 | 5.6 | 5.6 | 5.5 | 5.6 | |
| Vehicle Extension (s) | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | 4.9 | 1.0 | 4.9 | |
| Lane Grp Cap (vph) | 539 | 963 | 431 | 358 | 776 | 347 | 479 | 2294 | 714 | 263 | 1928 | |
| v/s Ratio Prot | c0.12 | 0.17 | | 0.08 | c0.15 | | c0.11 | c0.36 | | 0.05 | 0.27 | |
| v/s Ratio Perm | | | 0.09 | | | 0.03 | | | 0.09 | | | |
| v/c Ratio | 0.79 | 0.64 | 0.32 | 0.73 | 0.69 | 0.14 | 0.82 | 0.79 | 0.19 | 0.62 | 0.70 | |
| Uniform Delay, d1 | 67.8 | 53.5 | 48.4 | 72.4 | 59.9 | 52.4 | 69.7 | 39.1 | 27.5 | 74.7 | 42.8 | |
| 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 | 7.4 | 1.9 | 0.9 | 6.1 | 3.2 | 0.4 | 9.8 | 2.2 | 0.3 | 3.0 | 1.4 | |
| Delay (s) | 75.1 | 55.4 | 49.3 | 78.5 | 63.2 | 52.8 | 79.5 | 41.4 | 27.8 | 77.7 | 44.2 | |
| Level of Service | E | E | D | E | E | D | E | D | C | E | D | |
| Approach Delay (s) | | 60.2 | | | 64.9 | | | 46.6 | | | 47.8 | |
| Approach LOS | | E | | | E | | | D | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 52.8 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.76 | | |
| Actuated Cycle Length (s) | 166.9 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 76.2% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |



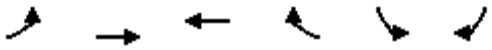
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 0.97 | 0.95 | 1.00 | 1.00 | 0.95 | 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 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (prot) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 3433 | 3539 | 1583 | 1770 | 3539 | 1583 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.95 | 1.00 | 1.00 |
| Satd. Flow (perm) | 1770 | 3539 | 1583 | 1770 | 3539 | 1583 | 3433 | 3539 | 1583 | 1770 | 3539 | 1583 |
| Volume (vph) | 204 | 221 | 309 | 106 | 290 | 124 | 515 | 1111 | 83 | 130 | 1078 | 167 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Adj. Flow (vph) | 222 | 240 | 336 | 115 | 315 | 135 | 572 | 1234 | 92 | 144 | 1198 | 186 |
| RTOR Reduction (vph) | 0 | 0 | 281 | 0 | 0 | 120 | 0 | 0 | 42 | 0 | 0 | 84 |
| Lane Group Flow (vph) | 222 | 240 | 55 | 115 | 315 | 15 | 572 | 1234 | 50 | 144 | 1198 | 102 |
| Turn Type | Prot | | Perm | Prot | | Perm | Prot | | Perm | Prot | | Perm |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | | | 4 | | | 8 | | | 2 | | | 6 |
| Actuated Green, G (s) | 17.4 | 17.7 | 17.7 | 10.7 | 11.0 | 11.0 | 23.3 | 57.8 | 57.8 | 13.8 | 48.3 | 48.3 |
| Effective Green, g (s) | 17.4 | 19.7 | 19.7 | 10.7 | 13.0 | 13.0 | 23.3 | 59.8 | 59.8 | 13.8 | 50.3 | 50.3 |
| Actuated g/C Ratio | 0.14 | 0.16 | 0.16 | 0.09 | 0.11 | 0.11 | 0.19 | 0.50 | 0.50 | 0.12 | 0.42 | 0.42 |
| Clearance Time (s) | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 | 4.0 | 6.0 | 6.0 |
| Vehicle Extension (s) | 2.0 | 4.5 | 4.5 | 2.0 | 5.0 | 5.0 | 2.0 | 3.4 | 3.4 | 2.0 | 4.1 | 4.1 |
| Lane Grp Cap (vph) | 257 | 581 | 260 | 158 | 383 | 171 | 667 | 1764 | 789 | 204 | 1483 | 664 |
| v/s Ratio Prot | c0.13 | 0.07 | | 0.06 | c0.09 | | c0.17 | 0.35 | | 0.08 | c0.34 | |
| v/s Ratio Perm | | | 0.03 | | | 0.01 | | | 0.03 | | | 0.06 |
| v/c Ratio | 0.86 | 0.41 | 0.21 | 0.73 | 0.82 | 0.09 | 0.86 | 0.70 | 0.06 | 0.71 | 0.81 | 0.15 |
| Uniform Delay, d1 | 50.1 | 45.0 | 43.4 | 53.2 | 52.4 | 48.2 | 46.7 | 23.2 | 15.6 | 51.1 | 30.6 | 21.6 |
| Progression Factor | 1.00 | 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 | 23.9 | 0.8 | 0.7 | 13.2 | 14.8 | 0.5 | 10.2 | 2.3 | 0.2 | 8.7 | 4.8 | 0.5 |
| Delay (s) | 74.0 | 45.8 | 44.1 | 66.4 | 67.1 | 48.6 | 57.0 | 25.5 | 15.7 | 59.9 | 35.4 | 22.1 |
| Level of Service | E | D | D | E | E | D | E | C | B | E | D | C |
| Approach Delay (s) | | 53.0 | | | 62.6 | | | 34.5 | | | 36.1 | |
| Approach LOS | | D | | | E | | | C | | | D | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 41.4 | HCM Level of Service | D |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 120.0 | Sum of lost time (s) | 16.0 |
| Intersection Capacity Utilization | 77.1% | ICU Level of Service | D |
| Analysis Period (min) | 15 | | |
| c Critical Lane Group | | | |

| Movement | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Sign Control | Free | | | Free | Stop | |
| Grade | 0% | | | 0% | 0% | |
| Volume (veh/h) | 408 | 1 | 163 | 1193 | 0 | 66 |
| Peak Hour Factor | 0.87 | 0.87 | 0.94 | 0.94 | 0.60 | 0.60 |
| Hourly flow rate (vph) | 469 | 1 | 173 | 1269 | 0 | 110 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | 714 | | |
| pX, platoon unblocked | | | | | 0.70 | |
| vC, conflicting volume | | | 470 | | 1451 | 235 |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | | | 470 | | 1220 | 235 |
| tC, single (s) | | | 4.4 | | 6.8 | 7.1 |
| tC, 2 stage (s) | | | | | | |
| tF (s) | | | 2.4 | | 3.5 | 3.4 |
| p0 queue free % | | | 83 | | 100 | 85 |
| cM capacity (veh/h) | | | 1001 | | 100 | 749 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | WB 3 | NB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 313 | 157 | 173 | 635 | 635 | 110 |
| Volume Left | 0 | 0 | 173 | 0 | 0 | 0 |
| Volume Right | 0 | 1 | 0 | 0 | 0 | 110 |
| cSH | 1700 | 1700 | 1001 | 1700 | 1700 | 749 |
| Volume to Capacity | 0.18 | 0.09 | 0.17 | 0.37 | 0.37 | 0.15 |
| Queue Length 95th (ft) | 0 | 0 | 16 | 0 | 0 | 13 |
| Control Delay (s) | 0.0 | 0.0 | 9.3 | 0.0 | 0.0 | 10.6 |
| Lane LOS | | | A | | | B |
| Approach Delay (s) | 0.0 | | 1.1 | | | 10.6 |
| Approach LOS | | | | | | B |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | 1.4 | | |
| Intersection Capacity Utilization | 43.7% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Total Lost time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | | 1.00 | 1.00 |
| Frt | 1.00 | 1.00 | 0.98 | | 1.00 | 0.85 |
| Flt Protected | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (prot) | 1444 | 3471 | 3407 | | 1770 | 1292 |
| Flt Permitted | 0.95 | 1.00 | 1.00 | | 0.95 | 1.00 |
| Satd. Flow (perm) | 1444 | 3471 | 3407 | | 1770 | 1292 |
| Volume (vph) | 66 | 437 | 1127 | 127 | 426 | 226 |
| Peak-hour factor, PHF | 0.92 | 0.92 | 0.93 | 0.93 | 0.92 | 0.92 |
| Adj. Flow (vph) | 72 | 475 | 1212 | 137 | 463 | 246 |
| RTOR Reduction (vph) | 0 | 0 | 9 | 0 | 0 | 128 |
| Lane Group Flow (vph) | 72 | 475 | 1340 | 0 | 463 | 118 |
| Heavy Vehicles (%) | 25% | 4% | 2% | 25% | 2% | 25% |
| Turn Type | Prot | | | | | Perm |
| Protected Phases | 7 | 4 | 8 | | 6 | |
| Permitted Phases | | | | | | 6 |
| Actuated Green, G (s) | 5.6 | 46.9 | 37.3 | | 25.5 | 25.5 |
| Effective Green, g (s) | 5.6 | 46.9 | 37.3 | | 25.5 | 25.5 |
| Actuated g/C Ratio | 0.07 | 0.58 | 0.46 | | 0.32 | 0.32 |
| Clearance Time (s) | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 |
| Vehicle Extension (s) | 3.0 | 3.0 | 3.0 | | 3.0 | 3.0 |
| Lane Grp Cap (vph) | 101 | 2025 | 1581 | | 561 | 410 |
| v/s Ratio Prot | c0.05 | 0.14 | c0.39 | | c0.26 | |
| v/s Ratio Perm | | | | | | 0.09 |
| v/c Ratio | 0.71 | 0.23 | 0.85 | | 0.83 | 0.29 |
| Uniform Delay, d1 | 36.6 | 8.1 | 19.0 | | 25.4 | 20.6 |
| Progression Factor | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 |
| Incremental Delay, d2 | 21.1 | 0.1 | 4.4 | | 9.6 | 0.4 |
| Delay (s) | 57.7 | 8.1 | 23.5 | | 35.0 | 21.0 |
| Level of Service | E | A | C | | D | C |
| Approach Delay (s) | | 14.7 | 23.5 | | 30.1 | |
| Approach LOS | | B | C | | C | |

| Intersection Summary | | | |
|---|---|---|---|
| HCM Average Control Delay | 23.4 | HCM Level of Service | C |
| HCM Volume to Capacity ratio | 0.83 | | |
| Actuated Cycle Length (s) | 80.4 | Sum of lost time (s) | 12.0 |
| Intersection Capacity Utilization | 72.5% | ICU Level of Service | C |
| Analysis Period (min) | 15 | | |

c Critical Lane Group