MRO ENGINEERS

# Draft
# Traffic Impact Analysis

# Folsom Heights
## Folsom, California

Prepared For
**Ascent Environmental, Inc.**
**&**
**City of Folsom**
**Community Development Department**

**December 30, 2016**

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## EXECUTIVE SUMMARY

This study addresses the traffic impacts associated with the proposed Folsom Heights project, which is to be located at the eastern end of the Folsom Plan Area, immediately south of U.S. Highway 50 and adjacent to the Sacramento/El Dorado County line. The proposed project would consist of 530 single-family residential units and approximately 128,500 square feet of general commercial space on a 189.7-acre site.

The study evaluates weekday AM and PM peak hour traffic operations in the vicinity of the project site under the following scenarios:

- Existing Conditions,
- Existing Plus Project Conditions,
- Cumulative No Project Conditions, and
- Cumulative Plus Project Conditions.

At the request of the El Dorado Hills Community Services District and the El Dorado County Community Development Agency, the impacts of the project were evaluated at two intersections and two road segments in the immediate vicinity of the project site. Because the study locations are within El Dorado County, the analysis employed methodologies and significance criteria established by that jurisdiction.

***Existing Conditions***

- AM Peak Hour: Both study intersections conform to El Dorado County's General Plan Circulation policy (i.e., LOS E or better), as they operate at LOS A or B. The unsignalized intersection of Stonebriar Drive/Prima Drive has insufficient traffic to meet the minimum requirements for installation of a traffic signal. Both study segments of White Rock Road operate at an acceptable LOS C in both directions in the AM peak hour.

- PM Peak Hour: Both study intersections again operate at an acceptable level of service. Stonebriar Drive/Prima Drive fails to meet the minimum requirements of the "Peak Hour" signal warrant. Both segments of White Rock Road again operate at an acceptable LOS C in both directions.

***Existing Plus Project Conditions***

- The proposed project is expected to generate a net total of 692 AM peak-hour trips, with 282 inbound and 410 outbound. The PM peak hour trip generation is estimated to be 1,157 trips, with 642 inbound and 515 outbound. Almost 16,000 gross/unadjusted daily trips are projected, including internal trips and pass-by/diverted trips.

- The analysis assumes that Easton Valley Parkway will be available to provide vehicular access at intersections along the southerly extension of Empire Ranch Road.

- AM Peak Hour: No change in level of service is projected, and both study intersections will continue to operate at acceptable levels of service (i.e., LOS A or B). The all-way-STOP controlled study intersection of Stonebriar Drive/Prima Drive will fail to meet the minimum requirements of the "Peak Hour" signal warrant. No change in level of service is projected on the study road segments, both of which will operate at an acceptable LOS C in both directions.

- PM Peak Hour: Both study locations will continue to operate at LOS A or B, which is acceptable under El Dorado County policy. Traffic volumes at the intersection of Stonebriar Drive/Prima Drive will again be insufficient to meet the "Peak Hour" signal warrant requirements. No change in level of service is expected on three of the four study segments of White Rock Road; it will operate at an acceptable LOS C. The westbound segment between Stonebriar Drive and Manchester Drive is projected to decline from LOS C to LOS D, but will continue to operate at an acceptable level of service.

- The project-related impacts at all of the study intersections and road segments are less than significant, and no mitigation measures are needed to resolve off-site traffic impacts.

***Cumulative No Project Conditions***

- The cumulative conditions analysis reflects the level of development anticipated in the City of Folsom and throughout the Sacramento region through the year 2035. The traffic volume projections employed in this analysis are based on information presented in the environmental documentation for the proposed Russell Ranch project and the Folsom Plan Area Specific Plan (FPASP) annexation project.

- The following study area transportation system improvements are reflected in the future year traffic forecasts used in this analysis:
  - Construction of a new interchange at U.S. Highway 50/Oak Avenue Parkway,
  - Construction of the U.S. Highway 50/Empire Ranch Road interchange, and
  - Widening of White Rock Road to four lanes plus turn lanes from the Sacramento/El Dorado County line to Manchester Drive.

- In addition, the traffic projections reflect completion of all roadway system improvements within the Folsom Plan Area Specific Plan, as well as the regional transportation system improvements identified in the SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy.

- AM Peak Hour: Both study intersections are expected to operate within the County's LOS E standard in the AM peak hour. The projected traffic volumes at Stonebriar Drive/Prima Drive will be insufficient to meet the minimum requirements of the "Peak Hour" signal warrant. With the planned widening of White Rock Road, LOS B is projected for both eastbound study segments, while the westbound segments are expected to operate at LOS A.

- PM Peak Hour: Both intersections will operate at acceptable levels of service (LOS A or B). Again, the traffic volumes at Stonebriar Drive/Prima Drive will not be sufficient to meet the minimum requirements of the "Peak Hour" signal warrant. Both segments of White Rock Road are projected to operate at an acceptable LOS B in both directions under this scenario.

***Cumulative + Project Conditions***

- AM Peak Hour: Both study intersections are projected to operate acceptably under the El Dorado County LOS E standard. Further, no change in level of service is projected upon addition of the project-generated traffic. The Stonebriar Drive/Prima Drive intersection will continue to have insufficient traffic to meet the "Peak Hour" signal warrant requirements. All of the study segments will continue to operate at acceptable levels of service – LOS B in all cases.

- PM Peak Hour: Both locations will continue to operate at LOS A or B. The "Peak Hour" signal warrant requirements will not be met at Stonebriar Drive/Prima Drive, so continuation of all-way-

STOP control is appropriate. Both White Rock Road segments are projected to operate at LOS B in both directions, the same as under Cumulative No Project conditions.

- The project-related impact is less than significant, and no mitigation measures are recommended.

***Consistency Assessment***

- In March 2016, MRO Engineers, Inc., conducted an analysis, which determined that the traffic impacts of the proposed Folsom Heights project (as recently modified) had been adequately addressed in the environmental documentation prepared with respect to the entire Folsom Plan Area annexation project.

- The recently-submitted Vesting Tentative Subdivision Map was reviewed to ensure that no other significant impacts might occur in connection with implementation of the proposed Folsom Heights project, based on the environmental issue areas addressed in the *Environmental Checklist and Addendum - Folsom Plan Area Specific Plan Amendment for the Folsom Heights Area* (Ascent Environmental, April 2016).

- This consistency assessment determined that the traffic impacts associated with the current Folsom Heights proposal are consistent with the findings documented in previous environmental analyses.

## INTRODUCTION

This study addresses the traffic impacts associated with the proposed Folsom Heights project, which is to be located at the eastern end of the Folsom Plan Area, immediately south of U.S. Highway 50 and adjacent to the Sacramento/El Dorado County line. On March 10, 2016, MRO Engineers, Inc., completed an analysis of the proposed project, which determined that the traffic impacts of the proposed Folsom Heights project (as recently modified) had been adequately addressed in the environmental documentation prepared with respect to the entire Folsom Plan Area.

The project sponsor has recently submitted to the City of Folsom a Vesting Tentative Subdivision Map illustrating the layout of the proposed project, including the proposed street system and the arrangement of the residential lots. According to that map, the proposed land use has not changed since completion of the March 2016 letter. This report describes the results of an analysis that consists of the following components:

- A traffic impact analysis for the following two intersections identified by the El Dorado Hills Community Services District (CSD):
    - White Rock Road/Stonebriar Drive/Four Seasons Drive, and
    - Stonebriar Drive/Prima Drive.
- A traffic impact analysis for the following two road segments identified by the El Dorado County Community Development Agency staff:
    - White Rock Road between Stonebriar Drive and the Sacramento/El Dorado County line, and
    - White Rock Road between Stonebriar Drive and Manchester Drive.
- A consistency assessment to ensure that the Tentative Map is consistent with previous versions of the project and no significant impacts will result from the layout of the proposed project.

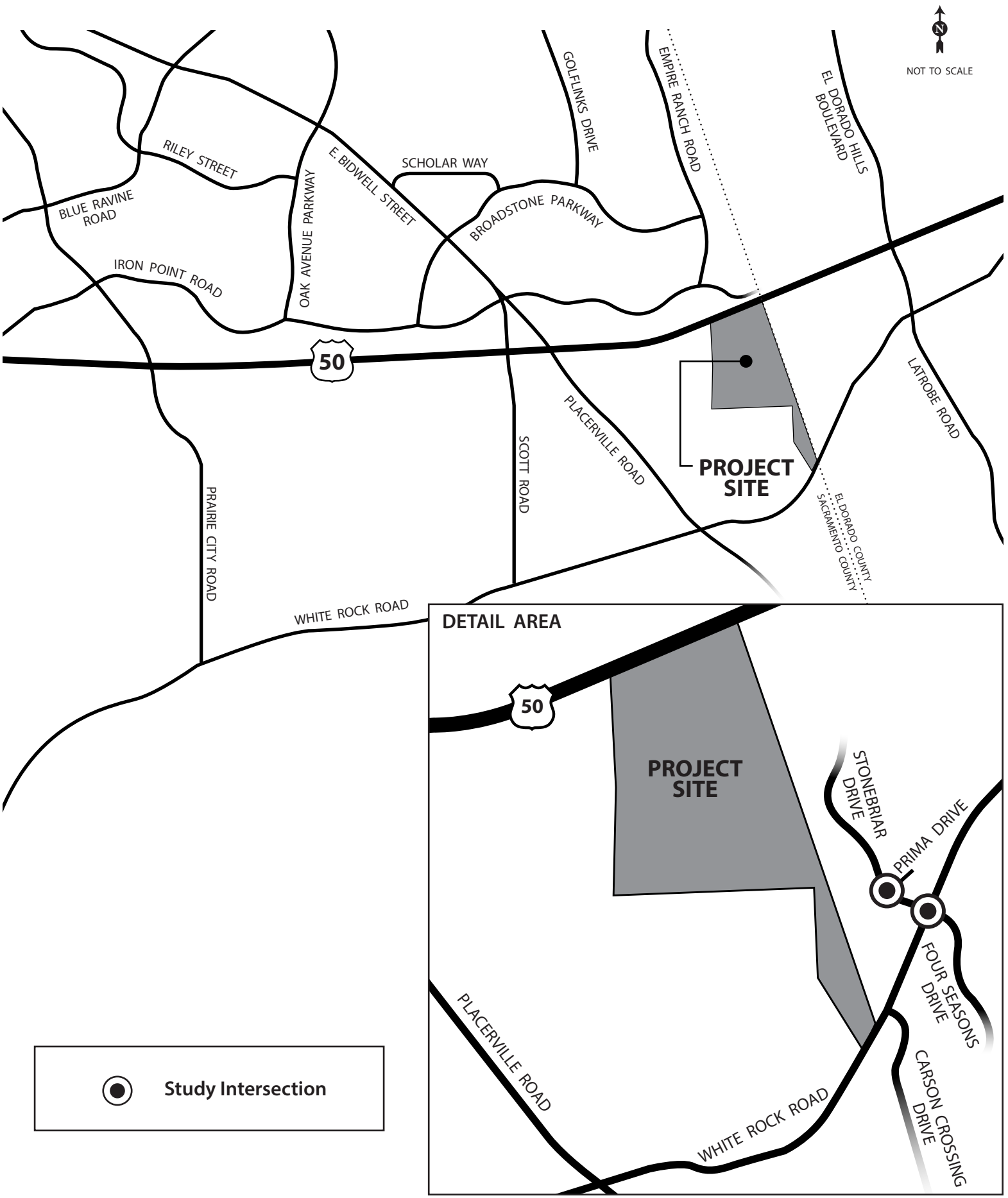
As directed by City of Folsom staff, this study analyzed detailed traffic operations under the following four scenarios:

- Existing Conditions,
- Existing Plus Project Conditions,
- Cumulative No Project Conditions, and
- Cumulative Plus Project Conditions.

This report presents the analysis procedures as well as the findings and recommendations resulting from the evaluation.

### *Project Description*

As illustrated on Figure 1, the proposed project is to be located at the eastern end of the Folsom Plan Area, immediately south of U.S. Highway 50 and adjacent to the Sacramento/El Dorado County line. It extends from U.S. Highway 50 at the north to White Rock Road at the south.




MRO ENGINEERS, INC.
660 Auburn Folsom Rd.
Suite 201B
Auburn, CA 95603
Phone (916) 783-3838
www.mroengineers.com

# PROJECT LOCATION

**FIGURE 1**

Table 1 summarizes the proposed land use plan for the Folsom Heights project. According to information supplied by the project applicant, the proposed project would consist of a total of 530 residential dwelling units (DU) and about 128,500 square feet (SF) of retail space.

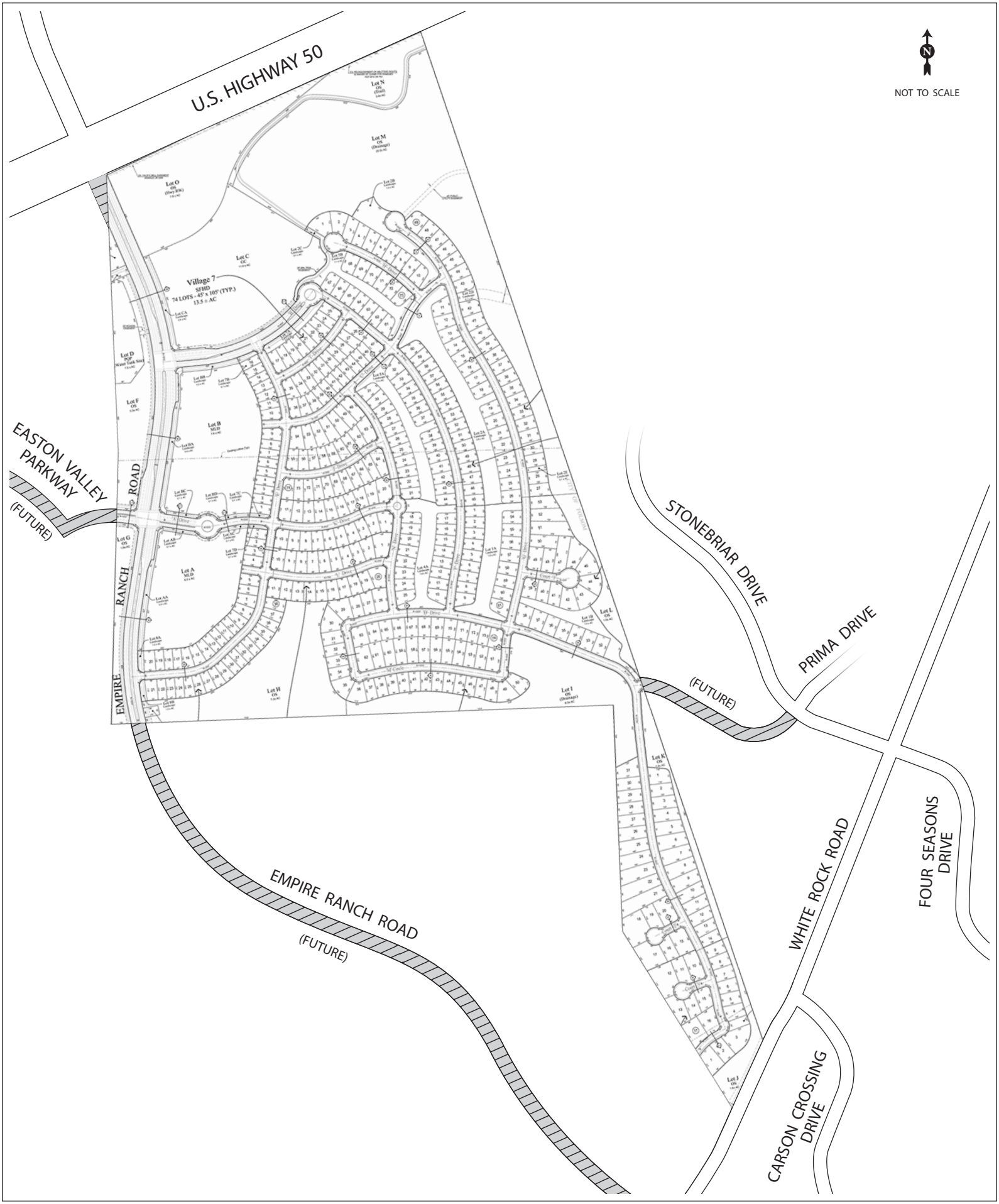
**Table 1**
**Folsom Heights Land Use Summary**

| Land Use | | Proposed Plan | |
|---|---|---|---|
| | | Acres | DU[1] or SF[2] |
| Residential | Single Family | 31.9 | 117 DU |
| | Single-Family High Density | 60.8 | 285 DU |
| | Multi-Family Low Density[3] | 14.9 | 128 DU |
| *Residential Subtotal* | | *107.6* | *530 DU* |
| General Commercial | | 11.8 | 128,500 SF[4] |
| Open Space | | 52.4 | -- |
| Roads/Highways | | 17.9 | -- |
| TOTAL | | 189.7 | -- |

Notes:
1 Dwelling units.
2 Square feet.
3 May be attached or detached.
4 Assuming floor area ratio (FAR) of 0.25 (i.e., building square footage is 25 percent of total land area).

Vehicular access to and from the proposed project would be primarily provided via three access roads along the future southerly extension of Empire Ranch Road, at the western edge of Folsom Heights. In addition, near the southeasterly corner of the proposed project, access would be possible via the extension of existing Prima Drive from its current terminus at Stonebriar Drive in El Dorado Hills.

Figure 2 presents the proposed project site plan.




MRO ENGINEERS, INC.
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Suite 201B
Auburn, CA 95603
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www.mroengineers.com

# PROJECT SITE PLAN

**FIGURE 2**

***Study Area***

Based on a request from the El Dorado Hills Community Services District (CSD) and input from City of Folsom staff, the off-site impacts of the proposed project were evaluated at the following intersections:

- White Rock Road/Stonebriar Drive/Four Seasons Drive, and
- Stonebriar Drive/Prima Drive.

In addition to the intersections listed above, analysis of the following two road segments was requested by the El Dorado County Community Development Agency staff:

- White Rock Road between Stonebriar Drive and the Sacramento/El Dorado County line, and
- White Rock Road between Stonebriar Drive and Manchester Drive.

No other intersections or road segments were addressed in this analysis. As described earlier, on March 10, 2016, MRO Engineers completed an analysis confirming that the traffic impacts of the Folsom Heights project, as currently proposed, were adequately addressed in the environmental documentation prepared with respect to the entire Folsom Plan Area.

***Analysis Methodology***

In accordance with the analysis procedures generally accepted in the City of Folsom and El Dorado County, the following techniques were employed in conducting this study.

*Intersection Operations*

Intersection operations are typically described in terms of level of service (LOS), which is reported on a scale from LOS A (representing free-flow conditions) to LOS F (which represents substantial congestion and delay). The level of service designations are based on a quantitative calculation of weighted average vehicular delay at the intersection. The specific approach to estimating delay is based on procedures documented in the *Highway Capacity Manual 2010* (Transportation Research Board, Fifth Edition, December 2010).

*Signalized Intersection Analysis*

The signalized study intersection of White Rock Road/Stonebriar Drive/Four Seasons Drive was analyzed using the "operational analysis" methodology presented in Chapter 18 of the *Highway Capacity Manual 2010* (*HCM 2010*). This methodology determines signalized intersection level of service by comparing the "average control delay per vehicle" to the thresholds shown in Table 2. Control delay represents the delay directly associated with the traffic signal. For this analysis, the level of service calculations were performed using the *Synchro 8* software package, which implements the intersection analysis procedures documented in the *HCM 2010*.

| **Table 2**<br>**Level of Service Definitions**<br>**Signalized Intersections** | | |
|---|---|---|
| Level of Service | Description | Average Control Delay (Seconds/Vehicle) |
| A | Very low delay. Most vehicles do not stop | ≤ 10.0 |
| B | Slight delay. Generally good signal progression. | 10.1 – 20.0 |
| C | Increased number of stopped vehicles. Fair signal progression. | 20.1 - 35.0 |
| D | Noticeable congestion. Large proportion of vehicles stopped. | 35.1 – 55.0 |
| E | Operating conditions at or near capacity. Frequent cycle failure. | 55.1 - 80.0 |
| F | Oversaturation. Forced or breakdown flow. Extensive queuing. | > 80.0 |
| Reference: Transportation Research Board, *Highway Capacity Manual 2010*, Fifth Edition, December 2010. | | |

*Unsignalized Intersection Analysis*

The analysis of the unsignalized, all-way-STOP study intersection of Stonebriar Drive/Prima Drive was conducted using the appropriate method documented in Chapter 19 of the *HCM 2010*. This method calculates the weighted average control delay for the intersection as a whole and determines level of service based on the criteria set forth in Table 3. For unsignalized intersections, control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. The unsignalized study intersection was also analyzed using the *Synchro 8* software package, which performs level of service calculations in accordance with the *HCM 2010* procedures.

The analysis of the unsignalized study intersection also considered whether it would meet the minimum requirements for installation of a traffic signal. The need for installation of a traffic signal at a given location is judged relative to a defined set of traffic signal "warrants." The warrants applied in the State of California were established by Caltrans, based on essentially similar requirements documented in the *Manual on Uniform Traffic Control Devices* (MUTCD) published by the Federal Highway Administration (FHWA). The current signal warrants are documented in "Part 4 – Highway Traffic Signals" of the *California Manual on Uniform Traffic Control Devices*, dated November 7, 2014. Nine such warrants have been defined, although not all warrants are relevant to each case. This analysis was conducted using Warrant 3, the "Peak Hour" signal warrant.

| **Table 3**<br>**Level of Service Definitions**<br>**Unsignalized Intersections** | | |
|---|---|---|
| Level of Service | Description | Average Control Delay (Seconds/Vehicle) |
| A | Little or no conflicting traffic for minor movements. | ≤ 10.0 |
| B | Drivers on minor movements begin to notice absence of available gaps. | 10.1 – 15.0 |
| C | Drivers on minor movements begin to experience delays waiting for adequate gaps. | 15.1 – 25.0 |
| D | Queuing occurs on minor movements due to a reduction in available gaps. | 25.1 – 35.0 |
| E | Extensive minor movement queuing due to insufficient gaps. | 35.1 – 50.0 |
| F | Insufficient gaps of adequate size to allow minor movement traffic demand to be accommodated. | > 50.0 |
| Reference: Transportation Research Board, *Highway Capacity Manual 2010*, Fifth Edition, December 2010. | | |

*Road Segment Operations*

Traffic operations on the two key roadway segments in the vicinity of the proposed project were also evaluated using methodologies presented in the *Highway Capacity Manual 2010*. In the short term, White Rock Road is a two-lane highway with a painted median. With regard to the analysis of cumulative conditions, El Dorado County has recently adopted a Capital Improvement Program (CIP), which includes a project to widen White Rock Road to four lanes plus turn lanes from the Sacramento/El Dorado County line to Manchester Drive.

*Two-Lane Highway Analysis*

The analysis of two-lane highways is addressed in Chapter 15 of *HCM 2010*. Because these roadways serve many functions, the methodology includes designation of the study segment as being one of three distinct classes, labeled Class I, II, and III. The study segments of White Rock Road have been categorized as being Class III highways, as they serve a "moderately developed area" where "local traffic often mixes with through traffic" and the "density of unsignalized roadside access points is noticeably higher than in a purely rural area." [Ref.: *HCM 2010*, p. 15-3.] For such highways, level of service is defined based on "percent of free-flow speed" (PFFS).

*Multilane Highways*

Multilane highways are analyzed using the procedures presented in Chapter 14 of *HCM 2010*. Level of service is defined based on density, which is a measure of the proximity of vehicles to each other. While specific density values are defined for LOS A – D, the density values for LOS E and F vary depending upon free-flow speed. Free-flow speed can be either measured or estimated. If estimated,

the *HCM 2010* suggests that it be ". . . the posted or statutory speed limit plus 5 mi/h for speed limits 50 mi/h and higher and as the speed limit plus 7 mi/h for speed limits less than 50 mi/h." Given the speed limit of 55 MPH on White Rock Road, the estimated free-flow speed is 60 MPH.

Table 4 summarizes the level of service criteria for two-lane highways and multilane highways.

**Table 4**
**Level of Service Definitions[1]**
**Two-Lane and Multilane Highways**

| Level of Service | Two-Lane Highways<br>Percent of Free-Flow Speed | Multilane Highways<br>Density (pc/mi/ln)[2] |
|---|---|---|
| A | > 91.7% | ≤ 11.0 |
| B | 83.4 – 91.7% | 11.1 – 18.0 |
| C | 75.1 – 83.3% | 18.1 – 26.0 |
| D | 66.8 – 75.0% | 26.1 – 35.0 |
| E | ≤ 66.7 | 35.1 – 40.0[3] |
| F | Demand Exceeds Capacity | > 40.0[3] |

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual 2010*, Fifth Edition, December 2010.
2 Passenger cars per mile per lane.
3 Assuming a free-flow speed of 60 MPH.

***Evaluation Criteria***

Because all of the study locations are in El Dorado County, this analysis addresses the traffic impacts of the proposed Folsom Heights project under the significance criteria of that jurisdiction.

*El Dorado County*

El Dorado County General Plan Circulation Policy TC-Xd provides level of service standards for County roads. According to that policy, the standard for White Rock Road is LOS E. If the proposed project causes the level of service to degrade from acceptable (i.e., LOS A – E) to unacceptable (i.e., LOS F), then the project's impact is considered significant.

For roads that fall short of meeting the County's LOS standard under "no project" conditions, General Plan Circulation Policy TC-Xe states that a significant impact occurs in the event of:

A. A two percent increase in traffic during the AM peak hour, the PM peak hour, or daily, or

B. The addition of 100 or more daily trips, or

C. The addition of 10 or more trips during the AM peak hour or the PM peak hour.

## EXISTING CONDITIONS

This section describes the roadway network serving the proposed project, as well as existing traffic operations at the study intersections and road segments.

### *Key Roadways*

The existing transportation system in the vicinity of the project site is illustrated on Figure 3. Shown there are the traffic lanes on the adjacent roadways, as well as existing facilities for pedestrians and bicyclists. Brief descriptions of the key roadways serving the project site are provided below.

*White Rock Road* is an east-west, two-lane arterial roadway that generally runs parallel to and south of U.S. Highway 50. In the vicinity of the proposed project, it transitions to a southwest-to-northeast orientation as it passes into El Dorado County to the east and, at Manchester Drive, it widens to a four-lane facility. At Stonebriar Drive, it has dedicated left-turn lanes in each direction, as well as a separate right-turn lane for southwesterly traffic. In the immediate vicinity of the project site, it has bike lanes in both directions, a sidewalk on the southeastern side only, and a 55 MPH speed limit.

*Stonebriar Drive* is a two-lane residential street that extends to the north from White Rock Road. Although generally not median-divided, a raised median is present between Prima Drive and White Rock Road. It has sidewalks on both sides and, although it does not have formal bike lanes, a wide parking/shoulder lane serves the needs of bicyclists. Stonebriar Drive has a 25 MPH speed limit.

*Prima* Drive is a relatively short, two-lane residential street within the Stonebriar neighborhood. It currently terminates at Stonebriar Drive, although it will be extended to the west to provide access to the proposed Folsom Heights project. It has a 25 MPH speed limit**.**

### *Existing Traffic Volumes*

On Thursday, December 1, 2016, AM and PM peak-period turning movement counts were conducted by an independent data collection firm at the following study intersections:

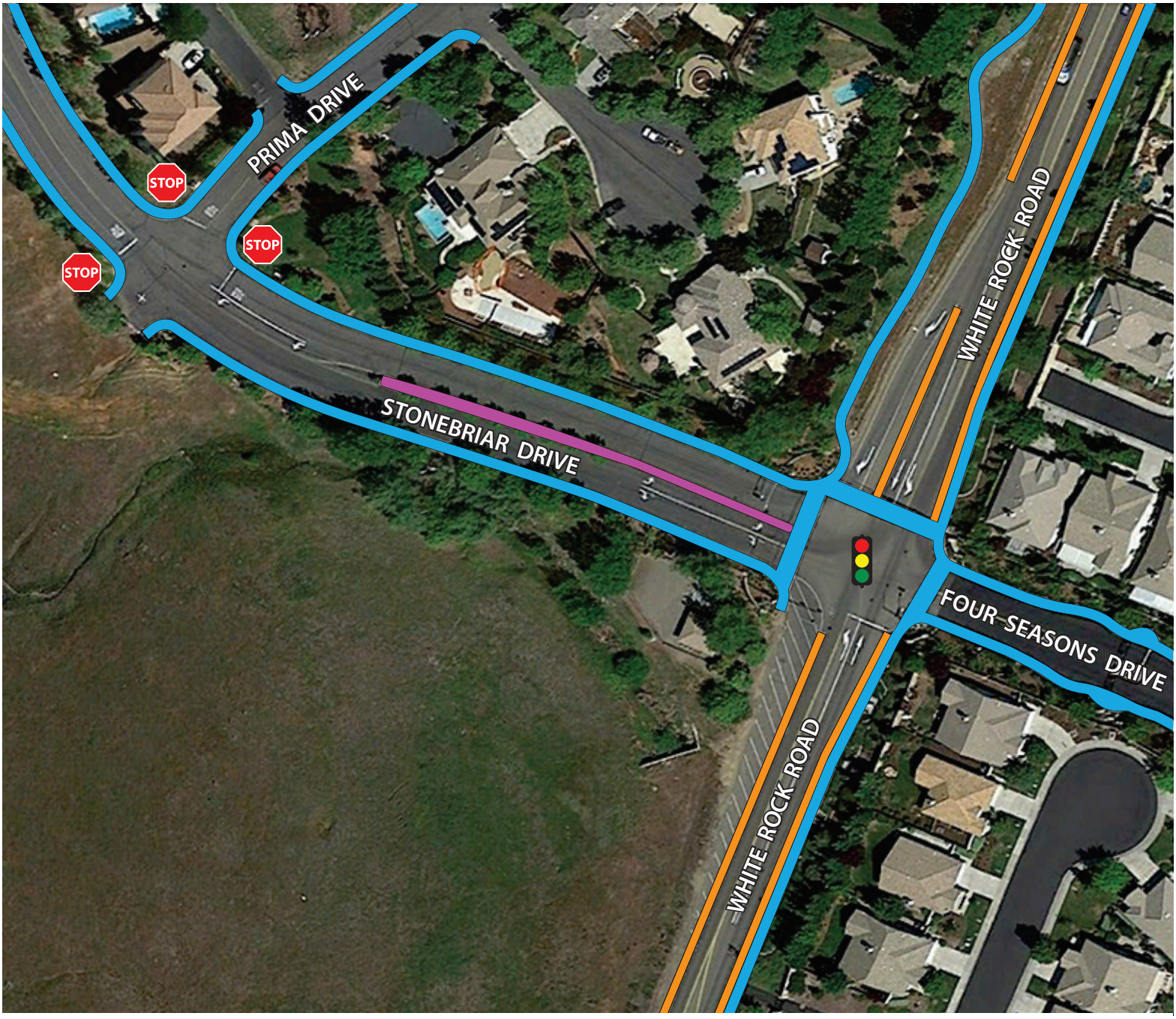
- White Rock Road/Stonebriar Drive/Four Seasons Drive, and
- Stonebriar Drive/Prima Drive.

Those counts were specifically scheduled on a typical school day, to ensure a conservative analysis of traffic operations.

Twenty-four hour vehicle classification counts were performed on the following road segments on the same day:

- White Rock Road between Stonebriar Drive and the Sacramento/El Dorado County line, and
- White Rock Road between Stonebriar Drive and Manchester Drive.

The AM and PM peak-hour traffic volumes and existing intersection lane configurations are shown on Figure 4. Appendix A contains the traffic count data collection sheets.



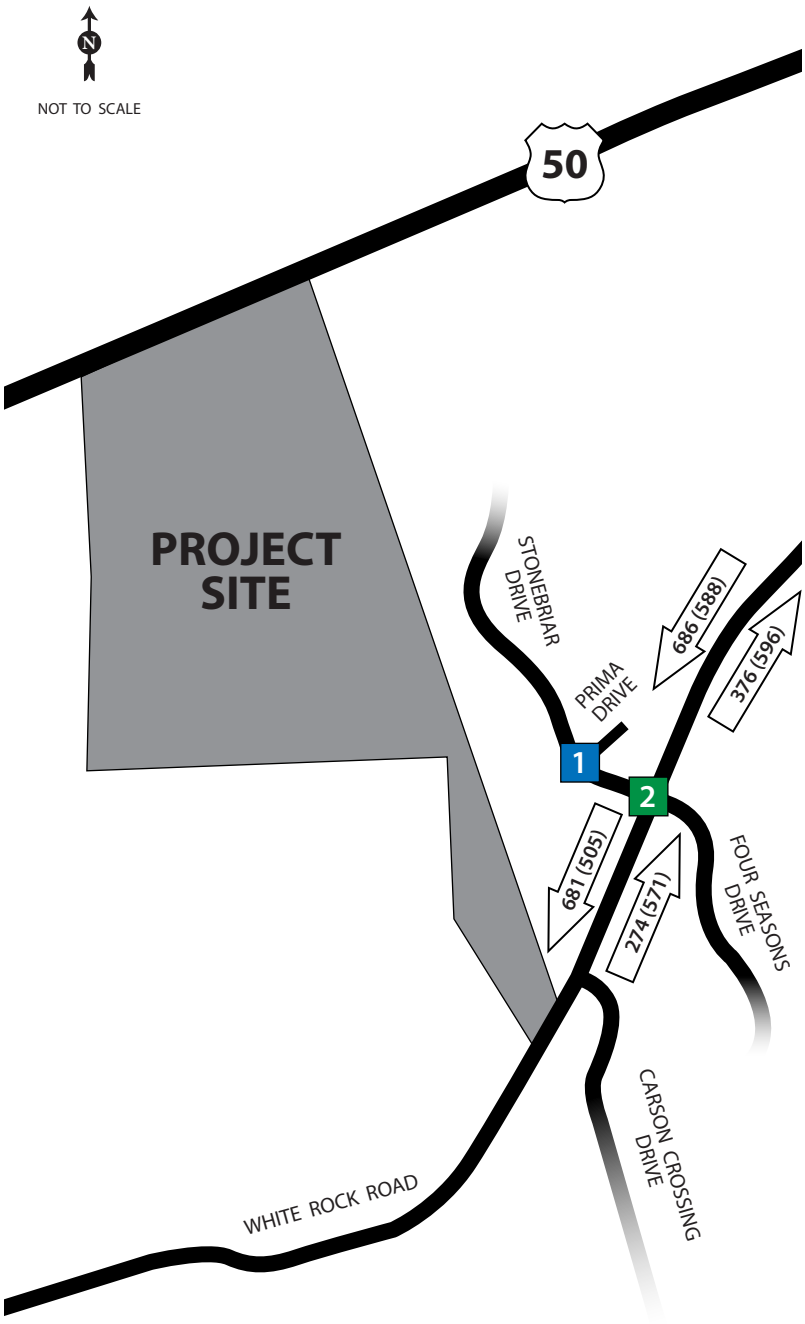

**LEGEND**

- SIDEWALK / CROSSWALK
- BIKE LANE
- RAISED MEDIAN
- TRAFFIC SIGNAL
- STOP SIGN

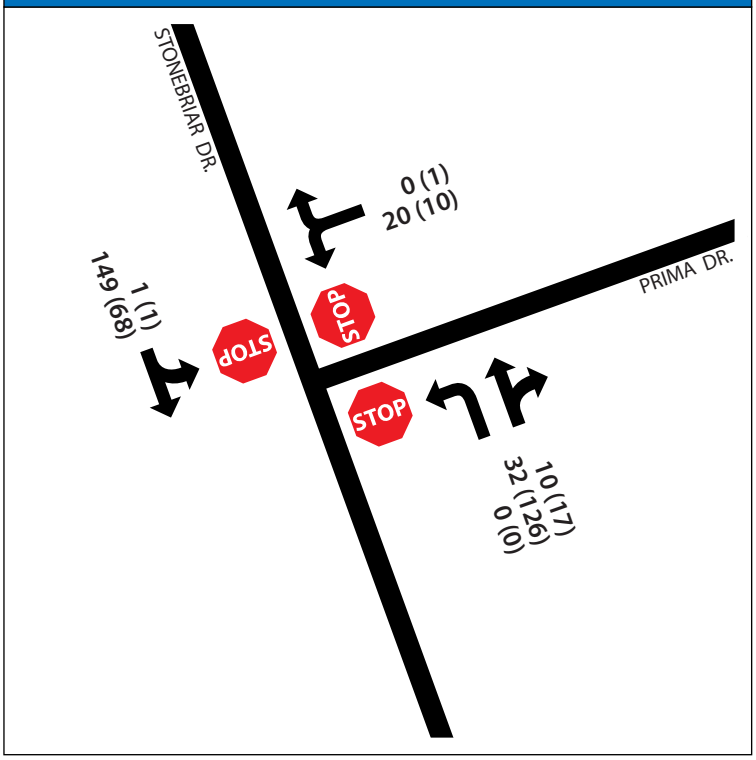
MRO ENGINEERS, INC.
660 Auburn Folsom Rd.
Suite 201B
Auburn, CA 95603
Phone (916) 783-3838
www.mroengineers.com

# EXISTING TRANSPORTATION SYSTEM

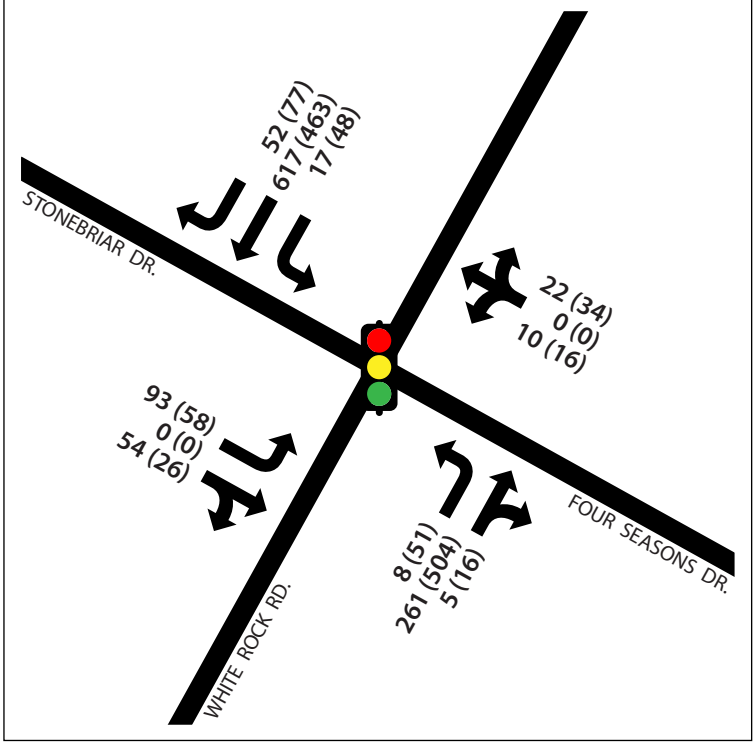
**FIGURE 3**




## 1 STONEBRIAR DR. / PRIMA DR.




## 2 WHITE ROCK RD. / STONEBRIAR DR. FOUR SEASONS DR.




**LEGEND**

| | |
|---|---|
| ### (###) | AM (PM) PEAK HOUR TRAFFIC VOLUMES |
| | TURN LANE |
| | TRAFFIC SIGNAL |
| STOP | STOP SIGN |

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660 Auburn Folsom Rd.
Suite 201B
Auburn, CA 95603
Phone (916) 783-3838
www.mroengineers.com

# PEAK HOUR TRAFFIC VOLUMES EXISTING CONDITIONS

FIGURE 4

The AM peak hours at the study intersections occurred during different hourly periods: 7:15 - 8:15 AM at White Rock Road/Stonebriar Drive/Four Seasons Drive and 7:00 - 8:00 AM at Stonebriar Drive/Prima Drive. The PM peak hour occurred between 4:30 and 5:30 PM at White Rock Road/Stonebriar Drive/Four Seasons Drive and from 5:00 until 6:00 PM at Stonebriar Drive/Prima Drive.

***Existing Intersection Level of Service***

Table 5 summarizes the existing AM and PM peak hour levels of service at the study intersections. Appendix B contains the technical calculation sheets.

*AM Peak Hour*

Both study intersections conform to the County's General Plan Circulation policy (i.e., LOS E or better). White Rock Road/Stonebriar Drive/Four Seasons Drive is at LOS B, while Stonebriar Drive/Prima Drive is currently operating at LOS A. The unsignalized intersection of Stonebriar Drive/Prima Drive has insufficient traffic to meet the minimum requirements for installation of a traffic signal.

*PM Peak Hour*

In the PM peak hour, both study intersections again operate at acceptable levels of service. In fact, the level of service results are identical to the AM peak hour findings, with one location at LOS A and one at LOS B. Stonebriar Drive/Prima Drive again fails to meet the minimum requirements of the "Peak Hour" signal warrant.

***Existing Roadway Segment Level of Service***

*AM Peak Hour*

Both segments of White Rock Road operate at an acceptable LOS C in both directions in the AM peak hour.

*PM Peak Hour*

In the PM peak hour, both segments of White Rock Road again operate at an acceptable LOS C in both directions.

**Table 5**
**Level of Service Summary[1]**
**Existing Conditions**

| Intersection | Traffic Control | AM Peak Hour Delay[2] | AM Peak Hour LOS[3] | AM Peak Hour Meet Signal Warrant?[4] | PM Peak Hour Delay | PM Peak Hour LOS | PM Peak Hour Meet Signal Warrant? |
|---|---|---|---|---|---|---|---|
| White Rock Rd./Stonebriar Dr./Four Seasons Dr. | Signal | 11.7 | B | -- | 12.7 | B | -- |
| Stonebriar Dr./Prima Dr. | All-Way STOP | 7.7 | A | No | 7.6 | A | No |

| White Rock Road Segment | | AM Peak Hour PFFS[5] | AM Peak Hour LOS | PM Peak Hour PFFS | PM Peak Hour LOS |
|---|---|---|---|---|---|
| Sacramento/El Dorado Co. Line to Stonebriar Dr. | EB[6] | 82.2% | C | 80.6% | C |
| | WB[7] | 79.8% | C | 80.8% | C |
| Stonebriar Drive to Manchester Drive | EB | 80.8% | C | 79.9% | C |
| | WB | 78.6% | C | 78.6% | C |

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual 2010*, Fifth Edition, December 2010.
2 Average control delay (seconds per vehicle).
3 Level of service.
4 "Peak Hour" signal warrant documented in "Part 4 – Highway Traffic Signals" of the *California Manual on Uniform Traffic Control Devices*, November 7, 2014.
5 Percent of free-flow speed.
6 Eastbound.
7 Westbound.

## EXISTING PLUS PROJECT CONDITIONS

This section documents the impacts of the proposed project on traffic operations under Existing Plus Project conditions. To evaluate off-site impacts, the volume of traffic generated by the proposed project was estimated and that traffic was assigned to the nearby street system. The levels of service at the study intersections were then analyzed for the weekday AM and PM peak hours. Based on information provided by the project applicant as well as infrastructure plans for the recently-approved Enclave at Folsom Ranch project, this scenario assumes that key portions of Easton Valley Parkway will be constructed in the short-term time frame, and will be available to provide access to the proposed project's westerly access points.

### *Project Description*

As described above, the proposed Folsom Heights project would be located at the eastern end of the Folsom Plan Area, immediately south of U.S. Highway 50 and adjacent to the Sacramento/El Dorado County line. The proposed project would consist of 530 single-family residential units and approximately 128,500 SF of commercial space on 11.8 acres, as well as a significant amount of open space.

Vehicular access to and from the proposed project would be primarily provided via three access roads along the future southerly extension of Empire Ranch Road, at the western edge of Folsom Heights. In addition, near the southeasterly corner of the proposed project, access would be possible via the extension of existing Prima Drive from its current terminus at Stonebriar Drive in El Dorado Hills.

#### *Trip Generation*

The AM and PM peak-hour trip generation estimates for the proposed project were developed using information presented in the *Trip Generation Manual* (Institute of Transportation Engineers, Ninth Edition, 2012).

With regard to the commercial component of the project, the Development Permit Application addressed in the March 10, 2016 analysis indicated that the commercial site would be, ". . . sized and shaped to meet the needs of a grocery-anchored neighborhood center." Consequently, the trip generation estimate is based on the assumption that the retail center will consist of a supermarket combined with various other uses typical in such a center (e.g., retail stores, restaurants, and services such as banks, nail salons, real estate offices, etc.).

The assumed size of the supermarket was based on information presented in the ITE *Trip Generation Manual* and other sources. The ITE document indicates that the average sizes of the supermarkets surveyed in developing the trip rates presented there range from 37,000 SF (for the AM peak-hour rates) to 56,000 SF (for the PM peak-hour rates). In addition, the Food Marketing Institute (FMI) publishes various facts about supermarkets, including the median store size. For 2014, the median supermarket size was 46,000 SF. According to FMI, the median size has been 46,000 - 47,000 SF since 2008. Based on this information, this analysis has assumed that the Folsom Heights supermarket will be 50,000 SF, combined with 78,500 SF of general retail/commercial space.

To ensure that this approach represents a conservative assessment of the modified project's trip generation, Appendix C contains a table summarizing a comparison of the trip generation associated with the plan described above (i.e., a supermarket combined with general retail/commercial) to a land use plan that does not include a supermarket. This analysis revealed that the supermarket-oriented commercial center would generate substantially more trips than a similarly-sized center without a supermarket, in all of the key analysis periods (i.e., daily, AM peak hour, and PM peak hour).

Table 6 summarizes the gross, unadjusted trip generation estimate for the proposed Folsom Heights land use plan, including both residential and commercial components. The proposed project will generate almost 16,000 trips per day. The AM peak-hour trip generation will be just over 700 trips (287 inbound and 415 outbound), while the PM peak-hour total will be slightly more than 1,500 (820 inbound and 693 outbound).

**Table 6**
**Unadjusted Trip Generation Estimate[1]**

| Land Use | Size | Daily Trips | AM Peak Hour Trips | | | PM Peak Hour Trips | | |
|---|---|---|---|---|---|---|---|---|
| | | | In | Out | Total | In | Out | Total |
| Single-Family Residential[2] | 530 DU | 5,050 | 99 | 299 | 398 | 334 | 196 | 530 |
| Supermarket[3] | 50,000 SF | 5,115 | 105 | 65 | 170 | 242 | 232 | 474 |
| Retail[4] | 78,500 SF | 5,800 | 83 | 51 | 134 | 244 | 265 | 509 |
| *Commercial Subtotal* | | *10,915* | *188* | *116* | *304* | *486* | *497* | *983* |
| TOTAL | | 15,965 | 287 | 415 | 702 | 820 | 693 | 1,513 |

Notes:
1 Reference: Institute of Transportation Engineers, *Trip Generation Manual*, Ninth Edition, 2012.
2 ITE Land Use Code 210 – Single-Family Detached Housing.
3 ITE Land Use Code 850 – Supermarket.
4 ITE Land Use Code 820 – Shopping Center.

*Internal Trips*

The combination of residential and commercial land uses within the proposed project creates the potential for a certain amount of internal travel. Internal trips are those that occur entirely within the site (either as vehicular trips or pedestrian/bicycle trips), and result in no additional traffic on the public streets serving the project site. In this case, residents of the project might also be patrons at the proposed retail center. Those residents would be able to travel to and from the retail center without leaving the proposed project. Thus, they would have no adverse impact on the nearby public streets.

Guidance with respect to the magnitude of such internal travel is provided in the National Cooperative Highway Research Program (NCHRP) Report 684, *Enhancing Internal Trip Capture Estimation for*

*Mixed-Use Developments* (Transportation Research Board, 2011), which presents a detailed procedure for applying internal trip adjustments. That procedure incorporates extensive data with respect to interaction among various land uses within a mixed-use project. Based on the research documented in NCHRP 684, a spreadsheet was developed, which was employed in this analysis to estimate the magnitude of internal travel. The AM and PM peak hour spreadsheets are presented in Appendix D.

*Pass-By and Diverted Trips*

Although an additional portion of the retail trips associated with the proposed project might be "pass-by" or "diverted" trips (i.e., trips that are already on the adjacent or nearby roadways, with the trip to the retail center being an intermediate stop as part of another trip), no adjustment has been applied to account for this activity. This is intended to provide a conservative assessment of project-related traffic impacts.

*Net Trip Generation*

Based on application of the adjustments described above for internal trips, the net trip generation of the proposed Folsom Heights project for the AM and PM peak hours is as follows:

- Weekday AM peak hour: 692 trips (282 inbound and 410 outbound), and
- Weekday PM peak hour: 1,157 trips (642 inbound and 515 outbound).

Table 7 summarizes the derivation of these net trip generation estimates. Note that no adjustments are shown for daily conditions, as NCHRP Report 684 does not address that time period.

**Table 7**
**Adjusted Trip Generation Estimate[1]**

| Land Use | Size | Daily Trips | AM Peak Hour Trips | | | PM Peak Hour Trips | | |
|---|---|---|---|---|---|---|---|---|
| | | | In | Out | Total | In | Out | Total |
| TOTAL TRIPS (Unadjusted)[2] | | 15,965 | 287 | 415 | 702 | 820 | 693 | 1,513 |
| Internal Trips | | | 5 | 5 | 10 | 178 | 178 | 356 |
| Pass-by/Diverted Trips | | | 0 | 0 | 0 | 0 | 0 | 0 |
| NET ADJUSTED TRIPS[3] | | | 282 | 410 | 692 | 642 | 515 | 1,157 |

Notes:
[1] Reference: Institute of Transportation Engineers, *Trip Generation Manual*, Ninth Edition, 2012.
[2] See Table 4.
[3] NCHRP Report 684 does not address daily conditions, so no adjustment is shown.

***Trip Distribution***

The geographic distribution of the project-generated residential traffic was largely based on existing traffic patterns in the vicinity of the proposed project. According to the newly-performed traffic counts at White Rock Road/Stonebriar Drive/Four Seasons Drive, most of the project traffic (i.e., 65 percent) is expected to approach from the east along White Rock Road. The remaining 35 percent will approach via either eastbound White Rock Road (7 percent) or Easton Valley Parkway (28 percent), with those proportions dictated by the distribution of residential units within the project. None of the residential traffic is assumed to come from the existing Stonebriar or Four Seasons neighborhoods.

The distribution of the project's retail traffic is based on consideration of the locations of existing competing retail facilities (e.g., El Dorado Hills Town Center and the existing Nugget Market) as well as access considerations. For example, it is considered unlikely that a large number of retail customers would be willing to wind through the residential portions of the project to reach the retail center. This limits the amount of retail traffic that will approach from the east on White Rock Road and enter at Prima Drive, at least until Empire Ranch Road connects to White Rock Road. Therefore, in the short term, the largest percentage of retail traffic (75 percent) is expected to approach via Easton Valley Parkway. Twenty-two percent is expected to be oriented to/from White Rock Road to the east, and three percent will come from the existing Stonebriar and Four Seasons neighborhoods

The trip distribution is illustrated on Figure 5.

***Project Traffic Assignment***

The peak-hour traffic volumes generated by the proposed project were added to the existing traffic, with the result being the "Existing Plus Project" scenario. Those estimated traffic volumes are shown on Figure 6, which also illustrates the intersection lane configurations.

***Intersection Level of Service***

Table 8 presents the AM and PM peak hour levels of service at each study intersection under Existing Plus Project conditions. Appendix E contains the technical calculation worksheets.

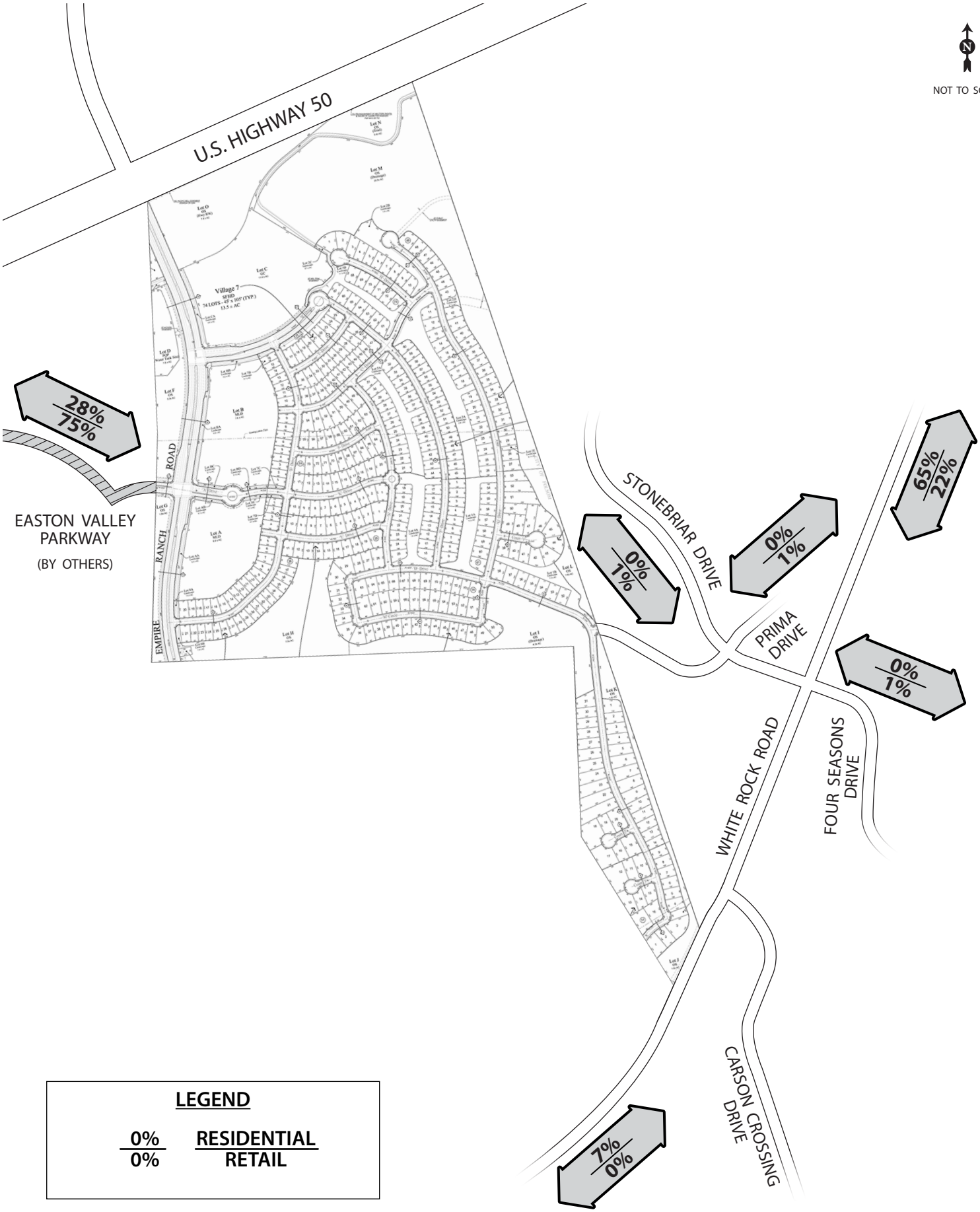
*AM Peak Hour*

In the AM peak hour, addition of the project-generated traffic will cause the level of delay at the study intersections to increase somewhat, but no change in level of service is projected, and both study intersections will continue to operate at acceptable levels of service (i.e., LOS A or B). The all-way-STOP-controlled study intersection of Stonebriar Drive/Prima Drive will fail to meet the minimum requirements of the "Peak Hour" signal warrant.

Based on these results, the project-related impact is less than significant in the AM peak hour.

*PM Peak Hour*

In the PM peak hour, the project-related impact is again relatively small. Stonebriar Drive/Prima Drive will decline from LOS A to LOS B, but both study locations will continue to operate at acceptable levels of service. Traffic volumes at the intersection of Stonebriar Drive/Prima Drive will again be insufficient to meet the "Peak Hour" signal warrant requirements.

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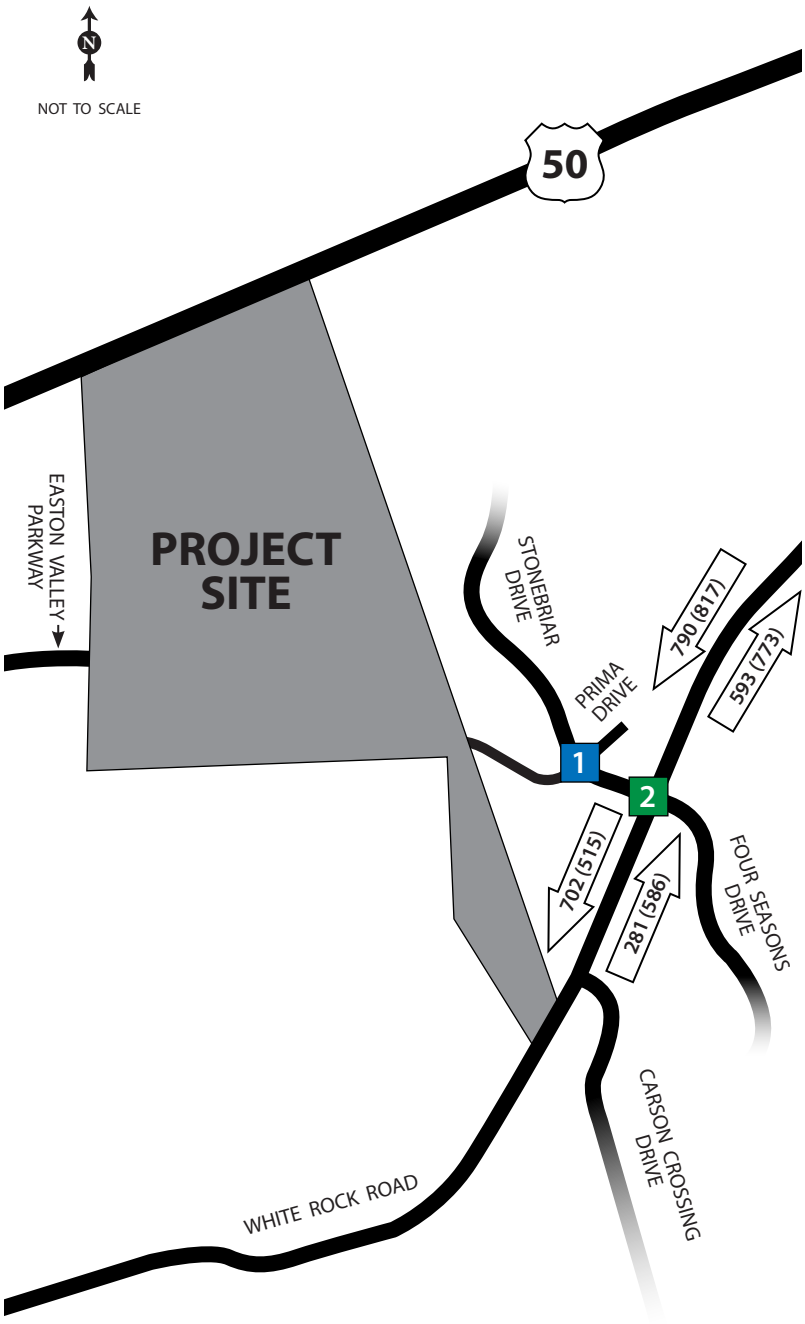
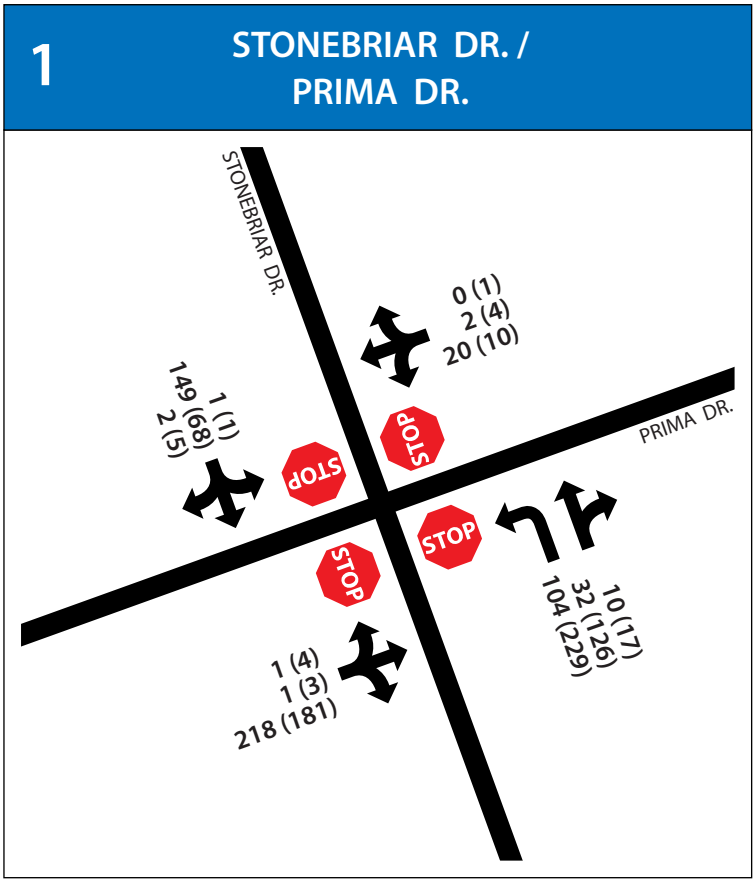
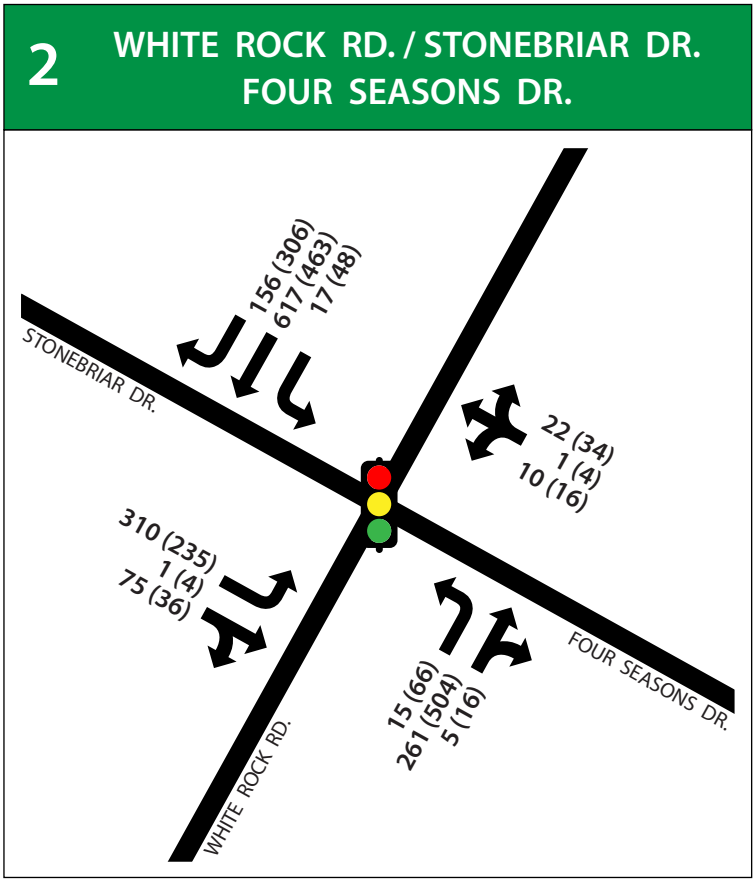
# PROJECT TRIP DISTRIBUTION
# EXISTING + PROJECT CONDITIONS

**FIGURE 5**




**LEGEND**

| | |
|---|---|
| ### (###) | AM (PM) PEAK HOUR TRAFFIC VOLUMES |
| | TURN LANE |
| | TRAFFIC SIGNAL |
| STOP | STOP SIGN |

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# PEAK HOUR TRAFFIC VOLUMES
# EXISTING + PROJECT CONDITIONS

**FIGURE 6**

In summary, the project-related impact is projected to be less than significant in the PM peak hour.

***Roadway Segment Level of Service***

*AM Peak Hour*

Addition of the project-generated traffic will result in no change in level of service on the study road segments, both of which will operate at an acceptable LOS C in both directions.

*PM Peak Hour*

In the PM peak hour, no change in level of service is expected on three of the four study segments of White Rock Road, where it will operate at an acceptable LOS C. The westbound segment between Stonebriar Drive and Manchester Drive is projected to decline from LOS C to LOS D, but will continue to operate at an acceptable level of service.

***Mitigation Measures***

The project-related impact at all of the study locations is less than significant, as described above. Therefore, no off-site mitigation measures are recommended in conjunction with the proposed Folsom Heights project.

**Table 8**
**Level of Service Summary[1]**
**Existing Plus Project Conditions**

| Intersection | Traffic Control | AM Peak Hour | | | | | | PM Peak Hour | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Existing Conditions | | | Existing + Project | | | Existing Conditions | | | Existing + Project | | |
| | | Delay[2] | LOS[3] | Meet Signal Warrant?[4] | Delay | LOS | Meet Signal Warrant? | Delay | LOS | Meet Signal Warrant? | Delay | LOS | Meet Signal Warrant? |
| White Rock Rd./Stonebriar Dr./Four Seasons Dr. | Signal | 11.7 | B | -- | 18.0 | B | -- | 12.7 | B | -- | 18.8 | B | -- |
| Stonebriar Dr./Prima Dr. | All-Way STOP | 7.7 | A | No | 9.0 | A | No | 7.6 | A | No | 10.1 | B | No |

| White Rock Road Segment | | AM Peak Hour | | | | PM Peak Hour | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Existing Conditions | | Existing + Project | | Existing Conditions | | Existing + Project | |
| | | PFFS[5] | LOS | PFFS | LOS | PFFS | LOS | PFFS | LOS |
| Sacramento/El Dorado Co. Line to Stonebriar Dr. | EB[6] | 82.2% | C | 81.8% | C | 80.6% | C | 80.4% | C |
| | WB[7] | 79.8% | C | 79.4% | C | 80.8% | C | 80.5% | C |
| Stonebriar Drive to Manchester Drive | EB | 80.8% | C | 76.0% | C | 79.9% | C | 75.1% | C |
| | WB | 78.6% | C | 77.0% | C | 78.6% | C | 73.1% | D |

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual 2010*, Fifth Edition, December 2010.
2 Average control delay (seconds per vehicle).
3 Level of service.
4 "Peak Hour" signal warrant from "Part 4 – Highway Traffic Signals" of the *California Manual on Uniform Traffic Control Devices*, November 7, 2014.
5 Percent of free-flow speed.
6 Eastbound.
7 Westbound.

## CUMULATIVE CONDITIONS ANALYSIS

This section describes the results of the analysis of study area traffic operations under cumulative conditions in the weekday AM and PM peak hours. This analysis reflects the level of development anticipated throughout the City of Folsom, including the Folsom Sphere of Influence (SOI) annexation area (i.e., the Folsom Plan Area Specific Plan) and the entire Sacramento/El Dorado County region, through the year 2035. The traffic volume projections were based on a modified version of the SACMET travel demand forecasting model developed and maintained by the Sacramento Area Council of Governments (SACOG).

Analyses are presented for two scenarios: Cumulative No Project conditions and Cumulative Plus Project conditions, reflecting the addition of the traffic generated by the proposed project to the "no project" volumes. To ensure consistency with other recently-conducted traffic analyses in the study area, the future year traffic forecasts employed in this analysis are based on information developed in connection with the traffic analysis for the proposed Russell Ranch project, which is to be located within the Folsom Plan Area Specific Plan (FPASP) boundaries. That traffic analysis, which represents the most recent, comprehensive analysis of traffic in the Folsom Plan Area, is presented in the Draft Environmental Impact Report (DEIR) for the Russell Ranch project. (Reference: Fehr & Peers, *Russell Ranch Final Transportation Impact Study*, December 2014.)

### *Planned Roadway Improvements*

Between now and the year 2035, a variety of major transportation system improvements will be implemented in the study area. These improvements, which are reflected in the future year traffic forecasts used in this analysis, include the following:

- Construction of a new interchange at U.S. Highway 50/Oak Avenue Parkway,
- Construction of the U.S. Highway 50/Empire Ranch Road interchange, and
- Widening of White Rock Road to four lanes plus turn lanes from the Sacramento/El Dorado County line to Manchester Drive.

In addition, the traffic projections reflect completion of all roadway system improvements within the Folsom Plan Area Specific Plan, as well as the regional transportation system improvements identified in the SACOG Metropolitan Transportation Plan/Sustainable Communities Strategy (MTP/SCS).

### *Land Use Forecasts*

The year 2035 travel demand forecasts developed for the Russell Ranch project, which serve as the basis for the future traffic volumes used in this analysis, assumed the following land uses in the 3,513-acre FPASP area:

- 1,455 acres of residential uses (10,210 residential dwelling units),
- 511 acres of office/business/professional and retail/commercial uses,
- 310 acres of schools and City parks,
- 1,063 acres of open space, and
- 174 acres of major circulation facilities.

In addition, the year 2035 land use estimates for the Sacramento region included in the SACMET travel demand forecasting model were assumed.

***Cumulative (2035) No Project Conditions***

The year 2035 traffic volumes for Cumulative No Project conditions were derived from traffic forecasts developed for the Russell Ranch project in the Folsom Plan Area. In particular, the estimated volumes for White Rock Road/Stonebriar Drive/Four Seasons Drive were derived from the traffic forecasts for White Rock Road/Empire Ranch Road, which is located a short distance to the west. Adjustments were applied to the forecasted volumes to eliminate the traffic associated with the Folsom Heights project, in order to create valid "no project" estimates.

Figure 7 illustrates the Cumulative No Project peak hour traffic volumes employed in this study. Also shown are the intersection lane configurations assumed for year 2035 conditions. As described earlier, White Rock Road will have an additional through lane in each direction in 2035.

*Intersection Level of Service*

Table 9 summarizes the AM and PM peak hour level of service results for Cumulative No Project conditions. The technical calculation worksheets are presented in Appendix F.

*AM Peak Hour*

Both study intersections are expected to operate within the County's LOS E standard in the AM peak hour. The signalized study intersection of White Rock Road/Stonebriar Drive/Four Seasons Drive is projected to operate at LOS B, while Stonebriar Drive/Prima Drive will be at LOS A. The projected traffic volumes at Stonebriar Drive/Prima Drive will be insufficient to meet the minimum requirements of the "Peak Hour" signal warrant.

*PM Peak Hour*

The PM peak hour level of service results are essentially similar to the AM peak hour results. Both intersections will operate at acceptable levels of service (LOS A or B). Again, the traffic volumes at Stonebriar Drive/Prima Drive will not be sufficient to meet the minimum requirements of the "Peak Hour" signal warrant.

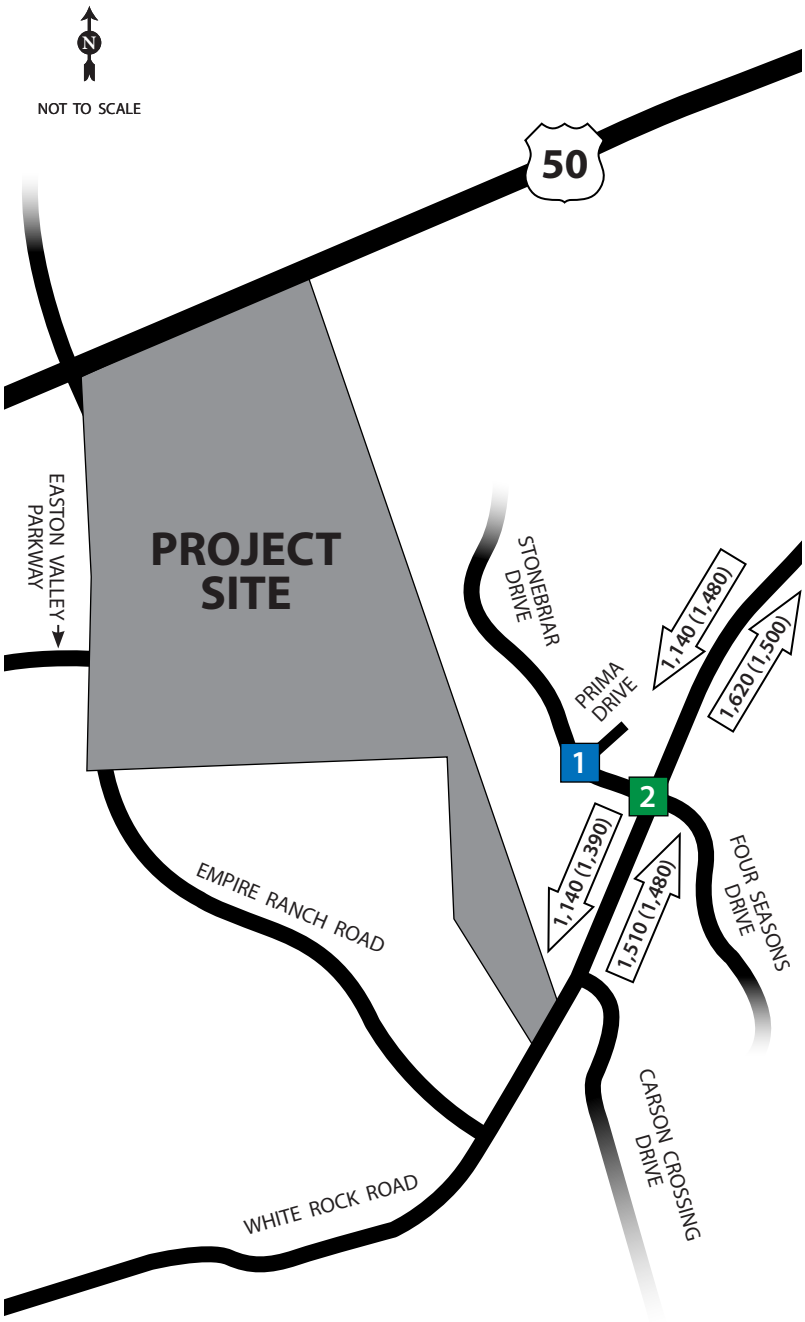
*Roadway Segment Level of Service*

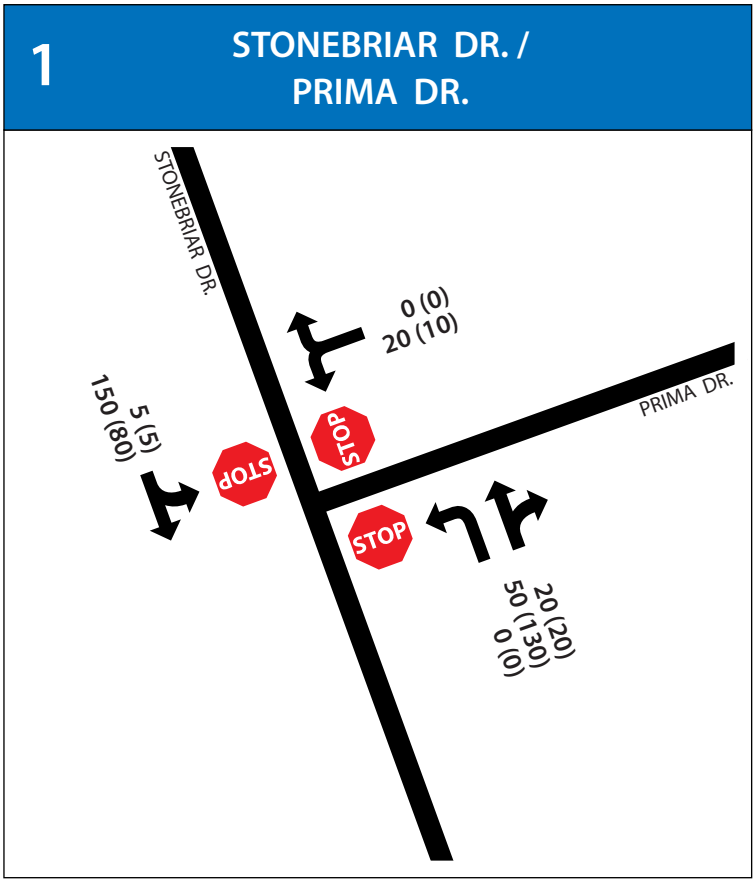
*AM Peak Hour*

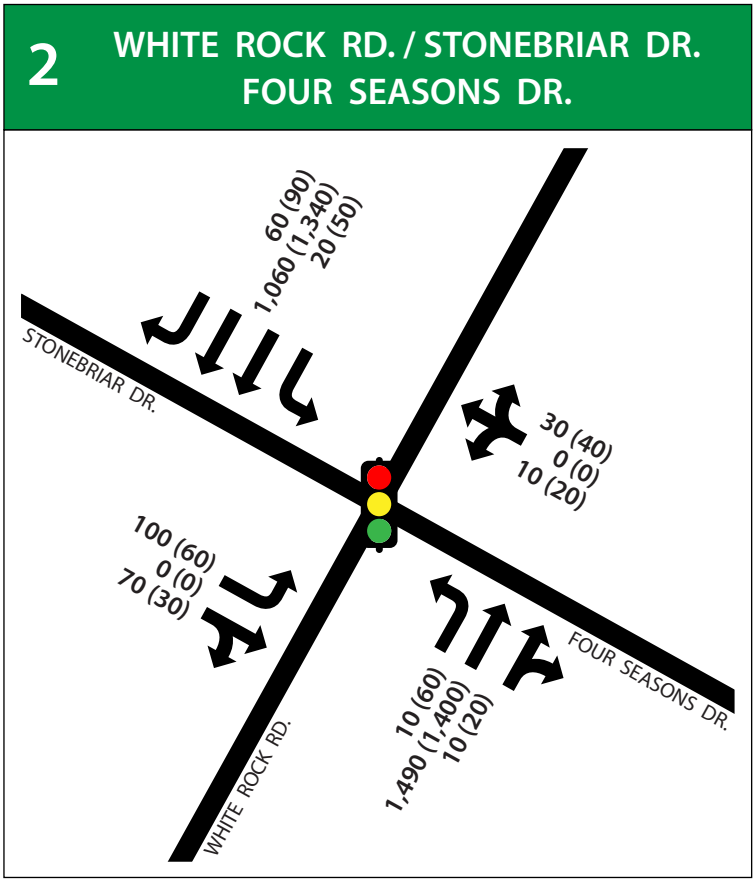
With the planned widening of White Rock Road, LOS B is projected for both eastbound study segments, while the westbound segments are expected to operate at LOS A.

*PM Peak Hour*

Both segments of White Rock Road are projected to operate at an acceptable LOS B in both directions under this scenario.




**LEGEND**

| | |
|---|---|
| ### (###) | AM (PM) PEAK HOUR TRAFFIC VOLUMES |
| | TURN LANE |
| | TRAFFIC SIGNAL |
| STOP | STOP SIGN |

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# PEAK HOUR TRAFFIC VOLUMES
# CUMULATIVE NO PROJECT CONDITIONS

**FIGURE 7**

**Table 9**
**Level of Service Summary[1]**
**Cumulative No Project Conditions**

| Intersection | Traffic Control | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|
| | | Delay[2] | LOS[3] | Meet Signal Warrant?[4] | Delay | LOS | Meet Signal Warrant? |
| White Rock Rd./Stonebriar Dr./Four Seasons Dr. | Signal | 11.5 | B | -- | 13.4 | B | -- |
| Stonebriar Dr./Prima Dr. | All-Way STOP | 7.8 | A | No | 7.7 | A | No |

| White Rock Road Segment | | AM Peak Hour | | PM Peak Hour | |
|---|---|---|---|---|---|
| | | Density[5] | LOS | Density | LOS |
| Sacramento/El Dorado Co. Line to Stonebriar Dr. | EB[6] | 16.3 | B | 14.1 | B |
| | WB[7] | 10.6 | A | 13.8 | B |
| Stonebriar Drive to Manchester Drive | EB | 16.7 | B | 15.1 | B |
| | WB | 10.6 | A | 13.7 | B |

Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual 2010*, Fifth Edition, December 2010.
2 Average control delay (seconds per vehicle).
3 Level of service.
4 "Peak Hour" signal warrant documented in "Part 4 – Highway Traffic Signals" of the *California Manual on Uniform Traffic Control Devices*, November 7, 2014.
5 Passenger cars per mile per lane.
6 Eastbound.
7 Westbound.

***Cumulative (2035) Plus Project Conditions***

The following sections address the effects of adding the project-generated traffic to the Cumulative No Project volumes derived above.

*Project Trip Generation*

As described earlier, the proposed project is expected to generate 692 AM peak hour trips (282 inbound and 410 outbound) and 1,157 PM peak hour trips (642 inbound and 515 outbound).

*Project Trip Distribution*

Because of the assumed buildout of the Folsom Plan Area Specific Plan land uses, the long-term geographic distribution of the project-generated traffic is expected to be substantially different from the short-term distribution described earlier. Specifically, based on the traffic volume forecasts

presented in the Russell Ranch analysis, it was determined that 35 percent of the project-generated trips would approach and depart via Empire Ranch Road to the north; these trips would generally be oriented to and from U.S. Highway 50 and locations within Folsom north of the freeway. An additional 5 percent would be oriented to/from Easton Valley Parkway and about 35 percent of the project's trips would be oriented to and from the west by way of White Rock Road. Of the remaining 25 percent, all of the residential trips would travel to and from the east on White Rock Road. A small portion of the retail trips would begin or end in either the Stonebriar neighborhood or the Four Seasons neighborhood, so that 22 percent would be oriented to/from the east on White Rock Road. Figure 8 illustrates the project trip distribution for cumulative conditions.

*Intersection Traffic Volumes*

Using the project trip generation and trip distribution information, the project-related trips were assigned to the future road network and added to the Cumulative No Project volumes. The Cumulative Plus Project traffic volumes for the weekday AM and PM peak hours are illustrated on Figure 9.

*Intersection Level of Service*

Table 10 presents the results of the level of service analysis for the Cumulative Plus Project scenario. Appendix G contains the level of service calculation worksheets.

*AM Peak Hour*

As under Cumulative No Project conditions, both study intersections are projected to operate acceptably under the El Dorado County LOS E standard. Further, no change in level of service is projected upon addition of the project-generated traffic; LOS A or B is projected. The Stonebriar Drive/Prima Drive intersection will have insufficient traffic to meet the "Peak Hour" signal warrant requirements. In summary, the project's impact is less than significant in the AM peak hour.

*PM Peak Hour*

Addition of the project-generated traffic in the weekday PM peak hour would result in relatively small increases in intersection delay at the study intersections. Both locations will continue to operate at LOS A or B. The "Peak Hour" signal warrant requirements will not be met at Stonebriar Drive/Prima Drive, so continuation of all-way-STOP control is appropriate. As in the AM peak hour, the project's impact is considered less than significant.

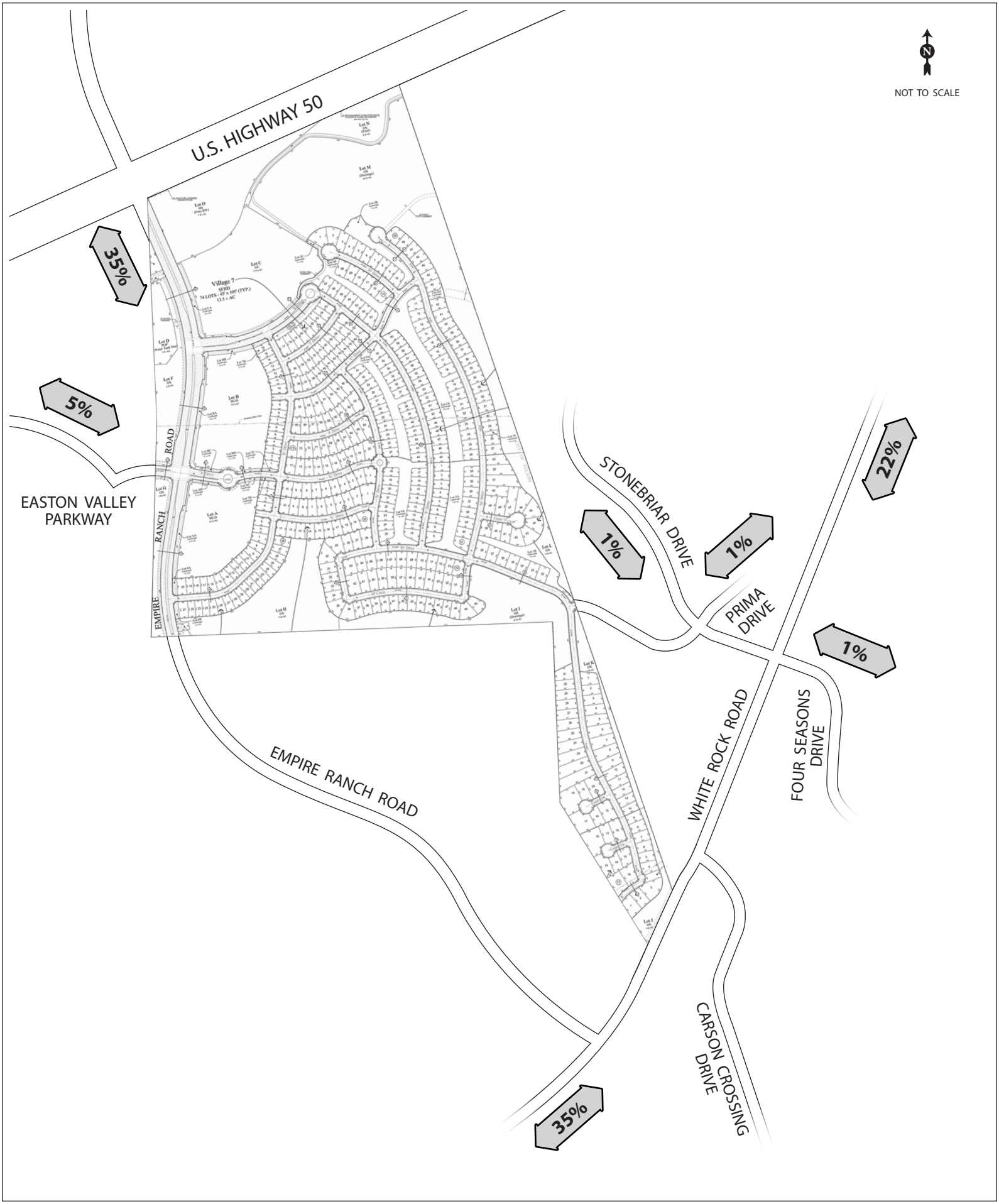
*Roadway Segment Level of Service*

*AM Peak Hour*

Although both westbound segments will decline from LOS A to LOS B, all of the study segments will continue to operate at acceptable levels of service – LOS B in all cases. Thus, the project's impact is less than significant.

*PM Peak Hour*

Both segments are projected to operate at LOS B in both directions, the same as under Cumulative No Project conditions. The project's impact is again considered less than significant.

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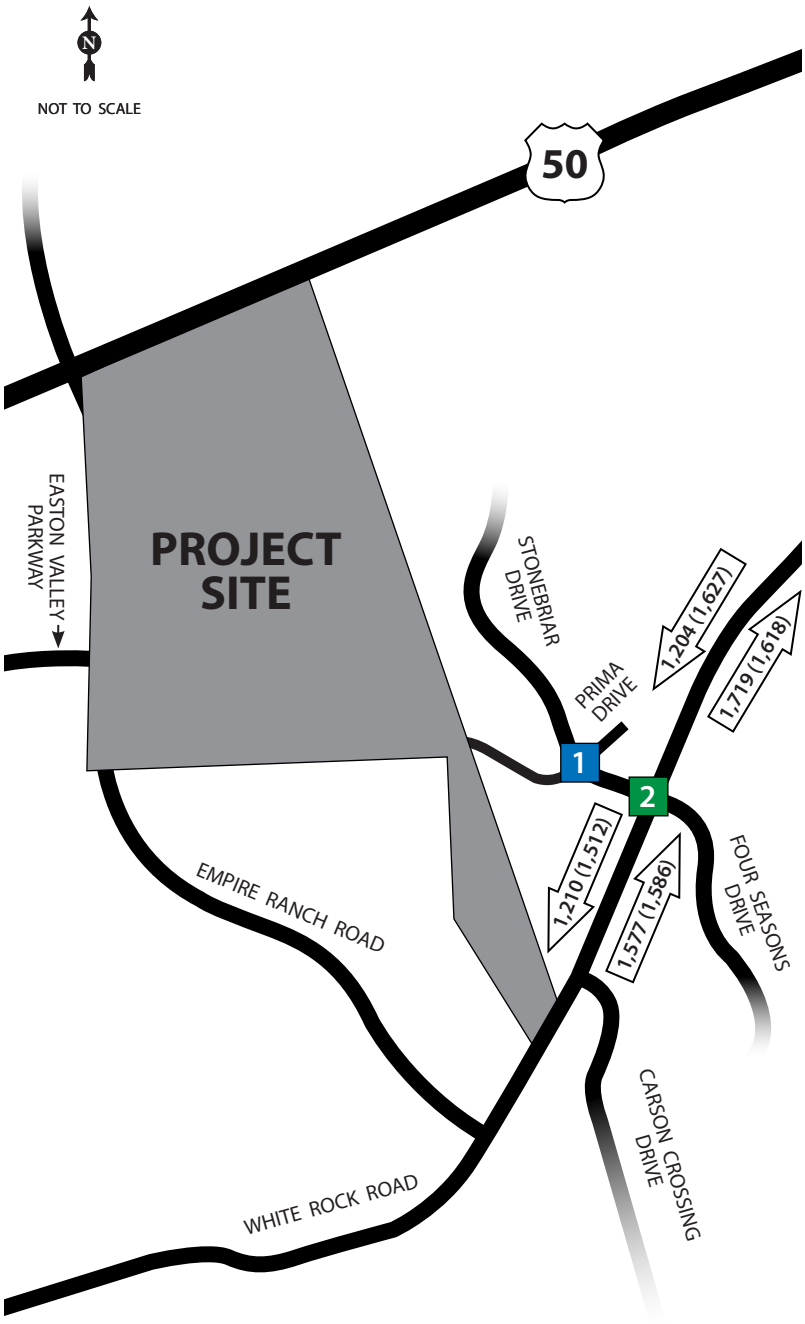
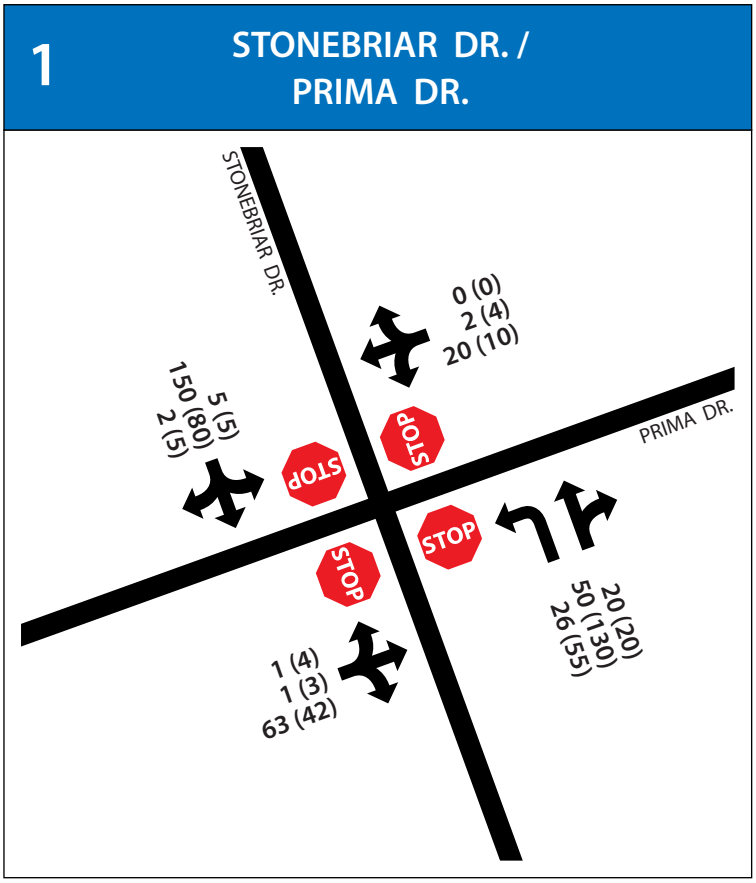
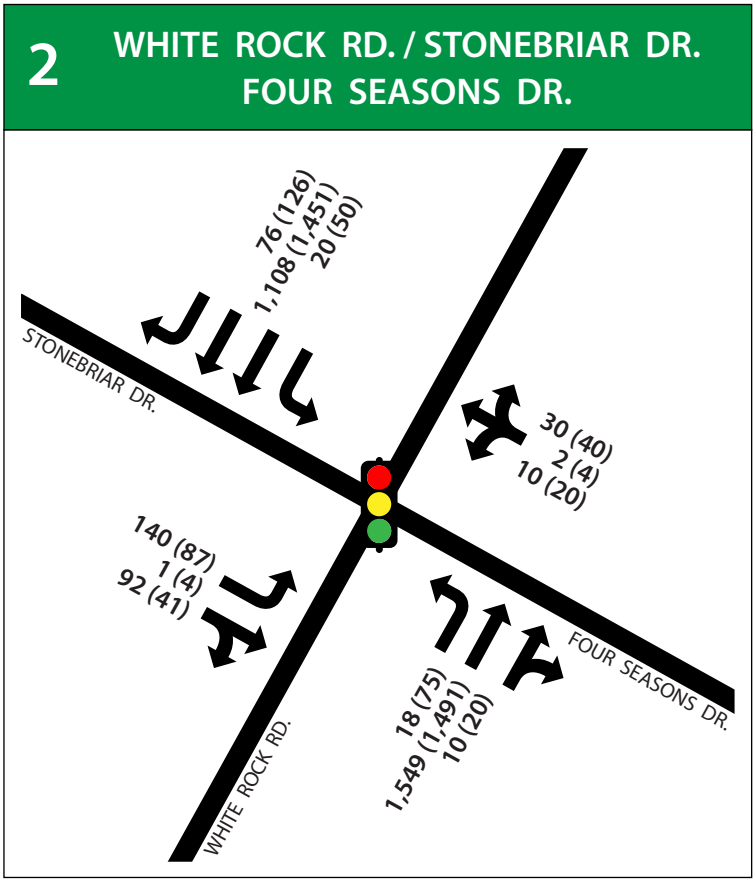
# PROJECT TRIP DISTRIBUTION
# CUMULATIVE CONDITIONS

**FIGURE 8**




**LEGEND**

| | |
|---|---|
| ### (###) | AM (PM) PEAK HOUR TRAFFIC VOLUMES |
| | TURN LANE |
| | TRAFFIC SIGNAL |
| STOP | STOP SIGN |

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# PEAK HOUR TRAFFIC VOLUMES
# CUMULATIVE + PROJECT CONDITIONS

**FIGURE 9**

**Table 10**
**Level of Service Summary[1]**
**Cumulative Plus Project Conditions**

| Intersection | Traffic Control | AM Peak Hour | | | | | | PM Peak Hour | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Cumulative No Project Conditions | | | Cumulative + Project Conditions | | | Cumulative No Project Conditions | | | Cumulative + Project Conditions | | |
| | | Delay[2] | LOS[3] | Meet Signal Warrant?[4] | Delay | LOS | Meet Signal Warrant? | Delay | LOS | Meet Signal Warrant? | Delay | LOS | Meet Signal Warrant? |
| White Rock Rd./Stonebriar Dr./Four Seasons Dr. | Signal | 11.5 | B | -- | 14.0 | B | -- | 13.4 | B | -- | 16.7 | B | -- |
| Stonebriar Dr./Prima Dr. | All-Way STOP | 7.8 | A | No | 8.1 | A | No | 7.7 | A | No | 8.2 | A | No |

| White Rock Road Segment | | AM Peak Hour | | | | PM Peak Hour | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Cumulative No Project Conditions | | Cumulative + Project Conditions | | Cumulative No Project Conditions | | Cumulative + Project Conditions | |
| | | Density[5] | LOS | Density | LOS | Density | LOS | Density | LOS |
| Sacramento/El Dorado Co. Line to Stonebriar Dr. | EB[6] | 16.3 | B | 17.0 | B | 14.1 | B | 15.1 | B |
| | WB[7] | 10.6 | A | 11.3 | B | 13.8 | B | 14.9 | B |
| Stonebriar Drive to Manchester Drive | EB | 16.7 | B | 17.7 | B | 15.1 | B | 16.3 | B |
| | WB | 10.6 | A | 11.2 | B | 13.7 | B | 15.1 | B |

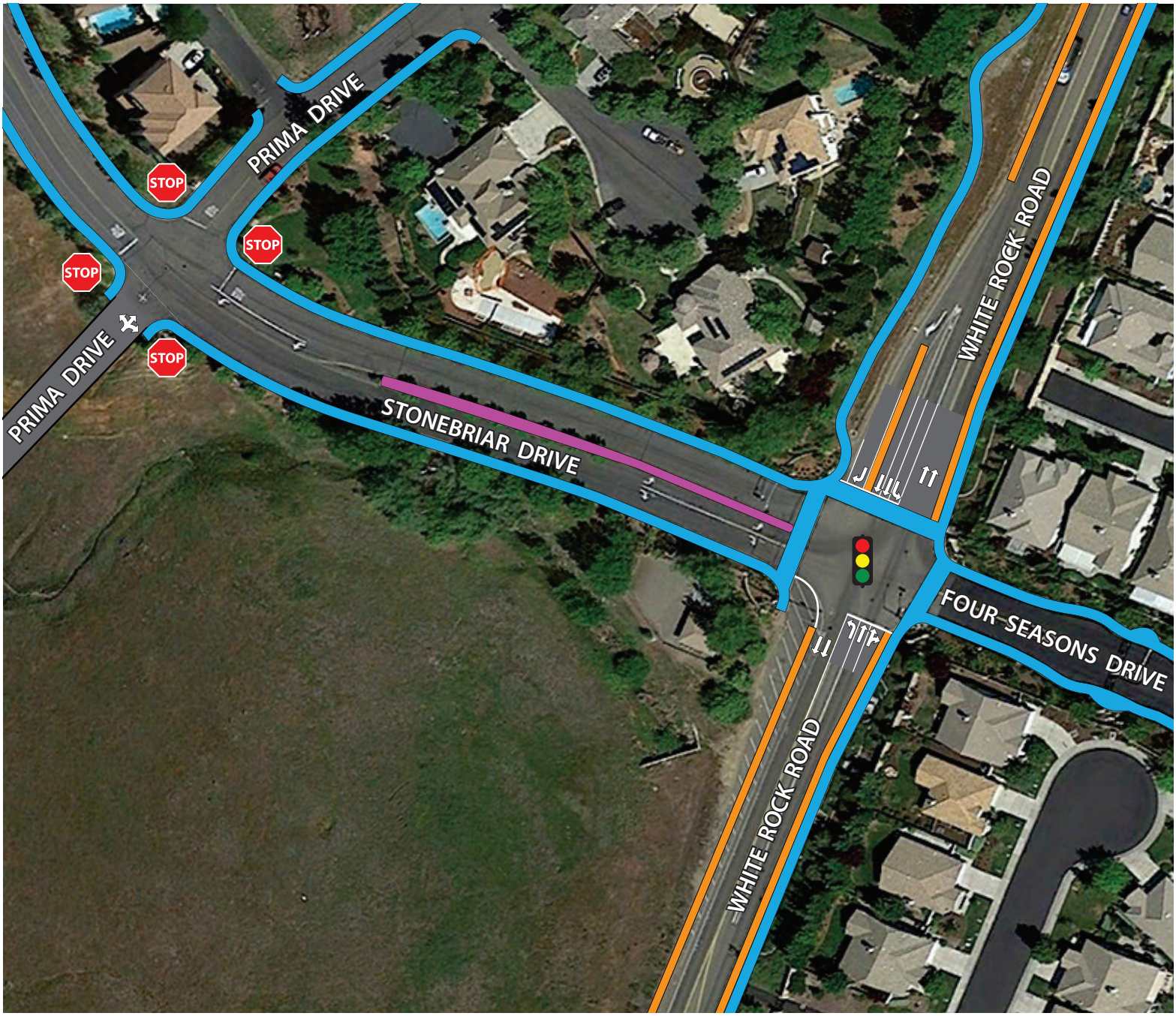
Notes:
1 Reference: Transportation Research Board, *Highway Capacity Manual 2010*, Fifth Edition, December 2010.
2 Average control delay (seconds per vehicle).
3 Level of service.
4 "Peak Hour" signal warrant from "Part 4 – Highway Traffic Signals" of the *California Manual on Uniform Traffic Control Devices*, November 7, 2014.
5 Passenger cars per mile per lane.
6 Eastbound.
7 Westbound.

*Mitigation Measures*

In both peak-hour periods, the Folsom Heights project is expected to result in less-than-significant impacts to traffic operations at the study intersections and roadway segments under cumulative conditions. Therefore, no off-site mitigation measures are recommended.

***Future Transportation System***

Figure 10 illustrates the future transportation system in the study area, including the extension of Prima Drive to serve the proposed project and the additional through lane in each direction on White Rock Road.




**LEGEND**

- SIDEWALK / CROSSWALK
- BIKE LANE
- RAISED MEDIAN
- TRAFFIC SIGNAL
- STOP SIGN

MRO ENGINEERS, INC.
660 Auburn Folsom Rd.
Suite 201B
Auburn, CA 95603
Phone (916) 783-3838
www.mroengineers.com

# FUTURE TRANSPORTATION SYSTEM

FIGURE 10

## CONSISTENCY ASSESSMENT

The proposed project's land use, as described above, is identical to the project that was evaluated in the MRO Engineers, Inc., letter report dated March 10, 2016. That analysis determined that the traffic impacts of the proposed Folsom Heights project (as recently modified) had been adequately addressed in the environmental documentation prepared with respect to the entire Folsom Plan Area annexation project. Specifically, the analysis determined that, in all three key time periods (i.e., daily, AM peak hour, and PM peak hour), the currently-proposed land use plan will generate less traffic than the Folsom Heights land use plan addressed in the approved environmental documentation for the Folsom Plan Area annexation. Further, the analysis determined that projected cumulative conditions traffic operating conditions have not changed substantially since the Folsom Plan Area environmental document was certified.

Therefore, the March 2016 analysis concluded that the findings presented in the traffic analysis for the Folsom Plan Area annexation process remained valid for the modified version of the Folsom Heights project, and that no further traffic analysis is necessary for the project.

The recently-submitted Vesting Tentative Subdivision Map was reviewed to ensure that no other significant impacts might occur in connection with implementation of the proposed Folsom Heights project. This assessment was guided by the environmental issue areas addressed in the *Environmental Checklist and Addendum - Folsom Plan Area Specific Plan Amendment for the Folsom Heights Area* (Ascent Environmental, April 2016), as summarized below.

- Would the project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, including all modes of travel?

  This issue was addressed in the April 2016 *Environmental Checklist and Addendum*, which found that previously-adopted environmental analyses fully addressed this subject. The currently-proposed project is unchanged from the project addressed at that time. Thus, the current project is consistent with the April 2016 findings.

- Would the project conflict with an applicable congestion management program, including level of service standards, travel demand measures, or other standards?

  This issue was addressed in the April 2016 *Environmental Checklist and Addendum* and the March 2016 MRO Engineers analysis. Because the currently-proposed project is unchanged from the project addressed at that time, the current project is consistent with the March and April 2016 findings.

- Would the project result in a change in air traffic patterns?

  This issue was considered in the April 2016 *Environmental Checklist and Addendum*, which found that the project would have no impact. The currently-proposed project is unchanged from the project addressed at that time. Thus, the current project is consistent with the April 2016 findings.

- Would the project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections)?

  The April 2016 *Environmental Checklist and Addendum* found that the project would have no impact. A review of the recently-submitted Vesting Tentative Subdivision Map was conducted, which indicated that no design features are proposed that would substantially increase hazards. Therefore, no project-related impact would occur, which is consistent with the earlier findings.

- Would the project result in inadequate emergency access?

  The April 2016 *Environmental Checklist and Addendum* found that the prior environmental documentation adequately addressed this issue. A review of the recently-submitted Vesting Tentative Subdivision Map indicates that the current submittal is consistent with previous proposals.

- Would the project conflict with policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

  This issue was considered in the April 2016 *Environmental Checklist and Addendum*, which found that the project would have no impact. Review of the submitted Vesting Tentative Subdivision Map indicates that this conclusion remains valid, and that the current proposal is consistent with previous project plans.

# APPENDIX A

# TRAFFIC COUNT SUMMARY SHEETS

# National Data and Surveying Services

City of El Dorado Hills
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

**(323) 782-0090**
info@ndsdata.com

File Name : 16-7893-001 White Rock Rd & Stonebriar Dr/4 Seasons Dr
Date : 12/1/2016

**Unshifted Count = All Vehicles & Uturns**

| | White Rock Rd Southbound | | | | | Stonebriar Dr/4 Seasons Dr Westbound | | | | | White Rock Rd Northbound | | | | | Stonebriar Dr/4 Seasons Dr Eastbound | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| START TIME | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | Total | Uturns Total |
| 7:00 | 5 | 145 | 5 | 0 | 155 | 0 | 0 | 1 | 0 | 1 | 1 | 47 | 0 | 0 | 48 | 32 | 0 | 15 | 0 | 47 | 251 | 0 |
| 7:15 | 5 | 141 | 9 | 0 | 155 | 3 | 0 | 2 | 0 | 5 | 3 | 47 | 2 | 0 | 52 | 22 | 0 | 14 | 0 | 36 | 248 | 0 |
| 7:30 | 2 | 169 | 9 | 0 | 180 | 0 | 0 | 6 | 0 | 6 | 1 | 76 | 2 | 0 | 79 | 32 | 0 | 13 | 0 | 45 | 310 | 0 |
| 7:45 | 6 | 172 | 10 | 0 | 188 | 4 | 0 | 7 | 0 | 11 | 4 | 68 | 0 | 0 | 72 | 24 | 0 | 16 | 0 | 40 | 311 | 0 |
| Total | 18 | 627 | 33 | 0 | 678 | 7 | 0 | 16 | 0 | 23 | 9 | 238 | 4 | 0 | 251 | 110 | 0 | 58 | 0 | 168 | 1120 | 0 |
| 8:00 | 4 | 135 | 24 | 0 | 163 | 3 | 0 | 7 | 0 | 10 | 0 | 70 | 1 | 0 | 71 | 15 | 0 | 11 | 0 | 26 | 270 | 0 |
| 8:15 | 5 | 93 | 8 | 0 | 106 | 4 | 0 | 3 | 0 | 7 | 3 | 61 | 2 | 0 | 66 | 22 | 0 | 11 | 0 | 33 | 212 | 0 |
| 8:30 | 1 | 72 | 11 | 0 | 84 | 3 | 1 | 14 | 0 | 18 | 4 | 61 | 1 | 0 | 66 | 16 | 0 | 16 | 0 | 32 | 200 | 0 |
| 8:45 | 5 | 39 | 9 | 0 | 53 | 3 | 0 | 10 | 0 | 13 | 4 | 58 | 1 | 0 | 63 | 24 | 0 | 9 | 0 | 33 | 162 | 0 |
| Total | 15 | 339 | 52 | 0 | 406 | 13 | 1 | 34 | 0 | 48 | 11 | 250 | 5 | 0 | 266 | 77 | 0 | 47 | 0 | 124 | 844 | 0 |
| 16:00 | 10 | 101 | 16 | 0 | 127 | 3 | 0 | 7 | 0 | 10 | 8 | 75 | 5 | 0 | 88 | 14 | 0 | 9 | 0 | 23 | 248 | 0 |
| 16:15 | 8 | 94 | 24 | 0 | 126 | 3 | 0 | 9 | 0 | 12 | 12 | 122 | 3 | 0 | 137 | 11 | 0 | 8 | 0 | 19 | 294 | 0 |
| 16:30 | 10 | 135 | 15 | 0 | 160 | 4 | 0 | 11 | 0 | 15 | 10 | 113 | 6 | 0 | 129 | 17 | 0 | 7 | 0 | 24 | 328 | 0 |
| 16:45 | 12 | 94 | 15 | 0 | 121 | 5 | 0 | 3 | 0 | 8 | 16 | 107 | 5 | 0 | 128 | 18 | 0 | 5 | 0 | 23 | 280 | 0 |
| Total | 40 | 424 | 70 | 0 | 534 | 15 | 0 | 30 | 0 | 45 | 46 | 417 | 19 | 0 | 482 | 60 | 0 | 29 | 0 | 89 | 1150 | 0 |
| 17:00 | 18 | 138 | 24 | 0 | 180 | 6 | 0 | 7 | 0 | 13 | 15 | 148 | 3 | 0 | 166 | 9 | 0 | 4 | 0 | 13 | 372 | 0 |
| 17:15 | 8 | 96 | 23 | 0 | 127 | 1 | 0 | 13 | 0 | 14 | 10 | 136 | 2 | 0 | 148 | 14 | 0 | 10 | 0 | 24 | 313 | 0 |
| 17:30 | 9 | 76 | 23 | 0 | 108 | 3 | 0 | 6 | 0 | 9 | 12 | 143 | 5 | 0 | 160 | 16 | 0 | 7 | 0 | 23 | 300 | 0 |
| 17:45 | 3 | 61 | 28 | 0 | 92 | 0 | 0 | 3 | 0 | 3 | 11 | 111 | 6 | 0 | 128 | 13 | 0 | 6 | 0 | 19 | 242 | 0 |
| Total | 38 | 371 | 98 | 0 | 507 | 10 | 0 | 29 | 0 | 39 | 48 | 538 | 16 | 0 | 602 | 52 | 0 | 27 | 0 | 79 | 1227 | 0 |
| Grand Total | 111 | 1761 | 253 | 0 | 2125 | 45 | 1 | 109 | 0 | 155 | 114 | 1443 | 44 | 0 | 1601 | 299 | 0 | 161 | 0 | 460 | 4341 | 0 |
| Apprch % | 5.2% | 82.9% | 11.9% | 0.0% | | 29.0% | 0.6% | 70.3% | 0.0% | | 7.1% | 90.1% | 2.7% | 0.0% | | 65.0% | 0.0% | 35.0% | 0.0% | | | |
| Total % | 2.6% | 40.6% | 5.8% | 0.0% | 49.0% | 1.0% | 0.0% | 2.5% | 0.0% | 3.6% | 2.6% | 33.2% | 1.0% | 0.0% | 36.9% | 6.9% | 0.0% | 3.7% | 0.0% | 10.6% | 100.0% | |

| **AM PEAK HOUR** | White Rock Rd Southbound | | | | | Stonebriar Dr/4 Seasons Dr Westbound | | | | | White Rock Rd Northbound | | | | | Stonebriar Dr/4 Seasons Dr Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| START TIME | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | Total |
| Peak Hour Analysis From 07:15 to 08:15 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour For Entire Intersection Begins at 07:15 | | | | | | | | | | | | | | | | | | | | | |
| 7:15 | 5 | 141 | 9 | 0 | 155 | 3 | 0 | 2 | 0 | 5 | 3 | 47 | 2 | 0 | 52 | 22 | 0 | 14 | 0 | 36 | 248 |
| 7:30 | 2 | 169 | 9 | 0 | 180 | 0 | 0 | 6 | 0 | 6 | 1 | 76 | 2 | 0 | 79 | 32 | 0 | 13 | 0 | 45 | 310 |
| 7:45 | 6 | 172 | 10 | 0 | 188 | 4 | 0 | 7 | 0 | 11 | 4 | 68 | 0 | 0 | 72 | 24 | 0 | 16 | 0 | 40 | 311 |
| 8:00 | 4 | 135 | 24 | 0 | 163 | 3 | 0 | 7 | 0 | 10 | 0 | 70 | 1 | 0 | 71 | 15 | 0 | 11 | 0 | 26 | 270 |
| Total Volume | 17 | 617 | 52 | 0 | 686 | 10 | 0 | 22 | 0 | 32 | 8 | 261 | 5 | 0 | 274 | 93 | 0 | 54 | 0 | 147 | 1139 |
| % App Total | 2.5% | 89.9% | 7.6% | 0.0% | | 31.3% | 0.0% | 68.8% | 0.0% | | 2.9% | 95.3% | 1.8% | 0.0% | | 63.3% | 0.0% | 36.7% | 0.0% | | |
| PHF | .708 | .897 | .542 | .000 | .912 | .625 | .000 | .786 | .000 | .727 | .500 | .859 | .625 | .000 | .867 | .727 | .000 | .844 | .000 | .817 | .916 |

| **PM PEAK HOUR** | White Rock Rd Southbound | | | | | Stonebriar Dr/4 Seasons Dr Westbound | | | | | White Rock Rd Northbound | | | | | Stonebriar Dr/4 Seasons Dr Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| START TIME | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | Total |
| Peak Hour Analysis From 16:30 to 17:30 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour For Entire Intersection Begins at 16:30 | | | | | | | | | | | | | | | | | | | | | |
| 16:30 | 10 | 135 | 15 | 0 | 160 | 4 | 0 | 11 | 0 | 15 | 10 | 113 | 6 | 0 | 129 | 17 | 0 | 7 | 0 | 24 | 328 |
| 16:45 | 12 | 94 | 15 | 0 | 121 | 5 | 0 | 3 | 0 | 8 | 16 | 107 | 5 | 0 | 128 | 18 | 0 | 5 | 0 | 23 | 280 |
| 17:00 | 18 | 138 | 24 | 0 | 180 | 6 | 0 | 7 | 0 | 13 | 15 | 148 | 3 | 0 | 166 | 9 | 0 | 4 | 0 | 13 | 372 |
| 17:15 | 8 | 96 | 23 | 0 | 127 | 1 | 0 | 13 | 0 | 14 | 10 | 136 | 2 | 0 | 148 | 14 | 0 | 10 | 0 | 24 | 313 |
| Total Volume | 48 | 463 | 77 | 0 | 588 | 16 | 0 | 34 | 0 | 50 | 51 | 504 | 16 | 0 | 571 | 58 | 0 | 26 | 0 | 84 | 1293 |
| % App Total | 8.2% | 78.7% | 13.1% | 0.0% | | 32.0% | 0.0% | 68.0% | 0.0% | | 8.9% | 88.3% | 2.8% | 0.0% | | 69.0% | 0.0% | 31.0% | 0.0% | | |
| PHF | .667 | .839 | .802 | .000 | .817 | .667 | .000 | .654 | .000 | .833 | .797 | .851 | .667 | .000 | .860 | .806 | .000 | .650 | .000 | .875 | .869 |

# National Data and Surveying Services

City of El Dorado Hills
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

**(323) 782-0090**
info@ndsdata.com

File Name : 16-7893-001 White Rock Rd & Stonebriar Dr/4 Seasons Dr
Date : 12/1/2016

**Bank 1 Count = Peds & Bikes**

| | White Rock Rd Southbound | | | | | Stonebriar Dr/4 Seasons Dr Westbound | | | | | White Rock Rd Northbound | | | | | Stonebriar Dr/4 Seasons Dr Eastbound | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| START TIME | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | Total | Peds Total |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:15 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 8:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| 8:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Grand Total | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 4 |
| Apprch % | 0.0% | 0.0% | 0.0% | | | 0.0% | 0.0% | 0.0% | | | 0.0% | 0.0% | 0.0% | | | 0.0% | 0.0% | 0.0% | | | | |
| Total % | 0.0% | 0.0% | 0.0% | | 0.0% | 0.0% | 0.0% | 0.0% | | 0.0% | 0.0% | 0.0% | 0.0% | | 0.0% | 0.0% | 0.0% | 0.0% | | 0.0% | 0.0% | |

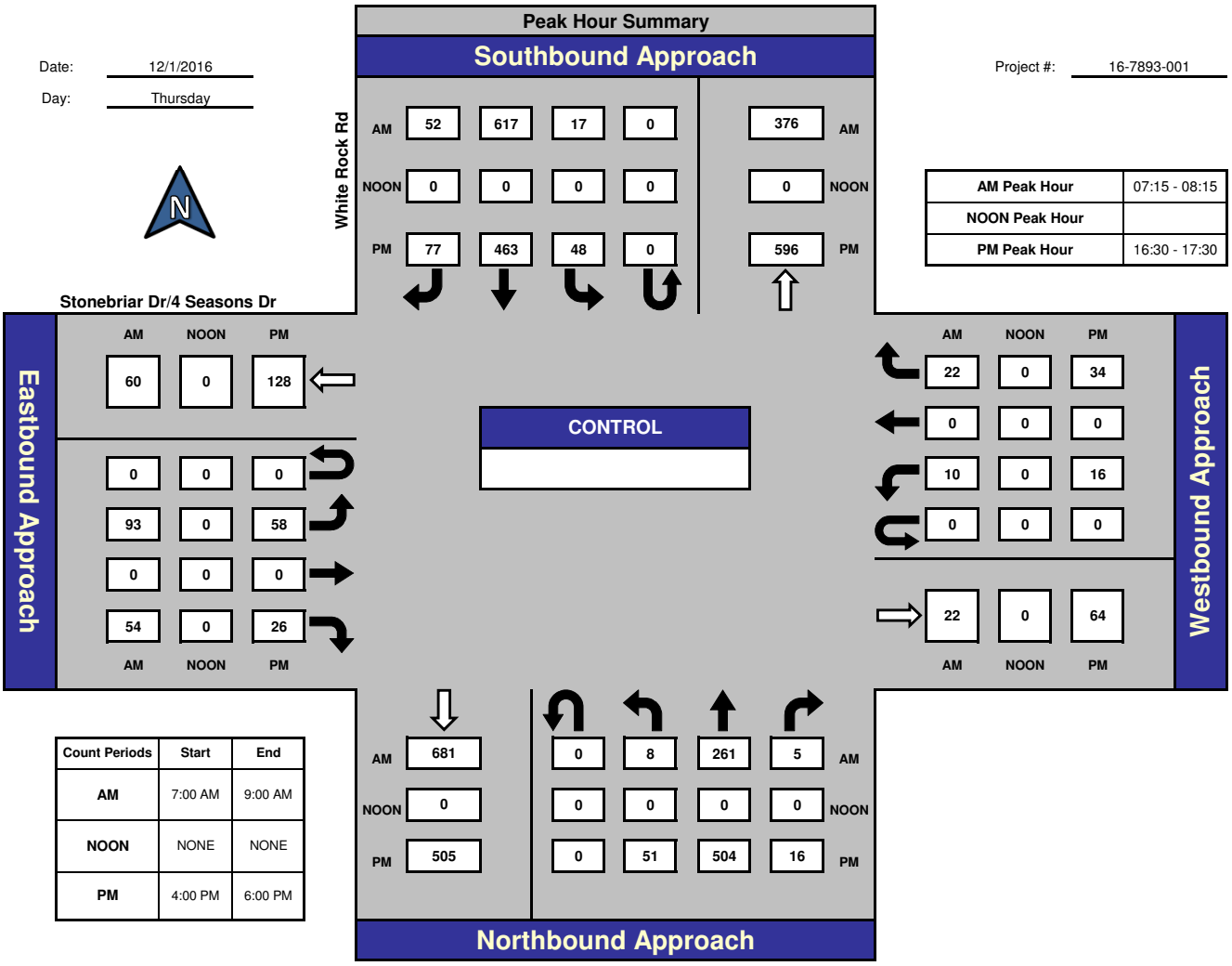
| **AM PEAK HOUR** | White Rock Rd Southbound | | | | | Stonebriar Dr/4 Seasons Dr Westbound | | | | | White Rock Rd Northbound | | | | | Stonebriar Dr/4 Seasons Dr Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| START TIME | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | Total |
| Peak Hour Analysis From 07:15 to 08:15 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour For Entire Intersection Begins at 07:15 | | | | | | | | | | | | | | | | | | | | | |
| 7:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 7:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % App Total | 0.0% | 0.0% | 0.0% | | | 0.0% | 0.0% | 0.0% | | | 0.0% | 0.0% | 0.0% | | | 0.0% | 0.0% | 0.0% | | | |
| PHF | .000 | .000 | .000 | | .000 | .000 | .000 | .000 | | .000 | .000 | .000 | .000 | | .000 | .000 | .000 | .000 | | .000 | .000 |

## *White Rock Rd & Stonebriar Dr/4 Seasons Dr*

Date: 12/1/2016

Day: Thursday

Project #: 16-7893-001




| Peak Hour Summary | |
|---|---|
| AM Peak Hour | 07:15 - 08:15 |
| NOON Peak Hour | |
| PM Peak Hour | 16:30 - 17:30 |

| Count Periods | Start | End |
|---|---|---|
| AM | 7:00 AM | 9:00 AM |
| NOON | NONE | NONE |
| PM | 4:00 PM | 6:00 PM |

### Total Ins & Outs

| | North Leg | | |
|---|---|---|---|
| | 686 | 376 | AM |
| | 0 | 0 | NOON |
| | 588 | 596 | PM |

| West Leg | | | | East Leg | | |
|---|---|---|---|---|---|---|
| AM | NOON | PM | | AM | NOON | PM |
| 60 | 0 | 128 | | 32 | 0 | 50 |
| 147 | 0 | 84 | | 22 | 0 | 64 |

| | South Leg | |
|---|---|---|
| AM | 681 | 274 |
| NOON | 0 | 0 |
| PM | 505 | 571 |

### Total Volume Per Leg

| North Leg | |
|---|---|
| 1062 | AM |
| 0 | NOON |
| 1184 | PM |

| West Leg | | | East Leg | | |
|---|---|---|---|---|---|
| AM | NOON | PM | AM | NOON | PM |
| 207 | 0 | 212 | 54 | 0 | 114 |

| South Leg | |
|---|---|
| AM | 955 |
| NOON | 0 |
| PM | 1076 |

# National Data and Surveying Services

City of El Dorado Hills
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 16-7893-002 Prima Dr & Stonebriar Dr
Date : 12/1/2016

**Unshifted Count = All Vehicles & Uturns**

| | Prima Dr Southbound | | | | | Stonebriar Dr Westbound | | | | | Prima Dr Northbound | | | | | Stonebriar Dr Eastbound | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| START TIME | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | Total | Uturns Total |
| 7:00 | 7 | 0 | 0 | 0 | 7 | 0 | 5 | 1 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 40 | 0 | 0 | 41 | 54 | 0 |
| 7:15 | 3 | 0 | 0 | 0 | 3 | 0 | 7 | 5 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 35 | 50 | 0 |
| 7:30 | 4 | 0 | 0 | 0 | 4 | 0 | 9 | 1 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 40 | 54 | 0 |
| 7:45 | 6 | 0 | 0 | 0 | 6 | 0 | 11 | 3 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 34 | 54 | 0 |
| Total | 20 | 0 | 0 | 0 | 20 | 0 | 32 | 10 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 1 | 149 | 0 | 0 | 150 | 212 | 0 |
| 8:00 | 4 | 0 | 1 | 0 | 5 | 0 | 23 | 1 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 22 | 51 | 0 |
| 8:15 | 3 | 0 | 1 | 0 | 4 | 0 | 9 | 2 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 29 | 0 | 0 | 29 | 44 | 0 |
| 8:30 | 2 | 0 | 0 | 0 | 2 | 0 | 11 | 2 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 0 | 0 | 30 | 45 | 0 |
| 8:45 | 6 | 0 | 0 | 0 | 6 | 0 | 12 | 3 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 26 | 0 | 0 | 26 | 47 | 0 |
| Total | 15 | 0 | 2 | 0 | 17 | 0 | 55 | 8 | 0 | 63 | 0 | 0 | 0 | 0 | 0 | 0 | 107 | 0 | 0 | 107 | 187 | 0 |
| 16:00 | 6 | 0 | 0 | 0 | 6 | 0 | 20 | 5 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 1 | 17 | 0 | 0 | 18 | 49 | 0 |
| 16:15 | 3 | 0 | 0 | 0 | 3 | 0 | 31 | 4 | 0 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 16 | 54 | 0 |
| 16:30 | 3 | 0 | 0 | 0 | 3 | 0 | 22 | 3 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 25 | 0 | 0 | 25 | 53 | 0 |
| 16:45 | 3 | 0 | 0 | 0 | 3 | 0 | 27 | 4 | 0 | 31 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 16 | 50 | 0 |
| Total | 15 | 0 | 0 | 0 | 15 | 0 | 100 | 16 | 0 | 116 | 0 | 0 | 0 | 0 | 0 | 1 | 74 | 0 | 0 | 75 | 206 | 0 |
| 17:00 | 1 | 0 | 0 | 0 | 1 | 0 | 36 | 1 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 0 | 0 | 12 | 50 | 0 |
| 17:15 | 4 | 0 | 0 | 0 | 4 | 0 | 31 | 3 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 22 | 60 | 0 |
| 17:30 | 2 | 0 | 1 | 0 | 3 | 0 | 30 | 4 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 22 | 59 | 0 |
| 17:45 | 3 | 0 | 0 | 0 | 3 | 0 | 29 | 9 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 13 | 54 | 0 |
| Total | 10 | 0 | 1 | 0 | 11 | 0 | 126 | 17 | 0 | 143 | 0 | 0 | 0 | 0 | 0 | 1 | 68 | 0 | 0 | 69 | 223 | 0 |
| Grand Total | 60 | 0 | 3 | 0 | 63 | 0 | 313 | 51 | 0 | 364 | 0 | 0 | 0 | 0 | 0 | 3 | 398 | 0 | 0 | 401 | 828 | 0 |
| Apprch % | 95.2% | 0.0% | 4.8% | 0.0% | | 0.0% | 86.0% | 14.0% | 0.0% | | 0.0% | 0.0% | 0.0% | 0.0% | | 0.7% | 99.3% | 0.0% | 0.0% | | | |
| Total % | 7.2% | 0.0% | 0.4% | 0.0% | 7.6% | 0.0% | 37.8% | 6.2% | 0.0% | 44.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.4% | 48.1% | 0.0% | 0.0% | 48.4% | 100.0% | |

| **AM PEAK HOUR** | Prima Dr Southbound | | | | | Stonebriar Dr Westbound | | | | | Prima Dr Northbound | | | | | Stonebriar Dr Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| START TIME | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | Total |
| Peak Hour Analysis From 07:00 to 08:00 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour For Entire Intersection Begins at 07:00 | | | | | | | | | | | | | | | | | | | | | |
| 7:00 | 7 | 0 | 0 | 0 | 7 | 0 | 5 | 1 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 40 | 0 | 0 | 41 | 54 |
| 7:15 | 3 | 0 | 0 | 0 | 3 | 0 | 7 | 5 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 35 | 0 | 0 | 35 | 50 |
| 7:30 | 4 | 0 | 0 | 0 | 4 | 0 | 9 | 1 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 40 | 0 | 0 | 40 | 54 |
| 7:45 | 6 | 0 | 0 | 0 | 6 | 0 | 11 | 3 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 34 | 54 |
| Total Volume | 20 | 0 | 0 | 0 | 20 | 0 | 32 | 10 | 0 | 42 | 0 | 0 | 0 | 0 | 0 | 1 | 149 | 0 | 0 | 150 | 212 |
| % App Total | 100.0% | 0.0% | 0.0% | 0.0% | | 0.0% | 76.2% | 23.8% | 0.0% | | 0.0% | 0.0% | 0.0% | 0.0% | | 0.7% | 99.3% | 0.0% | 0.0% | | |
| PHF | .714 | .000 | .000 | .000 | .714 | .000 | .727 | .500 | .000 | .750 | .000 | .000 | .000 | .000 | .000 | .250 | .931 | .000 | .000 | .915 | .981 |

| **PM PEAK HOUR** | Prima Dr Southbound | | | | | Stonebriar Dr Westbound | | | | | Prima Dr Northbound | | | | | Stonebriar Dr Eastbound | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| START TIME | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | LEFT | THRU | RIGHT | UTURNS | APP.TOTAL | Total |
| Peak Hour Analysis From 17:00 to 18:00 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour For Entire Intersection Begins at 17:00 | | | | | | | | | | | | | | | | | | | | | |
| 17:00 | 1 | 0 | 0 | 0 | 1 | 0 | 36 | 1 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 1 | 11 | 0 | 0 | 12 | 50 |
| 17:15 | 4 | 0 | 0 | 0 | 4 | 0 | 31 | 3 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 22 | 60 |
| 17:30 | 2 | 0 | 1 | 0 | 3 | 0 | 30 | 4 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 22 | 0 | 0 | 22 | 59 |
| 17:45 | 3 | 0 | 0 | 0 | 3 | 0 | 29 | 9 | 0 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 13 | 54 |
| Total Volume | 10 | 0 | 1 | 0 | 11 | 0 | 126 | 17 | 0 | 143 | 0 | 0 | 0 | 0 | 0 | 1 | 68 | 0 | 0 | 69 | 223 |
| % App Total | 90.9% | 0.0% | 9.1% | 0.0% | | 0.0% | 88.1% | 11.9% | 0.0% | | 0.0% | 0.0% | 0.0% | 0.0% | | 1.4% | 98.6% | 0.0% | 0.0% | | |
| PHF | .625 | .000 | .250 | .000 | .688 | .000 | .875 | .472 | .000 | .941 | .000 | .000 | .000 | .000 | .000 | .250 | .773 | .000 | .000 | .784 | .929 |

# National Data and Surveying Services

City of El Dorado Hills
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Nothing On Bank 2

**(323) 782-0090**
info@ndsdata.com

File Name : 16-7893-002 Prima Dr & Stonebriar Dr
Date : 12/1/2016

**Bank 1 Count = Peds & Bikes**

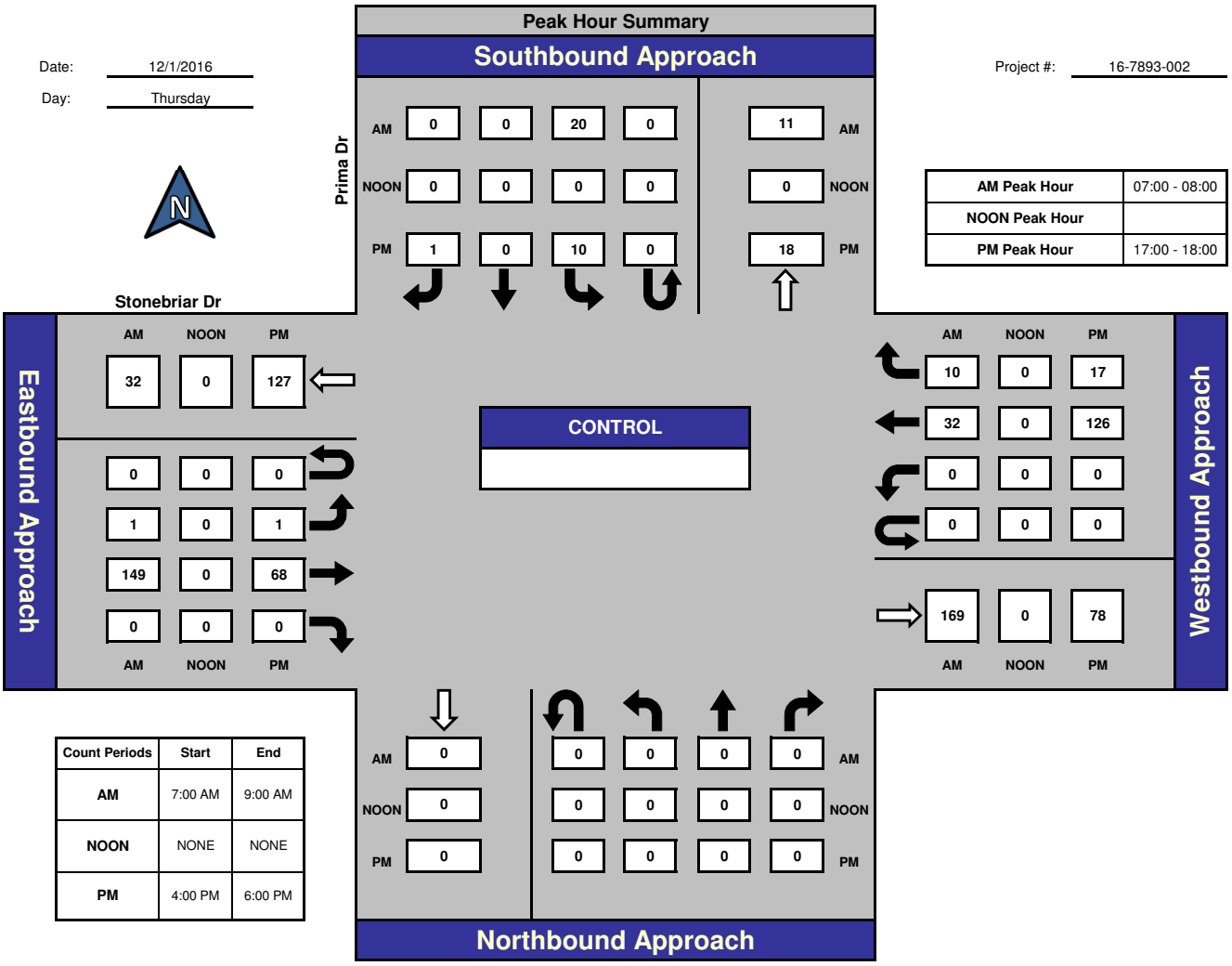
| | Prima Dr Southbound | | | | | Stonebriar Dr Westbound | | | | | Prima Dr Northbound | | | | | Stonebriar Dr Eastbound | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| START TIME | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | LEFT | THRU | RIGHT | PEDS | APP.TOTAL | Total | Peds Total |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apprch % | 0.0% | 0.0% | 0.0% | | | 0.0% | 0.0% | 0.0% | | | 0.0% | 0.0% | 0.0% | | | 0.0% | 0.0% | 0.0% | | | | |
| Total % | 0.0% | 0.0% | 0.0% | | 0.0% | 0.0% | 0.0% | 0.0% | | 0.0% | 0.0% | 0.0% | 0.0% | | 0.0% | 0.0% | 0.0% | 0.0% | | 0.0% | 0.0% | |

## *Prima Dr & Stonebriar Dr*

Date: 12/1/2016

Day: Thursday

Project #: 16-7893-002




| AM Peak Hour | 07:00 - 08:00 |
|---|---|
| NOON Peak Hour | |
| PM Peak Hour | 17:00 - 18:00 |

| Count Periods | Start | End |
|---|---|---|
| AM | 7:00 AM | 9:00 AM |
| NOON | NONE | NONE |
| PM | 4:00 PM | 6:00 PM |

### Total Ins & Outs

| North Leg | |
|---|---|
| 20 | 11 |
| 0 | 0 |
| 11 | 18 |

AM / NOON / PM

| West Leg | | | East Leg | | |
|---|---|---|---|---|---|
| AM | NOON | PM | AM | NOON | PM |
| 32 | 0 | 127 | 42 | 0 | 143 |
| 150 | 0 | 69 | 169 | 0 | 78 |

| South Leg | |
|---|---|
| 0 | 0 |
| 0 | 0 |
| 0 | 0 |

AM / NOON / PM

### Total Volume Per Leg

| North Leg |
|---|
| 31 |
| 0 |
| 29 |

AM / NOON / PM

| West Leg | | | East Leg | | |
|---|---|---|---|---|---|
| AM | NOON | PM | AM | NOON | PM |
| 182 | 0 | 196 | 211 | 0 | 221 |

| South Leg |
|---|
| 0 |
| 0 |
| 0 |

AM / NOON / PM

Prepared by NDS/ATD

# VOLUME

White Rock Rd Bet. Stonebriar Dr & Sacramento/El Dorado County Line

**Day:** Thursday
**Date:** 12/1/2016

**City:** El Dorado Hills
**Project #:** CA16_7894_001

| DAILY TOTALS | NB | SB | EB | WB | Total |
|---|---|---|---|---|---|
| | 4,184 | 4,356 | 0 | 0 | 8,540 |

| AM Period | NB | | SB | | EB | WB | TOTAL | | PM Period | NB | | SB | | EB | WB | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0:00 | 6 | | 2 | | 0 | 0 | 8 | | 12:00 | 68 | | 57 | | 0 | 0 | 125 | |
| 0:15 | 2 | | 3 | | 0 | 0 | 5 | | 12:15 | 57 | | 47 | | 0 | 0 | 104 | |
| 0:30 | 3 | | 2 | | 0 | 0 | 5 | | 12:30 | 53 | | 74 | | 0 | 0 | 127 | |
| 0:45 | 4 | 15 | 1 | 8 | 0 | 0 | 5 | 23 | 12:45 | 64 | 242 | 63 | 241 | 0 | 0 | 127 | 483 |
| 1:00 | 2 | | 4 | | 0 | 0 | 6 | | 13:00 | 63 | | 56 | | 0 | 0 | 119 | |
| 1:15 | 0 | | 1 | | 0 | 0 | 1 | | 13:15 | 53 | | 40 | | 0 | 0 | 93 | |
| 1:30 | 1 | | 2 | | 0 | 0 | 3 | | 13:30 | 79 | | 44 | | 0 | 0 | 123 | |
| 1:45 | 0 | 3 | 1 | 8 | 0 | 0 | 1 | 11 | 13:45 | 66 | 261 | 40 | 180 | 0 | 0 | 106 | 441 |
| 2:00 | 1 | | 1 | | 0 | 0 | 2 | | 14:00 | 52 | | 56 | | 0 | 0 | 108 | |
| 2:15 | 1 | | 0 | | 0 | 0 | 1 | | 14:15 | 64 | | 66 | | 0 | 0 | 130 | |
| 2:30 | 0 | | 1 | | 0 | 0 | 1 | | 14:30 | 84 | | 45 | | 0 | 0 | 129 | |
| 2:45 | 1 | 3 | 1 | 3 | 0 | 0 | 2 | 6 | 14:45 | 101 | 301 | 51 | 218 | 0 | 0 | 152 | 519 |
| 3:00 | 1 | | 1 | | 0 | 0 | 2 | | 15:00 | 86 | | 78 | | 0 | 0 | 164 | |
| 3:15 | 0 | | 1 | | 0 | 0 | 1 | | 15:15 | 108 | | 76 | | 0 | 0 | 184 | |
| 3:30 | 0 | | 2 | | 0 | 0 | 2 | | 15:30 | 82 | | 99 | | 0 | 0 | 181 | |
| 3:45 | 2 | 3 | 4 | 8 | 0 | 0 | 6 | 11 | 15:45 | 124 | 400 | 90 | 343 | 0 | 0 | 214 | 743 |
| 4:00 | 0 | | 1 | | 0 | 0 | 1 | | 16:00 | 87 | | 110 | | 0 | 0 | 197 | |
| 4:15 | 0 | | 3 | | 0 | 0 | 3 | | 16:15 | 133 | | 107 | | 0 | 0 | 240 | |
| 4:30 | 1 | | 5 | | 0 | 0 | 6 | | 16:30 | 132 | | 132 | | 0 | 0 | 264 | |
| 4:45 | 2 | 3 | 4 | 13 | 0 | 0 | 6 | 16 | 16:45 | 128 | 480 | 110 | 459 | 0 | 0 | 238 | 939 |
| 5:00 | 7 | | 3 | | 0 | 0 | 10 | | 17:00 | 158 | | 141 | | 0 | 0 | 299 | |
| 5:15 | 6 | | 8 | | 0 | 0 | 14 | | 17:15 | 149 | | 114 | | 0 | 0 | 263 | |
| 5:30 | 12 | | 23 | | 0 | 0 | 35 | | 17:30 | 155 | | 87 | | 0 | 0 | 242 | |
| 5:45 | 25 | 50 | 19 | 53 | 0 | 0 | 44 | 103 | 17:45 | 126 | 588 | 70 | 412 | 0 | 0 | 196 | 1000 |
| 6:00 | 17 | | 30 | | 0 | 0 | 47 | | 18:00 | 92 | | 78 | | 0 | 0 | 170 | |
| 6:15 | 17 | | 65 | | 0 | 0 | 82 | | 18:15 | 79 | | 52 | | 0 | 0 | 131 | |
| 6:30 | 33 | | 94 | | 0 | 0 | 127 | | 18:30 | 70 | | 41 | | 0 | 0 | 111 | |
| 6:45 | 61 | 128 | 127 | 316 | 0 | 0 | 188 | 444 | 18:45 | 59 | 300 | 39 | 210 | 0 | 0 | 98 | 510 |
| 7:00 | 59 | | 162 | | 0 | 0 | 221 | | 19:00 | 48 | | 29 | | 0 | 0 | 77 | |
| 7:15 | 48 | | 162 | | 0 | 0 | 210 | | 19:15 | 32 | | 22 | | 0 | 0 | 54 | |
| 7:30 | 55 | | 180 | | 0 | 0 | 235 | | 19:30 | 34 | | 17 | | 0 | 0 | 51 | |
| 7:45 | 87 | 249 | 184 | 688 | 0 | 0 | 271 | 937 | 19:45 | 30 | 144 | 16 | 84 | 0 | 0 | 46 | 228 |
| 8:00 | 54 | | 142 | | 0 | 0 | 196 | | 20:00 | 33 | | 16 | | 0 | 0 | 49 | |
| 8:15 | 59 | | 107 | | 0 | 0 | 166 | | 20:15 | 27 | | 13 | | 0 | 0 | 40 | |
| 8:30 | 87 | | 93 | | 0 | 0 | 180 | | 20:30 | 20 | | 10 | | 0 | 0 | 30 | |
| 8:45 | 56 | 256 | 50 | 392 | 0 | 0 | 106 | 648 | 20:45 | 28 | 108 | 17 | 56 | 0 | 0 | 45 | 164 |
| 9:00 | 53 | | 50 | | 0 | 0 | 103 | | 21:00 | 17 | | 14 | | 0 | 0 | 31 | |
| 9:15 | 29 | | 50 | | 0 | 0 | 79 | | 21:15 | 15 | | 9 | | 0 | 0 | 24 | |
| 9:30 | 42 | | 40 | | 0 | 0 | 82 | | 21:30 | 19 | | 5 | | 0 | 0 | 24 | |
| 9:45 | 43 | 167 | 66 | 206 | 0 | 0 | 109 | 373 | 21:45 | 10 | 61 | 7 | 35 | 0 | 0 | 17 | 96 |
| 10:00 | 37 | | 56 | | 0 | 0 | 93 | | 22:00 | 10 | | 8 | | 0 | 0 | 18 | |
| 10:15 | 40 | | 49 | | 0 | 0 | 89 | | 22:15 | 4 | | 4 | | 0 | 0 | 8 | |
| 10:30 | 65 | | 57 | | 0 | 0 | 122 | | 22:30 | 8 | | 7 | | 0 | 0 | 15 | |
| 10:45 | 36 | 178 | 42 | 204 | 0 | 0 | 78 | 382 | 22:45 | 5 | 27 | 3 | 22 | 0 | 0 | 8 | 49 |
| 11:00 | 43 | | 48 | | 0 | 0 | 91 | | 23:00 | 5 | | 3 | | 0 | 0 | 8 | |
| 11:15 | 57 | | 43 | | 0 | 0 | 100 | | 23:15 | 1 | | 3 | | 0 | 0 | 4 | |
| 11:30 | 50 | | 47 | | 0 | 0 | 97 | | 23:30 | 2 | | 1 | | 0 | 0 | 3 | |
| 11:45 | 54 | 204 | 52 | 190 | 0 | 0 | 106 | 394 | 23:45 | 5 | 13 | 0 | 7 | 0 | 0 | 5 | 20 |
| TOTALS | | 1259 | | 2089 | | | | 3348 | TOTALS | | 2925 | | 2267 | | | | 5192 |
| SPLIT % | | 37.6% | | 62.4% | | | | 39.2% | SPLIT % | | 56.3% | | 43.7% | | | | 60.8% |

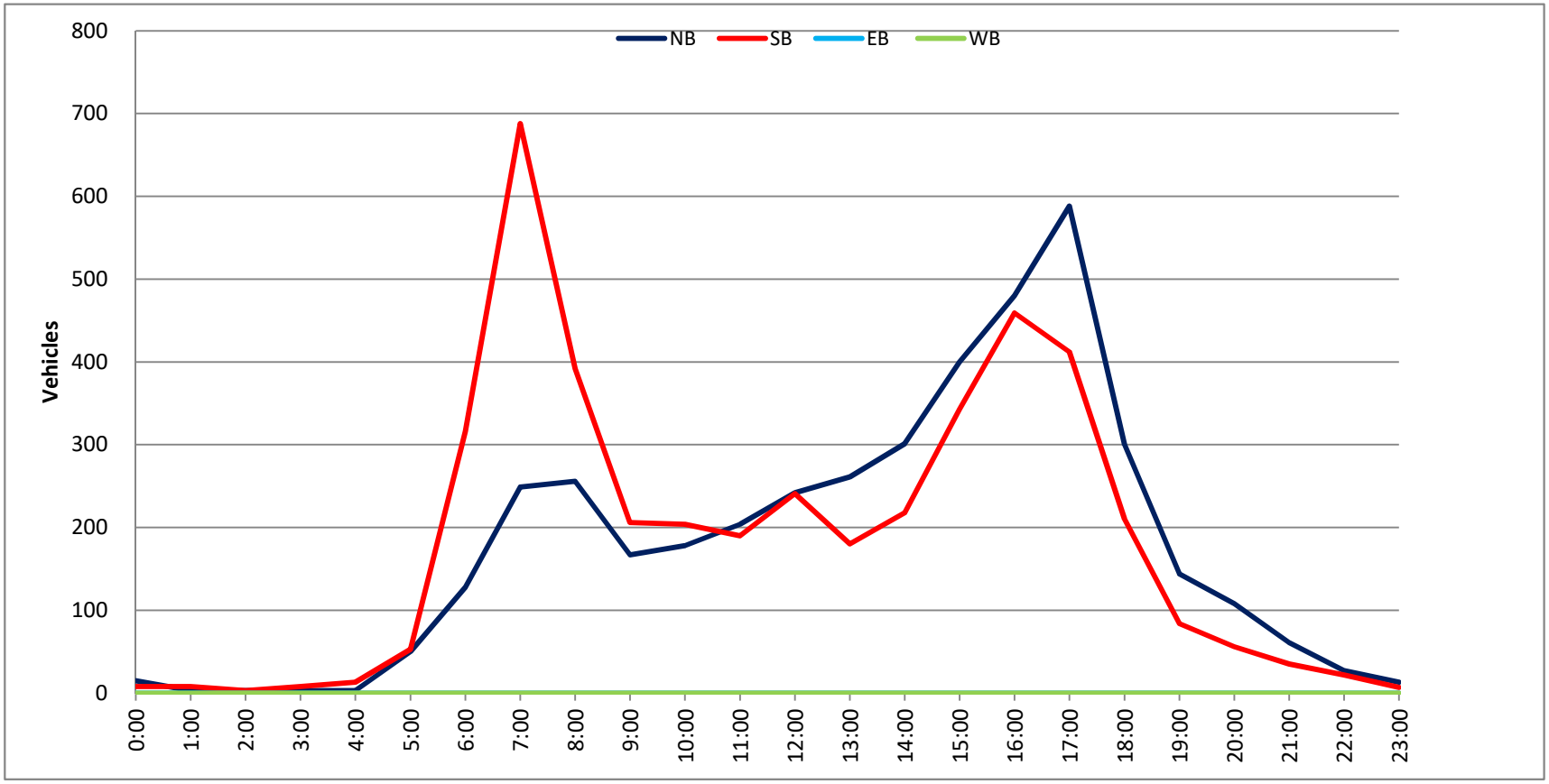
| DAILY TOTALS | NB | SB | EB | WB | Total |
|---|---|---|---|---|---|
| | 4,184 | 4,356 | 0 | 0 | 8,540 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AM Peak Hour | 7:45 | 7:00 | | | 7:00 | PM Peak Hour | 16:45 | 16:30 | | | 16:30 |
| AM Pk Volume | 287 | 688 | | | 937 | PM Pk Volume | 590 | 497 | | | 1064 |
| Pk Hr Factor | 0.825 | 0.935 | | | 0.864 | Pk Hr Factor | 0.934 | 0.881 | | | 0.890 |
| 7 - 9 Volume | 505 | 1080 | 0 | 0 | 1585 | 4 - 6 Volume | 1068 | 871 | 0 | 0 | 1939 |
| 7 - 9 Peak Hour | 7:45 | 7:00 | | | 7:00 | 4 - 6 Peak Hour | 16:45 | 16:30 | | | 16:30 |
| 7 - 9 Pk Volume | 287 | 688 | 0 | 0 | 937 | 4 - 6 Pk Volume | 590 | 497 | 0 | 0 | 1064 |
| Pk Hr Factor | 0.825 | 0.935 | 0.000 | 0.000 | 0.864 | Pk Hr Factor | 0.934 | 0.881 | 0.000 | 0.000 | 0.890 |

Prepared by NDS/ATD

**Project #:** CA16_7894_001 **City:** El Dorado Hills

**Location:** White Rock Rd Bet. Stonebriar Dr & **Date:** 12/1/2016



Prepared by National Data & Surveying Services

# CLASSIFICATION

White Rock Rd Bet. Stonebriar Dr & Sacramento/El Dorado County Line

**Day:** Thursday
**Date:** 12/1/2016

**City:** El Dorado Hills
**Project #:** CA16_7894_001n

**North Bound**

| Time | # 1 | # 2 | # 3 | # 4 | # 5 | # 6 | # 7 | # 8 | # 9 | # 10 | # 11 | # 12 | # 13 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0:00 AM | 0 | 4 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 0:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 0:30 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 0:45 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 1:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 1:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:00 | 0 | 4 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 5:15 | 0 | 4 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 5:30 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 5:45 | 1 | 17 | 4 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 25 |
| 6:00 | 0 | 11 | 2 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 6:15 | 0 | 11 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 6:30 | 0 | 25 | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 6:45 | 0 | 43 | 8 | 0 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 61 |
| 7:00 | 0 | 40 | 8 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| 7:15 | 0 | 36 | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 |
| 7:30 | 0 | 35 | 9 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 55 |
| 7:45 | 0 | 58 | 18 | 0 | 9 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 87 |
| 8:00 | 0 | 35 | 10 | 0 | 6 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 54 |
| 8:15 | 0 | 38 | 11 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| 8:30 | 0 | 56 | 16 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 |
| 8:45 | 0 | 38 | 8 | 1 | 6 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 56 |
| 9:00 | 0 | 36 | 9 | 0 | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 53 |
| 9:15 | 0 | 19 | 5 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 29 |
| 9:30 | 0 | 27 | 9 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 9:45 | 0 | 21 | 10 | 1 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 10:00 | 0 | 30 | 2 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| 10:15 | 0 | 26 | 6 | 1 | 6 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 40 |
| 10:30 | 0 | 38 | 12 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 |
| 10:45 | 1 | 20 | 8 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 36 |
| 11:00 | 0 | 29 | 8 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 11:15 | 0 | 43 | 5 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 57 |
| 11:30 | 0 | 32 | 7 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| 11:45 | 0 | 37 | 5 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 |
| 12:00 PM | 0 | 44 | 10 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 68 |
| 12:15 | 0 | 39 | 9 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 |
| 12:30 | 0 | 37 | 9 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| 12:45 | 0 | 44 | 9 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 |
| 13:00 | 0 | 41 | 8 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 |
| 13:15 | 0 | 34 | 8 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| 13:30 | 1 | 58 | 10 | 1 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 |
| 13:45 | 0 | 45 | 12 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 |
| 14:00 | 0 | 33 | 12 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 52 |
| 14:15 | 0 | 46 | 9 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 |
| 14:30 | 0 | 59 | 15 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 84 |
| 14:45 | 1 | 67 | 18 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 101 |
| 15:00 | 0 | 69 | 6 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86 |
| 15:15 | 1 | 70 | 24 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 108 |
| 15:30 | 0 | 57 | 14 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82 |
| 15:45 | 0 | 77 | 26 | 1 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 124 |
| 16:00 | 1 | 62 | 17 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 |
| 16:15 | 0 | 98 | 17 | 0 | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 133 |
| 16:30 | 0 | 93 | 21 | 0 | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 132 |
| 16:45 | 0 | 88 | 24 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 128 |
| 17:00 | 1 | 119 | 23 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 158 |
| 17:15 | 0 | 116 | 14 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 149 |
| 17:30 | 0 | 112 | 24 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 155 |
| 17:45 | 0 | 93 | 15 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 126 |
| 18:00 | 0 | 60 | 14 | 0 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 92 |
| 18:15 | 0 | 62 | 9 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 |
| 18:30 | 0 | 50 | 13 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 |
| 18:45 | 0 | 42 | 8 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| 19:00 | 0 | 36 | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 |
| 19:15 | 0 | 21 | 8 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 19:30 | 0 | 22 | 6 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 |
| 19:45 | 0 | 22 | 4 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 20:00 | 0 | 23 | 6 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 20:15 | 0 | 16 | 7 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 20:30 | 0 | 14 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 20:45 | 0 | 19 | 5 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 21:00 | 0 | 15 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 21:15 | 0 | 12 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 21:30 | 0 | 14 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 21:45 | 0 | 6 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 22:00 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 22:15 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 22:30 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 22:45 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 23:00 | 0 | 2 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 23:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 23:30 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 23:45 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| **Totals** | **7** | **2905** | **662** | **14** | **573** | **13** | | **6** | **4** | | | | | **4184** |
| **% of Totals** | 0% | 69% | 16% | 0% | 14% | 0% | | 0% | 0% | | | | | 100% |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM Volumes** | 2 | 842 | 204 | 9 | 184 | 8 | 0 | 6 | 4 | 0 | 0 | 0 | 0 | 1259 |
| **% AM** | 0% | 20% | 5% | 0% | 4% | 0% | | 0% | 0% | | | | | 30% |
| **AM Peak Hour** | 5:00 | 7:45 | 7:45 | 9:30 | 11:15 | 7:00 | | 8:00 | 7:15 | | | | | 7:45 |
| **Volume** | 1 | 187 | 55 | 5 | 44 | 3 | | 2 | 2 | | | | | 287 |
| **PM Volumes** | 5 | 2063 | 458 | 5 | 389 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2925 |
| **% PM** | 0% | 49% | 11% | 0% | 9% | 0% | | | | | | | | 70% |
| **PM Peak Hour** | 14:30 | 17:00 | 16:15 | 12:00 | 17:15 | 15:45 | | | | | | | | 16:45 |
| **Volume** | 2 | 440 | 85 | 1 | 74 | 3 | | | | | | | | 590 |

| Directional Peak Periods | AM 7-9 | | NOON 12-2 | | PM 4-6 | | Off Peak Volumes | |
|---|---|---|---|---|---|---|---|---|
| **All Classes** | Volume | % | Volume | % | Volume | % | Volume | % |
| | 505 ⟷ | 12% | 503 ⟷ | 12% | 1068 ⟷ | 26% | 2108 ⟷ | 50% |

**Classification Definitions**

| | | | | |
|---|---|---|---|---|
| **1** Motorcycles | **4** Buses | **7** >=4-Axle Single Units | **10** >=6-Axle Single Trailers | **13** >=7-Axle Multi-Trailers |
| **2** Passenger Cars | **5** 2-Axle, 6-Tire Single Units | **8** <=4-Axle Single Trailers | **11** <=5-Axle Multi-Trailers | |
| **3** 2-Axle, 4-Tire Single Units | **6** 3-Axle Single Units | **9** 5-Axle Single Trailers | **12** 6-Axle Multi-Trailers | |

Prepared by National Data & Surveying Services

# CLASSIFICATION

White Rock Rd Bet. Stonebriar Dr & Sacramento/El Dorado County Line

**Day:** Thursday
**Date:** 12/1/2016

**City:** El Dorado Hills
**Project #:** CA16_7894_001s

**South Bound**

| Time | # 1 | # 2 | # 3 | # 4 | # 5 | # 6 | # 7 | # 8 | # 9 | # 10 | # 11 | # 12 | # 13 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0:00 AM | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 0:15 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 0:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 0:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1:00 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 1:15 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1:30 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 1:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 3:45 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 4:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:15 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 4:30 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 4:45 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 5:00 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:15 | 0 | 5 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 5:30 | 0 | 18 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 5:45 | 0 | 15 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 6:00 | 0 | 22 | 3 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 6:15 | 0 | 54 | 4 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 65 |
| 6:30 | 0 | 76 | 7 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 94 |
| 6:45 | 1 | 101 | 11 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 127 |
| 7:00 | 0 | 122 | 18 | 0 | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 162 |
| 7:15 | 0 | 119 | 22 | 2 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 162 |
| 7:30 | 0 | 143 | 22 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 180 |
| 7:45 | 0 | 135 | 28 | 0 | 19 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 184 |
| 8:00 | 1 | 110 | 19 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 142 |
| 8:15 | 0 | 75 | 19 | 0 | 12 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 107 |
| 8:30 | 0 | 71 | 12 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 |
| 8:45 | 0 | 36 | 9 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| 9:00 | 0 | 35 | 6 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 |
| 9:15 | 1 | 30 | 10 | 0 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 50 |
| 9:30 | 0 | 32 | 2 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 40 |
| 9:45 | 0 | 43 | 11 | 1 | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 66 |
| 10:00 | 0 | 34 | 13 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 |
| 10:15 | 0 | 31 | 9 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| 10:30 | 0 | 38 | 6 | 0 | 11 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 57 |
| 10:45 | 0 | 25 | 9 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 11:00 | 0 | 36 | 6 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 48 |
| 11:15 | 0 | 30 | 9 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 11:30 | 0 | 32 | 8 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 47 |
| 11:45 | 0 | 37 | 9 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 52 |
| 12:00 PM | 0 | 42 | 10 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 |
| 12:15 | 0 | 34 | 8 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| 12:30 | 0 | 56 | 12 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 |
| 12:45 | 1 | 44 | 5 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 |
| 13:00 | 0 | 44 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 |
| 13:15 | 0 | 31 | 5 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 13:30 | 0 | 31 | 7 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 |
| 13:45 | 0 | 28 | 6 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 40 |
| 14:00 | 0 | 36 | 12 | 2 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 |
| 14:15 | 0 | 49 | 8 | 1 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 66 |
| 14:30 | 0 | 34 | 2 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| 14:45 | 0 | 35 | 11 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 |
| 15:00 | 0 | 59 | 14 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 |
| 15:15 | 0 | 54 | 10 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 |
| 15:30 | 0 | 69 | 17 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 99 |
| 15:45 | 1 | 65 | 14 | 0 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 90 |
| 16:00 | 0 | 85 | 15 | 0 | 9 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 110 |
| 16:15 | 0 | 79 | 16 | 0 | 11 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 107 |
| 16:30 | 0 | 102 | 17 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 132 |
| 16:45 | 1 | 84 | 12 | 0 | 11 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 110 |
| 17:00 | 0 | 120 | 11 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 141 |
| 17:15 | 0 | 95 | 12 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 114 |
| 17:30 | 0 | 72 | 10 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 |
| 17:45 | 1 | 54 | 10 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 |
| 18:00 | 0 | 62 | 11 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 |
| 18:15 | 0 | 42 | 7 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 52 |
| 18:30 | 0 | 27 | 7 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 41 |
| 18:45 | 0 | 29 | 8 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 |
| 19:00 | 0 | 21 | 5 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 29 |
| 19:15 | 0 | 14 | 3 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 22 |
| 19:30 | 0 | 15 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 19:45 | 0 | 12 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 20:00 | 0 | 13 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 20:15 | 0 | 12 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 20:30 | 0 | 6 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 20:45 | 0 | 11 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 21:00 | 0 | 9 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 21:15 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 21:30 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 21:45 | 0 | 5 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 22:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 22:15 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 22:30 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 22:45 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 23:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 23:15 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 23:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 23:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Totals** | **7** | **3245** | **601** | **13** | **466** | **7** | | **9** | **5** | | **3** | | | **4356** |
| **% of Totals** | 0% | 74% | 14% | 0% | 11% | 0% | | 0% | 0% | | 0% | | | 100% |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM Volumes** | 3 | 1530 | 285 | 5 | 252 | 5 | 0 | 3 | 4 | 0 | 2 | 0 | 0 | 2089 |
| **% AM** | 0% | 35% | 7% | 0% | 6% | 0% | | 0% | 0% | | 0% | | | 48% |
| **AM Peak Hour** | 6:00 | 7:00 | 7:15 | 6:30 | 7:00 | 8:00 | | 7:00 | 9:00 | | 11:00 | | | 7:00 |
| **Volume** | 1 | 519 | 91 | 2 | 74 | 2 | | 2 | 3 | | 2 | | | 688 |
| **PM Volumes** | 4 | 1715 | 316 | 8 | 214 | 2 | 0 | 6 | 1 | 0 | 1 | 0 | 0 | 2267 |
| **% PM** | 0% | 39% | 7% | 0% | 5% | 0% | | 0% | 0% | | 0% | | | 52% |
| **PM Peak Hour** | 12:00 | 16:30 | 15:30 | 13:15 | 16:15 | 13:30 | | 15:15 | 15:30 | | 13:00 | | | 16:30 |
| **Volume** | 1 | 401 | 62 | 5 | 45 | 1 | | 2 | 1 | | 1 | | | 497 |

| Directional Peak Periods | AM 7-9 | | | NOON 12-2 | | | PM 4-6 | | | Off Peak Volumes | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **All Classes** | Volume | ⟷ | % | Volume | ⟷ | % | Volume | ⟷ | % | Volume | ⟷ | % |
| | 1080 | | 25% | 421 | | 10% | 871 | | 20% | 1984 | | 46% |

**Classification Definitions**

| | | | | | |
|---|---|---|---|---|---|
| **1** Motorcycles | **4** Buses | **7** >=4-Axle Single Units | **10** >=6-Axle Single Trailers | **13** >=7-Axle Multi-Trailers |
| **2** Passenger Cars | **5** 2-Axle, 6-Tire Single Units | **8** <=4-Axle Single Trailers | **11** <=5-Axle Multi-Trailers | |
| **3** 2-Axle, 4-Tire Single Units | **6** 3-Axle Single Units | **9** 5-Axle Single Trailers | **12** 6-Axle Multi-Trailers | |

Prepared by National Data & Surveying Services

# CLASSIFICATION

White Rock Rd Bet. Stonebriar Dr & Sacramento/El Dorado County Line

**Day:** Thursday
**Date:** 12/1/2016

**City:** El Dorado Hills
**Project #:** CA16_7894_001

**Summary**

| Time | # 1 | # 2 | # 3 | # 4 | # 5 | # 6 | # 7 | # 8 | # 9 | # 10 | # 11 | # 12 | # 13 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0:00 AM | 0 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 0:15 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 0:30 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 0:45 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 1:00 | 0 | 4 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 1:15 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1:30 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 1:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:30 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 3:00 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 3:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 3:45 | 0 | 4 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 4:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:15 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 4:30 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 4:45 | 0 | 4 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 5:00 | 0 | 5 | 3 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 5:15 | 0 | 9 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 5:30 | 0 | 29 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 5:45 | 1 | 32 | 5 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 |
| 6:00 | 0 | 33 | 5 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| 6:15 | 0 | 65 | 9 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82 |
| 6:30 | 0 | 101 | 12 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 127 |
| 6:45 | 1 | 144 | 19 | 0 | 23 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 188 |
| 7:00 | 0 | 162 | 26 | 0 | 31 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 221 |
| 7:15 | 0 | 155 | 28 | 2 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 210 |
| 7:30 | 0 | 178 | 31 | 0 | 25 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 235 |
| 7:45 | 0 | 193 | 46 | 0 | 28 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 271 |
| 8:00 | 1 | 145 | 29 | 0 | 18 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 196 |
| 8:15 | 0 | 113 | 30 | 1 | 21 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 166 |
| 8:30 | 0 | 127 | 28 | 0 | 24 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 180 |
| 8:45 | 0 | 74 | 17 | 1 | 10 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 106 |
| 9:00 | 0 | 71 | 15 | 0 | 16 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 103 |
| 9:15 | 1 | 49 | 15 | 0 | 13 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 79 |
| 9:30 | 0 | 59 | 11 | 3 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 82 |
| 9:45 | 0 | 64 | 21 | 2 | 21 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 109 |
| 10:00 | 0 | 64 | 15 | 0 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 |
| 10:15 | 0 | 57 | 15 | 2 | 14 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 89 |
| 10:30 | 0 | 76 | 18 | 0 | 26 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 122 |
| 10:45 | 1 | 45 | 17 | 0 | 14 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 78 |
| 11:00 | 0 | 65 | 14 | 0 | 11 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 91 |
| 11:15 | 0 | 73 | 14 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 100 |
| 11:30 | 0 | 64 | 15 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 97 |
| 11:45 | 0 | 74 | 14 | 1 | 15 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 106 |
| 12:00 PM | 0 | 86 | 20 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 125 |
| 12:15 | 0 | 73 | 17 | 1 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 104 |
| 12:30 | 0 | 93 | 21 | 0 | 12 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 127 |
| 12:45 | 1 | 88 | 14 | 0 | 23 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 127 |
| 13:00 | 0 | 85 | 18 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 119 |
| 13:15 | 0 | 65 | 13 | 1 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 |
| 13:30 | 1 | 89 | 17 | 3 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 123 |
| 13:45 | 0 | 73 | 18 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 106 |
| 14:00 | 0 | 69 | 24 | 2 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 108 |
| 14:15 | 0 | 95 | 17 | 1 | 15 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 130 |
| 14:30 | 0 | 93 | 17 | 0 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 129 |
| 14:45 | 1 | 102 | 29 | 0 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 152 |
| 15:00 | 0 | 128 | 20 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 164 |
| 15:15 | 1 | 124 | 34 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 184 |
| 15:30 | 0 | 126 | 31 | 1 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 181 |
| 15:45 | 1 | 142 | 40 | 1 | 29 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 214 |
| 16:00 | 1 | 147 | 32 | 0 | 15 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 197 |
| 16:15 | 0 | 177 | 33 | 0 | 28 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 240 |
| 16:30 | 0 | 195 | 38 | 0 | 30 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 264 |
| 16:45 | 1 | 172 | 36 | 0 | 27 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 238 |
| 17:00 | 1 | 239 | 34 | 0 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 299 |
| 17:15 | 0 | 211 | 26 | 0 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 263 |
| 17:30 | 0 | 184 | 34 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 242 |
| 17:45 | 1 | 147 | 25 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 196 |
| 18:00 | 0 | 122 | 25 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 170 |
| 18:15 | 0 | 104 | 16 | 0 | 10 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 131 |
| 18:30 | 0 | 77 | 20 | 0 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 111 |
| 18:45 | 0 | 71 | 16 | 0 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 98 |
| 19:00 | 0 | 57 | 11 | 0 | 8 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 77 |
| 19:15 | 0 | 35 | 11 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 54 |
| 19:30 | 0 | 37 | 6 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 |
| 19:45 | 0 | 34 | 8 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 20:00 | 0 | 36 | 8 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 |
| 20:15 | 0 | 28 | 8 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 40 |
| 20:30 | 0 | 20 | 6 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30 |
| 20:45 | 0 | 30 | 9 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| 21:00 | 0 | 24 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| 21:15 | 0 | 20 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 21:30 | 0 | 18 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 21:45 | 0 | 11 | 1 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 22:00 | 0 | 17 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 22:15 | 0 | 5 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 22:30 | 0 | 13 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 22:45 | 0 | 5 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 23:00 | 0 | 5 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 23:15 | 0 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 23:30 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 23:45 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| **Totals** | **14** | **6150** | **1263** | **27** | **1039** | **20** | | **15** | **9** | | **3** | | | **8540** |
| **% of Totals** | 0% | 72% | 15% | 0% | 12% | 0% | | 0% | 0% | | 0% | | | 100% |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM Volumes** | 5 | 2372 | 489 | 14 | 436 | 13 | 0 | 9 | 8 | 0 | 2 | 0 | 0 | 3348 |
| **% AM** | 0% | 28% | 6% | 0% | 5% | 0% | | 0% | 0% | | 0% | | | 39% |
| **AM Peak Hour** | 5:00 | 7:00 | 7:30 | 9:30 | 7:00 | 8:00 | | 7:00 | 9:00 | | 11:00 | | | 7:00 |
| **Volume** | 1 | 688 | 136 | 7 | 109 | 5 | | 3 | 4 | | 2 | | | 937 |
| **PM Volumes** | 9 | 3778 | 774 | 13 | 603 | 7 | 0 | 6 | 1 | 0 | 1 | 0 | 0 | 5192 |
| **% PM** | 0% | 44% | 9% | 0% | 7% | 0% | | 0% | 0% | | 0% | | | 61% |
| **PM Peak Hour** | 15:15 | 16:30 | 15:45 | 13:15 | 16:15 | 16:00 | | 15:15 | 15:30 | | 13:00 | | | 16:30 |
| **Volume** | 3 | 817 | 143 | 6 | 110 | 4 | | 2 | 1 | | 1 | | | 1064 |

| Directional Peak Periods | AM 7-9 | | NOON 12-2 | | PM 4-6 | | Off Peak Volumes | |
|---|---|---|---|---|---|---|---|---|
| **All Classes** | Volume | % | Volume | % | Volume | % | Volume | % |
| | 1585 ⟷ | 19% | 924 ⟷ | 11% | 1939 ⟷ | 23% | 4092 ⟷ | 48% |

**Classification Definitions**

| | | | | |
|---|---|---|---|---|
| **1** Motorcycles | **4** Buses | **7** >=4-Axle Single Units | **10** >=6-Axle Single Trailers | **13** >=7-Axle Multi-Trailers |
| **2** Passenger Cars | **5** 2-Axle, 6-Tire Single Units | **8** <=4-Axle Single Trailers | **11** <=5-Axle Multi-Trailers | |
| **3** 2-Axle, 4-Tire Single Units | **6** 3-Axle Single Units | **9** 5-Axle Single Trailers | **12** 6-Axle Multi-Trailers | |

Prepared by NDS/ATD

# VOLUME

White Rock Rd Bet. Stonebriar Dr & Manchester Dr

**Day:** Thursday
**Date:** 12/1/2016

**City:** El Dorado Hills
**Project #:** CA16_7894_002

| DAILY TOTALS | NB | SB | EB | WB | Total |
|---|---|---|---|---|---|
| | 4,907 | 5,049 | 0 | 0 | 9,956 |

| AM Period | NB | | SB | | EB | WB | TOTAL | | PM Period | NB | | SB | | EB | WB | TOTAL | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0:00 | 5 | | 3 | | 0 | 0 | 8 | | 12:00 | 71 | | 78 | | 0 | 0 | 149 | |
| 0:15 | 3 | | 5 | | 0 | 0 | 8 | | 12:15 | 72 | | 71 | | 0 | 0 | 143 | |
| 0:30 | 3 | | 4 | | 0 | 0 | 7 | | 12:30 | 64 | | 87 | | 0 | 0 | 151 | |
| 0:45 | 4 | 15 | 1 | 13 | 0 | 0 | 5 | 28 | 12:45 | 70 | 277 | 62 | 298 | 0 | 0 | 132 | 575 |
| 1:00 | 3 | | 5 | | 0 | 0 | 8 | | 13:00 | 90 | | 63 | | 0 | 0 | 153 | |
| 1:15 | 0 | | 2 | | 0 | 0 | 2 | | 13:15 | 57 | | 59 | | 0 | 0 | 116 | |
| 1:30 | 1 | | 2 | | 0 | 0 | 3 | | 13:30 | 80 | | 58 | | 0 | 0 | 138 | |
| 1:45 | 1 | 5 | 1 | 10 | 0 | 0 | 2 | 15 | 13:45 | 78 | 305 | 62 | 242 | 0 | 0 | 140 | 547 |
| 2:00 | 0 | | 1 | | 0 | 0 | 1 | | 14:00 | 75 | | 74 | | 0 | 0 | 149 | |
| 2:15 | 1 | | 0 | | 0 | 0 | 1 | | 14:15 | 79 | | 87 | | 0 | 0 | 166 | |
| 2:30 | 0 | | 1 | | 0 | 0 | 1 | | 14:30 | 93 | | 71 | | 0 | 0 | 164 | |
| 2:45 | 1 | 2 | 1 | 3 | 0 | 0 | 2 | 5 | 14:45 | 113 | 360 | 61 | 293 | 0 | 0 | 174 | 653 |
| 3:00 | 1 | | 1 | | 0 | 0 | 2 | | 15:00 | 107 | | 97 | | 0 | 0 | 204 | |
| 3:15 | 0 | | 2 | | 0 | 0 | 2 | | 15:15 | 106 | | 111 | | 0 | 0 | 217 | |
| 3:30 | 5 | | 1 | | 0 | 0 | 6 | | 15:30 | 90 | | 115 | | 0 | 0 | 205 | |
| 3:45 | 4 | 10 | 2 | 6 | 0 | 0 | 6 | 16 | 15:45 | 129 | 432 | 107 | 430 | 0 | 0 | 236 | 862 |
| 4:00 | 0 | | 1 | | 0 | 0 | 1 | | 16:00 | 95 | | 121 | | 0 | 0 | 216 | |
| 4:15 | 0 | | 2 | | 0 | 0 | 2 | | 16:15 | 139 | | 129 | | 0 | 0 | 268 | |
| 4:30 | 1 | | 3 | | 0 | 0 | 4 | | 16:30 | 141 | | 153 | | 0 | 0 | 294 | |
| 4:45 | 3 | 4 | 2 | 8 | 0 | 0 | 5 | 12 | 16:45 | 128 | 503 | 127 | 530 | 0 | 0 | 255 | 1033 |
| 5:00 | 8 | | 4 | | 0 | 0 | 12 | | 17:00 | 159 | | 172 | | 0 | 0 | 331 | |
| 5:15 | 8 | | 9 | | 0 | 0 | 17 | | 17:15 | 166 | | 129 | | 0 | 0 | 295 | |
| 5:30 | 15 | | 18 | | 0 | 0 | 33 | | 17:30 | 156 | | 107 | | 0 | 0 | 263 | |
| 5:45 | 28 | 59 | 14 | 45 | 0 | 0 | 42 | 104 | 17:45 | 128 | 609 | 93 | 501 | 0 | 0 | 221 | 1110 |
| 6:00 | 19 | | 24 | | 0 | 0 | 43 | | 18:00 | 98 | | 94 | | 0 | 0 | 192 | |
| 6:15 | 20 | | 39 | | 0 | 0 | 59 | | 18:15 | 82 | | 65 | | 0 | 0 | 147 | |
| 6:30 | 32 | | 83 | | 0 | 0 | 115 | | 18:30 | 76 | | 73 | | 0 | 0 | 149 | |
| 6:45 | 85 | 156 | 116 | 262 | 0 | 0 | 201 | 418 | 18:45 | 63 | 319 | 46 | 278 | 0 | 0 | 109 | 597 |
| 7:00 | 86 | | 157 | | 0 | 0 | 243 | | 19:00 | 42 | | 46 | | 0 | 0 | 88 | |
| 7:15 | 76 | | 158 | | 0 | 0 | 234 | | 19:15 | 37 | | 33 | | 0 | 0 | 70 | |
| 7:30 | 91 | | 178 | | 0 | 0 | 269 | | 19:30 | 39 | | 27 | | 0 | 0 | 66 | |
| 7:45 | 116 | 369 | 186 | 679 | 0 | 0 | 302 | 1048 | 19:45 | 35 | 153 | 32 | 138 | 0 | 0 | 67 | 291 |
| 8:00 | 75 | | 158 | | 0 | 0 | 233 | | 20:00 | 27 | | 24 | | 0 | 0 | 51 | |
| 8:15 | 94 | | 98 | | 0 | 0 | 192 | | 20:15 | 24 | | 24 | | 0 | 0 | 48 | |
| 8:30 | 102 | | 83 | | 0 | 0 | 185 | | 20:30 | 11 | | 27 | | 0 | 0 | 38 | |
| 8:45 | 88 | 359 | 59 | 398 | 0 | 0 | 147 | 757 | 20:45 | 24 | 86 | 23 | 98 | 0 | 0 | 47 | 184 |
| 9:00 | 75 | | 56 | | 0 | 0 | 131 | | 21:00 | 16 | | 28 | | 0 | 0 | 44 | |
| 9:15 | 45 | | 47 | | 0 | 0 | 92 | | 21:15 | 15 | | 18 | | 0 | 0 | 33 | |
| 9:30 | 56 | | 40 | | 0 | 0 | 96 | | 21:30 | 21 | | 10 | | 0 | 0 | 31 | |
| 9:45 | 59 | 235 | 67 | 210 | 0 | 0 | 126 | 445 | 21:45 | 19 | 71 | 13 | 69 | 0 | 0 | 32 | 140 |
| 10:00 | 57 | | 61 | | 0 | 0 | 118 | | 22:00 | 8 | | 16 | | 0 | 0 | 24 | |
| 10:15 | 60 | | 57 | | 0 | 0 | 117 | | 22:15 | 6 | | 8 | | 0 | 0 | 14 | |
| 10:30 | 80 | | 71 | | 0 | 0 | 151 | | 22:30 | 12 | | 11 | | 0 | 0 | 23 | |
| 10:45 | 64 | 261 | 53 | 242 | 0 | 0 | 117 | 503 | 22:45 | 4 | 30 | 5 | 40 | 0 | 0 | 9 | 70 |
| 11:00 | 51 | | 64 | | 0 | 0 | 115 | | 23:00 | 5 | | 8 | | 0 | 0 | 13 | |
| 11:15 | 77 | | 57 | | 0 | 0 | 134 | | 23:15 | 1 | | 5 | | 0 | 0 | 6 | |
| 11:30 | 69 | | 51 | | 0 | 0 | 120 | | 23:30 | 2 | | 6 | | 0 | 0 | 8 | |
| 11:45 | 76 | 273 | 65 | 237 | 0 | 0 | 141 | 510 | 23:45 | 6 | 14 | 0 | 19 | 0 | 0 | 6 | 33 |
| TOTALS | | 1748 | | 2113 | | | | 3861 | TOTALS | | 3159 | | 2936 | | | | 6095 |
| SPLIT % | | 45.3% | | 54.7% | | | | 38.8% | SPLIT % | | 51.8% | | 48.2% | | | | 61.2% |

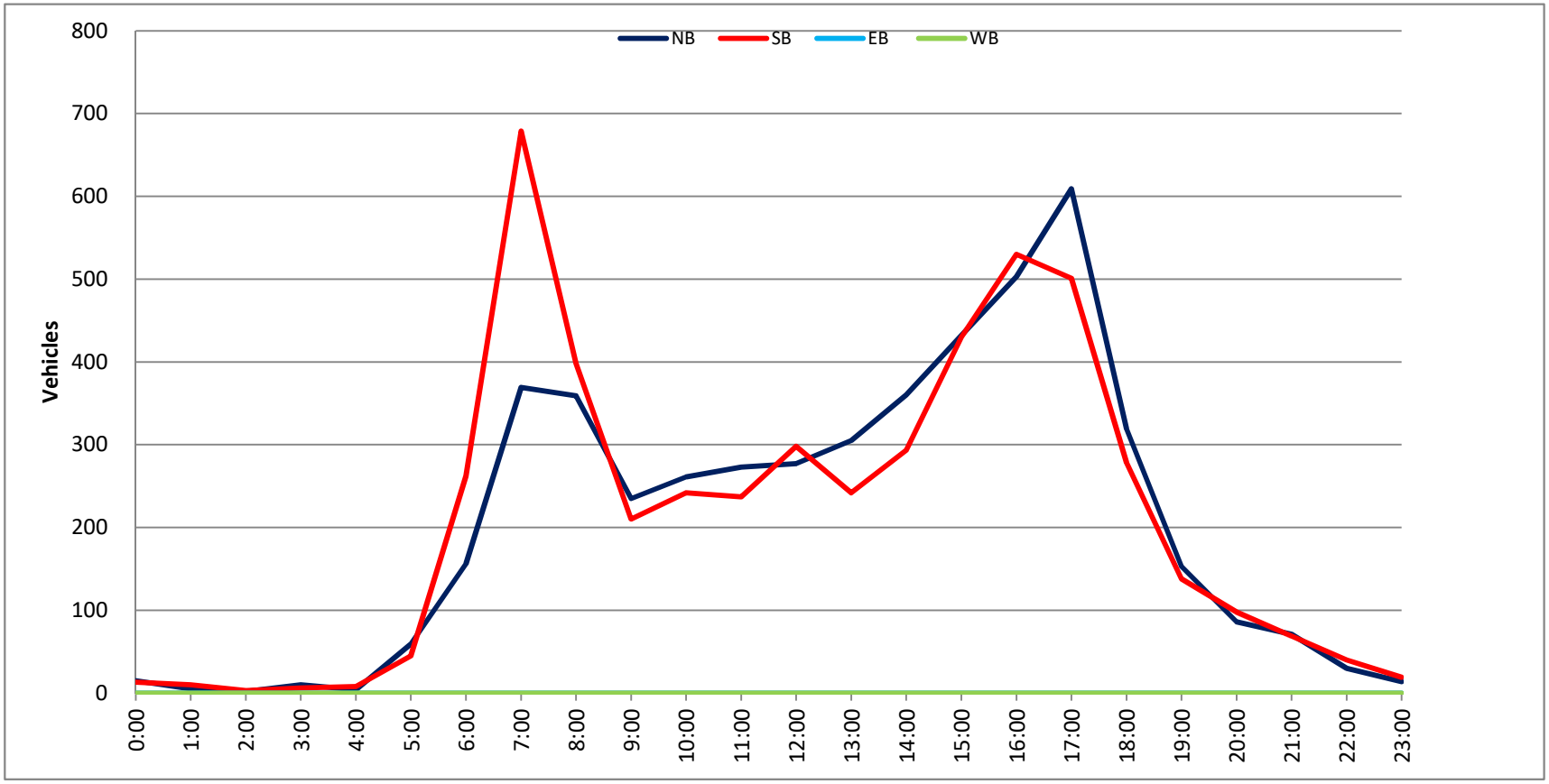
| DAILY TOTALS | NB | SB | EB | WB | Total |
|---|---|---|---|---|---|
| | 4,907 | 5,049 | 0 | 0 | 9,956 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| AM Peak Hour | 7:45 | 7:15 | | | 7:00 | PM Peak Hour | 16:45 | 16:15 | | | 16:30 |
| AM Pk Volume | 387 | 680 | | | 1048 | PM Pk Volume | 609 | 581 | | | 1175 |
| Pk Hr Factor | 0.834 | 0.914 | | | 0.868 | Pk Hr Factor | 0.917 | 0.844 | | | 0.887 |
| 7 - 9 Volume | 728 | 1077 | 0 | 0 | 1805 | 4 - 6 Volume | 1112 | 1031 | 0 | 0 | 2143 |
| 7 - 9 Peak Hour | 7:45 | 7:15 | | | 7:00 | 4 - 6 Peak Hour | 16:45 | 16:15 | | | 16:30 |
| 7 - 9 Pk Volume | 387 | 680 | 0 | 0 | 1048 | 4 - 6 Pk Volume | 609 | 581 | 0 | 0 | 1175 |
| Pk Hr Factor | 0.834 | 0.914 | 0.000 | 0.000 | 0.868 | Pk Hr Factor | 0.917 | 0.844 | 0.000 | 0.000 | 0.887 |

Prepared by NDS/ATD

**Project #:** CA16_7894_002 **City:** El Dorado Hills

**Location:** White Rock Rd Bet. Stonebriar Dr & **Date:** 12/1/2016



Prepared by National Data & Surveying Services

# CLASSIFICATION

White Rock Rd Bet. Stonebriar Dr & Manchester Dr

**Day:** Thursday
**Date:** 12/1/2016

**City:** El Dorado Hills
**Project #:** CA16_7894_002n

**North Bound**

| Time | # 1 | # 2 | # 3 | # 4 | # 5 | # 6 | # 7 | # 8 | # 9 | # 10 | # 11 | # 12 | # 13 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0:00 AM | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 0:15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 0:30 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 0:45 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 1:00 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 1:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:30 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 3:45 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:45 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 5:00 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 5:15 | 0 | 6 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 5:30 | 0 | 14 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 5:45 | 1 | 24 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 6:00 | 0 | 14 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 6:15 | 0 | 19 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 20 |
| 6:30 | 0 | 28 | 2 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 6:45 | 0 | 68 | 9 | 0 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 85 |
| 7:00 | 0 | 72 | 11 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 86 |
| 7:15 | 0 | 67 | 6 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 |
| 7:30 | 0 | 75 | 12 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 91 |
| 7:45 | 0 | 102 | 7 | 0 | 5 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 116 |
| 8:00 | 0 | 64 | 8 | 0 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 75 |
| 8:15 | 0 | 82 | 9 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 94 |
| 8:30 | 0 | 87 | 11 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 102 |
| 8:45 | 0 | 76 | 7 | 1 | 1 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 88 |
| 9:00 | 0 | 65 | 4 | 1 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 75 |
| 9:15 | 0 | 37 | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 45 |
| 9:30 | 0 | 46 | 5 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 |
| 9:45 | 0 | 47 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| 10:00 | 0 | 51 | 3 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 |
| 10:15 | 1 | 46 | 10 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 60 |
| 10:30 | 0 | 65 | 7 | 1 | 3 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 80 |
| 10:45 | 1 | 49 | 8 | 0 | 5 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 64 |
| 11:00 | 0 | 41 | 8 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 |
| 11:15 | 0 | 66 | 8 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 77 |
| 11:30 | 0 | 54 | 8 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 69 |
| 11:45 | 0 | 60 | 11 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 |
| 12:00 PM | 0 | 57 | 12 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 |
| 12:15 | 0 | 63 | 3 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 72 |
| 12:30 | 0 | 55 | 5 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 64 |
| 12:45 | 0 | 59 | 6 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 |
| 13:00 | 0 | 71 | 15 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90 |
| 13:15 | 0 | 49 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 |
| 13:30 | 1 | 66 | 9 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 80 |
| 13:45 | 0 | 66 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 |
| 14:00 | 0 | 68 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 75 |
| 14:15 | 0 | 67 | 7 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 |
| 14:30 | 0 | 82 | 7 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 |
| 14:45 | 1 | 91 | 17 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 113 |
| 15:00 | 0 | 92 | 9 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 107 |
| 15:15 | 2 | 92 | 9 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 106 |
| 15:30 | 0 | 74 | 12 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 90 |
| 15:45 | 0 | 103 | 19 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 129 |
| 16:00 | 1 | 85 | 5 | 1 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 95 |
| 16:15 | 0 | 121 | 14 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 139 |
| 16:30 | 0 | 120 | 14 | 0 | 6 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 141 |
| 16:45 | 0 | 112 | 12 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 128 |
| 17:00 | 1 | 140 | 15 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 159 |
| 17:15 | 0 | 147 | 18 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 166 |
| 17:30 | 0 | 138 | 13 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 156 |
| 17:45 | 0 | 107 | 19 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 128 |
| 18:00 | 0 | 83 | 11 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 98 |
| 18:15 | 0 | 72 | 9 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 82 |
| 18:30 | 0 | 65 | 8 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 76 |
| 18:45 | 0 | 57 | 4 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 |
| 19:00 | 0 | 35 | 5 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 19:15 | 0 | 34 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 |
| 19:30 | 0 | 33 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 |
| 19:45 | 0 | 31 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 35 |
| 20:00 | 0 | 24 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 20:15 | 0 | 22 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 20:30 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 20:45 | 0 | 21 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 21:00 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 21:15 | 0 | 13 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 15 |
| 21:30 | 0 | 19 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 21 |
| 21:45 | 0 | 16 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 |
| 22:00 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 22:15 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 22:30 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 22:45 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 23:00 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 23:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 23:30 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 23:45 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| **Totals** | 9 | 4182 | 505 | 17 | 168 | 13 | 1 | 4 | 5 | | 3 | | | 4907 |
| **% of Totals** | 0% | 85% | 10% | 0% | 3% | 0% | 0% | 0% | 0% | | 0% | | | 100% |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM Volumes** | 3 | 1467 | 177 | 9 | 71 | 8 | 1 | 4 | 5 | 0 | 3 | 0 | 0 | 1748 |
| **% AM** | 0% | 30% | 4% | 0% | 1% | 0% | 0% | 0% | 0% | | 0% | | | 36% |
| **AM Peak Hour** | 10:00 | 7:45 | 11:15 | 8:15 | 11:30 | 7:00 | 6:00 | 8:00 | 7:30 | | 9:45 | | | 7:45 |
| **Volume** | 2 | 335 | 39 | 4 | 18 | 3 | 1 | 2 | 2 | | 3 | | | 387 |
| **PM Volumes** | 6 | 2715 | 328 | 8 | 97 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3159 |
| **% PM** | 0% | 55% | 7% | 0% | 2% | 0% | | | | | | | | 64% |
| **PM Peak Hour** | 14:30 | 16:45 | 17:00 | 14:45 | 14:15 | 15:45 | | | | | | | | 16:45 |
| **Volume** | 3 | 537 | 65 | 3 | 18 | 3 | | | | | | | | 609 |

| Directional Peak Periods | AM 7-9 | | NOON 12-2 | | PM 4-6 | | Off Peak Volumes | |
|---|---|---|---|---|---|---|---|---|
| **All Classes** | Volume | % | Volume | % | Volume | % | Volume | % |
| | 728 | 15% | 582 | 12% | 1112 | 23% | 2485 | 51% |

**Classification Definitions**

| | | | | |
|---|---|---|---|---|
| **1** Motorcycles | **4** Buses | **7** >=4-Axle Single Units | **10** >=6-Axle Single Trailers | **13** >=7-Axle Multi-Trailers |
| **2** Passenger Cars | **5** 2-Axle, 6-Tire Single Units | **8** <=4-Axle Single Trailers | **11** <=5-Axle Multi-Trailers | |
| **3** 2-Axle, 4-Tire Single Units | **6** 3-Axle Single Units | **9** 5-Axle Single Trailers | **12** 6-Axle Multi-Trailers | |

Prepared by National Data & Surveying Services

# CLASSIFICATION

White Rock Rd Bet. Stonebriar Dr & Manchester Dr

**Day:** Thursday
**Date:** 12/1/2016

**City:** El Dorado Hills
**Project #:** CA16_7894_002s

**South Bound**

| Time | # 1 | # 2 | # 3 | # 4 | # 5 | # 6 | # 7 | # 8 | # 9 | # 10 | # 11 | # 12 | # 13 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0:00 AM | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 0:15 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 0:30 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 0:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1:00 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 1:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 1:30 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 1:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:45 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 3:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:45 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:30 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 4:45 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:00 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 5:15 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 5:30 | 0 | 14 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 5:45 | 0 | 11 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 6:00 | 0 | 21 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 6:15 | 0 | 33 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39 |
| 6:30 | 0 | 75 | 4 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83 |
| 6:45 | 0 | 98 | 11 | 0 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 116 |
| 7:00 | 0 | 125 | 18 | 2 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 157 |
| 7:15 | 0 | 126 | 26 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 158 |
| 7:30 | 0 | 146 | 19 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 178 |
| 7:45 | 0 | 150 | 31 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 186 |
| 8:00 | 0 | 135 | 18 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 158 |
| 8:15 | 0 | 76 | 17 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 98 |
| 8:30 | 0 | 67 | 9 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 83 |
| 8:45 | 0 | 49 | 5 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| 9:00 | 0 | 43 | 5 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 56 |
| 9:15 | 0 | 31 | 11 | 0 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 47 |
| 9:30 | 0 | 29 | 3 | 1 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 40 |
| 9:45 | 0 | 44 | 15 | 0 | 7 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 67 |
| 10:00 | 0 | 47 | 8 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 |
| 10:15 | 0 | 43 | 11 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 |
| 10:30 | 0 | 55 | 7 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 |
| 10:45 | 0 | 33 | 15 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 53 |
| 11:00 | 0 | 51 | 10 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 64 |
| 11:15 | 0 | 44 | 10 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 |
| 11:30 | 0 | 38 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 51 |
| 11:45 | 0 | 52 | 10 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 65 |
| 12:00 PM | 0 | 63 | 13 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 78 |
| 12:15 | 0 | 56 | 14 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 |
| 12:30 | 0 | 68 | 14 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 87 |
| 12:45 | 1 | 48 | 6 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 62 |
| 13:00 | 0 | 52 | 10 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 |
| 13:15 | 0 | 49 | 6 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| 13:30 | 0 | 46 | 5 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 58 |
| 13:45 | 0 | 45 | 14 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 62 |
| 14:00 | 0 | 52 | 17 | 1 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74 |
| 14:15 | 0 | 67 | 14 | 1 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 87 |
| 14:30 | 0 | 57 | 12 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 71 |
| 14:45 | 0 | 46 | 12 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 61 |
| 15:00 | 0 | 82 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 97 |
| 15:15 | 0 | 84 | 21 | 1 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 111 |
| 15:30 | 0 | 94 | 16 | 2 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 115 |
| 15:45 | 1 | 91 | 9 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 107 |
| 16:00 | 0 | 102 | 15 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 121 |
| 16:15 | 0 | 109 | 13 | 0 | 6 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 129 |
| 16:30 | 0 | 124 | 21 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 153 |
| 16:45 | 1 | 106 | 9 | 0 | 9 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 127 |
| 17:00 | 0 | 154 | 14 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 172 |
| 17:15 | 0 | 117 | 7 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 129 |
| 17:30 | 0 | 95 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 107 |
| 17:45 | 0 | 80 | 11 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 |
| 18:00 | 0 | 82 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 94 |
| 18:15 | 0 | 55 | 7 | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 65 |
| 18:30 | 0 | 59 | 10 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 |
| 18:45 | 0 | 38 | 6 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 46 |
| 19:00 | 0 | 41 | 3 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 46 |
| 19:15 | 0 | 24 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 19:30 | 0 | 24 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 19:45 | 0 | 28 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 20:00 | 0 | 22 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 20:15 | 0 | 23 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 20:30 | 0 | 24 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 27 |
| 20:45 | 0 | 19 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 21:00 | 0 | 25 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 28 |
| 21:15 | 0 | 16 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 |
| 21:30 | 0 | 8 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 |
| 21:45 | 0 | 10 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 22:00 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 |
| 22:15 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 22:30 | 0 | 10 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 |
| 22:45 | 0 | 3 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 23:00 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 23:15 | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 23:30 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 23:45 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Totals** | **3** | **4114** | **670** | **23** | **215** | **6** | **2** | **10** | **3** | | **3** | | | **5049** |
| **% of Totals** | 0% | 81% | 13% | 0% | 4% | 0% | 0% | 0% | 0% | | 0% | | | 100% |
| **AM Volumes** | 0 | 1676 | 300 | 11 | 113 | 4 | 1 | 4 | 2 | 0 | 2 | 0 | 0 | 2113 |
| **% AM** | | 33% | 6% | 0% | 2% | 0% | 0% | 0% | 0% | | 0% | | | 42% |
| **AM Peak Hour** | | 7:15 | 7:00 | 10:15 | 6:45 | 8:00 | 6:00 | 7:00 | 9:00 | | 11:00 | | | 7:15 |
| **Volume** | | 557 | 94 | 4 | 35 | 2 | 1 | 2 | 2 | | 2 | | | 680 |
| **PM Volumes** | 3 | 2438 | 370 | 12 | 102 | 2 | 1 | 6 | 1 | 0 | 1 | 0 | 0 | 2936 |
| **% PM** | 0% | 48% | 7% | 0% | 2% | 0% | 0% | 0% | 0% | | 0% | | | 58% |
| **PM Peak Hour** | 12:00 | 16:30 | 14:45 | 13:15 | 16:15 | 13:30 | 14:30 | 15:15 | 15:30 | | 13:00 | | | 16:15 |
| **Volume** | 1 | 501 | 64 | 5 | 27 | 1 | 1 | 2 | 1 | | 1 | | | 581 |

| Directional Peak Periods | AM 7-9 | | NOON 12-2 | | PM 4-6 | | Off Peak Volumes | |
|---|---|---|---|---|---|---|---|---|
| **All Classes** | Volume | % | Volume | % | Volume | % | Volume | % |
| | 1077 ⟷ | 21% | 540 ⟷ | 11% | 1031 ⟷ | 20% | 2401 ⟷ | 48% |

**Classification Definitions**

| | | | | |
|---|---|---|---|---|
| **1** Motorcycles | **4** Buses | **7** >=4-Axle Single Units | **10** >=6-Axle Single Trailers | **13** >=7-Axle Multi-Trailers |
| **2** Passenger Cars | **5** 2-Axle, 6-Tire Single Units | **8** <=4-Axle Single Trailers | **11** <=5-Axle Multi-Trailers | |
| **3** 2-Axle, 4-Tire Single Units | **6** 3-Axle Single Units | **9** 5-Axle Single Trailers | **12** 6-Axle Multi-Trailers | |

Prepared by National Data & Surveying Services

# CLASSIFICATION

White Rock Rd Bet. Stonebriar Dr & Manchester Dr

**Day:** Thursday
**Date:** 12/1/2016

**City:** El Dorado Hills
**Project #:** CA16_7894_002

**Summary**

| Time | # 1 | # 2 | # 3 | # 4 | # 5 | # 6 | # 7 | # 8 | # 9 | # 10 | # 11 | # 12 | # 13 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0:00 AM | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 0:15 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 0:30 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| 0:45 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 1:00 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 1:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 1:30 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 1:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 2:00 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:15 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:30 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:45 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 3:00 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 3:15 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 3:30 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 3:45 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 4:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 4:15 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 4:30 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| 4:45 | 0 | 3 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 5:00 | 0 | 9 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 |
| 5:15 | 0 | 13 | 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 17 |
| 5:30 | 0 | 28 | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 5:45 | 1 | 35 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 42 |
| 6:00 | 0 | 35 | 5 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 43 |
| 6:15 | 0 | 52 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 |
| 6:30 | 0 | 103 | 6 | 2 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 115 |
| 6:45 | 0 | 166 | 20 | 0 | 13 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 201 |
| 7:00 | 0 | 197 | 29 | 3 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 243 |
| 7:15 | 0 | 193 | 32 | 1 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 234 |
| 7:30 | 0 | 221 | 31 | 0 | 15 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 269 |
| 7:45 | 0 | 252 | 38 | 0 | 9 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 302 |
| 8:00 | 0 | 199 | 26 | 0 | 6 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 233 |
| 8:15 | 0 | 158 | 26 | 1 | 5 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 192 |
| 8:30 | 0 | 154 | 20 | 2 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 185 |
| 8:45 | 0 | 125 | 12 | 2 | 4 | 2 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 147 |
| 9:00 | 0 | 108 | 9 | 1 | 12 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 131 |
| 9:15 | 0 | 68 | 16 | 0 | 7 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 92 |
| 9:30 | 0 | 75 | 8 | 2 | 10 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 96 |
| 9:45 | 0 | 91 | 25 | 0 | 9 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 126 |
| 10:00 | 0 | 98 | 11 | 0 | 7 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 118 |
| 10:15 | 1 | 89 | 21 | 1 | 4 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 117 |
| 10:30 | 0 | 120 | 14 | 2 | 11 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 0 | 151 |
| 10:45 | 1 | 82 | 23 | 1 | 9 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 117 |
| 11:00 | 0 | 92 | 18 | 1 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 115 |
| 11:15 | 0 | 110 | 18 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 134 |
| 11:30 | 0 | 92 | 18 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 120 |
| 11:45 | 0 | 112 | 21 | 1 | 5 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 141 |
| 12:00 PM | 0 | 120 | 25 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 149 |
| 12:15 | 0 | 119 | 17 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 143 |
| 12:30 | 0 | 123 | 19 | 0 | 8 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 151 |
| 12:45 | 1 | 107 | 12 | 0 | 11 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 132 |
| 13:00 | 0 | 123 | 25 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 153 |
| 13:15 | 0 | 98 | 14 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 116 |
| 13:30 | 1 | 112 | 14 | 3 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 138 |
| 13:45 | 0 | 111 | 26 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 140 |
| 14:00 | 0 | 120 | 22 | 1 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 149 |
| 14:15 | 0 | 134 | 21 | 1 | 8 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 166 |
| 14:30 | 0 | 139 | 19 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 164 |
| 14:45 | 1 | 137 | 29 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 174 |
| 15:00 | 0 | 174 | 24 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 204 |
| 15:15 | 2 | 176 | 30 | 1 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 217 |
| 15:30 | 0 | 168 | 28 | 4 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 205 |
| 15:45 | 1 | 194 | 28 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 236 |
| 16:00 | 1 | 187 | 20 | 2 | 4 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 216 |
| 16:15 | 0 | 230 | 27 | 0 | 9 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 268 |
| 16:30 | 0 | 244 | 35 | 0 | 14 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 294 |
| 16:45 | 1 | 218 | 21 | 0 | 13 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 255 |
| 17:00 | 1 | 294 | 29 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 331 |
| 17:15 | 0 | 264 | 25 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 295 |
| 17:30 | 0 | 233 | 23 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 263 |
| 17:45 | 0 | 187 | 30 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 221 |
| 18:00 | 0 | 165 | 21 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 192 |
| 18:15 | 0 | 127 | 16 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 147 |
| 18:30 | 0 | 124 | 18 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 149 |
| 18:45 | 0 | 95 | 10 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 109 |
| 19:00 | 0 | 76 | 8 | 0 | 3 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 88 |
| 19:15 | 0 | 58 | 10 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 70 |
| 19:30 | 0 | 57 | 7 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 66 |
| 19:45 | 0 | 59 | 7 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 67 |
| 20:00 | 0 | 46 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 51 |
| 20:15 | 0 | 45 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 48 |
| 20:30 | 0 | 34 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 38 |
| 20:45 | 0 | 40 | 6 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 47 |
| 21:00 | 0 | 41 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 |
| 21:15 | 0 | 29 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 33 |
| 21:30 | 0 | 27 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 31 |
| 21:45 | 0 | 26 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 32 |
| 22:00 | 0 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 24 |
| 22:15 | 0 | 12 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| 22:30 | 0 | 21 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |
| 22:45 | 0 | 6 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 23:00 | 0 | 12 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| 23:15 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 23:30 | 0 | 7 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 23:45 | 0 | 5 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| **Totals** | 12 | 8296 | 1175 | 40 | 383 | 19 | 3 | 14 | 8 | | 6 | | | 9956 |
| **% of Totals** | 0% | 83% | 12% | 0% | 4% | 0% | 0% | 0% | 0% | | 0% | | | 100% |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **AM Volumes** | 3 | 3143 | 477 | 20 | 184 | 12 | 2 | 8 | 7 | 0 | 5 | 0 | 0 | 3861 |
| **% AM** | 0% | 32% | 5% | 0% | 2% | 0% | 0% | 0% | 0% | | 0% | | | 39% |
| **AM Peak Hour** | 10:00 | 7:15 | 7:00 | 6:30 | 6:45 | 8:00 | 6:00 | 7:00 | 9:00 | | 9:45 | | | 7:00 |
| **Volume** | 2 | 865 | 130 | 6 | 48 | 5 | 2 | 3 | 3 | | 3 | | | 1048 |
| **PM Volumes** | 9 | 5153 | 698 | 20 | 199 | 7 | 1 | 6 | 1 | 0 | 1 | 0 | 0 | 6095 |
| **% PM** | 0% | 52% | 7% | 0% | 2% | 0% | 0% | 0% | 0% | | 0% | | | 61% |
| **PM Peak Hour** | 15:15 | 16:30 | 16:15 | 14:45 | 16:15 | 16:00 | 14:30 | 15:15 | 15:30 | | 13:00 | | | 16:30 |
| **Volume** | 4 | 1020 | 112 | 7 | 43 | 4 | 1 | 2 | 1 | | 1 | | | 1175 |

| Directional Peak Periods | AM 7-9 | | | NOON 12-2 | | | PM 4-6 | | | Off Peak Volumes | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **All Classes** | Volume | ⟷ | % | Volume | ⟷ | % | Volume | ⟷ | % | Volume | ⟷ | % |
| | 1805 | | 18% | 1122 | | 11% | 2143 | | 22% | 4886 | | 49% |

**Classification Definitions**

| | | | | | |
|---|---|---|---|---|---|
| **1** Motorcycles | **4** Buses | **7** >=4-Axle Single Units | **10** >=6-Axle Single Trailers | **13** >=7-Axle Multi-Trailers |
| **2** Passenger Cars | **5** 2-Axle, 6-Tire Single Units | **8** <=4-Axle Single Trailers | **11** <=5-Axle Multi-Trailers | |
| **3** 2-Axle, 4-Tire Single Units | **6** 3-Axle Single Units | **9** 5-Axle Single Trailers | **12** 6-Axle Multi-Trailers | |

# APPENDIX B

## EXISTING CONDITIONS
## LEVEL OF SERVICE CALCULATION WORKSHEETS

# STUDY INTERSECTIONS

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 8 | 261 | 5 | 17 | 617 | 52 | 10 | 0 | 22 | 93 | 0 | 54 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1900 | 1863 | 1900 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 9 | 284 | 5 | 18 | 671 | 57 | 11 | 0 | 24 | 101 | 0 | 59 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 17 | 910 | 16 | 32 | 945 | 803 | 16 | 0 | 35 | 165 | 0 | 147 |
| Arrive On Green | 0.01 | 0.50 | 0.50 | 0.02 | 0.51 | 0.51 | 0.03 | 0.00 | 0.03 | 0.09 | 0.00 | 0.09 |
| Sat Flow, veh/h | 1774 | 1825 | 32 | 1774 | 1863 | 1583 | 515 | 0 | 1124 | 1774 | 0 | 1583 |
| Grp Volume(v), veh/h | 9 | 0 | 289 | 18 | 671 | 57 | 35 | 0 | 0 | 101 | 0 | 59 |
| Grp Sat Flow(s),veh/h/ln | 1774 | 0 | 1857 | 1774 | 1863 | 1583 | 1639 | 0 | 0 | 1774 | 0 | 1583 |
| Q Serve(g_s), s | 0.2 | 0.0 | 4.1 | 0.4 | 12.4 | 0.8 | 0.9 | 0.0 | 0.0 | 2.4 | 0.0 | 1.6 |
| Cycle Q Clear(g_c), s | 0.2 | 0.0 | 4.1 | 0.4 | 12.4 | 0.8 | 0.9 | 0.0 | 0.0 | 2.4 | 0.0 | 1.6 |
| Prop In Lane | 1.00 | | 0.02 | 1.00 | | 1.00 | 0.31 | | 0.69 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 17 | 0 | 926 | 32 | 945 | 803 | 52 | 0 | 0 | 165 | 0 | 147 |
| V/C Ratio(X) | 0.54 | 0.00 | 0.31 | 0.57 | 0.71 | 0.07 | 0.68 | 0.00 | 0.00 | 0.61 | 0.00 | 0.40 |
| Avail Cap(c_a), veh/h | 159 | 0 | 2331 | 199 | 2380 | 2023 | 331 | 0 | 0 | 557 | 0 | 497 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 22.0 | 0.0 | 6.6 | 21.7 | 8.5 | 5.6 | 21.4 | 0.0 | 0.0 | 19.5 | 0.0 | 19.1 |
| Incr Delay (d2), s/veh | 24.0 | 0.0 | 0.2 | 14.8 | 1.0 | 0.0 | 14.3 | 0.0 | 0.0 | 3.6 | 0.0 | 1.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.2 | 0.0 | 2.1 | 0.3 | 6.4 | 0.4 | 0.6 | 0.0 | 0.0 | 1.3 | 0.0 | 0.8 |
| LnGrp Delay(d),s/veh | 46.0 | 0.0 | 6.8 | 36.6 | 9.5 | 5.7 | 35.7 | 0.0 | 0.0 | 23.1 | 0.0 | 20.8 |
| LnGrp LOS | D | | A | D | A | A | D | | | C | | C |
| Approach Vol, veh/h | | 298 | | | 746 | | | 35 | | | 160 | |
| Approach Delay, s/veh | | 8.0 | | | 9.8 | | | 35.7 | | | 22.3 | |
| Approach LOS | | A | | | A | | | D | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 5.4 | 4.8 | 26.3 | | 8.1 | 4.4 | 26.6 |
| Change Period (Y+Rc), s | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | | 9.0 | 5.0 | 56.0 | | 14.0 | 4.0 | 57.0 |
| Max Q Clear Time (g_c+I1), s | | 2.9 | 2.4 | 6.1 | | 4.4 | 2.2 | 14.4 |
| Green Ext Time (p_c), s | | 0.0 | 0.0 | 8.4 | | 0.4 | 0.0 | 8.3 |

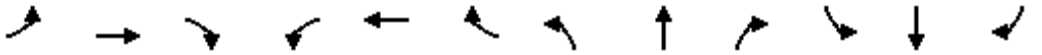
| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 11.7 |
| HCM 2010 LOS | B |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.7 |
| Intersection LOS | A |

| Movement | WBU | WBL | WBR | NBU | NBT | NBR | SBU | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 0 | 20 | 0 | 0 | 32 | 10 | 0 | 1 | 149 |
| Peak Hour Factor | 0.92 | 0.93 | 0.93 | 0.92 | 0.93 | 0.93 | 0.92 | 0.93 | 0.93 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 22 | 0 | 0 | 34 | 11 | 0 | 1 | 160 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |

| Approach | WB | NB | SB |
|---|---|---|---|
| Opposing Approach | | SB | NB |
| Opposing Lanes | 0 | 1 | 1 |
| Conflicting Approach Left | NB | | WB |
| Conflicting Lanes Left | 1 | 0 | 1 |
| Conflicting Approach Right | SB | WB | |
| Conflicting Lanes Right | 1 | 1 | 0 |
| HCM Control Delay | 7.7 | 7.2 | 7.9 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|
| Vol Left, % | 0% | 100% | 1% |
| Vol Thru, % | 76% | 0% | 99% |
| Vol Right, % | 24% | 0% | 0% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 42 | 20 | 150 |
| LT Vol | 0 | 20 | 1 |
| Through Vol | 32 | 0 | 149 |
| RT Vol | 10 | 0 | 0 |
| Lane Flow Rate | 45 | 22 | 161 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.05 | 0.027 | 0.179 |
| Departure Headway (Hd) | 3.949 | 4.488 | 4.006 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 902 | 787 | 895 |
| Service Time | 1.995 | 2.576 | 2.031 |
| HCM Lane V/C Ratio | 0.05 | 0.028 | 0.18 |
| HCM Control Delay | 7.2 | 7.7 | 7.9 |
| HCM Lane LOS | A | A | A |
| HCM 95th-tile Q | 0.2 | 0.1 | 0.6 |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 51 | 504 | 16 | 48 | 463 | 77 | 16 | 0 | 34 | 58 | 0 | 26 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1900 | 1863 | 1900 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 59 | 579 | 18 | 55 | 532 | 89 | 18 | 0 | 39 | 67 | 0 | 30 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 82 | 902 | 28 | 78 | 931 | 791 | 23 | 0 | 50 | 110 | 0 | 98 |
| Arrive On Green | 0.05 | 0.50 | 0.50 | 0.04 | 0.50 | 0.50 | 0.04 | 0.00 | 0.04 | 0.06 | 0.00 | 0.06 |
| Sat Flow, veh/h | 1774 | 1797 | 56 | 1774 | 1863 | 1583 | 518 | 0 | 1121 | 1774 | 0 | 1583 |
| Grp Volume(v), veh/h | 59 | 0 | 597 | 55 | 532 | 89 | 57 | 0 | 0 | 67 | 0 | 30 |
| Grp Sat Flow(s),veh/h/ln | 1774 | 0 | 1853 | 1774 | 1863 | 1583 | 1639 | 0 | 0 | 1774 | 0 | 1583 |
| Q Serve(g_s), s | 1.5 | 0.0 | 10.9 | 1.4 | 9.2 | 1.4 | 1.6 | 0.0 | 0.0 | 1.7 | 0.0 | 0.8 |
| Cycle Q Clear(g_c), s | 1.5 | 0.0 | 10.9 | 1.4 | 9.2 | 1.4 | 1.6 | 0.0 | 0.0 | 1.7 | 0.0 | 0.8 |
| Prop In Lane | 1.00 | | 0.03 | 1.00 | | 1.00 | 0.32 | | 0.68 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 82 | 0 | 930 | 78 | 931 | 791 | 74 | 0 | 0 | 110 | 0 | 98 |
| V/C Ratio(X) | 0.72 | 0.00 | 0.64 | 0.71 | 0.57 | 0.11 | 0.77 | 0.00 | 0.00 | 0.61 | 0.00 | 0.31 |
| Avail Cap(c_a), veh/h | 424 | 0 | 2174 | 385 | 2145 | 1823 | 320 | 0 | 0 | 424 | 0 | 378 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 21.7 | 0.0 | 8.4 | 21.7 | 8.1 | 6.1 | 21.7 | 0.0 | 0.0 | 21.1 | 0.0 | 20.7 |
| Incr Delay (d2), s/veh | 11.4 | 0.0 | 0.7 | 11.1 | 0.6 | 0.1 | 15.6 | 0.0 | 0.0 | 5.4 | 0.0 | 1.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.0 | 0.0 | 5.7 | 0.9 | 4.7 | 0.6 | 1.0 | 0.0 | 0.0 | 1.0 | 0.0 | 0.4 |
| LnGrp Delay(d),s/veh | 33.0 | 0.0 | 9.2 | 32.8 | 8.6 | 6.2 | 37.4 | 0.0 | 0.0 | 26.5 | 0.0 | 22.4 |
| LnGrp LOS | C | | A | C | A | A | D | | | C | | C |
| Approach Vol, veh/h | | 656 | | | 676 | | | 57 | | | 97 | |
| Approach Delay, s/veh | | 11.3 | | | 10.3 | | | 37.4 | | | 25.2 | |
| Approach LOS | | B | | | B | | | D | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 6.1 | 6.0 | 27.1 | | 6.8 | 6.1 | 27.0 |
| Change Period (Y+Rc), s | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | | 9.0 | 10.0 | 54.0 | | 11.0 | 11.0 | 53.0 |
| Max Q Clear Time (g_c+I1), s | | 3.6 | 3.4 | 12.9 | | 3.7 | 3.5 | 11.2 |
| Green Ext Time (p_c), s | | 0.1 | 0.0 | 10.2 | | 0.1 | 0.1 | 10.2 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 12.7 |
| HCM 2010 LOS | B |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.6 |
| Intersection LOS | A |

| Movement | WBU | WBL | WBR | NBU | NBT | NBR | SBU | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 0 | 10 | 1 | 0 | 126 | 17 | 0 | 1 | 68 |
| Peak Hour Factor | 0.92 | 0.98 | 0.98 | 0.92 | 0.98 | 0.98 | 0.92 | 0.98 | 0.98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 10 | 1 | 0 | 129 | 17 | 0 | 1 | 69 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |

| Approach | WB | NB | SB |
|---|---|---|---|
| Opposing Approach | | SB | NB |
| Opposing Lanes | 0 | 1 | 1 |
| Conflicting Approach Left | NB | | WB |
| Conflicting Lanes Left | 1 | 0 | 1 |
| Conflicting Approach Right | SB | WB | |
| Conflicting Lanes Right | 1 | 1 | 0 |
| HCM Control Delay | 7.6 | 7.7 | 7.5 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|
| Vol Left, % | 0% | 91% | 1% |
| Vol Thru, % | 88% | 0% | 99% |
| Vol Right, % | 12% | 9% | 0% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 143 | 11 | 69 |
| LT Vol | 0 | 10 | 1 |
| Through Vol | 126 | 0 | 68 |
| RT Vol | 17 | 1 | 0 |
| Lane Flow Rate | 146 | 11 | 70 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.159 | 0.014 | 0.08 |
| Departure Headway (Hd) | 3.935 | 4.433 | 4.065 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 912 | 797 | 879 |
| Service Time | 1.957 | 2.52 | 2.098 |
| HCM Lane V/C Ratio | 0.16 | 0.014 | 0.08 |
| HCM Control Delay | 7.7 | 7.6 | 7.5 |
| HCM Lane LOS | A | A | A |
| HCM 95th-tile Q | 0.6 | 0 | 0.3 |

**STUDY ROADWAY SEGMENTS**

# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - EB/NB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Dr. to County Line* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *AM Peak Hour* | Analysis Year | *Existing Conditions* |

Project Description: *Folsom Heights*

**Input Data**

☒

| | |
|---|---|
| Analysis direction vol., $V_d$ | *274*veh/h |
| Opposing direction vol., $V_o$ | *681*veh/h |
| Shoulder width ft | *6.0* |
| Lane Width ft | *12.0* |
| Segment Length mi | *0.3* |

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☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Grade Length mi | Up/down |
| Peak-hour factor, PHF | *0.83* |
| No-passing zone | *100*% |
| % Trucks and Buses , $P_T$ | *15* % |
| % Recreational vehicles, $P_R$ | *0*% |
| Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.4* | *1.1* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.943* | *0.985* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *350* | *833* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$ | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *1.4 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$ | *48.7 mi/h* |
| | | Percent free flow speed, PFFS | *82.2* % |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.1* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.985* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *335* | *820* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *43.5* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *28.2* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *51.7* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *82.2* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *330.1* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *7.17* |
| Bicycle level of service (Exhibit 15-4) | *F* |
| ***Notes*** | |

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

 *HCS 2010*™ Version 6.90 Generated: 12/20/2016 10:56 AM

# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - WB/SB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Dr. to County Line* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *AM Peak Hour* | Analysis Year | *Existing Conditions* |

Project Description: *Folsom Heights*

**Input Data**

☒

| | |
|---|---|
| Analysis direction vol., $V_d$ | *681*veh/h |
| Opposing direction vol., $V_o$ | *274*veh/h |
| Shoulder width ft | *6.0* |
| Lane Width ft | *12.0* |
| Segment Length mi | *0.3* |

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☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Grade Length mi | Up/down |
| Peak-hour factor, PHF | *0.94* |
| No-passing zone | *100*% |
| % Trucks and Buses , $P_T$ | *10* % |
| % Recreational vehicles, $P_R$ | *0*% |
| Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.1* | *1.4* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.990* | *0.962* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *732* | *303* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$ ) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *4.0 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *47.3 mi/h* |
| | | Percent free flow speed, PFFS | *79.8 %* |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.1* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *0.990* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *724* | *294* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *60.6* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *30.7* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *82.4* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *79.8* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *724.5* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *5.28* |
| Bicycle level of service (Exhibit 15-4) | *E* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - EB/NB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Drive to Manchester* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *AM Peak Hour* | Analysis Year | *Existing Conditions* |

Project Description: *Folsom Heights*

**Input Data**

☒ ☐ Class I highway ☐ Class II highway ☑ Class III highway

☒ Terrain ☑ Level ☐ Rolling

| | | | |
|---|---|---|---|
| Analysis direction vol., $V_d$ | *376* veh/h | Grade Length | *mi* Up/down |
| Opposing direction vol., $V_o$ | *686* veh/h | Peak-hour factor, PHF | *0.83* |
| Shoulder width ft | *6.0* | No-passing zone | *100%* |
| Lane Width ft | *12.0* | % Trucks and Buses , $P_T$ | *5 %* |
| Segment Length mi | *0.3* | % Recreational vehicles, $P_R$ | *0%* |
| | | Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.2* | *1.1* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.990* | *0.995* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *458* | *831* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$ ) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *1.4 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *47.9 mi/h* |
| | | Percent free flow speed, PFFS | *80.8 %* |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *453* | *827* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *52.6* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *27.7* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *62.4* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *80.8* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *453.0* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.27* |
| Bicycle level of service (Exhibit 15-4) | *C* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - WB/SB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Drive to Manchester* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *AM Peak Hour* | Analysis Year | *Existing Conditions* |

Project Description: *Folsom Heights*

**Input Data**

☒

Analysis direction vol., $V_d$ *686* veh/h
Opposing direction vol., $V_o$ *376* veh/h
Shoulder width ft *6.0*
Lane Width ft *12.0*
Segment Length mi *0.3*

☒

☐ Class I highway ☐ Class II highway ☑ Class III highway
Terrain ☑ Level ☐ Rolling
Grade Length mi Up/down
Peak-hour factor, PHF *0.91*
No-passing zone *100*%
% Trucks and Buses , $P_T$ *4* %
% Recreational vehicles, $P_R$ *0*%
Access points *mi* *3*/mi

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.1* | *1.3* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.996* | *0.988* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *757* | *418* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}+0.00776(v/f_{HV,ATS})$ | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *3.6 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *46.6 mi/h* |
| | | Percent free flow speed, PFFS | *78.6* % |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *754* | *413* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *64.0* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *30.3* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *83.6* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *78.6* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *753.8* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.24* |
| Bicycle level of service (Exhibit 15-4) | *C* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - EB/NB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Dr. to County Line* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *PM Peak Hour* | Analysis Year | *Existing Conditions* |

Project Description: *Folsom Heights*

**Input Data**

☒

| | |
|---|---|
| Analysis direction vol., $V_d$ | *571*veh/h |
| Opposing direction vol., $V_o$ | *505*veh/h |
| Shoulder width ft | *6.0* |
| Lane Width ft | *12.0* |
| Segment Length mi | *0.3* |

☒

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Grade Length | mi Up/down |
| Peak-hour factor, PHF | *0.93* |
| No-passing zone | *100*% |
| % Trucks and Buses , $P_T$ | *12* % |
| % Recreational vehicles, $P_R$ | *0*% |
| Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.1* | *1.2* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.988* | *0.977* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *621* | *556* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}+0.00776(v/f_{HV,ATS})$ | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *2.4 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *47.7 mi/h* |
| | | Percent free flow speed, PFFS | *80.6* % |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *614* | *543* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *58.5* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *35.0* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *77.1* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *80.6* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *614.0* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *6.05* |
| Bicycle level of service (Exhibit 15-4) | *F* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - WB/SB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Dr. to County Line* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *PM Peak Hour* | Analysis Year | *Existing Conditions* |

Project Description: *Folsom Heights*

**Input Data**

☒

| | |
|---|---|
| Analysis direction vol., $V_d$ | *505* veh/h |
| Opposing direction vol., $V_o$ | *571* veh/h |
| Shoulder width ft | *6.0* |
| Lane Width ft | *12.0* |
| Segment Length mi | *0.3* |

☒

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Grade Length mi | Up/down |
| Peak-hour factor, PHF | *0.88* |
| No-passing zone | *100*% |
| % Trucks and Buses , $P_T$ | *9* % |
| % Recreational vehicles, $P_R$ | *0*% |
| Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.1* | *1.1* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.991* | *0.991* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *579* | *655* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$ (Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *1.8 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *47.9 mi/h* |
| | | Percent free flow speed, PFFS | *80.8* % |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *574* | *649* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *57.5* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *33.1* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *73.0* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *80.8* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *573.9* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *4.77* |
| Bicycle level of service (Exhibit 15-4) | *E* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

 

# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - EB/NB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Drive to Manchester* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *PM Peak Hour* | Analysis Year | *Existing Conditions* |

Project Description: *Folsom Heights*

**Input Data**

☒

| | |
|---|---|
| Analysis direction vol., $V_d$ | *596* veh/h |
| Opposing direction vol., $V_o$ | *588* veh/h |
| Shoulder width ft | *6.0* |
| Lane Width ft | *12.0* |
| Segment Length mi | *0.3* |

☒

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Grade Length mi | Up/down |
| Peak-hour factor, PHF | *0.92* |
| No-passing zone | *100%* |
| % Trucks and Buses , $P_T$ | *3* % |
| % Recreational vehicles, $P_R$ | *0%* |
| Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.1* | *1.1* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.997* | *0.997* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *650* | *641* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$ (Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, $FFS=S_{FM}+0.00776(v/f_{HV,ATS})$ | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *1.9 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d=FFS-0.00776(v_{d,ATS}+v_{o,ATS})-f_{np,ATS}$ | *47.4 mi/h* |
| | | Percent free flow speed, PFFS | *79.9 %* |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *648* | *639* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *60.7* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *31.9* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *76.8* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *79.9* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *647.8* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *2.89* |
| Bicycle level of service (Exhibit 15-4) | *C* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - WB/SB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Drive to Manchester* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *PM Peak Hour* | Analysis Year | *Existing Conditions* |

Project Description: *Folsom Heights*

**Input Data**

☒

| | |
|---|---|
| Analysis direction vol., $V_d$ | *588*veh/h |
| Opposing direction vol., $V_o$ | *596*veh/h |
| Shoulder width ft | *6.0* |
| Lane Width ft | *12.0* |
| Segment Length mi | *0.3* |

☒

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Grade Length | mi Up/down |
| Peak-hour factor, PHF | *0.84* |
| No-passing zone | *100*% |
| % Trucks and Buses , $P_T$ | *5* % |
| % Recreational vehicles, $P_R$ | *0*% |
| Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.1* | *1.1* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.995* | *0.995* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *704* | *713* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$ ) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *1.7 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *46.6 mi/h* |
| | | Percent free flow speed, PFFS | *78.6 %* |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *700* | *710* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *64.9* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *28.4* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *79.0* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *78.6* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *700.0* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.49* |
| Bicycle level of service (Exhibit 15-4) | *C* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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**APPENDIX C**

**TRIP GENERATION COMPARISON**
**FOLSOM HEIGHTS COMMERCIAL**

**Table C-1**
**Trip Generation Comparison[1]**
**Folsom Heights Commercial**

| Scenario | Land Use | | Size[2] | Daily Trips | AM Peak Hour | | | PM Peak Hour | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | In | Out | Total | In | Out | Total |
| Proposed Commercial (11.8 Acres) | Option A - Shopping Center | | 128,500 SF | 8,000 | 113 | 69 | 182 | 340 | 369 | 709 |
| Proposed Commercial (11.8 Acres) | Option B | Supermarket | 50,000 SF | 5,115 | 105 | 65 | 170 | 242 | 232 | 474 |
| | | Retail | 78,500 SF | 5,800 | 83 | 51 | 134 | 244 | 265 | 509 |
| | | TOTAL | 128,500 SF | 10,915 | 188 | 116 | 304 | 486 | 497 | 983 |

Notes:
[1] Reference: Institute of Transportation Engineers, *Trip Generation Manual*, Ninth Edition, 2012.
[2] Assuming floor area ratio (FAR) of 0.25

# APPENDIX D

# INTERNAL TRIP ESTIMATION SPREADSHEETS

| NCHRP 684 Internal Trip Capture Estimation Tool | | | |
|---|---|---|---|
| **Project Name:** | Folsom Heights - Proposed | **Organization:** | |
| **Project Location:** | Folsom, CA | **Performed By:** | |
| **Scenario Description:** | | **Date:** | |
| **Analysis Year:** | | **Checked By:** | |
| **Analysis Period:** | **AM Street Peak Hour** | **Date:** | |

**Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)**

| Land Use | Development Data (*For Information Only*) | | | Estimated Vehicle-Trips[3] | | |
|---|---|---|---|---|---|---|
| | ITE LUCs[1] | Quantity | Units | Total | Entering | Exiting |
| Office | | | | 0 | | |
| Retail | | | | 304 | 188 | 116 |
| Restaurant | | | | 0 | | |
| Cinema/Entertainment | | | | 0 | | |
| Residential | | | | 398 | 99 | 299 |
| Hotel | | | | 0 | | |
| All Other Land Uses[2] | | | | 0 | | |
| | | | | 702 | 287 | 415 |

**Table 2-A: Mode Split and Vehicle Occupancy Estimates**

| Land Use | Entering Trips | | | Exiting Trips | | |
|---|---|---|---|---|---|---|
| | Veh. Occ.[4] | % Transit | % Non-Motorized | Veh. Occ.[4] | % Transit | % Non-Motorized |
| Office | | | | | | |
| Retail | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Hotel | | | | | | |
| All Other Land Uses[2] | | | | | | |

**Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |

**Table 4-A: Internal Person-Trip Origin-Destination Matrix***

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 0 | 0 | 0 | 0 | 0 |
| Retail | 0 | | 0 | 0 | 2 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 0 | 3 | 0 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

**Table 5-A: Computations Summary**

| | Total | Entering | Exiting |
|---|---|---|---|
| All Person-Trips | 702 | 287 | 415 |
| Internal Capture Percentage | 1% | 2% | 1% |
| | | | |
| External Vehicle-Trips[5] | 692 | 282 | 410 |
| External Transit-Trips[6] | 0 | 0 | 0 |
| External Non-Motorized Trips[6] | 0 | 0 | 0 |

**Table 6-A: Internal Trip Capture Percentages by Land Use**

| Land Use | Entering Trips | Exiting Trips |
|---|---|---|
| Office | N/A | N/A |
| Retail | 2% | 2% |
| Restaurant | N/A | N/A |
| Cinema/Entertainment | N/A | N/A |
| Residential | 2% | 1% |
| Hotel | N/A | N/A |

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

| | |
|---|---|
| **Project Name:** | Folsom Heights - Proposed |
| **Analysis Period:** | **AM Street Peak Hour** |

**Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends**

| Land Use | Table 7-A (D): Entering Trips | | | Table 7-A (O): Exiting Trips | | |
|---|---|---|---|---|---|---|
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Retail | 1.00 | 188 | 188 | 1.00 | 116 | 116 |
| Restaurant | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Cinema/Entertainment | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Residential | 1.00 | 99 | 99 | 1.00 | 299 | 299 |
| Hotel | 1.00 | 0 | 0 | 1.00 | 0 | 0 |

**Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 0 | 0 | 0 | 0 | 0 |
| Retail | 34 | | 15 | 0 | 16 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 6 | 3 | 60 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

**Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 60 | 0 | 0 | 0 | 0 |
| Retail | 0 | | 0 | 0 | 2 | 0 |
| Restaurant | 0 | 15 | | 0 | 5 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 0 | 32 | 0 | 0 | | 0 |
| Hotel | 0 | 8 | 0 | 0 | 0 | |

**Table 9-A (D): Internal and External Trips Summary (Entering Trips)**

| Destination Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
|---|---|---|---|---|---|---|
| | Internal | External | Total | Vehicles[1] | Transit[2] | Non-Motorized[2] |
| Office | 0 | 0 | 0 | 0 | 0 | 0 |
| Retail | 3 | 185 | 188 | 185 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 2 | 97 | 99 | 97 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses[3] | 0 | 0 | 0 | 0 | 0 | 0 |

**Table 9-A (O): Internal and External Trips Summary (Exiting Trips)**

| Origin Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
|---|---|---|---|---|---|---|
| | Internal | External | Total | Vehicles[1] | Transit[2] | Non-Motorized[2] |
| Office | 0 | 0 | 0 | 0 | 0 | 0 |
| Retail | 2 | 114 | 116 | 114 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 3 | 296 | 299 | 296 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses[3] | 0 | 0 | 0 | 0 | 0 | 0 |

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

| NCHRP 684 Internal Trip Capture Estimation Tool | | | |
|---|---|---|---|
| **Project Name:** | Folsom Heights - Proposed | **Organization:** | |
| **Project Location:** | Folsom, CA | **Performed By:** | |
| **Scenario Description:** | | **Date:** | |
| **Analysis Year:** | | **Checked By:** | |
| **Analysis Period:** | **PM Street Peak Hour** | **Date:** | |

**Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)**

| Land Use | Development Data (*For Information Only*) | | | Estimated Vehicle-Trips[3] | | |
|---|---|---|---|---|---|---|
| | ITE LUCs[1] | Quantity | Units | Total | Entering | Exiting |
| Office | | | | 0 | | |
| Retail | | | | 983 | 486 | 497 |
| Restaurant | | | | 0 | | |
| Cinema/Entertainment | | | | 0 | | |
| Residential | | | | 530 | 334 | 196 |
| Hotel | | | | 0 | | |
| All Other Land Uses[2] | | | | 0 | | |
| | | | | 1,513 | 820 | 693 |

**Table 2-P: Mode Split and Vehicle Occupancy Estimates**

| Land Use | Entering Trips | | | Exiting Trips | | |
|---|---|---|---|---|---|---|
| | Veh. Occ.[4] | % Transit | % Non-Motorized | Veh. Occ.[4] | % Transit | % Non-Motorized |
| Office | | | | | | |
| Retail | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Hotel | | | | | | |
| All Other Land Uses[2] | | | | | | |

**Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |

**Table 4-P: Internal Person-Trip Origin-Destination Matrix***

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 0 | 0 | 0 | 0 | 0 |
| Retail | 0 | | 0 | 0 | 129 | 0 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 0 | 49 | 0 | 0 | | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

**Table 5-P: Computations Summary**

| | Total | Entering | Exiting |
|---|---|---|---|
| All Person-Trips | 1,513 | 820 | 693 |
| Internal Capture Percentage | 24% | 22% | 26% |
| | | | |
| External Vehicle-Trips[5] | 1,157 | 642 | 515 |
| External Transit-Trips[6] | 0 | 0 | 0 |
| External Non-Motorized Trips[6] | 0 | 0 | 0 |

**Table 6-P: Internal Trip Capture Percentages by Land Use**

| Land Use | Entering Trips | Exiting Trips |
|---|---|---|
| Office | N/A | N/A |
| Retail | 10% | 26% |
| Restaurant | N/A | N/A |
| Cinema/Entertainment | N/A | N/A |
| Residential | 39% | 25% |
| Hotel | N/A | N/A |

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

| | |
|---|---|
| **Project Name:** | Folsom Heights - Proposed |
| **Analysis Period:** | **PM Street Peak Hour** |

**Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends**

| Land Use | Table 7-P (D): Entering Trips | | | Table 7-P (O): Exiting Trips | | |
|---|---|---|---|---|---|---|
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Retail | 1.00 | 486 | 486 | 1.00 | 497 | 497 |
| Restaurant | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Cinema/Entertainment | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Residential | 1.00 | 334 | 334 | 1.00 | 196 | 196 |
| Hotel | 1.00 | 0 | 0 | 1.00 | 0 | 0 |

**Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 0 | 0 | 0 | 0 | 0 |
| Retail | 10 | | 144 | 20 | 129 | 25 |
| Restaurant | 0 | 0 | | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 8 | 82 | 41 | 0 | | 6 |
| Hotel | 0 | 0 | 0 | 0 | 0 | |

**Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)**

| Origin (From) | Destination (To) | | | | | |
|---|---|---|---|---|---|---|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 39 | 0 | 0 | 13 | 0 |
| Retail | 0 | | 0 | 0 | 154 | 0 |
| Restaurant | 0 | 243 | | 0 | 53 | 0 |
| Cinema/Entertainment | 0 | 19 | 0 | | 13 | 0 |
| Residential | 0 | 49 | 0 | 0 | | 0 |
| Hotel | 0 | 10 | 0 | 0 | 0 | |

**Table 9-P (D): Internal and External Trips Summary (Entering Trips)**

| Destination Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
|---|---|---|---|---|---|---|
| | Internal | External | Total | Vehicles[1] | Transit[2] | Non-Motorized[2] |
| Office | 0 | 0 | 0 | 0 | 0 | 0 |
| Retail | 49 | 437 | 486 | 437 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 129 | 205 | 334 | 205 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses[3] | 0 | 0 | 0 | 0 | 0 | 0 |

**Table 9-P (O): Internal and External Trips Summary (Exiting Trips)**

| Origin Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
|---|---|---|---|---|---|---|
| | Internal | External | Total | Vehicles[1] | Transit[2] | Non-Motorized[2] |
| Office | 0 | 0 | 0 | 0 | 0 | 0 |
| Retail | 129 | 368 | 497 | 368 | 0 | 0 |
| Restaurant | 0 | 0 | 0 | 0 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 49 | 147 | 196 | 147 | 0 | 0 |
| Hotel | 0 | 0 | 0 | 0 | 0 | 0 |
| All Other Land Uses[3] | 0 | 0 | 0 | 0 | 0 | 0 |

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

**APPENDIX E**

**EXISTING PLUS PROJECT**
**LEVEL OF SERVICE CALCULATION WORKSHEETS**

# STUDY INTERSECTIONS

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 15 | 261 | 5 | 17 | 617 | 156 | 10 | 1 | 22 | 310 | 1 | 75 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1900 | 1863 | 1900 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 16 | 284 | 5 | 18 | 671 | 170 | 11 | 1 | 24 | 337 | 1 | 82 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 28 | 842 | 15 | 31 | 863 | 733 | 15 | 1 | 33 | 413 | 4 | 365 |
| Arrive On Green | 0.02 | 0.46 | 0.46 | 0.02 | 0.46 | 0.46 | 0.03 | 0.03 | 0.03 | 0.23 | 0.23 | 0.23 |
| Sat Flow, veh/h | 1774 | 1825 | 32 | 1774 | 1863 | 1583 | 502 | 46 | 1096 | 1774 | 19 | 1567 |
| Grp Volume(v), veh/h | 16 | 0 | 289 | 18 | 671 | 170 | 36 | 0 | 0 | 337 | 0 | 83 |
| Grp Sat Flow(s),veh/h/ln | 1774 | 0 | 1857 | 1774 | 1863 | 1583 | 1644 | 0 | 0 | 1774 | 0 | 1586 |
| Q Serve(g_s), s | 0.6 | 0.0 | 6.1 | 0.6 | 18.7 | 4.0 | 1.3 | 0.0 | 0.0 | 11.1 | 0.0 | 2.6 |
| Cycle Q Clear(g_c), s | 0.6 | 0.0 | 6.1 | 0.6 | 18.7 | 4.0 | 1.3 | 0.0 | 0.0 | 11.1 | 0.0 | 2.6 |
| Prop In Lane | 1.00 | | 0.02 | 1.00 | | 1.00 | 0.31 | | 0.67 | 1.00 | | 0.99 |
| Lane Grp Cap(c), veh/h | 28 | 0 | 857 | 31 | 863 | 733 | 49 | 0 | 0 | 413 | 0 | 369 |
| V/C Ratio(X) | 0.58 | 0.00 | 0.34 | 0.59 | 0.78 | 0.23 | 0.73 | 0.00 | 0.00 | 0.82 | 0.00 | 0.22 |
| Avail Cap(c_a), veh/h | 115 | 0 | 1381 | 143 | 1415 | 1203 | 186 | 0 | 0 | 746 | 0 | 667 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 30.2 | 0.0 | 10.6 | 30.2 | 13.9 | 10.0 | 29.8 | 0.0 | 0.0 | 22.5 | 0.0 | 19.2 |
| Incr Delay (d2), s/veh | 17.8 | 0.0 | 0.2 | 16.8 | 1.6 | 0.2 | 18.9 | 0.0 | 0.0 | 4.0 | 0.0 | 0.3 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 0.0 | 3.2 | 0.4 | 9.9 | 1.8 | 0.9 | 0.0 | 0.0 | 5.9 | 0.0 | 1.2 |
| LnGrp Delay(d),s/veh | 48.1 | 0.0 | 10.9 | 47.0 | 15.5 | 10.1 | 48.7 | 0.0 | 0.0 | 26.5 | 0.0 | 19.5 |
| LnGrp LOS | D | | B | D | B | B | D | | | C | | B |
| Approach Vol, veh/h | | 305 | | | 859 | | | 36 | | | 420 | |
| Approach Delay, s/veh | | 12.8 | | | 15.1 | | | 48.7 | | | 25.1 | |
| Approach LOS | | B | | | B | | | D | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 5.8 | 5.1 | 32.5 | | 18.4 | 5.0 | 32.6 |
| Change Period (Y+Rc), s | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | | 7.0 | 5.0 | 46.0 | | 26.0 | 4.0 | 47.0 |
| Max Q Clear Time (g_c+I1), s | | 3.3 | 2.6 | 8.1 | | 13.1 | 2.6 | 20.7 |
| Green Ext Time (p_c), s | | 0.0 | 0.0 | 8.7 | | 1.3 | 0.0 | 7.9 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 18.0 |
| HCM 2010 LOS | B |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 9 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 0 | 1 | 1 | 218 | 0 | 20 | 2 | 0 | 0 | 104 | 32 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.93 | 0.92 | 0.93 | 0.92 | 0.92 | 0.93 | 0.93 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 1 | 1 | 237 | 0 | 22 | 2 | 0 | 0 | 113 | 34 | 11 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 2 | 1 | 1 |
| HCM Control Delay | 8.8 | 8.4 | 9.3 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 0% | 91% | 1% |
| Vol Thru, % | 0% | 76% | 0% | 9% | 98% |
| Vol Right, % | 0% | 24% | 99% | 0% | 1% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 104 | 42 | 220 | 22 | 152 |
| LT Vol | 104 | 0 | 1 | 20 | 1 |
| Through Vol | 0 | 32 | 1 | 2 | 149 |
| RT Vol | 0 | 10 | 218 | 0 | 2 |
| Lane Flow Rate | 113 | 45 | 239 | 24 | 163 |
| Geometry Grp | 7 | 7 | 2 | 2 | 5 |
| Degree of Util (X) | 0.181 | 0.064 | 0.278 | 0.034 | 0.218 |
| Departure Headway (Hd) | 5.761 | 5.09 | 4.185 | 5.209 | 4.812 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 621 | 701 | 858 | 685 | 742 |
| Service Time | 3.514 | 2.842 | 2.214 | 3.261 | 2.864 |
| HCM Lane V/C Ratio | 0.182 | 0.064 | 0.279 | 0.035 | 0.22 |
| HCM Control Delay | 9.8 | 8.2 | 8.8 | 8.4 | 9.2 |
| HCM Lane LOS | A | A | A | A | A |
| HCM 95th-tile Q | 0.7 | 0.2 | 1.1 | 0.1 | 0.8 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | |
| Intersection LOS | |

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Vol, veh/h | 0 | 1 | 149 | 2 |
| Peak Hour Factor | 0.92 | 0.93 | 0.93 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 1 | 160 | 2 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 2 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 9.2 |
| HCM LOS | A |

| Lane |
|---|

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 66 | 504 | 16 | 48 | 463 | 306 | 16 | 4 | 34 | 235 | 4 | 36 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1900 | 1863 | 1900 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 76 | 579 | 18 | 55 | 532 | 352 | 18 | 5 | 39 | 270 | 5 | 41 |
| Adj No. of Lanes | 1 | 1 | 0 | 1 | 1 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 98 | 829 | 26 | 70 | 831 | 706 | 22 | 6 | 48 | 339 | 33 | 275 |
| Arrive On Green | 0.05 | 0.46 | 0.46 | 0.04 | 0.45 | 0.45 | 0.05 | 0.05 | 0.05 | 0.19 | 0.19 | 0.19 |
| Sat Flow, veh/h | 1774 | 1797 | 56 | 1774 | 1863 | 1583 | 480 | 133 | 1041 | 1774 | 175 | 1435 |
| Grp Volume(v), veh/h | 76 | 0 | 597 | 55 | 532 | 352 | 62 | 0 | 0 | 270 | 0 | 46 |
| Grp Sat Flow(s),veh/h/ln | 1774 | 0 | 1853 | 1774 | 1863 | 1583 | 1655 | 0 | 0 | 1774 | 0 | 1610 |
| Q Serve(g_s), s | 2.6 | 0.0 | 15.7 | 1.9 | 13.5 | 9.7 | 2.3 | 0.0 | 0.0 | 8.9 | 0.0 | 1.5 |
| Cycle Q Clear(g_c), s | 2.6 | 0.0 | 15.7 | 1.9 | 13.5 | 9.7 | 2.3 | 0.0 | 0.0 | 8.9 | 0.0 | 1.5 |
| Prop In Lane | 1.00 | | 0.03 | 1.00 | | 1.00 | 0.29 | | 0.63 | 1.00 | | 0.89 |
| Lane Grp Cap(c), veh/h | 98 | 0 | 855 | 70 | 831 | 706 | 76 | 0 | 0 | 339 | 0 | 308 |
| V/C Ratio(X) | 0.78 | 0.00 | 0.70 | 0.78 | 0.64 | 0.50 | 0.81 | 0.00 | 0.00 | 0.80 | 0.00 | 0.15 |
| Avail Cap(c_a), veh/h | 261 | 0 | 1363 | 203 | 1310 | 1113 | 216 | 0 | 0 | 696 | 0 | 632 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 28.5 | 0.0 | 13.1 | 29.1 | 13.1 | 12.1 | 28.9 | 0.0 | 0.0 | 23.6 | 0.0 | 20.6 |
| Incr Delay (d2), s/veh | 12.5 | 0.0 | 1.0 | 16.8 | 0.8 | 0.5 | 18.1 | 0.0 | 0.0 | 4.3 | 0.0 | 0.2 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.6 | 0.0 | 8.2 | 1.2 | 7.1 | 4.3 | 1.4 | 0.0 | 0.0 | 4.8 | 0.0 | 0.7 |
| LnGrp Delay(d),s/veh | 41.0 | 0.0 | 14.1 | 45.9 | 14.0 | 12.6 | 47.0 | 0.0 | 0.0 | 27.8 | 0.0 | 20.8 |
| LnGrp LOS | D | | B | D | B | B | D | | | C | | C |
| Approach Vol, veh/h | | 673 | | | 939 | | | 62 | | | 316 | |
| Approach Delay, s/veh | | 17.2 | | | 15.3 | | | 47.0 | | | 26.8 | |
| Approach LOS | | B | | | B | | | D | | | C | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 6.8 | 6.4 | 32.2 | | 15.7 | 7.4 | 31.3 |
| Change Period (Y+Rc), s | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | | 8.0 | 7.0 | 45.0 | | 24.0 | 9.0 | 43.0 |
| Max Q Clear Time (g_c+I1), s | | 4.3 | 3.9 | 17.7 | | 10.9 | 4.6 | 15.5 |
| Green Ext Time (p_c), s | | 0.1 | 0.0 | 10.5 | | 0.9 | 0.0 | 10.6 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 18.8 |
| HCM 2010 LOS | B |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 10.1 |
| Intersection LOS | B |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 0 | 4 | 3 | 181 | 0 | 10 | 4 | 1 | 0 | 229 | 126 | 17 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.98 | 0.92 | 0.98 | 0.92 | 0.92 | 0.98 | 0.98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 4 | 3 | 197 | 0 | 10 | 4 | 1 | 0 | 249 | 129 | 17 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 2 | 1 | 1 |
| HCM Control Delay | 9.1 | 8.6 | 10.9 |
| HCM LOS | A | A | B |

| Lane | NBLn1 | NBLn2 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 2% | 67% | 1% |
| Vol Thru, % | 0% | 88% | 2% | 27% | 92% |
| Vol Right, % | 0% | 12% | 96% | 7% | 7% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 229 | 143 | 188 | 15 | 74 |
| LT Vol | 229 | 0 | 4 | 10 | 1 |
| Through Vol | 0 | 126 | 3 | 4 | 68 |
| RT Vol | 0 | 17 | 181 | 1 | 5 |
| Lane Flow Rate | 249 | 146 | 204 | 16 | 76 |
| Geometry Grp | 7 | 7 | 2 | 2 | 5 |
| Degree of Util (X) | 0.388 | 0.203 | 0.256 | 0.023 | 0.105 |
| Departure Headway (Hd) | 5.605 | 5.019 | 4.508 | 5.425 | 4.965 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 640 | 712 | 795 | 656 | 717 |
| Service Time | 3.361 | 2.774 | 2.543 | 3.487 | 3.031 |
| HCM Lane V/C Ratio | 0.389 | 0.205 | 0.257 | 0.024 | 0.106 |
| HCM Control Delay | 11.9 | 9.1 | 9.1 | 8.6 | 8.6 |
| HCM Lane LOS | B | A | A | A | A |
| HCM 95th-tile Q | 1.8 | 0.8 | 1 | 0.1 | 0.4 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | |
| Intersection LOS | |

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Vol, veh/h | 0 | 1 | 68 | 5 |
| Peak Hour Factor | 0.92 | 0.98 | 0.98 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 1 | 69 | 5 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 2 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 8.6 |
| HCM LOS | A |

| Lane |
|---|

**STUDY ROADWAY SEGMENTS**

# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - EB/NB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Dr. to County Line* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *AM Peak Hour* | Analysis Year | *Existing + Project* |

Project Description: *Folsom Heights*

**Input Data**

☒

| | |
|---|---|
| Analysis direction vol., $V_d$ | *281*veh/h |
| Opposing direction vol., $V_o$ | *702*veh/h |
| Shoulder width ft | *6.0* |
| Lane Width ft | *12.0* |
| Segment Length mi | *0.3* |

☒

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Grade Length mi | Up/down |
| Peak-hour factor, PHF | *0.83* |
| No-passing zone | *100*% |
| % Trucks and Buses , $P_T$ | *15* % |
| % Recreational vehicles, $P_R$ | *0*% |
| Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.4* | *1.1* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.943* | *0.985* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *359* | *859* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$ ) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *1.3 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *48.5 mi/h* |
| | | Percent free flow speed, PFFS | *81.8 %* |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.1* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.985* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *344* | *846* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *44.7* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *27.6* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *52.7* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *81.8* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *338.6* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *7.18* |
| Bicycle level of service (Exhibit 15-4) | *F* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - WB/SB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Dr. to County Line* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *AM Peak Hour* | Analysis Year | *Existing + Project* |

Project Description: *Folsom Heights*

**Input Data**

☒

| | |
|---|---|
| Analysis direction vol., $V_d$ | *702*veh/h |
| Opposing direction vol., $V_o$ | *281*veh/h |
| Shoulder width ft | *6.0* |
| Lane Width ft | *12.0* |
| Segment Length mi | *0.3* |

☒

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Grade Length mi Up/down | |
| Peak-hour factor, PHF | *0.94* |
| No-passing zone | *100*% |
| % Trucks and Buses , $P_T$ | *10* % |
| % Recreational vehicles, $P_R$ | *0*% |
| Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.1* | *1.4* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.990* | *0.962* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *754* | *311* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$ ) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *3.9 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *47.1 mi/h* |
| | | Percent free flow speed, PFFS | *79.4 %* |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.1* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *0.990* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *747* | *302* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *61.2* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *30.1* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *82.6* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *79.4* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *746.8* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *5.30* |
| Bicycle level of service (Exhibit 15-4) | *E* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - EB/NB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Drive to Manchester* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *AM Peak Hour* | Analysis Year | *Existing + Project* |

Project Description: *Folsom Heights*

**Input Data**

☒

☐ Class I highway ☐ Class II highway ☑ Class III highway

☒ Terrain ☑ Level ☐ Rolling

| | | | |
|---|---|---|---|
| Analysis direction vol., $V_d$ | *593* veh/h | Grade Length | mi Up/down |
| Opposing direction vol., $V_o$ | *790* veh/h | Peak-hour factor, PHF | *0.83* |
| Shoulder width ft | *6.0* | No-passing zone | *100%* |
| Lane Width ft | *12.0* | % Trucks and Buses , $P_T$ | *5 %* |
| Segment Length mi | *0.3* | % Recreational vehicles, $P_R$ | *0%* |
| | | Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.1* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.995* | *1.000* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *718* | *952* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$ (Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *1.2 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *45.1 mi/h* |
| | | Percent free flow speed, PFFS | *76.0 %* |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *714* | *952* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *67.4* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *23.3* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *77.4* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *76.0* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *714.5* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.50* |
| Bicycle level of service (Exhibit 15-4) | *D* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

 

# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - WB/SB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Drive to Manchester* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *AM Peak Hour* | Analysis Year | *Existing + Project* |

Project Description: *Folsom Heights*

**Input Data**

☒

| | |
|---|---|
| Analysis direction vol., $V_d$ | *790*veh/h |
| Opposing direction vol., $V_o$ | *593*veh/h |
| Shoulder width ft | *6.0* |
| Lane Width ft | *12.0* |
| Segment Length mi | *0.3* |

☒

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Grade Length | mi Up/down |
| Peak-hour factor, PHF | *0.91* |
| No-passing zone | *100*% |
| % Trucks and Buses , $P_T$ | *4* % |
| % Recreational vehicles, $P_R$ | *0*% |
| Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.0* | *1.1* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *0.996* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *868* | *654* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$ ) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *1.8 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *45.6 mi/h* |
| | | Percent free flow speed, PFFS | *77.0 %* |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *868* | *652* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *70.2* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *25.7* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *84.9* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *77.0* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *868.1* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.31* |
| Bicycle level of service (Exhibit 15-4) | *C* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - EB/NB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Dr. to County Line* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *PM Peak Hour* | Analysis Year | *Existing + Project* |

Project Description: *Folsom Heights*

**Input Data**

☒

| | |
|---|---|
| Analysis direction vol., $V_d$ | *586*veh/h |
| Opposing direction vol., $V_o$ | *515*veh/h |
| Shoulder width ft | *6.0* |
| Lane Width ft | *12.0* |
| Segment Length mi | *0.3* |

☒

☐ Class I highway ☐ Class II highway ☑ Class III highway

Terrain ☑ Level ☐ Rolling

| | |
|---|---|
| Grade Length mi Up/down | |
| Peak-hour factor, PHF | *0.93* |
| No-passing zone | *100*% |
| % Trucks and Buses , $P_T$ | *12* % |
| % Recreational vehicles, $P_R$ | *0*% |
| Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.1* | *1.1* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.988* | *0.988* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *638* | *560* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$ ) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *2.3 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *47.6 mi/h* |
| | | Percent free flow speed, PFFS | *80.4* % |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *630* | *554* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *58.7* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *34.2* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *76.9* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *80.4* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *630.1* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *6.06* |
| Bicycle level of service (Exhibit 15-4) | *F* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - WB/SB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Dr. to County Line* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *PM Peak Hour* | Analysis Year | *Existing + Project* |

Project Description: *Folsom Heights*

**Input Data**

☒

☐ Class I highway ☐ Class II highway ☑ Class III highway

☒

Terrain ☑ Level ☐ Rolling

| | | | |
|---|---|---|---|
| Analysis direction vol., $V_d$ | *515* veh/h | Grade Length | mi Up/down |
| Opposing direction vol., $V_o$ | *586* veh/h | Peak-hour factor, PHF | *0.88* |
| Shoulder width ft | *6.0* | No-passing zone | *100*% |
| Lane Width ft | *12.0* | % Trucks and Buses , $P_T$ | *9* % |
| Segment Length mi | *0.3* | % Recreational vehicles, $P_R$ | *0*% |
| | | Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.1* | *1.1* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.991* | *0.991* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *591* | *672* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$ (Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$ ) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *1.8 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *47.7 mi/h* |
| | | Percent free flow speed, PFFS | *80.5* % |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *585* | *666* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *58.3* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *32.3* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *73.4* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *80.5* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *585.2* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *4.78* |
| Bicycle level of service (Exhibit 15-4) | *E* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain. | |
| 2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F. | |
| 3. For the analysis direction only and for v>200 veh/h. | |
| 4. For the analysis direction only | |
| 5. Exhibit 15-20 provides coefficients a and b for Equation 15-10. | |
| 6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - EB/NB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Drive to Manchester* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *PM Peak Hour* | Analysis Year | *Existing + Project* |

Project Description: *Folsom Heights*

**Input Data**

| | | | |
|---|---|---|---|
| Analysis direction vol., $V_d$ | *773*veh/h | ☐ Class I highway ☐ Class II highway ☑ Class III highway | |
| Opposing direction vol., $V_o$ | *817*veh/h | Terrain | ☑ Level ☐ Rolling |
| Shoulder width ft | *6.0* | Grade Length mi | Up/down |
| Lane Width ft | *12.0* | Peak-hour factor, PHF | *0.92* |
| Segment Length mi | *0.3* | No-passing zone | *100*% |
| | | % Trucks and Buses , $P_T$ | *3* % |
| | | % Recreational vehicles, $P_R$ | *0*% |
| | | Access points *mi* | *3*/mi |

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.1* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *0.997* | *1.000* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *843* | *888* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$ ) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *1.3 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *44.5 mi/h* |
| | | Percent free flow speed, PFFS | *75.1* % |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *840* | *888* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *71.8* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *23.0* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *83.0* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *C* |
| Volume to capacity ratio, *v/c* | *0.53* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *75.1* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *840.2* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.02* |
| Bicycle level of service (Exhibit 15-4) | *C* |
| ***Notes*** | |

1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.
2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only
5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.
6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

 

# DIRECTIONAL TWO-LANE HIGHWAY SEGMENT WORKSHEET

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | *NKL* | Highway / Direction of Travel | *White Rock Road - WB/SB* |
| Agency or Company | *MRO Engineers, Inc.* | From/To | *Stonebriar Drive to Manchester* |
| Date Performed | *12/19/2016* | Jurisdiction | *El Dorado County, CA* |
| Analysis Time Period | *PM Peak Hour* | Analysis Year | *Existing + Project* |

Project Description: *Folsom Heights*

**Input Data**

☒ ☐ Class I highway ☐ Class II highway ☑ Class III highway

☒ Terrain ☑ Level ☐ Rolling

Grade Length mi Up/down

Peak-hour factor, PHF *0.84*

No-passing zone *100%*

Analysis direction vol., $V_d$ *817*veh/h

% Trucks and Buses , $P_T$ *5 %*

Opposing direction vol., $V_o$ *773*veh/h

% Recreational vehicles, $P_R$ *0%*

Shoulder width ft *6.0*

Access points *mi* *3*/mi

Lane Width ft *12.0*

Segment Length mi *0.3*

**Average Travel Speed**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$ (Exhibit 15-11 or 15-12) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-11 or 15-13) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV,ATS}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,ATS}$ (Exhibit 15-9) | *1.00* | *1.00* |
| Demand flow rate[2], $v_i$ (pc/h) $v_i=V_i/(PHF*f_{g,ATS}*f_{HV,ATS})$ | *973* | *920* |

| Free-Flow Speed from Field Measurement | | Estimated Free-Flow Speed | |
|---|---|---|---|
| Mean speed of sample[3], $S_{FM}$ | | Base free-flow speed[4], BFFS | *60.0 mi/h* |
| Total demand flow rate, both directions, *v* | | Adj. for lane and shoulder width,[4] $f_{LS}$(Exhibit 15-7) | *0.0 mi/h* |
| Free-flow speed, FFS=$S_{FM}$+0.00776(*v*/ $f_{HV,ATS}$ ) | | Adj. for access points[4], $f_A$ (Exhibit 15-8) | *0.8 mi/h* |
| Adj. for no-passing zones, $f_{np,ATS}$ (Exhibit 15-15) | *1.3 mi/h* | Free-flow speed, FFS (FSS=BFFS-$f_{LS}$-$f_A$) | *59.3 mi/h* |
| | | Average travel speed, $ATS_d$=FFS-0.00776($v_{d,ATS}$ + $v_{o,ATS}$) - $f_{np,ATS}$ | *43.3 mi/h* |
| | | Percent free flow speed, PFFS | *73.1 %* |

**Percent Time-Spent-Following**

| | Analysis Direction (d) | Opposing Direction (o) |
|---|---|---|
| Passenger-car equivalents for trucks, $E_T$(Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Passenger-car equivalents for RVs, $E_R$ (Exhibit 15-18 or 15-19) | *1.0* | *1.0* |
| Heavy-vehicle adjustment factor, $f_{HV}=1/(1+P_T(E_T-1)+P_R(E_R-1))$ | *1.000* | *1.000* |
| Grade adjustment factor[1], $f_{g,PTSF}$ (Exhibit 15-16 or Ex 15-17) | *1.00* | *1.00* |
| Directional flow rate[2], $v_i$(pc/h) $v_i=V_i/(PHF*f_{HV,PTSF}*f_{g,PTSF})$ | *973* | *920* |
| Base percent time-spent-following[4], $BPTSF_d(\%)=100(1-e^{av_d^b})$ | *76.1* | |
| Adj. for no-passing zone, $f_{np,PTSF}$ (Exhibit 15-21) | *20.3* | |
| Percent time-spent-following, $PTSF_d(\%)=BPTSF_d+f_{np,PTSF}*(v_{d,PTSF}/v_{d,PTSF}+v_{o,PTSF})$ | *86.5* | |

**Level of Service and Other Performance Measures**

| | |
|---|---|
| Level of service, LOS (Exhibit 15-3) | *D* |
| Volume to capacity ratio, *v/c* | *0.57* |
| Capacity, $C_{d,ATS}$ (Equation 15-12) veh/h | *1700* |
| Capacity, $C_{d,PTSF}$ (Equation 15-13) veh/h | *1700* |

| | |
|---|---|
| Percent Free-Flow Speed $PFFS_d$(Equation 15-11 - Class III only) | *73.1* |
| ***Bicycle Level of Service*** | |
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *972.6* |
| Effective width, Wv (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.66* |
| Bicycle level of service (Exhibit 15-4) | *D* |
| ***Notes*** | |
| 1. Note that the adjustment factor for level terrain is 1.00,as level terrain is one of the base conditions. For the purpose of grade adjustment, specific downgrade segments are treated as level terrain.<br>2. If $v_i$($v_d$ or $v_o$) >=1,700 pc/h, terminate analysis--the LOS is F.<br>3. For the analysis direction only and for v>200 veh/h.<br>4. For the analysis direction only<br>5. Exhibit 15-20 provides coefficients a and b for Equation 15-10.<br>6. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade. | |

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# APPENDIX F

## CUMULATIVE NO PROJECT
## LEVEL OF SERVICE CALCULATION WORKSHEETS

# STUDY INTERSECTIONS

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 10 | 1490 | 10 | 20 | 1060 | 60 | 10 | 0 | 30 | 100 | 0 | 70 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1900 | 1863 | 1900 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 11 | 1620 | 11 | 22 | 1152 | 65 | 11 | 0 | 33 | 109 | 0 | 76 |
| Adj No. of Lanes | 1 | 2 | 0 | 1 | 2 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 19 | 2379 | 16 | 34 | 2367 | 1059 | 13 | 0 | 40 | 155 | 0 | 138 |
| Arrive On Green | 0.01 | 0.66 | 0.66 | 0.02 | 0.67 | 0.67 | 0.03 | 0.00 | 0.03 | 0.09 | 0.00 | 0.09 |
| Sat Flow, veh/h | 1774 | 3604 | 24 | 1774 | 3539 | 1583 | 407 | 0 | 1220 | 1774 | 0 | 1583 |
| Grp Volume(v), veh/h | 11 | 795 | 836 | 22 | 1152 | 65 | 44 | 0 | 0 | 109 | 0 | 76 |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1770 | 1858 | 1774 | 1770 | 1583 | 1627 | 0 | 0 | 1774 | 0 | 1583 |
| Q Serve(g_s), s | 0.5 | 22.1 | 22.2 | 1.0 | 12.7 | 1.1 | 2.1 | 0.0 | 0.0 | 4.8 | 0.0 | 3.7 |
| Cycle Q Clear(g_c), s | 0.5 | 22.1 | 22.2 | 1.0 | 12.7 | 1.1 | 2.1 | 0.0 | 0.0 | 4.8 | 0.0 | 3.7 |
| Prop In Lane | 1.00 | | 0.01 | 1.00 | | 1.00 | 0.25 | | 0.75 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 19 | 1168 | 1227 | 34 | 2367 | 1059 | 53 | 0 | 0 | 155 | 0 | 138 |
| V/C Ratio(X) | 0.57 | 0.68 | 0.68 | 0.64 | 0.49 | 0.06 | 0.83 | 0.00 | 0.00 | 0.71 | 0.00 | 0.55 |
| Avail Cap(c_a), veh/h | 89 | 1309 | 1375 | 111 | 2662 | 1191 | 163 | 0 | 0 | 267 | 0 | 238 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 39.3 | 8.4 | 8.4 | 38.8 | 6.5 | 4.6 | 38.4 | 0.0 | 0.0 | 35.4 | 0.0 | 34.9 |
| Incr Delay (d2), s/veh | 24.0 | 1.3 | 1.2 | 18.2 | 0.2 | 0.0 | 26.3 | 0.0 | 0.0 | 5.8 | 0.0 | 3.4 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.4 | 11.0 | 11.6 | 0.7 | 6.1 | 0.5 | 1.3 | 0.0 | 0.0 | 2.6 | 0.0 | 1.7 |
| LnGrp Delay(d),s/veh | 63.3 | 9.6 | 9.6 | 57.0 | 6.6 | 4.6 | 64.7 | 0.0 | 0.0 | 41.2 | 0.0 | 38.3 |
| LnGrp LOS | E | A | A | E | A | A | E | | | D | | D |
| Approach Vol, veh/h | | 1642 | | | 1239 | | | 44 | | | 185 | |
| Approach Delay, s/veh | | 9.9 | | | 7.4 | | | 64.7 | | | 40.0 | |
| Approach LOS | | A | | | A | | | E | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 6.6 | 5.5 | 56.7 | | 10.9 | 4.9 | 57.3 |
| Change Period (Y+Rc), s | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | | 8.0 | 5.0 | 59.0 | | 12.0 | 4.0 | 60.0 |
| Max Q Clear Time (g_c+I1), s | | 4.1 | 3.0 | 24.2 | | 6.8 | 2.5 | 14.7 |
| Green Ext Time (p_c), s | | 0.0 | 0.0 | 28.5 | | 0.3 | 0.0 | 35.2 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 11.5 |
| HCM 2010 LOS | B |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.8 |
| Intersection LOS | A |

| Movement | WBU | WBL | WBR | NBU | NBT | NBR | SBU | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 0 | 20 | 0 | 0 | 50 | 20 | 0 | 5 | 150 |
| Peak Hour Factor | 0.92 | 0.93 | 0.93 | 0.92 | 0.93 | 0.93 | 0.92 | 0.93 | 0.93 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 22 | 0 | 0 | 54 | 22 | 0 | 5 | 161 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |

| Approach | WB | NB | SB |
|---|---|---|---|
| Opposing Approach | | SB | NB |
| Opposing Lanes | 0 | 1 | 1 |
| Conflicting Approach Left | NB | | WB |
| Conflicting Lanes Left | 1 | 0 | 1 |
| Conflicting Approach Right | SB | WB | |
| Conflicting Lanes Right | 1 | 1 | 0 |
| HCM Control Delay | 7.8 | 7.3 | 8 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|
| Vol Left, % | 0% | 100% | 3% |
| Vol Thru, % | 71% | 0% | 97% |
| Vol Right, % | 29% | 0% | 0% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 70 | 20 | 155 |
| LT Vol | 0 | 20 | 5 |
| Through Vol | 50 | 0 | 150 |
| RT Vol | 20 | 0 | 0 |
| Lane Flow Rate | 75 | 22 | 167 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.082 | 0.028 | 0.187 |
| Departure Headway (Hd) | 3.924 | 4.65 | 4.034 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 907 | 774 | 888 |
| Service Time | 1.975 | 2.65 | 2.065 |
| HCM Lane V/C Ratio | 0.083 | 0.028 | 0.188 |
| HCM Control Delay | 7.3 | 7.8 | 8 |
| HCM Lane LOS | A | A | A |
| HCM 95th-tile Q | 0.3 | 0.1 | 0.7 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 60 | 1400 | 20 | 50 | 1340 | 90 | 20 | 0 | 40 | 60 | 0 | 30 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1900 | 1863 | 1900 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 69 | 1609 | 23 | 57 | 1540 | 103 | 23 | 0 | 46 | 69 | 0 | 34 |
| Adj No. of Lanes | 1 | 2 | 0 | 1 | 2 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 89 | 2354 | 34 | 73 | 2301 | 1029 | 29 | 0 | 58 | 102 | 0 | 91 |
| Arrive On Green | 0.05 | 0.66 | 0.66 | 0.04 | 0.65 | 0.65 | 0.05 | 0.00 | 0.05 | 0.06 | 0.00 | 0.06 |
| Sat Flow, veh/h | 1774 | 3572 | 51 | 1774 | 3539 | 1583 | 547 | 0 | 1095 | 1774 | 0 | 1583 |
| Grp Volume(v), veh/h | 69 | 796 | 836 | 57 | 1540 | 103 | 69 | 0 | 0 | 69 | 0 | 34 |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1770 | 1854 | 1774 | 1770 | 1583 | 1642 | 0 | 0 | 1774 | 0 | 1583 |
| Q Serve(g_s), s | 3.2 | 23.5 | 23.6 | 2.7 | 22.7 | 2.1 | 3.5 | 0.0 | 0.0 | 3.2 | 0.0 | 1.7 |
| Cycle Q Clear(g_c), s | 3.2 | 23.5 | 23.6 | 2.7 | 22.7 | 2.1 | 3.5 | 0.0 | 0.0 | 3.2 | 0.0 | 1.7 |
| Prop In Lane | 1.00 | | 0.03 | 1.00 | | 1.00 | 0.33 | | 0.67 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 89 | 1166 | 1222 | 73 | 2301 | 1029 | 87 | 0 | 0 | 102 | 0 | 91 |
| V/C Ratio(X) | 0.78 | 0.68 | 0.68 | 0.78 | 0.67 | 0.10 | 0.80 | 0.00 | 0.00 | 0.68 | 0.00 | 0.37 |
| Avail Cap(c_a), veh/h | 189 | 1238 | 1297 | 168 | 2434 | 1089 | 156 | 0 | 0 | 189 | 0 | 169 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 39.6 | 8.9 | 8.9 | 40.1 | 9.1 | 5.5 | 39.5 | 0.0 | 0.0 | 39.0 | 0.0 | 38.3 |
| Incr Delay (d2), s/veh | 13.3 | 1.4 | 1.4 | 16.3 | 0.7 | 0.0 | 15.0 | 0.0 | 0.0 | 7.7 | 0.0 | 2.5 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.9 | 11.7 | 12.3 | 1.6 | 11.1 | 0.9 | 2.0 | 0.0 | 0.0 | 1.8 | 0.0 | 0.8 |
| LnGrp Delay(d),s/veh | 52.9 | 10.4 | 10.3 | 56.4 | 9.8 | 5.6 | 54.5 | 0.0 | 0.0 | 46.7 | 0.0 | 40.8 |
| LnGrp LOS | D | B | B | E | A | A | D | | | D | | D |
| Approach Vol, veh/h | | 1701 | | | 1700 | | | 69 | | | 103 | |
| Approach Delay, s/veh | | 12.1 | | | 11.1 | | | 54.5 | | | 44.7 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 8.5 | 7.5 | 59.6 | | 8.8 | 8.2 | 58.8 |
| Change Period (Y+Rc), s | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | | 8.0 | 8.0 | 59.0 | | 9.0 | 9.0 | 58.0 |
| Max Q Clear Time (g_c+I1), s | | 5.5 | 4.7 | 25.6 | | 5.2 | 5.2 | 24.7 |
| Green Ext Time (p_c), s | | 0.1 | 0.0 | 30.0 | | 0.1 | 0.0 | 29.9 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 13.4 |
| HCM 2010 LOS | B |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 7.7 |
| Intersection LOS | A |

| Movement | WBU | WBL | WBR | NBU | NBT | NBR | SBU | SBL | SBT |
|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 0 | 10 | 0 | 0 | 130 | 20 | 0 | 5 | 80 |
| Peak Hour Factor | 0.92 | 0.98 | 0.98 | 0.92 | 0.98 | 0.98 | 0.92 | 0.98 | 0.98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 10 | 0 | 0 | 133 | 20 | 0 | 5 | 82 |
| Number of Lanes | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |

| Approach | WB | NB | SB |
|---|---|---|---|
| Opposing Approach | | SB | NB |
| Opposing Lanes | 0 | 1 | 1 |
| Conflicting Approach Left | NB | | WB |
| Conflicting Lanes Left | 1 | 0 | 1 |
| Conflicting Approach Right | SB | WB | |
| Conflicting Lanes Right | 1 | 1 | 0 |
| HCM Control Delay | 7.7 | 7.8 | 7.6 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|
| Vol Left, % | 0% | 100% | 6% |
| Vol Thru, % | 87% | 0% | 94% |
| Vol Right, % | 13% | 0% | 0% |
| Sign Control | Stop | Stop | Stop |
| Traffic Vol by Lane | 150 | 10 | 85 |
| LT Vol | 0 | 10 | 5 |
| Through Vol | 130 | 0 | 80 |
| RT Vol | 20 | 0 | 0 |
| Lane Flow Rate | 153 | 10 | 87 |
| Geometry Grp | 1 | 1 | 1 |
| Degree of Util (X) | 0.167 | 0.013 | 0.098 |
| Departure Headway (Hd) | 3.936 | 4.544 | 4.077 |
| Convergence, Y/N | Yes | Yes | Yes |
| Cap | 911 | 776 | 877 |
| Service Time | 1.962 | 2.641 | 2.111 |
| HCM Lane V/C Ratio | 0.168 | 0.013 | 0.099 |
| HCM Control Delay | 7.8 | 7.7 | 7.6 |
| HCM Lane LOS | A | A | A |
| HCM 95th-tile Q | 0.6 | 0 | 0.3 |

**STUDY ROADWAY SEGMENTS**

# MULTILANE HIGHWAYS WORKSHEET(Direction 1)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to County Line |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | AM Peak Hour | Analysis Year | Cumulative No Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1510 | Peak-Hour Factor, PHF | 0.83 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 15 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.930 |

| Speed Inputs | | Calc Speed Adj and FFS | |
|---|---|---|---|
| Lane Width, LW (ft) | 12.0 | $f_{LW}$ (mi/h) | 0.0 |
| Total Lateral Clearance, LC (ft) | 12.0 | $f_{LC}$ (mi/h) | 0.0 |
| Access Points, A (A/mi) | 3 | $f_A$ (mi/h) | 0.8 |
| Median Type, M | Divided | $f_M$ (mi/h) | 0.0 |
| FFS (measured) | | FFS (mi/h) | 59.3 |
| Base Free-Flow Speed, BFFS | 60.0 | | |

| Operations | | Design | |
|---|---|---|---|
| Operational (LOS) | | Design (N) | |
| Flow Rate, $v_p$ (pc/h/ln) | 977 | Required Number of Lanes, N | |
| Speed, S (mi/h) | 60.0 | Flow Rate, $v_p$ (pc/h) | |
| D (pc/mi/ln) | 16.3 | Max Service Flow Rate (pc/h/ln) | |
| LOS | B | Design LOS | |

| ***Bicycle Level of Service*** | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *909.6* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *7.68* |
| Bicycle level of service (Exhibit 15-4) | *F* |

# MULTILANE HIGHWAYS WORKSHEET(Direct 2)

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to County Line |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | AM Peak Hour | Analysis Year | Cumulative No Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1140 | Peak-Hour Factor, PHF | 0.94 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 10 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.952 |

| Speed Inputs | | Calc Speed Adj and FFS | |
|---|---|---|---|
| Lane Width, LW (ft) | 12.0 | $f_{LW}$ (mi/h) | 0.0 |
| Total Lateral Clearance, LC (ft) | 12.0 | $f_{LC}$ (mi/h) | 0.0 |
| Access Points, A (A/mi) | 3 | $f_A$ (mi/h) | 0.8 |
| Median Type, M | Divided | $f_M$ (mi/h) | 0.0 |
| FFS (measured) | | FFS (mi/h) | 59.3 |
| Base Free-Flow Speed, BFFS | 60.0 | | |

| Operations | | Design | |
|---|---|---|---|
| Operational (LOS) | | Design (N) | |
| Flow Rate, $v_p$ (pc/h/ln) | 636 | Required Number of Lanes, N | |
| Speed, S (mi/h) | 60.0 | Flow Rate, $v_p$ (pc/h) | |
| D (pc/mi/ln) | 10.6 | Max Service Flow Rate (pc/h/ln) | |
| LOS | A | Design LOS | |

| ***Bicycle Level of Service*** | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *606.4* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *5.19* |
| Bicycle level of service (Exhibit 15-4) | *E* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 1)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to Manchester D |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | AM Peak Hour | Analysis Year | Cumulative No Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1620 | Peak-Hour Factor, PHF | 0.83 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 5 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.976 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 1000 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 16.7 |
| LOS | B |

## Design

Design (N)

| | |
|---|---|
| Required Number of Lanes, N | |
| Flow Rate, $v_p$ (pc/h) | |
| Max Service Flow Rate (pc/h/ln) | |
| Design LOS | |

## *Bicycle Level of Service*

| | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *975.9* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.66* |
| Bicycle level of service (Exhibit 15-4) | *D* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 2)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to Manchester D |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | AM Peak Hour | Analysis Year | Cumulative No Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1140 | Peak-Hour Factor, PHF | 0.91 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 4 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.980 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 638 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 10.6 |
| LOS | A |

## Design

Design (N)

| | |
|---|---|
| Required Number of Lanes, N | |
| Flow Rate, $v_p$ (pc/h) | |
| Max Service Flow Rate (pc/h/ln) | |
| Design LOS | |

## *Bicycle Level of Service*

| | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *626.4* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.15* |
| Bicycle level of service (Exhibit 15-4) | *C* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 1)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to County Line |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | PM Peak Hour | Analysis Year | Cumulative No Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1480 | Peak-Hour Factor, PHF | 0.93 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 12 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.943 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 843 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 14.1 |
| LOS | B |

## Design

Design (N)

Required Number of Lanes, N

Flow Rate, $v_p$ (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

## *Bicycle Level of Service*

| | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *795.7* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *6.18* |
| Bicycle level of service (Exhibit 15-4) | *F* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 2)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to County Line |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | PM Peak Hour | Analysis Year | Cumulative No Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1390 | Peak-Hour Factor, PHF | 0.88 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 9 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.957 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 825 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 13.8 |
| LOS | B |

## Design

Design (N)

| | |
|---|---|
| Required Number of Lanes, N | |
| Flow Rate, $v_p$ (pc/h) | |
| Max Service Flow Rate (pc/h/ln) | |
| Design LOS | |

## *Bicycle Level of Service*

| | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *789.8* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *4.93* |
| Bicycle level of service (Exhibit 15-4) | *E* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 1)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to Manchester D |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | PM Peak Hour | Analysis Year | Cumulative No Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1500 | Peak-Hour Factor, PHF | 0.84 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 3 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.985 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 906 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 15.1 |
| LOS | B |

## Design

Design (N)

Required Number of Lanes, N

Flow Rate, $v_p$ (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

## *Bicycle Level of Service*

| | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *892.9* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.05* |
| Bicycle level of service (Exhibit 15-4) | *C* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 2)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to Manchester D |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | PM Peak Hour | Analysis Year | Cumulative No Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1480 | Peak-Hour Factor, PHF | 0.92 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 5 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.976 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 824 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 13.7 |
| LOS | B |

## Design

Design (N)

| | |
|---|---|
| Required Number of Lanes, N | |
| Flow Rate, $v_p$ (pc/h) | |
| Max Service Flow Rate (pc/h/ln) | |
| Design LOS | |

## *Bicycle Level of Service*

| | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *804.3* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.56* |
| Bicycle level of service (Exhibit 15-4) | *D* |

**APPENDIX G**

**CUMULATIVE PLUS PROJECT**
**LEVEL OF SERVICE CALCULATION WORKSHEETS**

# STUDY INTERSECTIONS

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 18 | 1549 | 10 | 20 | 1108 | 76 | 10 | 2 | 30 | 140 | 1 | 92 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1900 | 1863 | 1900 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 20 | 1684 | 11 | 22 | 1204 | 83 | 11 | 2 | 33 | 152 | 1 | 100 |
| Adj No. of Lanes | 1 | 2 | 0 | 1 | 2 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 32 | 2319 | 15 | 34 | 2282 | 1021 | 13 | 2 | 40 | 200 | 2 | 177 |
| Arrive On Green | 0.02 | 0.64 | 0.64 | 0.02 | 0.64 | 0.64 | 0.03 | 0.03 | 0.03 | 0.11 | 0.11 | 0.11 |
| Sat Flow, veh/h | 1774 | 3605 | 24 | 1774 | 3539 | 1583 | 391 | 71 | 1174 | 1774 | 16 | 1570 |
| Grp Volume(v), veh/h | 20 | 826 | 869 | 22 | 1204 | 83 | 46 | 0 | 0 | 152 | 0 | 101 |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1770 | 1859 | 1774 | 1770 | 1583 | 1636 | 0 | 0 | 1774 | 0 | 1586 |
| Q Serve(g_s), s | 0.9 | 26.2 | 26.3 | 1.0 | 15.4 | 1.6 | 2.3 | 0.0 | 0.0 | 7.0 | 0.0 | 5.1 |
| Cycle Q Clear(g_c), s | 0.9 | 26.2 | 26.3 | 1.0 | 15.4 | 1.6 | 2.3 | 0.0 | 0.0 | 7.0 | 0.0 | 5.1 |
| Prop In Lane | 1.00 | | 0.01 | 1.00 | | 1.00 | 0.24 | | 0.72 | 1.00 | | 0.99 |
| Lane Grp Cap(c), veh/h | 32 | 1138 | 1196 | 34 | 2282 | 1021 | 56 | 0 | 0 | 200 | 0 | 179 |
| V/C Ratio(X) | 0.63 | 0.73 | 0.73 | 0.65 | 0.53 | 0.08 | 0.82 | 0.00 | 0.00 | 0.76 | 0.00 | 0.57 |
| Avail Cap(c_a), veh/h | 106 | 1223 | 1284 | 85 | 2404 | 1075 | 136 | 0 | 0 | 317 | 0 | 283 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 41.0 | 10.0 | 10.0 | 40.9 | 8.0 | 5.6 | 40.3 | 0.0 | 0.0 | 36.1 | 0.0 | 35.3 |
| Incr Delay (d2), s/veh | 19.2 | 2.0 | 1.9 | 18.9 | 0.2 | 0.0 | 24.3 | 0.0 | 0.0 | 5.9 | 0.0 | 2.8 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 13.3 | 13.9 | 0.7 | 7.4 | 0.7 | 1.4 | 0.0 | 0.0 | 3.7 | 0.0 | 2.4 |
| LnGrp Delay(d),s/veh | 60.2 | 12.0 | 12.0 | 59.8 | 8.2 | 5.6 | 64.6 | 0.0 | 0.0 | 42.0 | 0.0 | 38.1 |
| LnGrp LOS | E | B | B | E | A | A | E | | | D | | D |
| Approach Vol, veh/h | | 1715 | | | 1309 | | | 46 | | | 253 | |
| Approach Delay, s/veh | | 12.6 | | | 8.9 | | | 64.6 | | | 40.4 | |
| Approach LOS | | B | | | A | | | E | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 6.9 | 5.6 | 58.0 | | 13.5 | 5.5 | 58.1 |
| Change Period (Y+Rc), s | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | | 7.0 | 4.0 | 58.0 | | 15.0 | 5.0 | 57.0 |
| Max Q Clear Time (g_c+I1), s | | 4.3 | 3.0 | 28.3 | | 9.0 | 2.9 | 17.4 |
| Green Ext Time (p_c), s | | 0.0 | 0.0 | 25.7 | | 0.5 | 0.0 | 32.9 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 14.0 |
| HCM 2010 LOS | B |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 8.1 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 0 | 1 | 1 | 63 | 0 | 20 | 2 | 0 | 0 | 26 | 50 | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.93 | 0.92 | 0.93 | 0.92 | 0.92 | 0.93 | 0.93 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 1 | 1 | 68 | 0 | 22 | 2 | 0 | 0 | 28 | 54 | 22 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 2 | 1 | 1 |
| HCM Control Delay | 7.4 | 8 | 8 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 2% | 91% | 3% |
| Vol Thru, % | 0% | 71% | 2% | 9% | 96% |
| Vol Right, % | 0% | 29% | 97% | 0% | 1% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 26 | 70 | 65 | 22 | 157 |
| LT Vol | 26 | 0 | 1 | 20 | 5 |
| Through Vol | 0 | 50 | 1 | 2 | 150 |
| RT Vol | 0 | 20 | 63 | 0 | 2 |
| Lane Flow Rate | 28 | 75 | 71 | 24 | 169 |
| Geometry Grp | 7 | 7 | 2 | 2 | 5 |
| Degree of Util (X) | 0.042 | 0.096 | 0.079 | 0.032 | 0.2 |
| Departure Headway (Hd) | 5.29 | 4.588 | 4.012 | 4.822 | 4.275 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 670 | 772 | 898 | 746 | 827 |
| Service Time | 3.077 | 2.374 | 2.014 | 2.826 | 2.367 |
| HCM Lane V/C Ratio | 0.042 | 0.097 | 0.079 | 0.032 | 0.204 |
| HCM Control Delay | 8.3 | 7.9 | 7.4 | 8 | 8.5 |
| HCM Lane LOS | A | A | A | A | A |
| HCM 95th-tile Q | 0.1 | 0.3 | 0.3 | 0.1 | 0.7 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | |
| Intersection LOS | |

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Vol, veh/h | 0 | 5 | 150 | 2 |
| Peak Hour Factor | 0.92 | 0.93 | 0.93 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 5 | 161 | 2 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 2 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 8.5 |
| HCM LOS | A |

| Lane |
|---|

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 75 | 1491 | 20 | 50 | 1451 | 126 | 20 | 4 | 40 | 87 | 4 | 41 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1900 | 1863 | 1900 | 1863 | 1863 | 1900 |
| Adj Flow Rate, veh/h | 86 | 1714 | 23 | 57 | 1668 | 145 | 23 | 5 | 46 | 100 | 5 | 47 |
| Adj No. of Lanes | 1 | 2 | 0 | 1 | 2 | 1 | 0 | 1 | 0 | 1 | 1 | 0 |
| Peak Hour Factor | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 | 0.87 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 110 | 2299 | 31 | 73 | 2201 | 985 | 29 | 6 | 58 | 137 | 12 | 113 |
| Arrive On Green | 0.06 | 0.64 | 0.64 | 0.04 | 0.62 | 0.62 | 0.06 | 0.06 | 0.06 | 0.08 | 0.08 | 0.08 |
| Sat Flow, veh/h | 1774 | 3576 | 48 | 1774 | 3539 | 1583 | 515 | 112 | 1029 | 1774 | 154 | 1452 |
| Grp Volume(v), veh/h | 86 | 847 | 890 | 57 | 1668 | 145 | 74 | 0 | 0 | 100 | 0 | 52 |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1770 | 1854 | 1774 | 1770 | 1583 | 1655 | 0 | 0 | 1774 | 0 | 1607 |
| Q Serve(g_s), s | 4.2 | 28.9 | 29.0 | 2.8 | 29.7 | 3.4 | 3.9 | 0.0 | 0.0 | 4.8 | 0.0 | 2.7 |
| Cycle Q Clear(g_c), s | 4.2 | 28.9 | 29.0 | 2.8 | 29.7 | 3.4 | 3.9 | 0.0 | 0.0 | 4.8 | 0.0 | 2.7 |
| Prop In Lane | 1.00 | | 0.03 | 1.00 | | 1.00 | 0.31 | | 0.62 | 1.00 | | 0.90 |
| Lane Grp Cap(c), veh/h | 110 | 1138 | 1192 | 73 | 2201 | 985 | 94 | 0 | 0 | 137 | 0 | 124 |
| V/C Ratio(X) | 0.78 | 0.74 | 0.75 | 0.78 | 0.76 | 0.15 | 0.79 | 0.00 | 0.00 | 0.73 | 0.00 | 0.42 |
| Avail Cap(c_a), veh/h | 161 | 1166 | 1222 | 121 | 2252 | 1007 | 188 | 0 | 0 | 202 | 0 | 183 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 0.00 | 1.00 | 0.00 | 1.00 |
| Uniform Delay (d), s/veh | 40.7 | 10.8 | 10.8 | 41.8 | 11.9 | 6.9 | 41.0 | 0.0 | 0.0 | 39.7 | 0.0 | 38.7 |
| Incr Delay (d2), s/veh | 13.6 | 2.6 | 2.5 | 16.4 | 1.5 | 0.1 | 13.4 | 0.0 | 0.0 | 7.1 | 0.0 | 2.2 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 2.5 | 14.7 | 15.4 | 1.7 | 14.8 | 1.5 | 2.1 | 0.0 | 0.0 | 2.6 | 0.0 | 1.3 |
| LnGrp Delay(d),s/veh | 54.3 | 13.3 | 13.3 | 58.2 | 13.4 | 7.0 | 54.4 | 0.0 | 0.0 | 46.8 | 0.0 | 40.9 |
| LnGrp LOS | D | B | B | E | B | A | D | | | D | | D |
| Approach Vol, veh/h | | 1823 | | | 1870 | | | 74 | | | 152 | |
| Approach Delay, s/veh | | 15.2 | | | 14.3 | | | 54.4 | | | 44.8 | |
| Approach LOS | | B | | | B | | | D | | | D | |

| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|
| Assigned Phs | | 2 | 3 | 4 | | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | 9.0 | 7.6 | 60.6 | | 10.8 | 9.5 | 58.7 |
| Change Period (Y+Rc), s | | 4.0 | 4.0 | 4.0 | | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | | 10.0 | 6.0 | 58.0 | | 10.0 | 8.0 | 56.0 |
| Max Q Clear Time (g_c+I1), s | | 5.9 | 4.8 | 31.0 | | 6.8 | 6.2 | 31.7 |
| Green Ext Time (p_c), s | | 0.1 | 0.0 | 25.4 | | 0.1 | 0.0 | 23.1 |

| Intersection Summary | |
|---|---|
| HCM 2010 Ctrl Delay | 16.7 |
| HCM 2010 LOS | B |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | 8.2 |
| Intersection LOS | A |

| Movement | EBU | EBL | EBT | EBR | WBU | WBL | WBT | WBR | NBU | NBL | NBT | NBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Vol, veh/h | 0 | 4 | 3 | 42 | 0 | 10 | 4 | 0 | 0 | 55 | 130 | 20 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.98 | 0.92 | 0.98 | 0.92 | 0.92 | 0.98 | 0.98 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 4 | 3 | 46 | 0 | 10 | 4 | 0 | 0 | 60 | 133 | 20 |
| Number of Lanes | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 |

| Approach | EB | WB | NB |
|---|---|---|---|
| Opposing Approach | WB | EB | SB |
| Opposing Lanes | 1 | 1 | 1 |
| Conflicting Approach Left | SB | NB | EB |
| Conflicting Lanes Left | 1 | 2 | 1 |
| Conflicting Approach Right | NB | SB | WB |
| Conflicting Lanes Right | 2 | 1 | 1 |
| HCM Control Delay | 7.4 | 8 | 8.5 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | NBLn2 | EBLn1 | WBLn1 | SBLn1 |
|---|---|---|---|---|---|
| Vol Left, % | 100% | 0% | 8% | 71% | 6% |
| Vol Thru, % | 0% | 87% | 6% | 29% | 89% |
| Vol Right, % | 0% | 13% | 86% | 0% | 6% |
| Sign Control | Stop | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 55 | 150 | 49 | 14 | 90 |
| LT Vol | 55 | 0 | 4 | 10 | 5 |
| Through Vol | 0 | 130 | 3 | 4 | 80 |
| RT Vol | 0 | 20 | 42 | 0 | 5 |
| Lane Flow Rate | 60 | 153 | 53 | 15 | 92 |
| Geometry Grp | 7 | 7 | 2 | 2 | 5 |
| Degree of Util (X) | 0.086 | 0.196 | 0.062 | 0.02 | 0.112 |
| Departure Headway (Hd) | 5.2 | 4.606 | 4.16 | 4.845 | 4.39 |
| Convergence, Y/N | Yes | Yes | Yes | Yes | Yes |
| Cap | 685 | 773 | 865 | 742 | 819 |
| Service Time | 2.963 | 2.368 | 2.165 | 2.853 | 2.4 |
| HCM Lane V/C Ratio | 0.088 | 0.198 | 0.061 | 0.02 | 0.112 |
| HCM Control Delay | 8.5 | 8.5 | 7.4 | 8 | 8 |
| HCM Lane LOS | A | A | A | A | A |
| HCM 95th-tile Q | 0.3 | 0.7 | 0.2 | 0.1 | 0.4 |

| Intersection | |
|---|---|
| Intersection Delay, s/veh | |
| Intersection LOS | |

| Movement | SBU | SBL | SBT | SBR |
|---|---|---|---|---|
| Vol, veh/h | 0 | 5 | 80 | 5 |
| Peak Hour Factor | 0.92 | 0.98 | 0.98 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 5 | 82 | 5 |
| Number of Lanes | 0 | 0 | 1 | 0 |

| Approach | SB |
|---|---|
| Opposing Approach | NB |
| Opposing Lanes | 2 |
| Conflicting Approach Left | WB |
| Conflicting Lanes Left | 1 |
| Conflicting Approach Right | EB |
| Conflicting Lanes Right | 1 |
| HCM Control Delay | 8 |
| HCM LOS | A |

| Lane |
|---|

**STUDY ROADWAY SEGMENTS**

# MULTILANE HIGHWAYS WORKSHEET(Direction 1)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to County Line |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | AM Peak Hour | Analysis Year | Cumulative + Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1577 | Peak-Hour Factor, PHF | 0.83 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 15 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.930 |

| Speed Inputs | | Calc Speed Adj and FFS | |
|---|---|---|---|
| Lane Width, LW (ft) | 12.0 | $f_{LW}$ (mi/h) | 0.0 |
| Total Lateral Clearance, LC (ft) | 12.0 | $f_{LC}$ (mi/h) | 0.0 |
| Access Points, A (A/mi) | 3 | $f_A$ (mi/h) | 0.8 |
| Median Type, M | Divided | $f_M$ (mi/h) | 0.0 |
| FFS (measured) | | FFS (mi/h) | 59.3 |
| Base Free-Flow Speed, BFFS | 60.0 | | |

| Operations | | Design | |
|---|---|---|---|
| Operational (LOS) | | Design (N) | |
| Flow Rate, $v_p$ (pc/h/ln) | 1021 | Required Number of Lanes, N | |
| Speed, S (mi/h) | 60.0 | Flow Rate, $v_p$ (pc/h) | |
| D (pc/mi/ln) | 17.0 | Max Service Flow Rate (pc/h/ln) | |
| LOS | B | Design LOS | |

| ***Bicycle Level of Service*** | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *950.0* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *7.70* |
| Bicycle level of service (Exhibit 15-4) | *F* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 2)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to County Line |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | AM Peak Hour | Analysis Year | Cumulative + Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1210 | Peak-Hour Factor, PHF | 0.94 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 10 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.952 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 675 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 11.3 |
| LOS | B |

## Design

Design (N)

| | |
|---|---|
| Required Number of Lanes, N | |
| Flow Rate, $v_p$ (pc/h) | |
| Max Service Flow Rate (pc/h/ln) | |
| Design LOS | |

| ***Bicycle Level of Service*** | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *643.6* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *5.22* |
| Bicycle level of service (Exhibit 15-4) | *E* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 1)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to Manchester D |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | AM Peak Hour | Analysis Year | Cumulative + Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1719 | Peak-Hour Factor, PHF | 0.83 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 5 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.976 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 1061 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 17.7 |
| LOS | B |

## Design

Design (N)

Required Number of Lanes, N

Flow Rate, $v_p$ (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

## *Bicycle Level of Service*

| | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *1035.5* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.69* |
| Bicycle level of service (Exhibit 15-4) | *D* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 2)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to Manchester D |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | AM Peak Hour | Analysis Year | Cumulative + Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1204 | Peak-Hour Factor, PHF | 0.91 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 4 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.980 |

| Speed Inputs | | Calc Speed Adj and FFS | |
|---|---|---|---|
| Lane Width, LW (ft) | 12.0 | $f_{LW}$ (mi/h) | 0.0 |
| Total Lateral Clearance, LC (ft) | 12.0 | $f_{LC}$ (mi/h) | 0.0 |
| Access Points, A (A/mi) | 3 | $f_A$ (mi/h) | 0.8 |
| Median Type, M | Divided | $f_M$ (mi/h) | 0.0 |
| FFS (measured) | | FFS (mi/h) | 59.3 |
| Base Free-Flow Speed, BFFS | 60.0 | | |

| Operations | | Design | |
|---|---|---|---|
| Operational (LOS) | | Design (N) | |
| Flow Rate, $v_p$ (pc/h/ln) | 674 | Required Number of Lanes, N | |
| Speed, S (mi/h) | 60.0 | Flow Rate, $v_p$ (pc/h) | |
| D (pc/mi/ln) | 11.2 | Max Service Flow Rate (pc/h/ln) | |
| LOS | B | Design LOS | |

| ***Bicycle Level of Service*** | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *661.5* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.17* |
| Bicycle level of service (Exhibit 15-4) | *C* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 1)

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to County Line |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | PM Peak Hour | Analysis Year | Cumulative + Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1586 | Peak-Hour Factor, PHF | 0.93 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 12 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.943 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 903 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 15.1 |
| LOS | B |

## Design

Design (N)

Required Number of Lanes, N

Flow Rate, $v_p$ (pc/h)

Max Service Flow Rate (pc/h/ln)

Design LOS

## *Bicycle Level of Service*

| | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *852.7* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *6.21* |
| Bicycle level of service (Exhibit 15-4) | *F* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 2)

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to County Line |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | PM Peak Hour | Analysis Year | Cumulative + Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1512 | Peak-Hour Factor, PHF | 0.88 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 9 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.957 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 897 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 14.9 |
| LOS | B |

## Design

Design (N)

| | |
|---|---|
| Required Number of Lanes, N | |
| Flow Rate, $v_p$ (pc/h) | |
| Max Service Flow Rate (pc/h/ln) | |
| Design LOS | |

## *Bicycle Level of Service*

| | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *859.1* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *4.97* |
| Bicycle level of service (Exhibit 15-4) | *E* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 1)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to Manchester D |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | PM Peak Hour | Analysis Year | Cumulative + Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1618 | Peak-Hour Factor, PHF | 0.84 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 3 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.985 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 977 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 16.3 |
| LOS | B |

## Design

Design (N)

| | |
|---|---|
| Required Number of Lanes, N | |
| Flow Rate, $v_p$ (pc/h) | |
| Max Service Flow Rate (pc/h/ln) | |
| Design LOS | |

## *Bicycle Level of Service*

| | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *963.1* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.09* |
| Bicycle level of service (Exhibit 15-4) | *C* |

# MULTILANE HIGHWAYS WORKSHEET(Direction 2)

☒

| General Information | | Site Information | |
|---|---|---|---|
| Analyst | NKL | Highway/Direction to Travel | White Rock Road |
| Agency or Company | MRO Engineers, Inc. | From/To | Stonebriar Dr. to Manchester D |
| Date Performed | 12/19/2016 | Jurisdiction | El Dorado County, CA |
| Analysis Time Period | PM Peak Hour | Analysis Year | Cumulative + Project |

Project Description Folsom Heights

☐ Oper.(LOS) ☐ Des. (N) ☐ Plan. (vp)

## Flow Inputs

| | | | |
|---|---|---|---|
| Volume, V (veh/h) | 1627 | Peak-Hour Factor, PHF | 0.92 |
| AADT(veh/h) | | %Trucks and Buses, $P_T$ | 5 |
| Peak-Hour Prop of AADT (veh/d) | | %RVs, $P_R$ | 0 |
| Peak-Hour Direction Prop, D | | General Terrain: | Level |
| DDHV (veh/h) | | Grade Length (mi) | 0.00 |
| Driver Type Adjustment | 1.00 | Up/Down % | 0.00 |
| | | Number of Lanes | 2 |

## Calculate Flow Adjustments

| | | | |
|---|---|---|---|
| $f_p$ | 1.00 | $E_R$ | 1.2 |
| $E_T$ | 1.5 | $f_{HV}$ | 0.976 |

## Speed Inputs

| | |
|---|---|
| Lane Width, LW (ft) | 12.0 |
| Total Lateral Clearance, LC (ft) | 12.0 |
| Access Points, A (A/mi) | 3 |
| Median Type, M | Divided |
| FFS (measured) | |
| Base Free-Flow Speed, BFFS | 60.0 |

## Calc Speed Adj and FFS

| | |
|---|---|
| $f_{LW}$ (mi/h) | 0.0 |
| $f_{LC}$ (mi/h) | 0.0 |
| $f_A$ (mi/h) | 0.8 |
| $f_M$ (mi/h) | 0.0 |
| FFS (mi/h) | 59.3 |

## Operations

Operational (LOS)

| | |
|---|---|
| Flow Rate, $v_p$ (pc/h/ln) | 906 |
| Speed, S (mi/h) | 60.0 |
| D (pc/mi/ln) | 15.1 |
| LOS | B |

## Design

Design (N)

| | |
|---|---|
| Required Number of Lanes, N | |
| Flow Rate, $v_p$ (pc/h) | |
| Max Service Flow Rate (pc/h/ln) | |
| Design LOS | |

| ***Bicycle Level of Service*** | |
|---|---|
| Directional demand flow rate in outside lane, $v_{OL}$ (Eq. 15-24) veh/h | *884.2* |
| Effective width, $W_v$ (Eq. 15-29) ft | *24.00* |
| Effective speed factor, $S_t$ (Eq. 15-30) | *4.79* |
| Bicycle level of service score, BLOS (Eq. 15-31) | *3.61* |
| Bicycle level of service (Exhibit 15-4) | *D* |