HILTON-HOME 2 SUITES
City of Tracy, CA

TRAFFIC IMPACT STUDY

FEBRUARY 23, 2017

Prepared For:

City of Tracy
333 Civic Center Plaza
Tracy, CA 95376

Prepared By:

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EXECUTIVE SUMMARY

This study evaluates existing and future traffic for the proposed 94-unit hotel development project located on the northwest corner of Corral Hollow Road and Grant Line Road in the City of Tracy, California (CA). This analysis evaluates traffic conditions for both on-site and surrounding area intersections as well as the roadway system within the City of Tracy (City).

PROJECT IMPROVEMENTS

The project is proposing to construct sidewalks along the project frontage along Grant Line Road. This will close the pedestrian gap along the north side of Grant Line Road. In addition, based on the existing lane configurations and traffic control along Grant Line Road and Corral Hollow Road, the project is proposing to construct off-site improvements along the project site frontage. Kimley-Horn prepared site alternatives indicating proposed driveway and roadway improvements due to severe access constraints under the existing lane geometry. The preferred option included a driveway layout that maintains two way right-in right-out only access on West Grant Line Road along the southbound right turn acceleration / merge lane. To control vehicle speeds and merging at the proposed south driveway, the southbound right turn lane along Corral Hollow Road is signalized at the existing intersection. This right turn signal would be installed at the existing corner island with appropriate signing and striping at the pedestrian crosswalk. With southbound right turns signal controlled, the existing acceleration / merge lane can be converted into a dedicated deceleration lane for vehicles entering the project site. The curb return along the right turn pocket is also extended to separate the southbound right turn and driveway movements. To enhance the bicycle experience along West Grant Line Road, the proposed Class II bike lane is striped with green pavement and shifted along the curb face at the right turn/driveway conflict zone. Option 2 also proposes to shorten the chevron striped median for the southbound left turn lane along Corral Hollow Road. Adjusting the striped median would allow vehicles to access the left turn storage lanes when exiting the site. This lane configuration and intersection operation is used for all Plus Project scenarios.

INTERSECTION EVALUATION

The following intersections were studied in the analysis for existing, project, background and cumulative conditions:

1. Corral Hollow Road / Grant Line Road
2. SE Project Driveway / Grant Line Road
3. NE Project Driveway / Corral Hollow Road

In addition, a qualitative assessment was also conducted at the following intersections based on the level of service results from the *Harvest in Tracy Draft Transportation Impact Study*[1]:

- Grant Line Road / I-205 EB Ramps
- Grant Line Road / Henley Parkway
- Grant Line Road / Orchard Parkway

It should be noted that the intersection of Grant Line Road / Orchard Parkway is not included in the *Harvest in Tracy Draft Transportation Impact Study*, but it is very similar in lane geometry, location, and adjacent land uses as the intersection of Grant Line Road / Henley Parkway.

[1] *Harvest in Tracy Draft Transportation Impact Study*, SNG & Associates, Inc., January 2017.

The project will generate 50 AM and 56 PM peak hour trips during the weekday and will generate 68 peak hour trips during Saturdays. The project will have access from two driveways, one on Grant Line Road and one on Corral Hollow Road. It is assumed that 40 percent of project trips will distribute westwards to I-205, 20 percent will distribute eastwards, 15 percent will distribute northward towards retail areas, and the remaining 25 percent will distribute southward towards Downtown Tracy.

The intersection of Grant Line Road / Corral Hollow Road operates at an unacceptable LOS in the Existing Pus Project, Existing Plus Background Plus Project and the Cumulative Plus Project scenarios during the PM and Saturday peak hours. For the Existing Plus Project scenario, optimizing the cycle length would mitigate the significant impact to less than significant. In both the PM and Saturday peak hours, the LOS would improve from an unacceptable LOS E to an acceptable LOS C. For the Existing Plus Background Plus Project scenario, optimizing the cycle length would mitigate the significant impact to less than significant. In both the PM and Saturday peak hours, the LOS would improve from an unacceptable LOS F to an acceptable LOS D. For the Cumulative Plus Project scenario, changing the northbound left turn phase to a lagging phase would mitigate the significant impact to less than significant. In the Saturday peak hour, the LOS would improve from an unacceptable LOS E to an acceptable LOS D.

In addition, a qualitative assessment of the intersection of Grant Line Road and the I-205 EB Ramps was performed based on data and findings from the *Harvest in Tracy Draft Transportation Impact Study*. The existing conditions showed that this intersection operated at a LOS C in the AM peak hour and LOS D in the PM peak hour. The Cumulative Plus Project conditions showed that this intersection will operate at a LOS E (with 59.4 seconds of delay) in the AM peak hour and LOS F (with 282.1 seconds of delay) in the PM peak hour. Since the proposed project is adding 12 or less vehicle trips in each direction in the AM and PM peak hours to this intersection, the project would only worsen the intersection slightly.

A qualitative assessment of the intersection of Grant Line Road and Henley Parkway was performed based on data and findings from the *Harvest in Tracy Draft Transportation Impact Study*. The existing conditions showed that this intersection operated at a LOS D in the AM peak hour and LOS D in the PM peak hour. The Cumulative Plus Project conditions showed that this intersection will operate at a LOS F in the AM peak hour and LOS in the PM peak hour. Since the proposed project is adding 12 or less vehicle trips in each direction in the AM and PM peak hours to this intersection, the project would only worsen the intersection slightly.

The project will pay SJCOG, County of San Joaquin, and City of Tracy Traffic Impact Fees. The City of Tracy fees will be utilized to pay a proportionate fair share towards lengthening the northbound left turn pocket and shortening the bay taper to provide additional left turn storage from northbound Corral Hollow Road onto Grant Line Road (the median opening south of the existing left turn lanes will be closed), and also contribute towards Citywide cumulative incremental impacts. The project's fair share percentage is 2.4 percent based on the AM and PM peak hours.

It should be noted that as a part of the Conditions of Approval for the Grant Line Apartments project, roadway improvements will be completed at the intersection of Grant Line Road and the I-205 EB ramps. There will be the addition of a second eastbound left turn lane and the widening of the eastbound on-ramp, which will be added to the traffic impact fee program. This project will contribute towards the traffic impact fee program, and therefore will be contributing its fair share towards any incremental impacts.

Also, the addition of a new eastbound loop on-ramp to I-205 at the intersection is included in the Fee Program and thus the project is contributing its fair share towards any incremental cumulative impacts.

BICYCLE AND PEDESTRIAN EVALUATION

There are existing sidewalks along the project site's frontage on Corral Hollow Road and on Grant Line Road. The project is proposing to close the existing sidewalk gap on the north side of Grant Line Road fronting the proposed project. It is anticipated that pedestrians would use these sidewalks along the project site's frontages to access the adjacent land uses and the transit stop nearby. At the intersection of Corral Hollow Road and Grant Line Road, there are striped crosswalks for each direction, allowing pedestrians to more safely cross the adjacent roadways. The project will have a **less than significant impact** on pedestrian service.

Bicyclists will have direct access to the project site using bicycle lanes on Grant Line Road and Corral Hollow Road. These bicycle lanes provide access to the project site and other bicycle facilities throughout the City.

The project is proposing to extend the curb return for the southbound right turn movement at the intersection of Grant Line Road and Corral Hollow Road. In addition, the project will be proposing to restrict right turns on red for the southbound right turn movement. This improvement should improve bicycle movement since westbound bicycle riders at this intersection would not be conflicted with southbound right turning vehicles making the right turn on red when the westbound approach has the green light.

The proposed project does not impact the safety of bicyclists or have any hazardous design features impeding the use of bicycles facilities. Since the proposed project does not conflict with any adopted policies or plans related to bicycle activity, the proposed project will have a **less than significant impact** on bicycle service.

1.0 INTRODUCTION

This study evaluates existing and future traffic for the proposed project and assesses the potential traffic impacts on the City of Tracy (City) road network. The analysis evaluates traffic conditions for both on-site and surrounding area intersections and roadway system within the City.

The project comprises the construction of a 94-room hotel and is located on the northwest corner of the intersection of Corral Hollow Road and Grant Line Road. Access to the site will be available through the one driveway located on Grant Line Road and the one driveway on Corral Hollow Road. Both driveways are limited to a right-in and right-out movements.

Figure 1 illustrates the location of the project site in relation to other streets in the City of Tracy and the study intersections. **Figure 2** shows the project site plan.

1.1 STUDY METHODOLOGY

DEVELOPMENT CONDITIONS

This traffic impact study was based on the following development conditions:

- Existing Conditions
  - Existing Conditions represent existing peak-hour traffic volumes on the existing roadway network. Existing traffic volumes were obtained from peak hour traffic counts at the study intersections.
- Project Characteristics
  - Project Characteristics include descriptions of Project trip generation, distribution and assignment. To determine the level of the Project's impact at each of the study locations, an analysis was performed with Project generated trips added to the baseline conditions.
- Existing Plus Project Conditions
  - Existing Plus Project Conditions represent existing traffic plus trips associated with the proposed Project. This scenario discusses traffic operations of the study locations under Existing Conditions with the addition of Project traffic. The roadway network for this scenario would remain the same as Existing Conditions except for roadways required to provide Project access driveways.
- Existing Plus Approved Project Conditions
  - Existing Plus Approved Project Conditions are based on existing traffic volumes added to traffic from approved projects in the study area (provided by the Tracy Grant Line TIA and the Harvest in Tracy TIS).
- Existing Plus Approved Project Plus Proposed Project Conditions
  - Based on existing traffic volumes added to traffic from approved projects in the study area and traffic generated by the proposed project.
- Cumulative Conditions (2035)
  - Cumulative Conditions 2035 represent build out of the City of Tracy Transportation Master Plan (City TMP). Traffic volumes for 2035 were forecasted using the most recent update to the City of Tracy Travel Demand Model (TDM), which were also used in the *Tracy Grant Line Apartments TIA Consistency Memorandum*[2]. This scenario addresses

[2] Tracy Grant Line Apartments TIA Consistency Memorandum, Kimley-Horn, July 30, 2014.

cumulative intersection and roadway operations on the future transportation network as discussed in the City TMP.

- Cumulative Plus Project Conditions (2035)
    - Cumulative Plus Project Conditions analyzes the addition of Project trips to the Cumulative Conditions 2035 baseline traffic volumes and roadway network.

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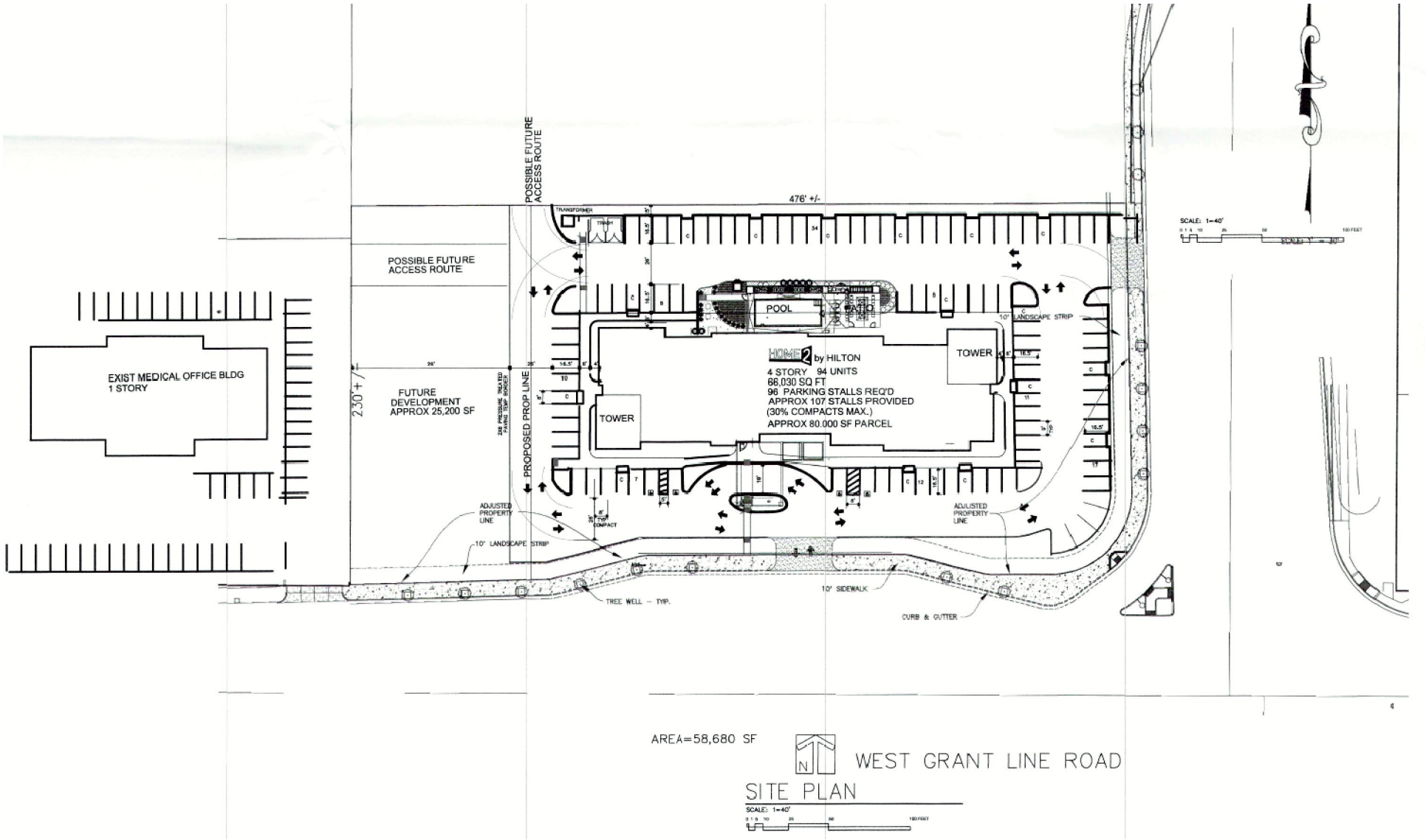
Figure 1

Project Location and Study Intersections



Source: Lee Gage & Associates, Inc

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Figure 2

Site Plan

OPERATING CONDITIONS AND CRITERIA FOR INTERSECTIONS

Analysis of potential environmental impacts at intersections is based on the concept of Level of Service (LOS). The LOS of an intersection is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. Levels of Service for this study were determined using methods defined in the *Highway Capacity Manual, 2010* (HCM) and Synchro 9 traffic analysis software. Since the HCM 2010 methodology within Synchro 9 does not support the analysis of U-turns, vehicles making a U-turn were coded in Synchro as left turning vehicles.

The HCM 2010 methodologies include procedures for analyzing side-street stop-controlled (SSSC), all-way stop-controlled (AWSC), and signalized intersections. The SSSC procedure defines LOS as a function of average control delay for each minor street approach movement. Conversely, the AWSC and signalized intersection procedures define LOS as a function of average control delay for the intersection as a whole. **Table 1** relates the operational characteristics associated with each LOS category for signalized and unsignalized intersections.

Table 1 – Intersection Level of Service Definitions

Level of Service	Description	Signalized (Avg. control delay per vehicle-sec/veh.)	Unsignalized (Avg. control delay per vehicle-sec/veh.)
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream	< 10	≤ 10
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20	> 10 – 15
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35	> 15 – 25
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55	> 25 – 35
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80	> 35 – 50
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50
Sources: Transportation Research Board, *Highway Capacity Manual 2010*, National Research Council,			

Project impacts were determined by comparing conditions without the proposed project to those with the proposed project. Significant impacts for intersections are created when traffic from the proposed project causes the LOS to fall below the LOS threshold and causes any impacted intersections to deteriorate further. Significant impact criteria are discussed further in Section 2 of this report.

1.2 STUDY INTERSECTIONS INCLUDED IN ANALYSIS

The proposed project will generate new vehicular trips that will increase traffic volumes on the City street network. To assess changes in traffic conditions associated with the proposed project, the following intersections, listed with the existing control type, were selected based on the City criteria for evaluation in this traffic study:

1. Corral Hollow Road / Grant Line Road
2. SE Project Driveway / Grant Line Road
3. NE Project Driveway / Corral Hollow Road

A qualitative assessment was also conducted at the following intersections based on the level of service results from the *Harvest in Tracy Draft Transportation Impact Study*[3]:

- Grant Line Road / I-205 EB Ramps
- Grant Line Road / Henley Parkway
- Grant Line Road / Orchard Parkway

It should be noted that the intersection of Grant Line Road / Orchard Parkway is not included in the *Harvest in Tracy Draft Transportation Impact Study*, but it is very similar in lane geometry, location, and adjacent land uses as the intersection of Grant Line Road / Henley Parkway.

1.3 STUDY ROADWAY SEGMENTS INCLUDED IN ANALYSIS

The proposed project will generate new vehicular trips that will increase traffic volumes on the nearby street network. To assess changes in traffic conditions associated with the proposed project, the following roadway segments for evaluation in this traffic study include:

1. Corral Hollow Road (SB) – I-205 to Grant Line Road
2. Corral Hollow Road (NB) – Grant Line Road to I-205
3. Grant Line Road (EB) – I-205 to Corral Hollow Road
4. Grant Line Road (WB) – Corral Hollow Road to I-205

An analysis of freeway segment impacts from the proposed project is not required in this TIA. The proposed project would add less than 0.1 percent of the peak hour trips onto either Interstate 205 (I-205) immediately west of the proposed project or I-580 in Cumulative conditions. This addition is insignificant and is therefore excluded from the analysis.

[3] *Harvest in Tracy Draft Transportation Impact Study*, SNG & Associates, Inc., January 2017.

2.0 THRESHOLDS OF SIGNIFICANCE

Significance criteria are used to identify Project impacts. Currently, the City, San Joaquin Council of Governments (SJCOG), and the County specify LOS thresholds that are utilized for roadways under their respective jurisdictions. The following significance criteria were used for this TIA and are consistent with the thresholds from the 2011 General Plan Update, SJCOG criteria, San Joaquin County criteria, and Appendix G of the CEQA Guidelines. Accordingly, the Project would have a significant traffic impact under the jurisdiction of each of the following agencies if any of the criteria discussed in the following sections are met.

2.1 LEVEL OF SERVICE STANDARDS

SAN JOAQUIN COUNCIL OF GOVERNMENTS

The Congestion Management Program (CMP) system for project condition analysis includes Grant Line Road and Corral Hollow Road. Per the 2016 SJCOG CMP, the intersection LOS threshold is D.

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The City has established LOS D, where feasible, as the minimum acceptable LOS for roadways and overall intersection operations (for roadways a v/c ratio of .80-.89 = LOS D). However, there are certain locations where this standard does not apply. The following provides a list and description of exceptions to the LOS D standard:

- LOS E or lower shall be allowed on streets and at intersections within ¼ mile of any freeway, to discourage inter-regional traffic from using City streets.
- In the Downtown and Bowtie area of the City of Tracy, LOS E shall be allowed in order to create a pedestrian-friendly urban design character and densities necessary to support transit, bicycling, and walking.
- The City may allow individual locations to fall below the City's LOS D standard at intersections where construction of improvements is not feasible, prohibitively expensive, significantly impact adjacent properties or the environment, or have a significant adverse impact on the character of the community, including pedestrian mobility, crossing times, and comfort/convenience. Intersections may be permitted to fall below their adopted LOS standard on a temporary basis when the improvements necessary to preserve the LOS standard are in the process of construction or have been designed and funded but not yet constructed.

2.2 SIGNIFICANCE CRITERIA

SAN JOAQUIN COUNCIL OF GOVERNMENTS

Intersections

- Intersections operating at an acceptable level (LOS D or better) degrade to an unacceptable LOS E or F.
- Intersections operating at or expected to operate at LOS E or F under no project conditions, the project results in increases to:

- Average delay by 4 seconds or more; or,
- The volume-to-capacity (v/c) ratio by 1.0 or more

- When an intersection or roadway segment is monitored as operating at LOS E or lower, the county or the city in which the deficient segment or intersection is located must prepare a deficiency plan specific to that location.

Conflicts with SJCOG Regional Plans

Conflicts with SJCOG adopted/approved Regional Plans applicable to the project. These include:

- Regional Transportation Demand Management Plan
- Regional Expressway System Plan (System Management and TDM Components)
- Park-and-Ride Master Plan
- Regional Bikeway Plan
- Smart Growth Infill Opportunity Zone Plan
- Regional Transit Systems Plan
- Regional Transportation Impact Fee Program
- Regional Transportation Plan
- Interregional STAA Study for I-5 and SR-99

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Signalized Intersections

- Signalized intersections operating at an acceptable level (LOS D or better if located more than ¼ mile from a freeway) degrade to an unacceptable LOS E or F.
- Addition of project trips causes a delay increase of more than four seconds to an intersection already operating at an unacceptable level.

Un-signalized Intersections

- Un-signalized intersections operating at LOS D or better degrade to an unacceptable LOS E or under (outside ¼ mile of a freeway), and LOS E or better degrade to an unacceptable LOS F (within ¼ mile of a freeway), and a traffic signal warrant is met.
- Addition of project trips causes a volume increase of more than 10 percent at an intersection operating at an unacceptable level and meeting a signal warrant.

CEQA

According to the CEQA Guidelines, the Project would have a significant impact on traffic if the Project would:

- Conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.

- Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways.
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

3.0 EXISTING CONDITIONS

3.1 EXISTING INTERSECTION AND ROADWAY NETWORK

To determine potential significant impacts related to the proposed project, existing intersection and roadway segments were selected for analysis based on the City criteria. All intersections were analyzed for weekday AM and PM peak periods and Saturday peak periods, which are the peak periods during which the project will generate the most trips onto the City road network. **Figure 3** shows the location of existing study intersections and roadway segments within the project area as well as the lane configurations.

Weekday and Saturday intersection turning movement volumes for the intersection of Corral Hollow Road and Grant Line Road were collected in January 2017. Volumes for the intersection were collected during the AM and PM peak periods of 7:00-9:00 AM and 4:00-6:00 PM, respectively and during the Saturday peak period. Traffic counts taken during the weekday occurred when local schools were in session and the weather was fair. Existing turning movements are shown in **Figure 4 and Figure 5.** Intersection volume data sheets for all traffic counts are provided in **Appendix A**.

EXISTING STUDY INTERSECTIONS

- **Corral Hollow Road / Grant Line Road** is a signalized intersection with marked crosswalks. It has two lanes in each direction on Corral Hollow Road, three lanes in each direction west of Grant Line Road, and two lanes in each direction east of Grant Line Road. It has three 90-foot left turn bays and one 220-foot right turn bay in the northbound direction; two 240-foot left turn bays and one 265-foot right turn bay in the southbound direction; one 275-foot left turn bay and one 435-foot right turn bay in the eastbound direction; and two 170-foot left turn bays in the westbound direction.

EXISTING STUDY ROADWAY SEGEMENTS

Regional Roadways

The following regional roadways provide access to the project:

- **Interstate 205** provides direct access to the central portion of the City of Tracy. It extends between I-580 and I-5 and runs east-west through the northern portion of the City of Tracy. Interchanges are provided at West Eleventh Street, Grant Line Road, Tracy Boulevard, and MacArthur Drive. I-205 consists of six lanes (three lanes in each direction) and a posted speed limit of 70 miles per hour east of the City of Tracy and 65 miles per hour through the City of Tracy and to the west.

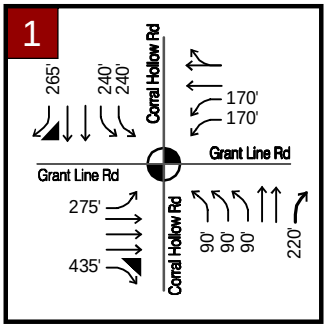
Local Roadways

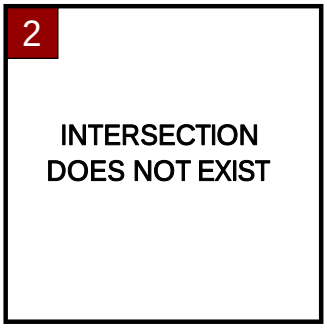
The following local roadways provide access to the site:

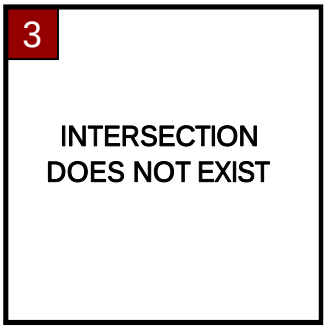
- **Grant Line Road** is a major roadway connecting Byron Road to 11th Street and Kasson Road. Grant Line Road is approximately seven miles long and serves as the local connector to many

residential, retail, and commercial land uses. It is a two-lane, undivided roadway near the Byron Road intersection and becomes a four-lane divided roadway west of the I-205 ramps. The remainder of the roadway varies between six-lane divided, four-lane divided, and two-lane undivided. The posted speed limit nearest the study area is 40 miles per hour. Grant Line Road is designated as a CMP route in the TMP.

- **Corral Hollow Road** is a north-south roadway that extends from Lammers Road in the north part of the City of Tracy to past the I-580 Ramps in the south. Corral Hollow Road continues west past the I-580 ramps to the City of Livermore, eventually becoming Tesla Road. It is a two-lane, undivided roadway from Lammers Road to Naglee Road, a four-lane, divided roadway from Naglee Road to West Schulte Road, and a two-lane, undivided roadway from Schulte Road to the I-580 Ramps. North of Valpico Road in the Project vicinity, Corral Hollow Road primarily provides access to residential uses with a 40 mph posted speed limit. South of Valpico Road, Corral Hollow Road primarily provides access to undeveloped farmland and some residential uses, with a 45 mph posted speed limit. Corral Hollow Road is designated as a CMP route in the TMP.







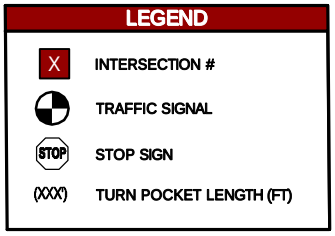


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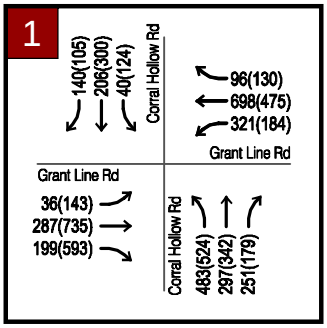
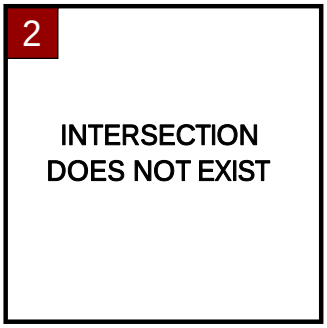
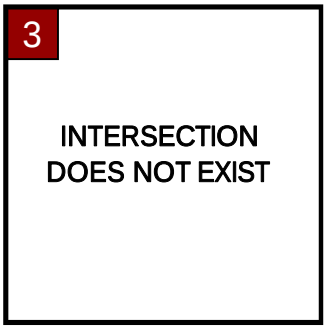
Figure 3

Existing Conditions

Lane Geometry and Traffic Control







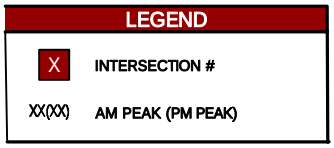


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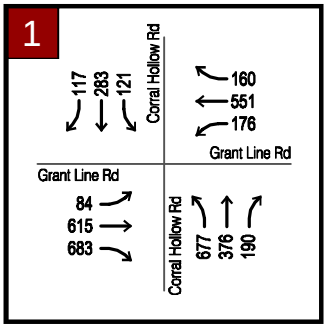
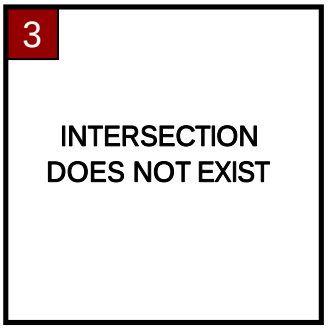
Figure 4

Existing Conditions

Weekday Peak Hour Turning Movement Volumes





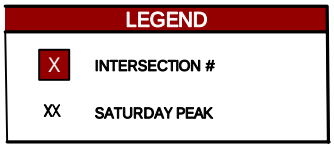


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Figure 5

Existing Conditions

Saturday Peak Hour Turning Movement Volumes

3.2 EXISTING LEVEL OF SERVICE AT STUDY INTERSECTIONS

Traffic operations were evaluated at the study intersections under existing traffic conditions. Results of the analysis are presented in **Table 2**. As shown in **Table 2**, the intersection of Grant Line Road / Corral Hollow Road currently operates at LOS E during the Saturday peak hour, which is below the City's LOS D standard.

The intersection of Grant Line Road / I-205 EB Ramps operates at a LOS C in the AM peak hour and LOS D in the PM peak hour, as reported in the *Harvest in Tracy Draft Transportation Impact Study*. The intersection of Grant Line Road / Henley Parkway operates at a LOS D in the AM and PM peak hours, also as reported in the *Harvest in Tracy Draft Transportation Impact Study*.

Analysis sheets are provided in **Appendix B**.

Table 2 – Existing Conditions Level of Service

#	Intersection	Control Type	Existing Conditions								
			AM Peak Hour			PM Peak Hour			Sat Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS
1	Corral Hollow Road/Grant Line Road	Signal	Overall	26.1	C	Overall	52.0	D	**Overall**	**58.7**	**E**
2	SE Project Driveway/Grant Line Road	Does Not Exist	-	-	-	-	-	-	-	-	-
3	NE Project Driveway/Corral Hollow Road	Does Not Exist	-	-	-	-	-	-	-	-	-

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard for the City is D.
4. Intersections that fall below City standard are shown in **bold.**
5. The average control delay is reported for signalized intersections. The delay for the worst movement is reported for side-street stop-controlled (SSSC) intersections)

3.3 EXISTING LEVEL OF SERVICE AT ROADWAY SEGMENTS

Traffic operations were evaluated at the study roadway segments under existing traffic conditions. Results of the analysis are presented in **Table 3**. As shown in **Table 3**, all study roadway segments function at an acceptable level of service per City and CMP requirements.

Table 3 – Existing Conditions Roadway Segment Analysis

Street	Segment	Existing Capacity (vph)	Existing					
			Volume (vph)			V/C		
			AM	PM	Saturday	AM	PM	Saturday
Corral Hollow Road (Southbound)	I-205 to Grant Line Road	1,485	386	529	521	0.260	0.356	0.351
Corral Hollow Road (Northbound)	Grant Line Road to I-205	1,485	429	615	620	0.289	0.414	0.418
Grant Line Road (Eastbound)	I-205 to Corral Hollow Road	2,228	522	1,471	1,382	0.234	0.660	0.620
Grant Line Road (Westbound)	Corral Hollow Road to I-205	2,228	1,321	1,104	1,345	0.593	0.496	0.604

Notes:
Volumes derived from the 2017 intersection counts. Capacities derived from the City of Tracy 2035 Travel Demand Model.
V/C ratios are correlated with LOS as follows: <0.60 = LOS A; 0.60 - 0.69 = LOS B; 0.70 - 0.79 = LOS C; 0.80 - 0.89 = LOS D; 0.90 - 0.99 = LOS E; ≥1.00 = LOS F.

3.4 EXISTING PEDESTRIAN AND BICYCLE NETWORK

BICYCLES

The City of Tracy has various bicycle facilities. Some Class I, II and III bikeway facilities exist as discussed below:

Class I facilities are paved bicycle paths that are physically separated from the vehicular travel lane. A Class I bike path exists along Orchard Parkway and along portions of Corral Hollow Road, Lowell Avenue, 11th Street, W Schulte Road, and Sycamore Parkway.

Class II facilities, which are striped bike lanes along the street, are generally found along the western portion of the existing urbanized area of the City. There are Class II bike lanes along Grant Line Road from Lincoln Boulevard to the east of I-205 and along Corral Hollow Road from Grant Line road to Parkside Drive and continues onto Parkside Drive. Several other Class II bike lanes exist near the vicinity of the project site along Orchard Parkway, Henley Parkway, and Lowell Avenue.

Class III bicycle facilities are bike routes denoted by signs that are shared with vehicles along the roadway. Class III bicycle facilities are located mainly in the Central Tracy area. A Class III bike route exist along Kavanagh Avenue, Lincoln Boulevard, and Lowell Avenue near the project site. A map of the existing City of Tracy bicycle network can be found in Figure 4.13-8, *Existing Bikeway Map* in the City of Tracy TMP.

PEDESTRIANS

Existing pedestrian facilities in the study area include sidewalks along both sides of Corral Hollow Road to serve the residential community. Sidewalks are also located on both sides of Grant Line Road except for a portion of the west leg on Grant Line Road from Corral Hollow Road to the existing driveway that is currently in use by the medical center adjacent to the project site.

3.5 EXISTING TRANSIT NETWORK

The City's public transit system includes both bus and rail passenger components. The bus and rail system provides local and regional connectivity to residents of the City of Tracy. The following transit operators are located near the proposed project.

LOCAL FIXED-ROUTE BUS SERVICE (TRACER)

TRACER Routes A, B, C, and D provides service on weekdays from 7:00 AM to 8:00 PM and during Saturdays from 9:00 AM to 7:00 PM. Routes E and F are commuter routes which provides service only on weekdays when school is in session. TRACER does not operate on Sundays and holidays. Major destinations served along these routes include the library, elementary, middle and high schools in the City of Tracy, and the Tracy Sports Complex.

REGIONAL INTERCITY FIXED-ROUTE BUS SERVICE

The San Joaquin Regional Transit District (SJRTD) operates one fixed-route bus line (Route 26) that connects the City to Stockton via Lathrop. Route 26 runs along Grant Line Road and East Street within Tracy. Major destinations served along this route include the Civic Center and Tracy Transit Station. It operates between 5:00 AM and 9:25 PM on weekdays with varying services between 30 and 90 minute intervals during the AM peak hour and PM peak hour, and between 9:25 AM and 5:53 PM on Saturday/Sundays/holidays with only four trips during the day with varying time intervals.

COUNTY HOPPER SERVICE

The SJRTD County Hopper (Route 90) is a deviated fixed-route bus service connecting Stockton, Tracy, Lodi, Manteca, Ripon and Lathrop. The Hopper replaces SJRTD Countywide General Public Dial-A-Ride (DAR), Rural Elderly & Disabled DAR, and County Area Transit (CAT) fixed-route services during Hopper service hours in the areas covered by the Hopper service. Route 90 is the nearest route to the project site with a bus stop located at Grant Line Road and Orchard Parkway that is approximately one-third (1/3) mile from the project site. It operates between 5:25 AM to 10:07 PM on weekdays with varying services between 30 and 90 minute intervals during the AM peak hour and PM peak hour. It does not operate during the weekends.

Route 97 also operates within the City of Tracy and provides service from the Tracy Transit Center to the Downtown Transit Center (DTC). Route 97 runs less than 2 miles from the project site along East Street with the closest bus stop located at the intersection of Grant Line Road and East Street. It operates only during the AM and PM peak hour from 6:05 AM to 7:01 PM with a 2-hour interval during the AM peak hour and 4-hour interval during the PM peak hour. This route does not provide services during the weekends.

SJRTD COMMUTER BUS SERVICE

The Commuter Bus Service is run by the SJRTD and provides several inter-regional bus services from the Nagle Road Park & Ride lot to the East Bay and South Bay, Monday through Friday, during commute hours. One route travels down Holly Drive, Central Avenue, Schulte Road, Tracy Boulevard, and 11th Street to Lawrence Livermore / Sandia Labs. Pick-up times vary between 4:00 AM and 6:00 AM and drop-off times vary between 4:00 PM and 6:00 PM.

ALTAMONT CORRIDOR EXPRESS

The Altamont Corridor Express (ACE) is a passenger rail service connecting Stockton to San Jose. ACE operates on weekdays, excluding holidays. The ACE station in the City of Tracy is located along Tracy Boulevard near Linne Road, which is approximately five miles from the Project Area. Four westbound trains pass through the City of Tracy with approximately one-hour headways at 4:51 AM, 6:06 AM, 7:11 AM, 7:36 AM and four eastbound trains returning through the City of Tracy with approximately one-hour headways, at 5:11 PM, 6:11 PM, and 7:11 PM and 8:14 PM.

WEEKEND SERVICE

Route 797 provides weekend services within the City of Tracy and connects to Manteca, Stockton and Lathrop. It runs along MacArthur Drive, East Street, and Grant Line Road and is the nearest route to the project site with a bus stop located at the Tracy Walmart. Route 797 operates between 8:40 AM to 4:49 PM on Saturday and Sunday with two-hour intervals.

PARK AND RIDE FACILITIES

Park and Ride facilities are areas where users of public transit or carpoolers may drive and park their vehicles, then use public transit or carpooling to commute. The vehicles are usually parked at the facility during the day and retrieved when the commuter returns. The closest Park and Ride facility to the Project Area is located less than one mile away and is adjacent to I-205 on Naglee Road.

3.6 FUTURE TRANSIT IMPROVEMENTS

Additional TRACER Routes 1, 2, and 3 is proposed in the Transit Service Plan as identified in the City TMP. Route 1 will run along a portion of Corral Hollow Road, Sycamore Parkway, and Eleventh Street and provides service to the Tracy Multimodal Transit Center. Route 2 runs along the majority of Corral Hollow Road and Route 3 runs along Lowell Avenue and a portion of Corral Hollow Road. Both Routes provides service to the existing Park and Ride Lot located along Naglee Road.

4.0 PROPOSED PROJECT

4.1 PROPOSED SITE USE

The proposed project will comprise of a single use development consisting of hotel use only. There will be 94 guestroom units and the lot size will be 66,030 square feet. The proposed project will be located approximately half of a mile east of I-205 on the north side of Grant Line Road. There currently is no existing development on the project site. The project site plan is presented in **Figure 2.**

As part of the proposed project, frontage improvements will be constructed along Grant Line Road and Corral Hollow Road. These improvements will include construction of one project driveway onto Grant Line Road and one project driveway onto Corral Hollow Road, as illustrated in the site plan shown in **Figure 2**. The proposed project driveway on Corral Hollow Road will be located on the northerly boundary of the site.

4.2 PROJECT SITE IMPROVEMENTS

The project is proposing to construct sidewalks along the project frontage along Grant Line Road. This will close the pedestrian gap along the north side of Grant Line Road. In addition, based on the existing lane configurations and traffic control along Grant Line Road and Corral Hollow Road, the project is proposing to construct off-site improvements along the project site frontage. Kimley-Horn prepared site alternatives indicating proposed driveway and roadway improvements due to severe access constraints under the existing lane geometry. The preferred option included a driveway layout that maintains two way right-in right-out only access on West Grant Line Road along the southbound right turn acceleration / merge lane. To control vehicle speeds and merging at the proposed south driveway, the southbound right turn lane along Corral Hollow Road is signalized at the existing intersection. This right turn signal would be installed at the existing corner island with appropriate signing and striping at the pedestrian crosswalk. With southbound right turns signal controlled, the existing acceleration / merge lane can be converted into a dedicated deceleration lane for vehicles entering the project site. The curb return along the right turn pocket is also extended to separate the southbound right turn and driveway movements. To enhance the bicycle experience along West Grant Line Road, the proposed Class II bike lane is striped with green pavement and shifted along the curb face at the right turn/driveway conflict zone. Option 2 also proposes to shorten the chevron striped median for the southbound left turn lane along Corral Hollow Road. Adjusting the striped median would allow vehicles to access the left turn storage lanes when exiting the site. This lane configuration and intersection operation is used for all Plus Project scenarios.

4.3 PROJECT TRIP GENERATION

Trip generation for the project was calculated using the rates from the Institute of Transportation Engineer's publication *Trip Generation Manual, 9th Edition*[4], which is a standard reference used by jurisdictions throughout the county for the estimation of trip generation. A trip is defined in the *Trip Generation Manual* as a single or one-directional vehicle movement with either the origin or destination at the project site. In other words, a trip can be either "to" or "from" the site. In addition, a single customer visit to a site is counted as two trips (i.e., one to and one from the site).

[4] *Trip Generation Manual, 9th Edition*, Institute of Transportation Engineers, 2012.

For purposes of determining the worst-case impacts of traffic on the surrounding street network, the trips generated by a proposed development are typically estimated between the hours of 7:00-9:00 AM and 4:00-6:00 PM on weekdays and the peak hour generator on Saturdays. Trip generation calculations prepared per ITE methodology are based on the number of hotel guestroom units. Additionally, since the property is single use hotel, no internal capture, linked trip, or pass-by trip reductions were considered. **Table 4** shows trips generated during weekdays and **Table 5** shows trips generated during Saturdays by

Table 4 – Project Trip Generation (Weekday)

Land Use	ITE Land Use Code	Size	Daily		AM Peak Hour				PM Peak Hour			
			Rate	Trips	Rate	In	Out	Total	Rate	In	Out	Total
Hotel[1]	310	94 Rooms	8.17	768	0.53	30	20	50	0.60	29	27	56
Net New Project Trips[2]			**-**	**768**	**-**	**30**	**20**	**50**	**-**	**29**	**27**	**56**

Notes:

1. ITE Code 310; Based on average rate.
2. Existing project site is vacant. No trip reductions or pass-by trips assumed.

Table 5 – Project Trip Generation (Saturday)

Land Use	ITE Land Use Code	Size	Daily		Peak Hour of Generator			
			Rate	Trips	Rate	In	Out	Total
Hotel[1]	310	94 Rooms	8.19	770	0.72	38	30	68
Net New Project Trips[2]			**-**	**770**	**-**	**38**	**30**	**68**

Notes:

1. ITE Code 310; Based on average rate.
2. Existing project site is vacant. No trip reductions or pass-by trips assumed.

the proposed development based on ITE standards. No trip credit was taken for the existing hotel located on the project site.

The proposed land use will construct a hotel with 94 guestroom units. Hotel (ITE Land Use #310) average trip rates were used to determine project trips for the 66,030 square feet proposed site. The proposed project is anticipated to generate 768 daily trips, 50 AM peak hour trips and 56 PM peak hour trips during weekdays. During Saturdays, the proposed project is anticipated to generate 770 daily trips with a total of 68 peak hour of generator trips.

4.4 PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Due to the nature of the proposed development, most guests staying at the proposed site are expected to travel predominantly to the west, where they will have access to the regional highway, I-205. The remaining guests are anticipated to travel to the north, south, and east where retail land use and Downtown Tracy are located. The trip distribution was determined by the directional distribution provided by the Tracy Grant Line TIA.

EXISTING PLUS PROJECT CONDITIONS

From the Corral Hollow Road / Grant Line Road intersection, approximately 40 percent of the project trips would distribute westwards along Grant Line Road to I-205 and 20 percent would distribute eastwards to retail areas. Additional retail areas are located north of the proposed project site where 15 percent of project trips are distributed towards and the remaining 25 percent is distributed southward towards Downtown Tracy.

In the morning peak, 50 peak hour trips will be generated, of which 30 trips will enter the site and 20 trips will exit the site. In the afternoon peak, 56 trips will be generated, of which 29 trips will enter the site and 27 trips will exit the site. In the Saturday peak, 68 trips will be generated, of which 38 trips will enter the site and 30 trips will exit the site. **Figure 6** presents the traffic distribution for the proposed project. **Figure 7 and Figure 8** present the traffic assignment for this analysis.

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Figure 6

Project Trip Distribution

4.5 EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE

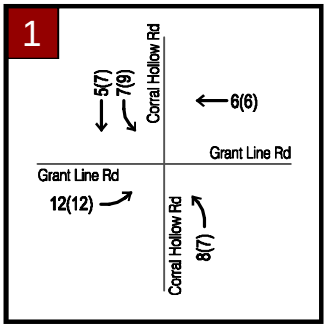
Traffic operations were evaluated at the study intersections under Existing Plus Project conditions and traffic generated by the project is illustrated in **Figure 7 and Figure 8** for AM, PM, and Saturday peak hours. Project trips were added to existing volumes and are shown in **Figure 9 and Figure 10**. Results of the analysis are presented in **Table 6**.

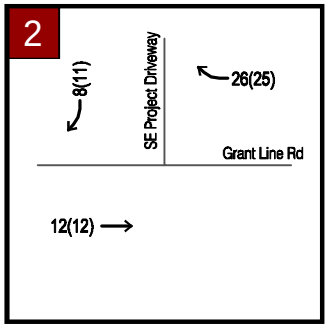
As shown in **Table 6**, all the intersections would operate at acceptable levels of service, except for Grant Line Road / Corral Hollow Road. In Existing Plus Project scenario, this intersection operates with a LOS E during the PM peak hour and Saturday peak hour with the addition of the project traffic. The addition of the project traffic increases the delay by more than 4 sec/veh (the City significance threshold), and thus the project has a significant impact at this intersection.

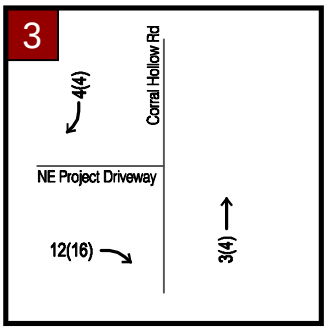
In addition, a qualitative assessment of the intersection of Grant Line Road and the I-205 EB Ramps was performed based on data and findings from the *Harvest in Tracy Draft Transportation Impact Study*. The existing conditions showed that this intersection operated at a LOS C in the AM peak hour and LOS D in the PM peak hour. The proposed project is adding 12 or less vehicle trips in each direction in the AM and PM peak hours to this intersection and therefore this should not worsen the LOS to an unacceptable LOS F.

A qualitative assessment of the intersection of Grant Line Road and Henley Parkway was performed based on data and findings from the *Harvest in Tracy Draft Transportation Impact Study*. The existing conditions showed that this intersection operated at a LOS D, with 47.4 seconds of delay in the AM peak hour and a LOS D, with 37.1 seconds of delay in the PM peak hour. The proposed project is adding 12 or less vehicle trips in each direction to the through movements in the AM and PM peak hours to this intersection and therefore this should not worsen the LOS to an unacceptable LOS F. It should be noted that the LOS standard for this intersection is LOS E because it is within a ¼-mile from the freeway. The intersection of Grant Line Road and Orchard Parkway is expected to have a similar operation to the intersection of Grant Line Road and Henley Parkway and therefore this project should not worsen the LOS to an unacceptable LOS F.

It should be noted that as a part of the Conditions of Approval for the Grant Line Apartments project, roadway improvements will be completed at the intersection of Grant Line Road and the I-205 EB ramps. There will be the addition of a second eastbound left turn lane and the widening of the eastbound on-ramp, which will be added to the traffic impact fee program. This project will contribute towards the traffic impact fee program, and therefore will be contributing its fair share towards any incremental impacts.







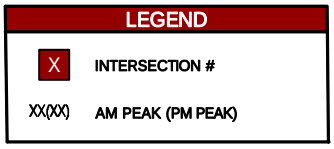


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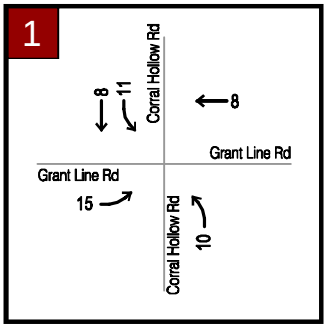
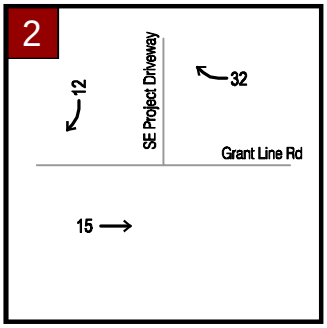
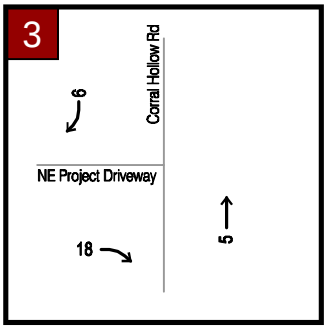
Figure 7

Project Generated Weekday Peak Hour Turning Movement Volumes







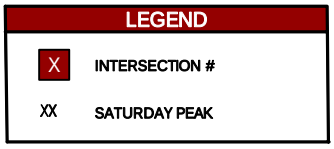


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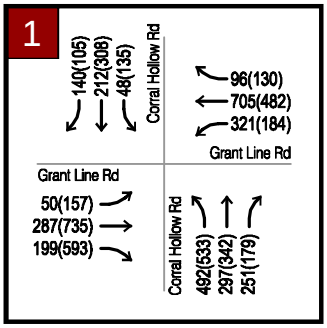
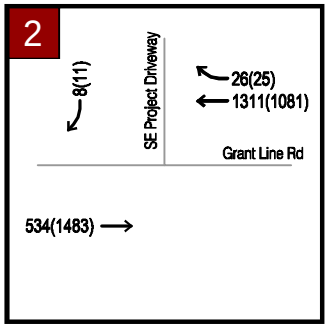
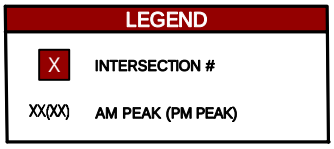
Figure 8

Project Generated

Saturday Peak Hour Turning Movement Volumes







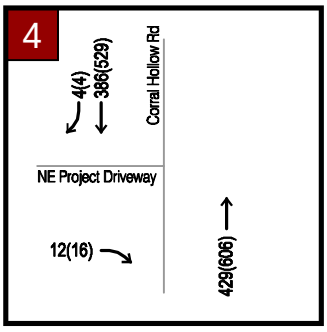


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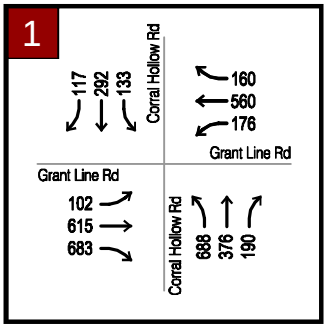
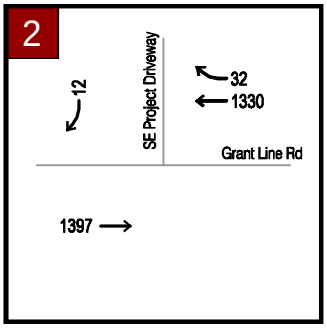
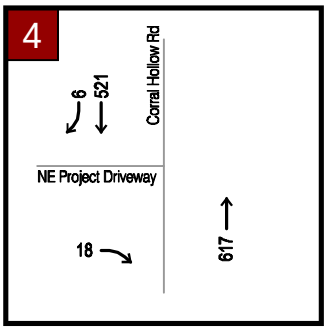
Figure 9

Existing Plus Project Conditions

Weekday Peak Hour Turning Movement Volumes







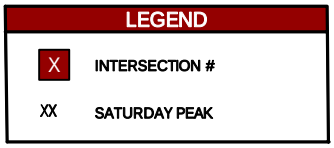


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Figure 10
Existing Plus Project Conditions
Saturday Peak Hour Turning Movement Volumes

Table 6 – Existing Plus Project Level of Service

#	Intersection	Control Type	Existing Conditions									Existing Plus Project Conditions									Delay Increase > 4 sec/veh (signal) Or Volume Increase > 10% (stop)
			AM Peak Hour			PM Peak Hour			Saturday Peak Hour			AM Peak Hour			PM Peak Hour			Saturday Peak Hour			
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	
1	Corral Hollow Road / Grant Line Road	Signal	Overall	26.1	C	Overall	52.0	D	**Overall**	**58.7**	**E**	Overall	28.6	C	**Overall**	**56.0**	**E**	**Overall**	**63.2**	**E**	Yes
2	SE Project Driveway / Grant Line Road	SSSC	-	-	-	-	-	-	-	-	-	SSSC	-	-	SSSC	-	-	SSSC	-	-	-
		Worst Approach	-	-	-	-	-	-	-	-	-	*Worst Approach*	15.7	C	*Worst Approach*	14.1	B	*Worst Approach*	16.1	C	-
3	NE Project Driveway / Corral Hollow Road	SSSC	-	-	-	-	-	-	-	-	-	SSSC	-	-	SSSC	-	-	SSSC	-	-	-
		Worst Approach	-	-	-	-	-	-	-	-	-	*Worst Approach*	9.5	A	*Worst Approach*	10.0	B	*Worst Approach*	10.0	B	-

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard for the City is D.
4. Intersections that fall below City standard are shown in **bold**.

4.6 EXISTING PLUS PROJECT ROADWAY SEGMENT LEVEL OF SERVICE

Traffic operations were evaluated at the study roadway segments under existing plus project traffic conditions. Results of the analysis as they compare with results in existing conditions are presented in **Table 7**. As shown in **Table 7**, all study roadway segments function at an acceptable level of service per City requirements.

Table 7 – Existing Plus Project Roadway Segment Analysis

Street	Segment	Existing Capacity (vph)	Existing						Existing Plus Project					
			Volume (vph)			V/C			Volume (vph)			V/C		
			AM	PM	Saturday	AM	PM	Saturday	AM	PM	Saturday	AM	PM	Saturday
Corral Hollow Road (Southbound)	I-205 to Grant Line Road	1,485	386	529	521	0.260	0.356	0.351	398	545	540	0.268	0.367	0.364
Corral Hollow Road (Northbound)	Grant Line Road to I-205	1,485	429	615	620	0.289	0.414	0.418	441	627	635	0.297	0.422	0.428
Grant Line Road (Eastbound)	I-205 to Corral Hollow Road	2,228	522	1,471	1,382	0.234	0.660	0.620	534	1,483	1,397	0.240	0.666	0.627
Grant Line Road (Westbound)	Corral Hollow Road to I-205	2,228	1,321	1,104	1,345	0.593	0.496	0.604	1,335	1,117	1,363	0.599	0.501	0.612

Notes:

Volumes derived from the 2017 intersection counts. Capacities derived from the City of Tracy 2035 Travel Demand Model.

V/C ratios are correlated with LOS as follows: <0.60 = LOS A; 0.60 - 0.69 = LOS B; 0.70 - 0.79 = LOS C; 0.80 - 0.89 = LOS D; **0.90 - 0.99 = LOS E; ≥1.00 = LOS F.**

5.0 EXISTING PLUS BACKGROUND TRAFFIC CONDITIONS

5.1 EXISTING PLUS BACKGROUND TRANSPORTATION IMPROVEMENTS

Under Existing Plus Background conditions, it is anticipated that the intersection of Grant Line Road / Corral Hollow Road will change in lane geometry. In the near-term, the northbound left turn pocket of the intersection will be lengthened to provide additional left turn storage for northbound vehicles along Corral Hollow Road. This roadway improvement is associated with the Grant Line Apartments project as part of their mitigation. The mitigation also proposes to close the median along Corral Hollow Road, south of Grant Line Road. This will prohibit southbound left turn vehicles from entering the Rite Aid shopping center. The Existing Plus Background lane geometry and traffic control is illustrated in **Figure 11**.

5.2 EXISTING PLUS BACKGROUND TRAFFIC VOLUMES

Approved project volumes from the Tracy Grant Line TIA and Tracy Harvest TIA were used to determine approved projects volumes that would be included in this scenario. These two projects are the only projects anticipated to generate traffic through the Project Study Area by opening year.

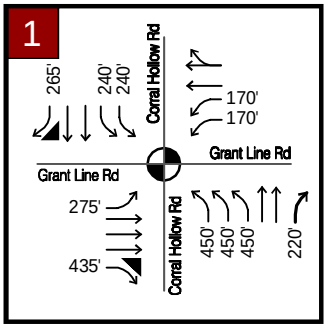
5.3 EXISTING PLUS BACKGROUND INTERSECTION LEVEL OF SERVICE

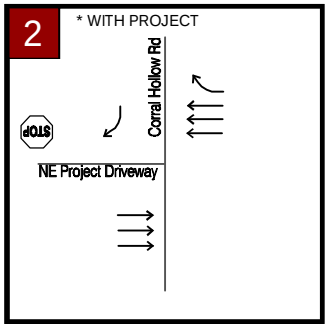
Existing Plus Background volumes were evaluated at the study intersections and are presented in **Figure 12** and **Figure 13**. Results of the analysis are presented in **Table 8**. The intersection of Grant Line Road and Corral Hollow Road does not operate at an acceptable level of service during both the PM peak hour and Saturday peak hour with an LOS F. Analysis sheets are provided in **Appendix D**.

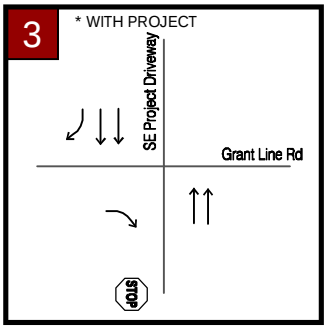
Table 8 – Existing Plus Background Conditions

#	Intersection	Control Type	Existing Plus Background Conditions								
			AM Peak Hour			PM Peak Hour			Sat Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS
1	Corral Hollow Road/Grant Line Road	Signal	Overall	33.6	C	**Overall**	**103.1**	**F**	**Overall**	**112.3**	**F**
2	SE Project Driveway/Grant Line Road	Does Not Exist	-	-	-	-	-	-	-	-	-
3	NE Project Driveway/Corral Hollow Road	Does Not Exist	-	-	-	-	-	-	-	-	-

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard for the City is D.
4. Intersections that fall below City standard are shown in **bold.**
5. The average control delay is reported for signalized intersections. The delay for the worst movement is reported for side-street stop-controlled (SSSC) intersections)







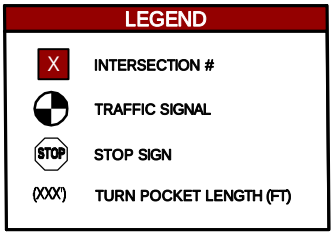


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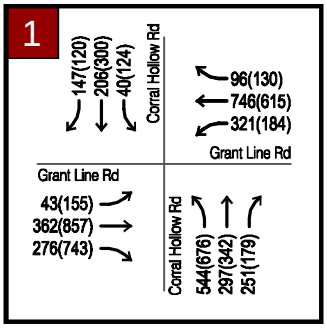
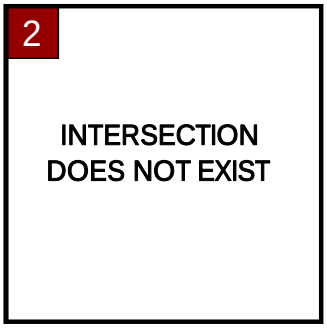
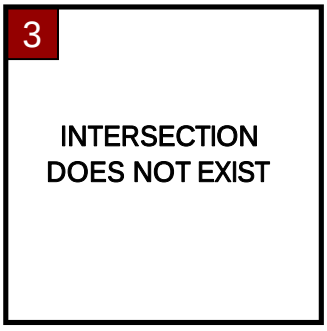
Figure 11
Existing Plus Background Conditions
Lane Geometry and Traffic Control







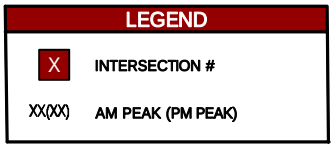


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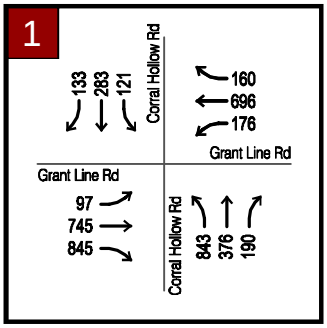
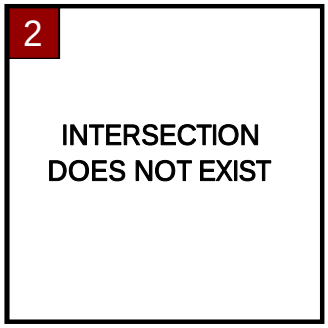
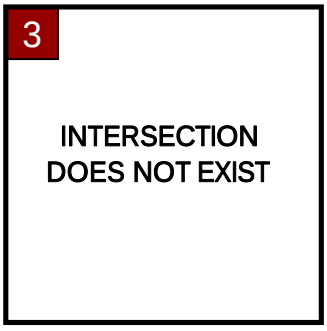
Figure 12

Existing Plus Background Conditions
Weekday Peak Hour Turning Movement Volumes







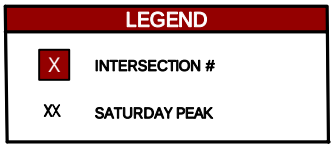


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Figure 13

Existing Plus Background Conditions
Saturday Peak Hour Turning Movement Volumes

5.4 EXISTING PLUS BACKGROUND LEVEL OF SERVICE AT ROADWAY SEGMENTS

Traffic operations were evaluated at the study roadway segments under existing plus background traffic conditions. Results of the analysis as they compare with results in existing conditions are presented in **Table 9**. As shown in **Table 9**, all study roadway segments function at an acceptable level of service per City requirements.

Table 9 – Existing Plus Background Conditions Roadway Segment Analysis

Street	Segment	Existing Capacity (vph)	Existing Pus Background					
			Volume (vph)			V/C		
			AM	PM	Saturday	AM	PM	Saturday
Corral Hollow Road (Southbound)	I-205 to Grant Line Road	1,485	393	544	537	0.265	0.366	0.362
Corral Hollow Road (Northbound)	Grant Line Road to I-205	1,485	436	627	633	0.294	0.422	0.426
Grant Line Road (Eastbound)	I-205 to Corral Hollow Road	2,228	681	1,755	1,687	0.306	0.788	0.757
Grant Line Road (Westbound)	Corral Hollow Road to I-205	2,228	1,437	1,411	1,672	0.645	0.633	0.750

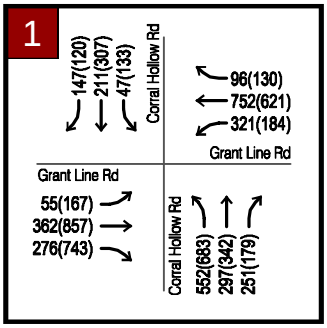
Notes:
Volumes derived from the intersection volumes. Capacities derived from the City of Tracy 2035 Travel Demand Model.
V/C ratios are correlated with LOS as follows: <0.60 = LOS A; 0.60 - 0.69 = LOS B; 0.70 - 0.79 = LOS C; 0.80 - 0.89 = LOS D; 0.90 - 0.99 = LOS E; ≥1.00 = LOS F.

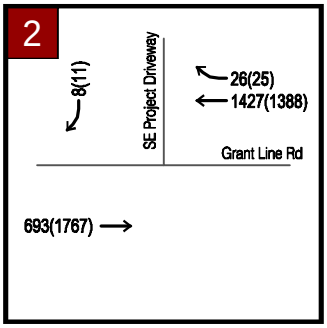
5.5 EXISTING PLUS BACKGROUND PLUS PROPOSED PROJECT INTERSECTION LEVEL OF SERVICE

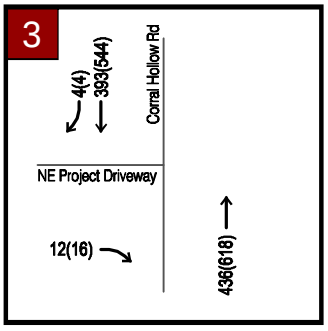
Existing Plus Background Plus Project traffic conditions were evaluated at the study intersections and are shown in **Figure 14 and Figure 15**. Results of the analysis are presented in **Table 10**. The intersection of Grant Line Road and Corral Hollow Road does not operate at an acceptable level of service during both the PM peak hour and Saturday peak hour with an LOS F. The addition of the project traffic increases the delay by more than 4 sec/veh, and thus the project has a significant impact at this intersection. Analysis sheets are provided in **Appendix E**.

A qualitative assessment of the intersections of Grant Line Road and the I-205 EB Ramps, Grant Line Road and Henley Parkway, and Grant Line Road and Orchard Parkway was not performed because the *Harvest in Tracy Draft Transportation Impact Study* did not study the Existing Plus Background conditions. However, the proposed project is adding 12 or less vehicle trips in each direction in the AM and PM peak hours to this intersection and therefore the project's potential impact should be minimal.

It should be noted that as a part of the Conditions of Approval for the Grant Line Apartments project, roadway improvements will be completed at the intersection of Grant Line Road and the I-205 EB ramps. There will be the addition of a second eastbound left turn lane and the widening of the eastbound on-ramp, which will be added to the traffic impact fee program. This project will contribute towards the traffic impact fee program, and therefore will be contributing its fair share towards any incremental impacts.







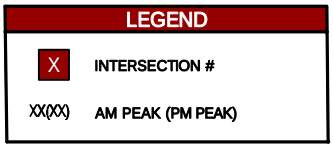


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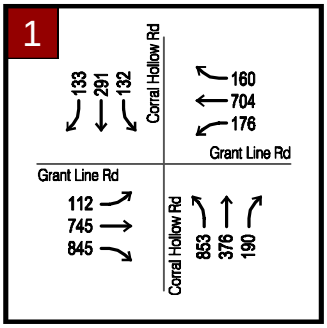
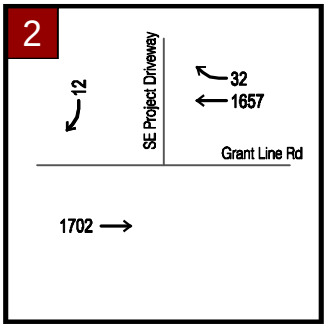
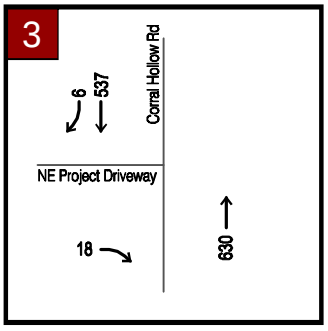
Figure 14

Existing Plus Background Plus Project Conditions Weekday Peak Hour Turning Movement Volumes







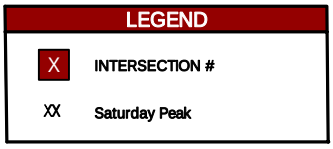


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Figure 15
Existing Plus Background Plus Project Conditions
Saturday Peak Hour Turning Movement Volumes

Table 10 – Existing Plus Background Plus Project Level of Service

#	Intersection	Control Type	Existing Plus Background Conditions									Existing Plus Background Plus Project Conditions									Delay Increase > 4 sec/veh (signal) Or Volume Increase > 10% (stop)
			AM Peak Hour			PM Peak Hour			Saturday Peak Hour			AM Peak Hour			PM Peak Hour			Saturday Peak Hour			
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	
1	Corral Hollow Road / Grant Line Road	Signal	Overall	33.6	C	**Overall**	**103.1**	**F**	**Overall**	**112.3**	**F**	Overall	38.6	D	**Overall**	**107.6**	**F**	**Overall**	**117.6**	**F**	Yes
2	SE Project Driveway / Grant Line Road	SSSC	-	-	-	-	-	-	-	-	-	SSSC	-	-	SSSC	-	-	SSSC	-	-	-
		Worst Approach	-	-	-	-	-	-	-	-	-	*Worst Approach*	16.8	C	*Worst Approach*	16.5	C	*Worst Approach*	19.3	C	
3	NE Project Driveway / Corral Hollow Road	SSSC	-	-	-	-	-	-	-	-	-	SSSC	-	-	SSSC	-	-	SSSC	-	-	-
		Worst Approach	-	-	-	-	-	-	-	-	-	*Worst Approach*	9.5	A	*Worst Approach*	10.1	B	*Worst Approach*	10.1	B	

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard for the City is D.
4. Intersections that fall below City standard are shown in **bold** and significant impacts are highlighted.

5.6 EXISTING PLUS BACKGROUND PLUS PROJECT ROADWAY SEGMENT LEVEL OF SERVICE

Traffic operations were evaluated at the study roadway segments under existing plus background plus project traffic conditions. Results of the analysis as they compare with results in existing plus background conditions are presented in **Table 11**. As shown in **Table 11**, all study roadway segments function at an acceptable level of service per City requirements.

Table 11 – Existing Plus Background Plus Project Roadway Segment Analysis

Street	Segment	Existing Capacity (vph)	*Existing Plus Background*						*Existing Plus Background Plus Project*					
			Volume (vph)			*V/C*			*Volume (vph)*			*V/C*		
			AM	PM	Saturday	AM	PM	Saturday	AM	PM	Saturday	AM	PM	Saturday
Corral Hollow Road (Southbound)	I-205 to Grant Line Road	1,485	393	544	537	0.265	0.366	0.362	405	560	556	0.273	0.377	0.374
Corral Hollow Road (Northbound)	Grant Line Road to I-205	1,485	436	627	633	0.294	0.422	0.426	448	639	648	0.302	0.430	0.436
Grant Line Road (Eastbound)	I-205 to Corral Hollow Road	2,228	681	1,755	1,687	0.306	0.788	0.757	693	1,767	1,702	0.311	0.793	0.764
Grant Line Road (Westbound)	Corral Hollow Road to I-205	2,228	1,437	1,411	1,672	0.645	0.633	0.750	1,451	1,424	1,690	0.651	0.693	0.759

Notes:

Volumes derived from the intersection volumes. Capacities derived from the City of Tracy 2035 Travel Demand Model.

V/C ratios are correlated with LOS as follows: <0.60 = LOS A; 0.60 - 0.69 = LOS B; 0.70 - 0.79 = LOS C; 0.80 - 0.89 = LOS D; **0.90 - 0.99 = LOS E; ≥1.00 = LOS F.**

6.0 CUMULATIVE (2035) CONDITIONS

6.1 CUMULATIVE INTERSECTION IMPROVEMENTS

The Tracy TMP includes several improvements to City of Tracy intersections, primarily signalizing and incorporating additional turn pockets and through lanes where projected traffic is forecasted to increase substantially. Within the study intersections, additional turn pockets are projected at the intersection of Grant Line Road and Corral Hollow Road. TMP improvements have been identified along Corral Hollow Road from I-205 to Schulte Road.

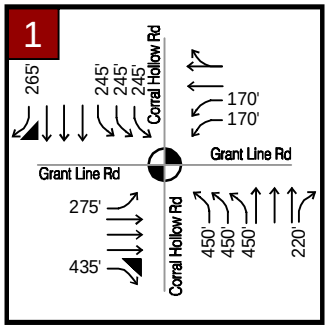
6.2 CUMULATIVE ROADWAY SEGMENT IMPROVEMENTS

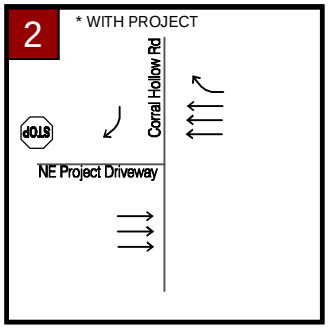
The Tracy TMP indicates several improvements on the City of Tracy roadway network that includes, but is not limited to, the roadway widening of Corral Hollow Road to six lanes from I-205 to Schulte Road. An additional southbound left turn pocket is proposed at the intersection of Grant Line Road and Corral Hollow Road.

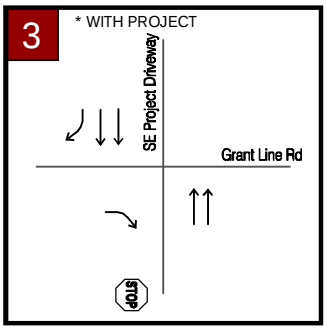
6.3 CUMULATIVE CONDITIONS LEVEL OF SERVICE AT STUDY INTERSECTIONS

Traffic operations were evaluated at the study intersections under cumulative traffic conditions. Cumulative and project lane geometry and traffic control is illustrated in **Figure 16** and cumulative traffic volumes are shown in **Figure 17** and **Figure 18**. Results of the analysis are presented in **Table 12**. As shown in **Table 12**, a would operate at an acceptable level of service per City requirements. Analysis sheets are provided in **Appendix F**.

A qualitative assessment of the intersection of Grant Line Road and the I-205 EB Ramps was performed based on data and findings from the *Harvest in Tracy Draft Transportation Impact Study*. The Cumulative Plus Project conditions showed that this intersection will operate at a LOS E in the AM peak hour and LOS F in the PM peak hour. The intersection of Grant Line Road / Henley Parkway operates at a LOS F in the AM and PM peak hours, also as reported in the *Harvest in Tracy Draft Transportation Impact Study*.







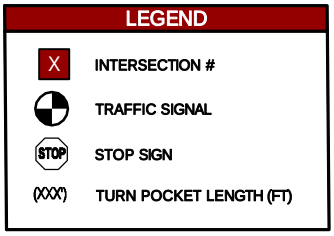


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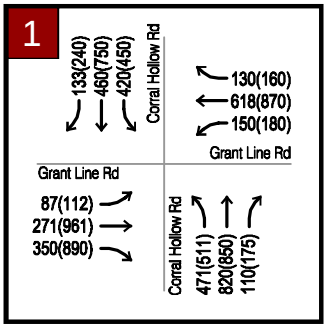
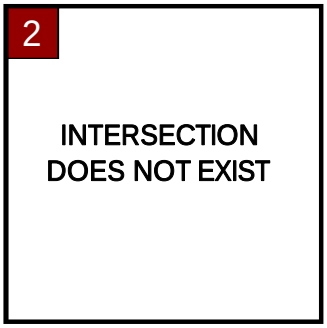
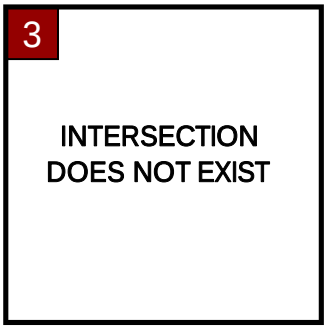
Figure 16

Cumulative Conditions
Lane Geometry and Traffic Control







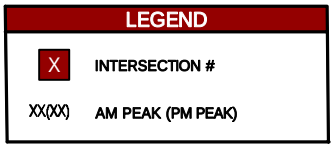


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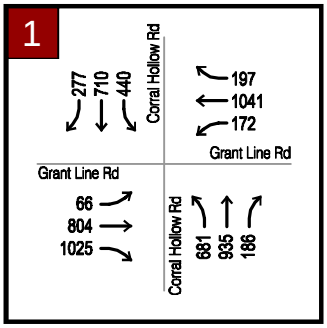
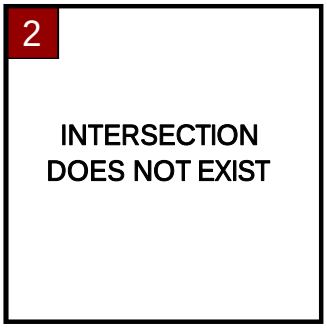
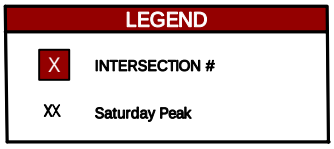
Figure 17

Cumulative Conditions

Weekday Peak Hour Turning Movement Volumes







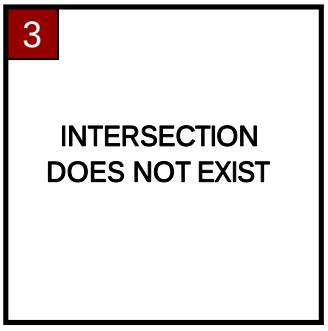


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Figure 18
Cumulative Conditions
Saturday Peak Hour Turning Movement Volumes

Table 12 – Cumulative Conditions Level of Service

#	Intersection	Control Type	Cumulative Conditions								
			AM Peak Hour			PM Peak Hour			Sat Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS
1	Corral Hollow Road/Grant Line Road	Signal	Overall	30.1	C	Overall	41.0	D	Overall	46.4	D
2	SE Project Driveway/Grant Line Road	Does Not Exist	-	-	-	-	-	-	-	-	-
3	NE Project Driveway/Corral Hollow Road	Does Not Exist	-	-	-	-	-	-	-	-	-

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard for the City is D.
4. Intersections that fall below City standard are shown in **bold.**
5. The average control delay is reported for signalized intersections. The delay for the worst movement is reported for side-street stop-controlled (SSSC) intersections)

6.4 CUMULATIVE LEVEL OF SERVICE AT ROADWAY SEGMENTS

Traffic operations were evaluated at the study roadway segments under cumulative traffic conditions. Results of the analysis are presented in **Table 13**. The segment of Grant Line Road between I-205 to Corral Hollow Road would operate at a deficient v/c in the eastbound direction during the PM and Saturday peak hours and in the westbound direction during the Saturday peak hour.

Table 13 – Cumulative Conditions Roadway Segment Analysis

Street	Segment	Cumulative Capacity (vph)	Cumulative					
			Volume (vph)			V/C		
			AM	PM	Saturday	AM	PM	Saturday
Corral Hollow Road (Southbound)	I-205 to Grant Line Road	2,228	1,013	1,440	1,427	0.455	0.646	0.604
Corral Hollow Road (Northbound)	Grant Line Road to I-205	2,228	1,037	1,122	1,198	0.465	0.504	0.538
Grant Line Road (Eastbound)	I-205 to Corral Hollow Road	2,228	708	1,963	1,895	0.318	0.881	0.851
Grant Line Road (Westbound)	Corral Hollow Road to I-205	2,228	1,222	1,621	1,999	0.548	0.728	0.897

Notes:
Capacities derived from the City of Tracy 2035 Travel Demand Model.
V/C ratios are correlated with LOS as follows: <0.60 = LOS A; 0.60 - 0.69 = LOS B; 0.70 - 0.79 = LOS C; 0.80 - 0.89 = LOS D; **0.90 - 0.99 = LOS E; ≥1.00 = LOS F**.

7.0 CUMULATIVE (2035) PLUS PROJECT TRAFFIC CONDITIONS

Traffic operations were evaluated under the following cumulative conditions:

- Cumulative (2035) Conditions
- Cumulative (2035) Plus Project Conditions

Results of the analysis are presented in the following sections.

7.1 CUMULATIVE PLUS PROJECT INTERSECTION LEVEL OF SERVICE

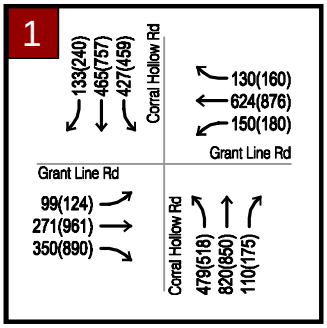
Trips generated by the project were added to the cumulative conditions to assess the Cumulative plus project traffic volumes and are illustrated in **Figure 19** and **Figure 20**. Cumulative plus project conditions were evaluated at study intersections and are presented in **Table 14**. As shown in **Table 14**, Intersection #1 – Grant Line Road / Corral Hollow Road would operate at an unacceptable LOS E for the Saturday peak hour with the addition of the project traffic. The addition of the project traffic worsens the intersection from an acceptable LOS D to an unacceptable LOS E, and thus the project has a significant impact at this intersection. Analysis sheets are provided in **Appendix G**.

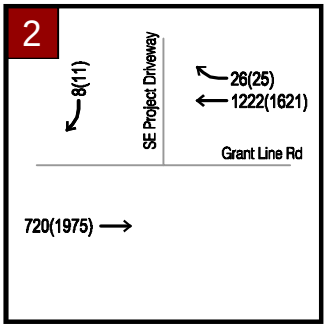
A qualitative assessment of the intersection of Grant Line Road and the I-205 EB Ramps was performed based on data and findings from the *Harvest in Tracy Draft Transportation Impact Study*. The Cumulative Plus Project conditions showed that this intersection will operate at a LOS E (with 59.4 seconds of delay) in the AM peak hour and LOS F (with 282.1 seconds of delay) in the PM peak hour. The proposed project is adding less than 12 vehicle trips in each direction in the AM and PM peak hours to this intersection and therefore this should not worsen the LOS in the AM peak hour to LOS F (at least 80 seconds of delay). However, in the PM peak hour, the intersection is already failing, and therefore the project would worsen the intersection slightly.

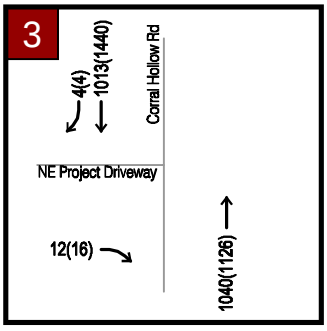
A qualitative assessment of the intersection of Grant Line Road and Henley Parkway was performed based on data and findings from the *Harvest in Tracy Draft Transportation Impact Study*. The Cumulative Plus Project conditions showed that this intersection operated at a LOS F, with 234.5 seconds of delay in the AM peak hour and a LOS F, with 322.4 seconds of delay in the PM peak hour. The proposed project is adding 12 or less vehicle trips in each direction to the through movements in the AM and PM peak hours to this intersection and therefore this should not worsen the delay by five or more seconds.

The intersection of Grant Line Road and Orchard Parkway is expected to have a similar operation to the intersection of Grant Line Road and Henley Parkway and therefore this project should not worsen the delay by five or more seconds.

The project would pay the City Traffic Impact fees. The addition of a new eastbound loop on-ramp to I-205 at the intersection is included in the Fee Program and thus the project is contributing its fair share towards any incremental cumulative impacts.







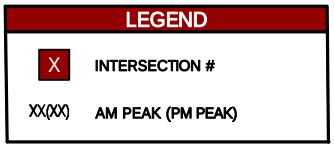


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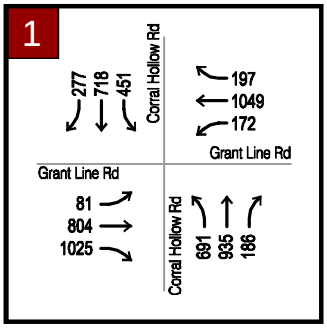
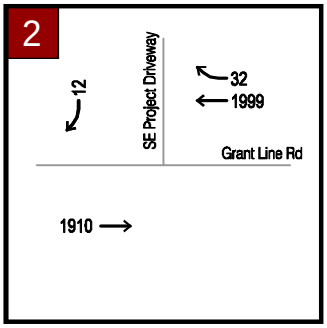
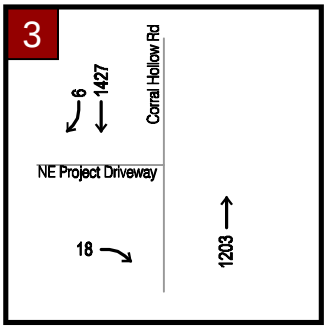
Figure 19
Cumulative Plus Project Conditions
Weekday Peak Hour Turning Movement Volumes







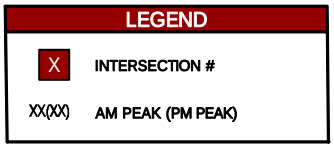


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Figure 20

Cumulative Plus Project Conditions

Saturday Peak Hour Turning Movement Volumes

Table 14 – Cumulative Plus Project Intersection Level of Service Summary

#	Intersection	Control Type	Cumulative Conditions									Cumulative Plus Project Conditions									Delay Increase > 4 sec/veh (signal) Or Volume Increase > 10% (stop)
			AM Peak Hour			PM Peak Hour			Saturday Peak Hour			AM Peak Hour			PM Peak Hour			Saturday Peak Hour			
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	
1	Corral Hollow Road / Grant Line Road	Signal	Overall	30.1	C	Overall	41.0	D	Overall	46.4	D	Overall	35.2	D	Overall	49.7	D	**Overall**	**58.5**	**E**	Yes
2	SE Project Driveway / Grant Line Road	SSSC	-	-	-	-	-	-	-	-	-	SSSC	-	-	SSSC	-	-	SSSC	-	-	-
		Worst Approach	-	-	-	-	-	-	-	-	-	*Worst Approach*	15.0	C	*Worst Approach*	18.8	C	*Worst Approach*	23.9	C	-
3	NE Project Driveway / Corral Hollow Road	SSSC	-	-	-	-	-	-	-	-	-	SSSC	-	-	SSSC	-	-	SSSC	-	-	-
		Worst Approach	-	-	-	-	-	-	-	-	-	*Worst Approach*	13.5	B	*Worst Approach*	16.9	C	*16.9*	16.9	C	-

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard for the City is D.
4. Intersections that fall below City standard are shown in **bold** and significant impacts are highlighted.

7.2 CUMULATIVE PLUS PROJECT ROADWAY SEGMENT LEVEL OF SERVICE

Traffic operations were evaluated at the study roadway segments under cumulative plus project traffic conditions. Results of the analysis as they compare with results in cumulative conditions are presented in **Table 15**. As shown in **Table 15**, the segment of Grant Line Road between Corral Hollow Road and I-205 would operate a deficient v/c in the westbound direction during the Saturday peak hour. However, the project increases the v/c by less than 0.01, and therefore this is not a significant impact.

Table 15 – Cumulative Plus Project Roadway Segment Analysis

Street	Segment	Cumulative Capacity (vph)	*Cumulative*						*Cumulative Plus Project*					
			Volume (vph)			*V/C*			*Volume (vph)*			*V/C*		
			AM	PM	Saturday	AM	PM	Saturday	AM	PM	Saturday	AM	PM	Saturday
Corral Hollow Road (Southbound)	I-205 to Grant Line Road	2,228	1,013	1,440	1,427	0.455	0.646	0.640	1,025	1,456	1,446	0.460	0.654	0.649
Corral Hollow Road (Northbound)	Grant Line Road to I-205	2,228	1,037	1,122	1,198	0.465	0.504	0.538	1,049	1,134	1,213	0.471	0.509	0.544
Grant Line Road (Eastbound)	I-205 to Corral Hollow Road	2,228	708	1,963	1,895	0.318	0.881	0.851	720	1,975	1,910	0.323	0.886	0.857
Grant Line Road (Westbound)	Corral Hollow Road to I-205	2,228	1,222	1,621	1,999	0.548	0.728	0.897	1,236	1,634	2,017	0.555	0.733	**0.905**

Notes:
Capacities derived from the City of Tracy 2035 Travel Demand Model.
V/C ratios are correlated with LOS as follows: <0.60 = LOS A; 0.60 - 0.69 = LOS B; 0.70 - 0.79 = LOS C; 0.80 - 0.89 = LOS D; **0.90 - 0.99 = LOS E; ≥1.00 = LOS F.**

7.3 IMPROVEMENT REQUIREMENTS

The intersection of Grant Line Road / Corral Hollow Road operates at an unacceptable LOS in the Existing Plus Project, Existing Plus Background Plus Project and the Cumulative Plus Project scenarios. For the Existing Plus Project scenario, optimizing the cycle length would mitigate the significant impact to less than significant. In both the PM and Saturday peak hours, the LOS would improve from an unacceptable LOS E to an acceptable LOS C. For the Existing Plus Background Plus Project scenario, optimizing the cycle length would mitigate the significant impact to less than significant. In both the PM and Saturday peak hours, the LOS would improve from an unacceptable LOS F to an acceptable LOS D. For the Cumulative Plus Project scenario, changing the northbound left turn phase to a lagging phase would mitigate the significant impact to less than significant. In the Saturday peak hour, the LOS would improve from an unacceptable LOS E to an acceptable LOS D.

Table 16, Table 17, and Table 18 illustrates the LOS at Grant Line Road / Corral Hollow Road with the proposed mitigations.

The project will pay SJCOG, County of San Joaquin, and City of Tracy Traffic Impact Fees. The City of Tracy fees will be utilized to pay a proportionate fair share towards lengthening the northbound left turn pocket and shortening the bay taper to provide additional left turn storage from northbound Corral Hollow Road onto Grant Line Road (the median opening south of the existing left turn lanes will be closed), and also contribute towards Citywide cumulative incremental impacts. The project's fair share percentage is 2.4 percent based on the AM and PM peak hours.

Table 16 – Improved Conditions Level of Service

#	Intersection	Control Type	Existing Conditions									Existing Plus Project Conditions (Mitigated)								
			AM Peak Hour			PM Peak Hour			Saturday Peak Hour			AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS
1	Corral Hollow Road / Grant Line Road	Signal	Overall	26.1	C	Overall	52.0	D	**Overall**	**58.7**	**E**	Overall	26.1	C	Overall	30.0	C	Overall	31.6	C

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard for the City is D.
4. Intersections that fall below City standard are shown in **bold**.

Table 17 – Improved Conditions Level of Service

#	Intersection	Control Type	Existing Plus Background Conditions									Existing Plus Background Plus Project Conditions (Mitigated)								
			AM Peak Hour			PM Peak Hour			Saturday Peak Hour			AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS
1	Corral Hollow Road / Grant Line Road	Signal	Overall	33.6	C	**Overall**	**103.1**	**F**	**Overall**	**112.3**	**F**	Overall	37.5	D	Overall	40.3	D	Overall	40.6	D

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard for the City is D.
4. Intersections that fall below City standard are shown in **bold**.

Table 18 – Improved Conditions Level of Service

#	Intersection	Control Type	Cumulative Conditions									Cumulative Plus Project Conditions (Mitigated)								
			AM Peak Hour			PM Peak Hour			Saturday Peak Hour			AM Peak Hour			PM Peak Hour			Saturday Peak Hour		
			Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS	Movement	Delay	LOS
1	Corral Hollow Road / Grant Line Road	Signal	Overall	30.1	C	Overall	41.0	D	Overall	46.4	D	Overall	35.1	D	Overall	49.5	D	Overall	54.5	D

Notes:
1. Analysis performed using HCM 2010 methodologies.
2. Delay indicated in seconds/vehicle.
3. Overall level of service (LOS) standard for the City is D.
4. Intersections that fall below City standard are shown in **bold**.

8.0 POTENTIAL EFFECTS ON TRANSIT, BICYCLE, AND PEDESTRIAN MOBILITY

The proposed project was evaluated to determine if it would likely conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks) or generate pedestrian, bicycle, or transit travel demand that would not be accommodated by existing transit, bicycle, or pedestrian facilities and plans.

The guests and employees of the proposed project will have the option of driving, taking transit, walking or bicycling to and from the proposed project.

8.1 TRANSIT

For those taking transit, they can utilize Route 90 of the County Hopper service that operates along Grant Line Road, with a stop at the intersection of Grant Line Road and Orchard Parkway. This is the only transit route that runs adjacent to the project site along Grant Line Road and Corral Hollow Road. The project would likely not conflict with existing or planned transit facilities. Since the number of options for transit to and from the site is limited due to the proximity to the site, the project will likely add few transit riders and therefore not degrade the transit operations. Since the project does not conflict with existing or planned transit facilities and there are adequate facilities for pedestrian and bicycles to access transit stops, the project will have a **less than significant impact** on transit services.

8.2 PEDESTRIAN

There are existing sidewalks along the project site's frontage on Corral Hollow Road and on Grant Line Road. The project is proposing to close the existing sidewalk gap on the north side of Grant Line Road fronting the proposed project. It is anticipated that pedestrians would use these sidewalks along the project site's frontages to access the adjacent land uses and the transit stop nearby. At the intersection of Corral Hollow Road and Grant Line Road, there are striped crosswalks for each direction, allowing pedestrians to more safely cross the adjacent roadways. The project will have a **less than significant impact** on pedestrian service.

8.3 BICYCLE

Bicyclists will have direct access to the project site using bicycle lanes on Grant Line Road and Corral Hollow Road. These bicycle lanes provide access to the project site and other bicycle facilities throughout the City.

The project is proposing to extend the curb return for the southbound right turn movement at the intersection of Grant Line Road and Corral Hollow Road. In addition, the project will be proposing to restrict right turns on red for the southbound right turn movement. This improvement should improve bicycle movement since westbound bicycle riders at this intersection would not be conflicted with southbound right turning vehicles making the right turn on red when the westbound approach has the green light.

The proposed project does not impact the safety of bicyclists or have any hazardous design features impeding the use of bicycles facilities. Since the proposed project does not conflict with any adopted policies or plans related to bicycle activity, the proposed project will have a **less than significant impact** on bicycle service.

9.0 CITY OF TRACY

9.1 GENERAL PLAN

The General Plan Circulation Element identifies the location and extent of existing and planned circulation and transportation facilities, consistent with the existing and planned land uses described in the Land Use Element. Relevant objectives and policies related to roadways and circulation are listed below.

Objective CIR-1.1: Implement a hierarchical street system in which each street serves a specific, primary function and is sensitive to the context of the land uses served.

P1. The City should develop context-based street designs that allow for variations based on the expected function and location of the facility, and the surrounding land use context. These context-sensitive designs should have the following aims:

- Create aesthetically attractive streetscapes.
- Enhance multi-modal transportation by increasing mobility and improving safety for autos, trucks, transit, pedestrians and bicyclists.

P2. The City shall preserve rights-of-way needed for future roadway and freeway interchange improvements through dedication or acquisition as adjacent properties develop or redevelop.

P3. The City shall continue to apply traffic mitigation fee programs to fund transportation infrastructure, based on a fair share of facility use.

Objective CIR-1.2: Provide a high level of street connectivity.

P1. The City shall ensure that the street system results in a high level of connectivity, especially between residences and common local destinations, such as schools, Village Centers, retail areas and parks. The standard for roadway (vehicular) connectivity is defined as appropriate spacing of arterials and collectors and local roads as detailed above in Section B of this Element “Roadway Classifications and Standards.”

P2. The City shall implement a connected street pattern with multiple route options for vehicles, bikes and pedestrians.

P3. New development shall be designed to provide vehicular, bicycle and pedestrian connections with adjacent developments.

P4. The City should develop residential street alignments and designs that provide connectivity while discouraging high speed cut-through traffic.

P5. New development shall be designed with a grid or modified grid pattern to facilitate traffic flows and to provide multiple connections to arterial streets.

Objective CIR-1.3 Adopt and enforce LOS standards that provide a high level of mobility and accessibility, for all modes, for residents and workers.

P1. To the extent feasible, the City shall strive for LOS D on all streets and intersections, with the LOS standard for each facility to be defined in the Transportation Master Plan in accordance with the opportunities and constraints identified through the traffic projections and analysis performed for that Plan. The following exceptions to the LOS D standard may be allowed:

- LOS E or lower shall be allowed on streets and at intersections within one-quarter (1/4) mile of any freeway. This lower standard is intended to discourage inter-regional traffic from using Tracy streets.
- LOS E or lower shall be allowed in the Downtown and Bowtie area of Tracy, in order to create a pedestrian-friendly urban design character and densities necessary to support transit, bicycling and walking.

P2. The City may allow individual locations to fall below the City's LOS standards in instances where the construction of physical improvements would be infeasible, prohibitively expensive, significantly impact adjacent properties or the environment, or have a significant adverse effect on the character of the community, including pedestrian mobility, crossing times, and comfort/convenience.

P6. For project-specific development approvals, the LOS at major street intersections shall be determined based on the direct estimation of peak-hour conditions and should reflect the average condition prevailing throughout the peak hour of a typical weekday for all traffic using the intersection.

P7. Traffic studies for new developments within the City may be prepared if necessary and appropriate to determine the impacts of the projects traffic on the transportation system.

Objective CIR-1.5 Protect residential areas from through traffic and high travel speeds by facilitating free flow of traffic on major streets.

P1. Use of local residential streets by non-local and commercial traffic shall be discouraged. The City may consider techniques such as route signs and route maps. This policy should not restrict the ability of local vehicle and non-motorized transportation to utilize residential collectors as an effort to encourage higher levels of roadway connectivity.

P2. The City shall coordinate the timing of traffic signals on arterials to facilitate traffic movement.

Objective CIR-1.6 Maximize traffic safety for automobile, transit, bicycle users, and pedestrians.

P1. The City shall design streets using context-sensitive design principles that enhance safety for all modes of travel.

P2. New development shall implement traffic calming measures where necessary so long as connectivity is not diminished.

Objective CIR-1.7 Minimize traffic-related impacts such as noise and emissions on adjacent land uses.

P1. Appropriate buffering and screening mechanisms shall be incorporated in development projects to limit the impacts associated with traffic. These buffering and screening mechanisms may include setbacks, landscaping, berms, sound walls or other methods as appropriate.

P2. Soundwalls shall only be used next to major arterials, and other high-speed, high-volume facilities in accordance with the policies in the Community Character Element.

Objective CIR-1.8 Minimize transportation-related energy use and impacts on the environment.

P1. Transportation projects shall avoid disrupting sensitive environmental resources.

P2. When possible, road construction and repair project shall use sustainable materials.

P3. The City shall encourage the use of non-motorized transportation and low-emission vehicles.

Objective CIR-2.1 Support regional planning and implementation efforts to improve interregional highways and interregional travel efficiency.

P1. The City shall continue to cooperate with regional and State agencies, including Caltrans and San Joaquin Council of Governments (SJCOG) to study, plan and fund improvements to the regional transportation system. These regional transportation improvements may include freeway widening, the construction of regional roadways, regional passenger rail expansions, additions to the existing commuter bus system and provision of the park-and-ride lots near facilities heavily used by commuters.

P2. The City should ensure that land needed for park-and-ride facilities is conserved in new development areas.

P3. The City shall work with other local jurisdictions, SJCOG, and Caltrans, to identify and develop alternative routes to allow locally generated traffic to bypass congestion on I-205 and I-580 without impacting City streets.

P4. The City shall work with the City of Lathrop and San Joaquin County to preserve a right-of-way along the existing alignment of Middle Road / Arbor Avenue north of I-205 (a.k.a. Golden Valley Parkway) for the future construction of a regional parallel to I-205. This process should determine appropriate funding mechanisms and the design of an interchange with I-205 at Chrisman Road.

Objective CIR-2.2 Discourage inter-regional travel from diverting from freeways onto Tracy streets.

P1. The City shall consider techniques, such as freeway ramp metering or traffic signal timing changes, to discourage the diversion of inter-regional travel from the freeways onto Tracy streets.

Objective CIR-3.1 Achieve a comprehensive system of citywide bikeways and pedestrian facilities.

P1. The City shall incorporate appropriate bicycle and pedestrian facilities on all roadways constructed by the City, Class I to the extent feasible.

P2. To the extent possible, the city shall separate vehicular from bicycle and pedestrian traffic on higher-speed and higher-volume roadways through the use of off-street bicycle and pedestrian facilities.

P3. The City may separate bicycle from pedestrian users on high usage bicycle and pedestrian paths

P4. The City's bicycle and pedestrian system shall have a high level of connectivity, especially between residences and common local destinations, such as schools, shopping, and parks. A higher level of bicycle and pedestrian connectivity is defined as a shorter or similar distance to common destinations for bicycles and pedestrians compared to distances for vehicles.

P5. The City shall establish a ½-mile walkability standard for residents to access goods, services, and recreational facilities.

P6. New development shall include pedestrian and bicycle facilities internal to the development and that connect to city-wide facilities, such as parks, schools and recreational corridors, as well as adjacent development and other services.

P7. New development sites for commercial, employment, educational, recreational, and park and ride land uses shall provide bicycle parking and/or storage facilities.

Objective CIR-4.1 Promote public transit as an alternative to the automobile.

P1. The City shall promote efficient and affordable public transportation that serves all users.

P2. The City shall continue to partner with SJCOG, SJRTD, and Caltrans in efforts to locate park-and-ride lots and other transit-related facilities in the City of Tracy.

P3. The City shall continue to operate the Tracer fixed-route and paratransit transit service and expand service to new residential and non-residential areas if funding for additional service is available and is warranted by ridership demand.

P4. The City shall seek funding from regional and State and federal agencies to fund additional transit service expansions and improvements.

P5. The City shall require development to provide for transit and transit-related increased modal opportunities, such as adequate street widths and curb radii, bus turnouts, bus shelters, park-and-ride lots and multi-modal transit centers through the development and environmental review processes, if appropriate.

P6. The City shall encourage efforts for additional regional transit service, including expansion of the existing commuter bus service, and new commuter rail serve from Tracy to other areas in the region.

Objective CIR-421

P1. The City shall complete the Multi Modal Transit Center at Central Avenue and 6th Street.

P2. The City shall preserve the necessary rights-of-way by continuing the implementation of current arterial street standards and ensuring the preservation of existing rail corridors to facilitate the development of an expanded transit program in the future.

P3. The City shall encourage the expansion of transit services through consultation and cooperation with the Bay Area Rapid Transit District (BART), San Joaquin Regional Rail Commission, San

Joaquin Regional Transit District, the Altamont Commuter Express (ACE), on services that expand the mobility and accessibility of transporting people, goods and services in and through Tracy and the region.

P4. The City shall develop a fully integrated multi-modal transportation system that takes into account access to employment, education, shops, medical services and that facilitates participation in social and recreational opportunities.

P5. The City shall provide efficient, effective, and coordinated transit system that maximizes use of regional, state, and federal funds.

P6. The City shall pursue economical, long term solutions to transportation problems by encouraging community designs which encourage transit use and walking, bicycling, and other non-motorized forms of transportation.

9.2 SUSTAINABILITY ACTION PLAN

The City's Sustainability Action Plan (SAP) responds to recent state legislation on climate change and greenhouse gas reduction, and integration of transportation and land use planning. The SAP includes policies and programs designed to reduce greenhouse gas emissions generated by a range of activities, including transportation. The transportation targets include:

- Target #5a: 20 percent increase in the percentage of non-City employees who participate in travel demand management programs from 2006 baseline levels
- Target #5b: 20 percent increase in the percentage of City employees who participate in travel demand management programs from 2006 baseline levels
- Target #6a: 20 percent reduction in the community vehicle miles travelled (VMT) per capita from current (2006) levels
- Target #6b: 20 percent reduction in the municipal VMT from 2006 baseline levels

The SAP presents 21 sustainability measures within the Transportation and Land Use category, which have quantifiable effects, based on available research, on greenhouse gas production – mostly through VMT reduction, including the following measures:

- Measure T-2: Reduced parking requirements.
- Measure T-3: Support for bicycling.
- Measure T-4: Support for transit.
- Measure T-5: Smart growth, urban design, and planning.
- Measure T-13: Reduce commute trips.
- Measure T-14: Parking cash-out for employees.
- Measure T-16: Transit passes for residents and employees of new developments.

9.3 ROADWAY AND TRANSPORTATION MASTER PLAN

The purpose of the TMP is to implement the transportation policies of the General Plan. The TMP identifies roadway improvements required at the citywide level to support the long-range buildout of the City. Roadway improvements identified include, but are not limited to alignments, cross-sections, roadway and intersection design, and access controls for expressways, arterials, collectors, and industrial

streets. In addition, the TMP allocates widths for bike lanes, sidewalks, landscaped setbacks, and median widths. As development takes place, project-specific traffic analyses are utilized to determine the degree of roadway improvements required, as TMP roadway improvements are generally a subset of the ultimate roadway network required to support the buildout of the General Plan.

9.4 TRUCK TRAFFIC

TRACY TRUCK ROUTES

The project will add an insignificant number of truck traffic, except during construction, onto the City road network.

All freeway interchanges, by nature, serve as truck route access locations to the City of Tracy road network. From the interchanges and freeways, regional routes continue throughout the City road network. In the vicinity of the project, trucks can access the road network from the interchange at Interstate-205 onto Grant Line Road.

Section 3.08.290 of the City's Municipal Code establishes truck routes throughout the City restricting vehicles routes within the City with a gross vehicle weight of five tons or more, licensed commercially as a truck in the state of origin, and used for carrying goods for pickup and delivery. Vehicles meeting this requirement shall drive only on truck route designated streets except when necessary for egress and ingress by direct route to and from restricted street for the purpose of loading or unloading.

Currently there are three types of truck routes within the City of Tracy: "Through Truck Routes," "Local Truck Routes" and "STAA truck routes." These routes are indicated throughout the City with the appropriate signage specific to each route type per requirements in the Manual on Uniform Traffic Control Devices (MUTCD).

Through truck routes are defined as a route that allows any vehicle entering the City of Tracy from any point outside the City and destined for any other point located outside the City to proceed entirely through without unloading or loading freight within the City of Tracy. Existing through truck routes within the City of Tracy include:

- Grant Line Road from I-205 to Corral Hollow Road
- Corral Hollow Road from Grant Line Road to Larch Road (which is north of I-205)

Local truck routes are defined as a route that may not be used by any truck to move from any point outside of the City of Tracy continuously to any other point located outside the City of Tracy without unloading or loading within the City of Tracy. All local truck traffic trips must use the shortest local truck traffic route between connecting or through truck traffic routes and the origin and destination within the City. Existing local truck routes within the City of Tracy include

- Lammers Road (Eleventh Street to 0.5 miles south of Eleventh Street) City portion

Surface Transportation Assistance Act (STAA) truck routes are assigned by Caltrans and/or the City, and include oversized trucks and require special geometric design considerations, and pavement design. The Surface Transportation Assistance Act (STAA) of 1982 authorized the establishment of a national network of highways designated for use by large trucks. On these highways, Federal width and length limits apply. The STAA allows large trucks to operate on the Interstate and certain primary routes called collectively the National Network (NN). These trucks, referred to as STAA trucks, are longer than California legal

trucks. As a result, STAA trucks have a larger turning radius than most local roads can accommodate. The law allows for "reasonable access" to and from the NN for terminals, deliveries, trucks stops, repairs, and other reasons. The NN is recommended for through truck traffic (e.g. traffic that is passing through the area), and trucks are allowed to operate on truck-restricted roads if they have no other means of access to their destination.

Through the City of Tracy, I-205 is a STAA route. I-580 to the south of the City limits is also a designated STAA route. Both routes are designated as National Network STAA routes.

The City also approved the Cordes Ranch Specific Plan EIR, subsequent to the TMP adoption, and additional truck routes have been designated, which include the existing Old Schulte Road and the existing Mountain House Parkway. The City of Tracy TMP designates truck routes as indicated in Figure 2 of the TMP: City of Tracy Existing Truck Routes. The routes shown on the figure are consistent with those specified in Section 3.08.310 of the Tracy Municipal Code.

10.0 VEHICLE QUEUING AND SITE ACCESS AND CIRCULATION

On-site circulation was evaluated at the project's internal intersections and all internal intersections shall be side-street stop controlled (SSSC), as indicated in the Site Plan in **Figure 2**.

10.1 VEHICLE QUEUING

Vehicle queuing for each study intersection was analyzed using the *Highway Capacity Manual, 2010* (HCM) methodology. The 95th percentile queue length was compared to the turn pocket storage length to determine if queues would exceed the storage length. Only left turn queues were evaluated for operational deficiencies. The analysis showed that queuing storage deficiencies would occur at intersection one for the eastbound right approach due to the proposed project in the cumulative plus project scenario.

QUEUING

The effects of vehicle queuing were analyzed and the 95th percentile queue is reported for the intersection of Grant Line Road / Corral Hollow Road. The 95th percentile queue length represents a condition where 95 percent of the time during the peak hour, traffic volumes will be less than or equal to the queue length determined by the analysis. This is referred to as the "95th percentile queue."

Queues that exceed the turn pocket length can create potentially hazardous conditions by blocking or disrupting through traffic in adjacent travel lanes. However, these potentially hazardous queues are generally associated with left turn movements. Locations where the right turn pocket storage is exceeded are not typically considered potentially hazardous because the right turn movement progresses at the same time as the through movement and the additional vehicles that spill out of the turn pocket are less likely to hinder nor disrupt the adjacent through traffic.

As congestion increases, it is common for traffic at intersections to form lines of stopped (or queued) vehicles. Queue lengths were determined for each turn lane and measure the distance that vehicles will back up in each direction approaching an intersection. The 95th percentile queue is used to account for fluctuations in traffic and represents a condition where 95 percent of the time during the peak period, traffic volumes will be less than or equal to the queue determined by the analysis. It is used as a benchmark for determining deficiencies as a standard transportation engineering practice. A typical

vehicle length of 25 feet was used in the queuing analysis. Since there are no defined thresholds for vehicle queues, an operational deficiency was assumed to occur if the queue increases by one or more vehicles and the vehicle queue exceeds the turn pocket length. A summary of the queuing results is included in **Appendix J**.

The queuing analysis showed that several existing turn bay storage lengths are exceeded, but these are all pre-existing deficiencies. The northbound left turn lane queue of 180 feet, 240 feet, and 342 feet in the AM, PM, and Saturday peak hours, respectively, in the existing scenario exceed the 90-foot turn pocket length. The project does not add more than one vehicle length (i.e. 25 feet) to the queue and therefore this is not an operational deficiency due to the proposed project.

In the Existing Plus Background Plus Project scenario, the northbound left turn storage pocket length is extended as a mitigation for the Grant Line Apartments project. The length of the turn pocket lane is not specified. Nonetheless, this project does not add more than a vehicle to the queue length. With the mitigation of optimizing the cycle length at this intersection to address the LOS impact, the northbound left turn lane queue is 380 feet.

11.0 TRAFFIC IMPACT FEES

CITY OF TRACY CITYWIDE TRAFFIC IMPACT FEE (TIF) PROGRAM AND FINANCE AND IMPLEMENTATION PLANS (FIP)

The adopted City of Tracy Traffic Impact Fee Program (TIF), (November 2013) presents probable cost estimates for the proposed Horizon Year (2035) roadway network improvements as presented in the TMP. It includes the following facilities:

- Overpasses/Underpasses/Bridges/Culverts
- Intersections
- Roadway Segments
- Intelligent Transportation Systems
- Railroad Crossings

The TMP projects would be funded through the TIF by future developments and future grants as growth occurs in the City through General Plan Buildout. The TIF would be updated as the City General Plan is updated or major changes occur to the funding program, i.e. grant funding becomes available. If the City has not collected enough of the Citywide traffic impact fees to fund an improvement at the time an impact is caused, the Project Applicant would be required to fund the required improvement upfront and enter into a reimbursement agreement with the City for their portion of fair share payments that are attributed to other cumulative traffic growth. Improvements triggered by implementation of the proposed Project but not included in the TIF would be funded by the Project Applicant.

SAN JOAQUIN COG REGIONAL TRANSPORTATION IMPACT FEE (RTIF)

The City is a member agency of the San Joaquin Council of Governments (SJCOG), a joint powers agency consisting of the County of San Joaquin and the seven cities situated in San Joaquin County. Acting in concert, the member agencies of SJCOG developed the regional transportation impact fee (RTIF) Program whereby the shortfall in funds needed to expand the capacity of the Regional Transportation Network could be made up in part by a RTIF Program Fee on future residential and non-

residential development. The RTIF Program Fee would augment other funding sources and help ensure that needed improvements to the Regional Transportation Network are completed.

SAN JOAQUIN COUNTY TRAFFIC FEE PROGRAM

San Joaquin County has adopted a traffic mitigation fee program for the purpose of collecting fees to finance transportation facilities needed to accommodate new development within unincorporated San Joaquin County. The program includes a fee schedule for projects that occur in the unincorporated areas around Tracy. The following is the County traffic impact mitigation fee schedule, in dwelling unit equivalents (DUE) and by use type:

- Single Family (DUE) - $1,044.30
- Multi-Family (DUE) - $647.14
- Office (1KSF) - $1,555.93
- Retail Service (1KSF) - $3,916.68
- Warehouse (1KSF) - $615.60
- Service Commercial (1KSF) - $2,825.66
- Manufacturing (1KSF) - $783.81

12.0 REGIONAL TRANSPORTATION PLANNING DOCUMENTS

As a requirement of CEQA, this project is required to show consistency with all applicable regional transportation planning documents, including:

- San Joaquin County Regional Congestion Management Program
- San Joaquin COG Capital Improvement Program
- Regional Transportation Demand Management Plan
- Park-and-Ride Master Plan
- Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan
- Regional Smart Growth Transit Oriented Development Plan
- Regional Transit Systems Plan
- Regional Transportation Impact Fee Program
- 2014 Regional Transportation Plan/Sustainable Communities Strategy

12.1 SAN JOAQUIN COUNTY REGIONAL CONGESTION MANAGEMENT PROGRAM 2016

The San Joaquin County Regional Congestion Management Program (RCMP) is state-mandated and is a mechanism employing growth management techniques, including traffic level of service requirements, development mitigation programs, transportation systems management, and capital improvement programming, for the purpose of controlling and/or reducing the cumulative regional impacts of development. Caltrans utilizes the SJCOG LOS standards on the freeway segments within San Joaquin County. The following provisions of the CMP are relevant to the project:

- The CMP system includes Corral Hollow Road, Grant Line Road, and Interstate Highway 205. The LOS thresholds for intersections are set at “D”.

- A proposed development would have a significant impact to the network if for any RCMP roadway currently operating at LOS D or better under No Project conditions operates at LOS E or F under project-added conditions during the AM or PM peak hours.
- A proposed development would have a significant impact to the network if for any RCMP roadway currently operating at LOS E or F under No Project conditions will result in an increase to the average delay by 4 seconds or more, or an increase to the volume-to-capacity (v/c) ratio by 1.0 or more under project-added conditions during the AM or PM peak hours.
- A proposed development would also have a significance impact to the network if it shows any consistencies with the following regional planning documents:
    - Regional Transportation Demand Management Plan
    - Regional Expressway System Plan (System Management and TDM components)
    - Park-and-Ride Master Plan
    - Regional Bikeway Plan
    - Smart Growth Infill Opportunity Zone Plan
    - Regional Transit Systems Plan
    - Regional Transportation Impact Fee Program
    - Regional Transportation Plan
    - Interregional STAA Study for I-5 and SR-99

The CMP requires a deficiency plan if a roadway segment LOS falls below LOS "D" after calculating required exemptions for a particular project. A deficiency plan identifies mitigations to alleviate a roadway segment of its deficiency through capital improvements or implementation of system-wide improvements to benefit circulation quality. The two primary purposes of a deficiency plan are to ensure a jurisdiction would not be found noncompliant with the RCMP by exceeding its LOS standard and secondly, to increase the funding priority of any improvement identified through the deficiency planning process.

Several projects implemented in the SJCOG RCMP 2016 within the City of Tracy are located near the proposed project site. The existing interchange on I-205 at Grant Line Road will be modified. The study intersections along Grant Line Road would operate at a LOS D or better, with the mitigations identified. Therefore, this project is consistent with the policies outlined in the SJCOG RCMP 2016.

12.2 SAN JOAQUIN COG CAPITAL IMPROVEMENT PROGRAM

The SJCOG RCMP details the Capital Improvement Program (CIP) which is the action plan for the RCMP which provides a framework for the funding and implementation of projects that maintain or improve the transportation performance standards of the RCMP. SJCOG is required to adopt a seven-year CIP every odd numbered year which is intended to maintain or mitigate transportation impacts to the region in addition to conforming to transportation-related vehicle emission air quality mitigation measures. All projects in the Regional Transportation Improvement Program (RTIP) must first be listed in the CIP (this applies to most state-funded projects).

12.3 REGIONAL TRANSPORTATION DEMAND MANAGEMENT (TDM) PLAN

The Regional TDM Plan outlines legislation and mandates that are federally required. Many of these mandates require the County to have a congestion management process or CMP. The project-specific TDM mandates as they pertain to this project include:

- Revised CEQA Guidelines (Section 15064-7, Appendix G) requiring local land use development project to conform to both CMP LOS standards and CMP TDM measures.

- Rule 9410 – Employer Based Trip Reduction Programs adopted by the San Joaquin Valley Air Pollution Control District (SJVAPCD) in December 2009. Rule 9410 requires large employers (those with 100+ employees) located in the San Joaquin Valley – such as San Joaquin County - to establish employee trip reduction programs. These programs are designed to encourage employees to reduce single occupant vehicle trips, thus reducing pollutant emissions associated with work commutes. There are three components of compliance with Rule 9410:
    - Employer Registration (Implementation Starting in 2010-2011)
    - Employer Trip Reduction Implementation Plan (Implementation Starting in 2011-2013)
    - Employee Survey and Annual Report (Implementation Starting 2014)

The proposed project is consistent with the CMP LOS standards and does not qualify as a large employer. Therefore, the proposed project is consistent with the TDM mandates and with the policies outlined in the Regional TDM Plan.

12.4 SAN JOAQUIN COG PARK AND RIDE LOT MASTER PLAN

The San Joaquin COG Park and Ride Lot Master Plan outlines the existing facilities, their existing condition, and future demand based on growth, commute patterns, transit services, and HOV improvements.

The nearest existing Park and Ride Lot to the project is located on Naglee Road in Tracy, CA. It will expand from 180 to 230 spaces by adding 50 proposed new spaces to accommodate for the higher estimated demand in 2017. The project will not conflict with any Park and Ride facilities, and therefore is consistent with the San Joaquin COG Park and Ride Lot Master Plan.

12.5 SAN JOAQUIN COG REGIONAL BICYCLE, PEDESTRIAN, AND SAFE ROUTES TO SCHOOL MASTER PLAN

The San Joaquin COG Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan outlines general recommended bicycle and pedestrian improvement projects to prioritize funding and implementation of these projects. The goals listed in the plan include:

- Increase bicycle and pedestrian mobility throughout San Joaquin County
- Improve bicycle, pedestrian, and school access safety
- Increase the number of commute, recreation, and utilitarian bicycle and pedestrian trips
- Increase education and awareness of bicycling and walking in San Joaquin County
- Address congestion near schools and on the regional Congestion Management Program network.

The proposed project is within a ½ mile of three schools: Jacobson Elementary School, Merrill F. West High School, and Art Freiler School. Despite no connection between the proposed land use and schools in the area, the project is proposing to install a sidewalk along its project frontage, thereby closing the pedestrian gap along Grant Line Road to the west of Corral Hollow Road. This is a significant gap closure and promotes pedestrian mobility. The proposed project will also be accentuating the bicycle lane along Grant Line Road adjacent to the project site with green paint to highlight the bicycle right-of-way for motorists. The proposed improvements for pedestrians and bicyclists are consistent with the San Joaquin COG Regional Bicycle, Pedestrian, and Safe Routes to School Master Plan.

12.6 SAN JOAQUIN COG REGIONAL SMART GROWTH / TOD PLAN

San Joaquin COG Regional Smart Growth and Transit Oriented Development (TOD) Plan outlines examples of smart growth, is a tool for implementing the Measure K Smart Growth Incentive Program, and helps with promoting infill development.

This project is not located at one of the infill opportunity sites, as shown on Figure 6-9 of the plan. However, the project is proposing to install a sidewalk along its project frontage, thereby closing the pedestrian gap.

12.7 SAN JOAQUIN COG REGIONAL TRANSIT SYSTEM PLAN

San Joaquin County Regional Transit System Plans proposes to make several improvements to existing transit routes within the City of Tracy. Route 26 currently provides service only on weekdays and is proposed to run on Saturdays with bus stops near the proposed project area. These bus stops are located at Tracy's Walmart, Civic Center, and the intersection of Grant Line Road / MacArthur Drive. An additional bus stop is proposed for Route 90 and is located at Civic Center. A conceptual route is proposed to increase the connectivity between Mountain House and Tracy. This route will connect the two cities from the limits of Mountain House to Civic Center in Tracy. The proposed project does not conflict with these improvements, and therefore the project is consistent with the San Joaquin County Regional Transit System Plan.

12.8 SAN JOAQUIN COUNTY REGIONAL TIF

The San Joaquin County Regional TIF is discussed in Section 10.

12.9 SAN JOAQUIN COUNTY REGIONAL TRANSPORTATION PLAN AND SUSTAINABLE COMMUNITIES STRATEGY

The San Joaquin County Regional Transportation Plan and Sustainable Communities Strategy is the region's long-range transportation planning document. It provides a sustainability vision for 2040 for the county. The following policies and strategies are identified:

- Policy: Enhance the Environment for Existing and Future Generations and Conserve Energy
    - Strategy #1: Encourage Efficient Development Patterns that Maintain Agricultural Viability and Natural Resources
    - Strategy #2: Enhance the Connection between Land Use and Transportation Choices through Projects Supporting Energy and Water Efficiency
    - Strategy #3: Improve Air Quality by Reducing Transportation-Related Emissions
- Policy: Maximize Mobility and Accessibility
    - Strategy #4: Improve Regional Transportation System Efficiency
    - Strategy #5: Optimize Public Transportation System to Provide Efficient and Convenient Access for Users at All Income Levels
    - Strategy #6: Facilitate Transit-Oriented Development to Maximize Existing Transit Investments
    - Strategy #7: Provide Transportation Improvements to Facilitate Non-Motorized Travel
    - Strategy #8: Improve Major Transportation Corridors to Minimize Impacts on Rural Roads
- Policy: Increase Safety and Security

    - Strategy #9: Facilitate Projects that Reduce the Number of and Severity of Traffic Incidents
    - Strategy #10: Encourage and Support Projects that Increase Safety and Security
    - Strategy #11: Improve Communication and Coordination between Agencies and Public for Emergency Preparedness
- Policy: Preserve the Efficiency of the Existing Transportation System
    - Strategy #12: Optimize Existing Transportation System Capacity through Available and/or Innovative Strategies
    - Strategy #13: Support the Continued Maintenance and Preservation of the Existing Transportation System
    - Strategy #14: Encourage System Efficiency with Transportation Improvements that Facilitate an Improved Jobs/Housing Balance
    - Strategy #15: Improve Transportation Options Linking Residents to Employment Centers within and out of the County
- Policy: Support Economic Vitality
    - Strategy #16: Improve Freight Access to Key Strategic Economic Centers
    - Strategy #17: Promote Safe and Efficient Strategies to Improve the Movement of Goods by Water, Air, Rail, and Truck
    - Strategy #18: Support Transportation Improvements that Improve Economic Competitiveness and/or Revitalization of Commercial Corridors and Strategic Economic Centers
- Policy: Promote Interagency Coordination and Public Participation for Transportation Decision-Making and Planning Efforts
    - Strategy #19: Provide Equitable Access to Transportation Planning
    - Strategy #20: Engage the Public Early, Clearly, and Continuously
    - Strategy #21: Use a Variety of Methods to Engage the Public, Encouraging Representation from Diverse Income and Ethnic Backgrounds
- Policy: Maximize Cost-Effectiveness
    - Strategy #22: Support the Use of State and Federal Grants to Supplement Local Funding and Pursue Discretionary Grant Funding Opportunities from Outside the Region
    - Strategy #23: Support Projects that Maximize Cost Effectiveness
    - Strategy #24: Maximize Funding of Existing Transportation Options
- Policy: Improve the Quality of Life for Residents
    - Strategy #25: Encourage Transportation Investments that Support a Greater Mix of Housing Options at All Income Levels
    - Strategy #26: Improve the Connection Between Land Use and Transportation
    - Strategy #27: Enhance Public Health through Active Transportation Projects

The proposed project is consistent with the policies and strategies of the San Joaquin County Regional Transportation Plan and Sustainable Communities Strategy.

APPENDIX

A: TURNING MOVEMENT VOLUMES

B: EXISTING TRAFFIC CONDITIONS ANALYSIS SHEETS

C: EXISTING PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

D: EXISTING PLUS BACKGROUND TRAFFIC CONDITIONS ANALYSIS SHEETS

E: EXISTING PLUS BACKGROUND PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

F: CUMULATIVE (2035) TRAFFIC CONDITIONS ANALYSIS SHEETS

G CUMULATIVE (2035) PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

H: MITIGATED EXISTING PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

I: MITIGATED EXISTING PLUS BACKGROUND PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

J: MITIGATED CUMULATIVE (2035) PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

K: VEHICLE QUEUING ANALYSIS SHEETS

TURNING MOVEMENT VOLUMES

National Data and Surveying Services

City of Tracy
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Heavy Trucks On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7028-001 Corral Hollow Rd & Grant Line Rd
Date : 1/24/2017

Unshifted Count = All Vehicles & Uturns

	Southbound					Westbound					Northbound					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	3	34	25	0	62	76	121	13	0	210	95	37	21	2	155	6	44	25	0	75	502	2
7:15	5	32	25	0	62	65	146	14	0	225	80	30	21	0	131	8	40	33	1	82	500	1
7:30	13	50	23	0	86	78	142	14	0	234	120	54	83	1	258	6	57	42	1	106	684	2
7:45	12	54	39	0	105	86	180	28	0	294	113	93	92	2	300	12	60	32	1	105	804	3
Total	33	170	112	0	315	305	589	69	0	963	408	214	217	5	844	32	201	132	3	368	2490	8
8:00	10	57	38	0	105	77	192	29	0	298	112	96	41	4	253	8	94	56	0	158	814	4
8:15	5	45	40	0	90	80	184	25	1	290	125	54	35	6	220	7	76	69	1	153	753	8
8:30	13	42	34	0	89	69	129	16	1	215	124	53	26	5	208	11	65	60	1	137	649	7
8:45	10	36	29	0	75	72	126	30	0	228	119	68	27	8	222	9	58	68	0	135	660	8
Total	38	180	141	0	359	298	631	100	2	1031	480	271	129	23	903	35	293	253	2	583	2876	27
16:00	25	77	35	0	137	46	119	31	0	196	148	110	46	10	314	40	152	151	5	348	995	15
16:15	31	70	27	0	128	42	118	33	0	193	117	66	33	5	221	34	205	158	1	398	940	6
16:30	37	78	21	0	136	44	117	31	0	192	114	81	59	10	264	32	183	139	6	360	952	16
16:45	31	75	22	0	128	52	121	35	0	208	109	85	41	11	246	24	195	145	1	365	947	12
Total	124	300	105	0	529	184	475	130	0	789	488	342	179	36	1045	130	735	593	13	1471	3834	49
17:00	50	98	21	0	169	32	124	22	1	179	124	78	39	4	245	22	177	117	0	316	909	5
17:15	35	69	24	0	128	43	125	32	0	200	110	69	48	13	240	25	169	155	2	351	919	15
17:30	30	78	28	0	136	60	120	19	1	200	102	63	46	14	225	30	184	158	3	375	936	18
17:45	31	72	18	0	121	52	113	27	0	192	134	78	38	9	259	26	174	136	3	339	911	12
Total	146	317	91	0	554	187	482	100	2	771	470	288	171	40	969	103	704	566	8	1381	3675	50
Grand Total	341	967	449	0	1757	974	2177	399	4	3554	1846	1115	696	104	3761	300	1933	1544	26	3803	12875	134
Apprch %	19.4%	55.0%	25.6%	0.0%		27.4%	61.3%	11.2%	0.1%		49.1%	29.6%	18.5%	2.8%		7.9%	50.8%	40.6%	0.7%			
Total %	2.6%	7.5%	3.5%	0.0%	13.6%	7.6%	16.9%	3.1%	0.0%	27.6%	14.3%	8.7%	5.4%	0.8%	29.2%	2.3%	15.0%	12.0%	0.2%	29.5%	100.0%	

AM PEAK HOUR	Southbound					Westbound					Northbound					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 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	13	50	23	0	86	78	142	14	0	234	120	54	83	1	258	6	57	42	1	106	684
7:45	12	54	39	0	105	86	180	28	0	294	113	93	92	2	300	12	60	32	1	105	804
8:00	10	57	38	0	105	77	192	29	0	298	112	96	41	4	253	8	94	56	0	158	814
8:15	5	45	40	0	90	80	184	25	1	290	125	54	35	6	220	7	76	69	1	153	753
Total Volume	40	206	140	0	386	321	698	96	1	1116	470	297	251	13	1031	33	287	199	3	522	3055
% App Total	10.4%	53.4%	36.3%	0.0%		28.8%	62.5%	8.6%	0.1%		45.6%	28.8%	24.3%	1.3%		6.3%	55.0%	38.1%	0.6%		
PHF	.769	.904	.875	.000	.919	.933	.909	.828	.250	.936	.940	.773	.682	.542	.859	.688	.763	.721	.750	.826	.938

PM PEAK HOUR	Southbound					Westbound					Northbound					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 16:00 to 17:00																					
Peak Hour For Entire Intersection Begins at 16:00																					
16:00	25	77	35	0	137	46	119	31	0	196	148	110	46	10	314	40	152	151	5	348	995
16:15	31	70	27	0	128	42	118	33	0	193	117	66	33	5	221	34	205	158	1	398	940
16:30	37	78	21	0	136	44	117	31	0	192	114	81	59	10	264	32	183	139	6	360	952
16:45	31	75	22	0	128	52	121	35	0	208	109	85	41	11	246	24	195	145	1	365	947
Total Volume	124	300	105	0	529	184	475	130	0	789	488	342	179	36	1045	130	735	593	13	1471	3834
% App Total	23.4%	56.7%	19.8%	0.0%		23.3%	60.2%	16.5%	0.0%		46.7%	32.7%	17.1%	3.4%		8.8%	50.0%	40.3%	0.9%		
PHF	.838	.962	.750	.000	.965	.885	.981	.929	.000	.948	.824	.777	.758	.818	.832	.813	.896	.938	.542	.924	.963

National Data and Surveying Services

City of Tracy
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Heavy Trucks On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7028-001 Corral Hollow Rd & Grant Line Rd
Date : 1/24/2017

Bank 1 Count = Peds & Bikes

	Southbound					Westbound					Northbound					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
7:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15	0	0	0	0	0	0	1	0	3	1	0	0	0	0	0	0	0	0	0	0	1	3
7:30	0	0	0	0	0	0	0	0	2	0	0	1	0	1	1	0	0	0	0	0	1	3
7:45	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	1	0	0	1	0	6	1	0	1	0	1	1	0	0	0	0	0	2	8
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	0	0	1	0	0	1	1	0	0	0	3	0	0	0	0	1	0	1	5
8:30	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	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	0	0	1	0	0	3	1	0	0	0	3	0	0	0	0	1	0	1	7
16:00	0	0	0	0	0	0	0	0	3	0	0	1	0	0	1	0	2	0	0	2	3	3
16:15	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1
16:30	0	0	0	3	0	0	2	0	3	2	1	0	0	0	1	0	0	0	0	0	3	6
16:45	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0	5
Total	0	0	0	5	0	1	2	0	8	3	1	1	0	1	2	0	2	0	1	2	7	15
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	2	2	1
17:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2	0
17:45	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
Total	0	1	0	0	1	0	0	0	1	0	0	0	0	1	0	1	2	0	1	3	4	3
Grand Total	0	1	0	6	1	2	3	0	18	5	1	2	0	6	3	1	4	0	3	5	14	33
Apprch %	0.0%	100.0%	0.0%			40.0%	60.0%	0.0%			33.3%	66.7%	0.0%			20.0%	80.0%	0.0%				
Total %	0.0%	7.1%	0.0%		7.1%	14.3%	21.4%	0.0%		35.7%	7.1%	14.3%	0.0%		21.4%	7.1%	28.6%	0.0%		35.7%	100.0%	

AM PEAK HOUR	Southbound					Westbound					Northbound					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 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	0	0	0	0	0	0	0	0	2	0	0	1	0	1	1	0	0	0	0	0	1
7:45	0	0	0	1	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
8:15	0	0	0	0	0	1	0	0	1	1	0	0	0	3	0	0	0	0	1	0	1
Total Volume	0	0	0	1	0	1	0	0	3	1	0	1	0	4	1	0	0	0	1	0	2
% App Total	0.0%	0.0%	0.0%			100.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.000	.000		.000	.250	.000	.000		.250	.000	.250	.000		.250	.000	.000	.000		.000	.500

PM PEAK HOUR	Southbound					Westbound					Northbound					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 16:00 to 17:00																					
Peak Hour For Entire Intersection Begins at 16:00																					
16:00	0	0	0	0	0	0	0	0	3	0	0	1	0	0	1	0	2	0	0	2	3
16:15	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
16:30	0	0	0	3	0	0	2	0	3	2	1	0	0	0	1	0	0	0	0	0	3
16:45	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	0	0
Total Volume	0	0	0	5	0	1	2	0	8	3	1	1	0	1	2	0	2	0	1	2	7
% App Total	0.0%	0.0%	0.0%			33.3%	66.7%	0.0%			50.0%	50.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.250	.250	.000		.375	.250	.250	.000		.500	.000	.250	.000		.250	.583

Southbound Peds = North Leg (traveling EB or WB)
Westbound Peds = East Leg (traveling NB or SB)
Northbound Peds = South Leg (traveling EB or WB)
Eastbound Peds = West Leg (traveling NB or SB)

National Data and Surveying Services

City of Tracy
All Vehicles & Uturns On Unshifted
Peds & Bikes On Bank 1
Heavy Trucks On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7028-001 Corral Hollow Rd & Grant Line Rd
Date : 1/24/2017

Bank 2 Count = Heavy Trucks

	Southbound					Westbound					Northbound					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
7:00	0	6	3	0	9	4	5	1	0	10	4	1	0	0	5	1	1	0	0	2	26	0
7:15	1	3	2	0	6	5	5	0	0	10	0	1	2	0	3	0	1	0	0	1	20	0
7:30	0	4	0	0	4	4	3	0	0	7	2	0	3	0	5	0	3	0	0	3	19	0
7:45	0	0	1	0	1	3	4	0	0	7	1	0	0	0	1	0	1	1	0	2	11	0
Total	1	13	6	0	20	16	17	1	0	34	7	2	5	0	14	1	6	1	0	8	76	0
8:00	0	0	1	0	1	5	4	0	0	9	0	0	1	0	1	0	2	0	0	2	13	0
8:15	0	1	1	0	2	1	2	0	0	3	4	1	2	0	7	0	0	1	0	1	13	0
8:30	0	1	1	0	2	1	4	0	0	5	3	0	2	0	5	0	2	1	0	3	15	0
8:45	0	0	1	0	1	4	3	0	0	7	4	1	0	0	5	0	1	2	0	3	16	0
Total	0	2	4	0	6	11	13	0	0	24	11	2	5	0	18	0	5	4	0	9	57	0
16:00	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	5	0
16:15	0	2	0	0	2	0	2	0	0	2	1	0	1	0	2	1	1	0	0	2	8	0
16:30	0	3	0	0	3	1	0	0	0	1	1	2	1	0	4	1	1	1	0	3	11	0
16:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	0
Total	0	7	0	0	7	1	3	0	0	4	3	4	2	0	9	2	3	1	0	6	26	0
17:00	0	0	0	0	0	0	2	0	0	2	2	2	1	0	5	0	3	0	0	3	10	0
17:15	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	1	3	0	0	4	6	0
17:30	0	0	0	0	0	1	2	0	0	3	0	1	0	0	1	0	1	0	0	1	5	0
17:45	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	3	0
Total	0	0	0	0	0	2	6	0	0	8	2	4	1	0	7	1	8	0	0	9	24	0
Grand Total	1	22	10	0	33	30	39	1	0	70	23	12	13	0	48	4	22	6	0	32	183	0
Apprch %	3.0%	66.7%	30.3%			42.9%	55.7%	1.4%			47.9%	25.0%	27.1%			12.5%	68.8%	18.8%				
Total %	0.5%	12.0%	5.5%		18.0%	16.4%	21.3%	0.5%		38.3%	12.6%	6.6%	7.1%		26.2%	2.2%	12.0%	3.3%		17.5%	100.0%	

AM PEAK HOUR	Southbound					Westbound					Northbound					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 07:30 to 08:30																					
Peak Hour For Entire Intersection Begins at 07:30																					
7:30	0	4	0	0	4	4	3	0	0	7	2	0	3	0	5	0	3	0	0	3	19
7:45	0	0	1	0	1	3	4	0	0	7	1	0	0	0	1	0	1	1	0	2	11
8:00	0	0	1	0	1	5	4	0	0	9	0	0	1	0	1	0	2	0	0	2	13
8:15	0	1	1	0	2	1	2	0	0	3	4	1	2	0	7	0	0	1	0	1	13
Total Volume	0	5	3	0	8	13	13	0	0	26	7	1	6	0	14	0	6	2	0	8	56
% App Total	0.0%	62.5%	37.5%			50.0%	50.0%	0.0%			50.0%	7.1%	42.9%			0.0%	75.0%	25.0%			
PHF	.000	.313	.750		.500	.650	.813	.000		.722	.438	.250	.500		.500	.000	.500	.500		.667	.737

PM PEAK HOUR	Southbound					Westbound					Northbound					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 16:00 to 17:00																					
Peak Hour For Entire Intersection Begins at 16:00																					
16:00	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	5
16:15	0	2	0	0	2	0	2	0	0	2	1	0	1	0	2	1	1	0	0	2	8
16:30	0	3	0	0	3	1	0	0	0	1	1	2	1	0	4	1	1	1	0	3	11
16:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total Volume	0	7	0	0	7	1	3	0	0	4	3	4	2	0	9	2	3	1	0	6	26
% App Total	0.0%	100.0%	0.0%			25.0%	75.0%	0.0%			33.3%	44.4%	22.2%			33.3%	50.0%	16.7%			
PHF	.000	.583	.000		.583	.250	.375	.000		.500	.750	.500	.500		.563	.500	.750	.250		.500	.591

National Data and Surveying Services

City of Tracy
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7028-001 Corral Hollow Rd & Grant Line Rd
Date : 1/28/2017

Unshifted Count = All Vehicles & Uturns

	Corral Hollow Rd Southbound					Grant Line Rd Westbound					Corral Hollow Rd Northbound					Grant Line Rd 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
12:00	27	44	30	0	101	39	127	34	0	200	215	85	43	3	346	19	111	133	3	266	913	6
12:15	31	71	30	0	132	52	135	33	0	220	163	94	47	5	309	15	136	155	2	308	969	7
12:30	29	62	25	0	116	44	137	42	0	223	175	98	44	12	329	17	147	161	1	326	994	13
12:45	27	78	15	1	121	55	149	35	1	240	180	119	41	8	348	15	149	162	3	329	1038	13
Total	114	255	100	1	470	190	548	144	1	883	733	396	175	28	1332	66	543	611	9	1229	3914	39
13:00	38	72	25	0	135	50	126	43	0	219	143	79	52	8	282	19	109	157	1	286	922	9
13:15	23	72	29	3	127	50	154	39	1	244	162	88	49	3	302	20	171	168	2	361	1034	9
13:30	23	65	26	2	116	33	116	30	0	179	172	110	42	7	331	11	143	181	1	336	962	10
13:45	32	74	37	0	143	43	155	48	0	246	177	99	47	5	328	26	192	177	4	399	1116	9
Total	116	283	117	5	521	176	551	160	1	888	654	376	190	23	1243	76	615	683	8	1382	4034	37
Grand Total	230	538	217	6	991	366	1099	304	2	1771	1387	772	365	51	2575	142	1158	1294	17	2611	7948	76
Apprch %	23.2%	54.3%	21.9%	0.6%		20.7%	62.1%	17.2%	0.1%		53.9%	30.0%	14.2%	2.0%		5.4%	44.4%	49.6%	0.7%			
Total %	2.9%	6.8%	2.7%	0.1%	12.5%	4.6%	13.8%	3.8%	0.0%	22.3%	17.5%	9.7%	4.6%	0.6%	32.4%	1.8%	14.6%	16.3%	0.2%	32.9%	100.0%	

NOON PEAK	Corral Hollow Rd Southbound					Grant Line Rd Westbound					Corral Hollow Rd Northbound					Grant Line Rd 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 13:00 to 14:00																					
Peak Hour For Entire Intersection Begins at 13:00																					
13:00	38	72	25	0	135	50	126	43	0	219	143	79	52	8	282	19	109	157	1	286	922
13:15	23	72	29	3	127	50	154	39	1	244	162	88	49	3	302	20	171	168	2	361	1034
13:30	23	65	26	2	116	33	116	30	0	179	172	110	42	7	331	11	143	181	1	336	962
13:45	32	74	37	0	143	43	155	48	0	246	177	99	47	5	328	26	192	177	4	399	1116
Total Volume	116	283	117	5	521	176	551	160	1	888	654	376	190	23	1243	76	615	683	8	1382	4034
% App Total	22.3%	54.3%	22.5%	1.0%		19.8%	62.0%	18.0%	0.1%		52.6%	30.2%	15.3%	1.9%		5.5%	44.5%	49.4%	0.6%		
PHF	.763	.956	.791	.417	.911	.880	.889	.833	.250	.902	.924	.855	.913	.719	.939	.731	.801	.943	.500	.866	.904

National Data and Surveying Services

City of Tracy
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7028-001 Corral Hollow Rd & Grant Line Rd
Date : 1/28/2017

Bank 1 Count = Bikes & Peds

	Corral Hollow Rd Southbound					Grant Line Rd Westbound					Corral Hollow Rd Northbound					Grant Line Rd 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
12:00	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	4
12:15	0	8	0	0	8	0	0	0	0	0	0	1	0	1	1	0	0	0	2	0	9	3
12:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
Total	0	8	0	0	8	0	0	0	1	0	0	1	0	5	1	0	1	0	3	1	10	9
13:00	0	0	0	1	0	0	0	0	3	0	1	0	0	3	1	0	0	0	1	0	1	8
13:15	2	1	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	4	3
13:30	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	2	3
13:45	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	0	0	0	0	0	2	2
Total	2	2	0	3	4	0	0	0	3	0	1	3	0	5	4	0	1	0	5	1	9	16
Grand Total	2	10	0	3	12	0	0	0	4	0	1	4	0	10	5	0	2	0	8	2	19	25
Apprch %	16.7%	83.3%	0.0%			0.0%	0.0%	0.0%			20.0%	80.0%	0.0%			0.0%	100.0%	0.0%				
Total %	10.5%	52.6%	0.0%		63.2%	0.0%	0.0%	0.0%		0.0%	5.3%	21.1%	0.0%		26.3%	0.0%	10.5%	0.0%		10.5%	100.0%	

NOON PEAK	Corral Hollow Rd Southbound					Grant Line Rd Westbound					Corral Hollow Rd Northbound					Grant Line Rd 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 13:00 to 14:00																					
Peak Hour For Entire Intersection Begins at 13:00																					
13:00	0	0	0	1	0	0	0	0	3	0	1	0	0	3	1	0	0	0	1	0	1
13:15	2	1	0	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	3	0	4
13:30	0	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	2
13:45	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	0	0	0	0	0	2
Total Volume	2	2	0	3	4	0	0	0	3	0	1	3	0	5	4	0	1	0	5	1	9
% App Total	50.0%	50.0%	0.0%			0.0%	0.0%	0.0%			25.0%	75.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.250	.500	.000		.333	.000	.000	.000		.000	.250	.375	.000		.500	.000	.250	.000		.250	.563

Southbound Peds = North Leg (traveling EB or WB)
Westbound Peds = East Leg (traveling NB or SB)
Northbound Peds = South Leg (traveling EB or WB)
Eastbound Peds = West Leg (traveling NB or SB)

National Data and Surveying Services

City of Tracy
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7028-001 Corral Hollow Rd & Grant Line Rd
Date : 1/28/2017

Bank 2 Count = Heavy Trucks

	Corral Hollow Rd Southbound					Grant Line Rd Westbound					Corral Hollow Rd Northbound					Grant Line Rd 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
12:00	0	0	1	0	1	0	1	0	0	1	2	0	3	0	5	0	0	0	0	0	7	0
12:15	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	3	0
12:30	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	0
12:45	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2	0
Total	0	0	1	0	1	1	5	0	0	6	2	0	3	0	5	0	2	0	0	2	14	0
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
13:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	3	0
13:30	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	3	0
13:45	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	4	0
Total	0	1	0	0	1	0	4	0	0	4	1	0	0	0	1	1	3	1	0	5	11	0
Grand Total	0	1	1	0	2	1	9	0	0	10	3	0	3	0	6	1	5	1	0	7	25	0
Apprch %	0.0%	50.0%	50.0%			10.0%	90.0%	0.0%			50.0%	0.0%	50.0%			14.3%	71.4%	14.3%				
Total %	0.0%	4.0%	4.0%		8.0%	4.0%	36.0%	0.0%		40.0%	12.0%	0.0%	12.0%		24.0%	4.0%	20.0%	4.0%		28.0%	100.0%	

NOON PEAK	Corral Hollow Rd Southbound					Grant Line Rd Westbound					Corral Hollow Rd Northbound					Grant Line Rd 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 13:00 to 14:00																					
Peak Hour For Entire Intersection Begins at 13:00																					
13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
13:15	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	0	0	0	1	3
13:30	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	3
13:45	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	4
Total Volume	0	1	0	0	1	0	4	0	0	4	1	0	0	0	1	1	3	1	0	5	11
% App Total	0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			100.0%	0.0%	0.0%			20.0%	60.0%	20.0%			
PHF	.000	.250	.000		.250	.000	.500	.000		.500	.250	.000	.000		.250	.250	.750	.250		.625	.688

EXISTING TRAFFIC CONDITIONS ANALYSIS SHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	346	240	341	845	562	345	292	43	224	152
v/c Ratio	0.25	0.28	0.43	0.55	0.60	0.87	0.32	0.44	0.11	0.33	0.40
Control Delay	38.0	21.6	5.8	32.4	19.5	49.5	23.7	5.9	33.3	26.6	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.0	21.6	5.8	32.4	19.5	49.5	23.7	5.9	33.3	26.6	8.7
Queue Length 50th (ft)	18	44	0	72	163	88	70	0	9	44	0
Queue Length 95th (ft)	51	65	37	137	247	#180	116	51	27	84	48
Internal Link Dist (ft)		470			2710		2500			8394	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	170	2931	987	627	2342	643	1914	970	397	1775	817
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.25	0.12	0.24	0.54	0.36	0.87	0.18	0.30	0.11	0.13	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	36	287	199	321	698	96	483	297	251	40	206	140
Future Volume (veh/h)	36	287	199	321	698	96	483	297	251	40	206	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	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	1776	1810	1792	1810	1845	1900	1845	1881	1863	1863	1792	1792
Adj Flow Rate, veh/h	43	346	0	341	743	102	562	345	292	43	224	0
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	7	5	6	5	3	3	3	1	2	2	6	6
Cap, veh/h	104	1294	399	529	1111	153	643	1028	448	211	747	290
Arrive On Green	0.06	0.26	0.00	0.16	0.36	0.33	0.13	0.29	0.29	0.06	0.22	0.00
Sat Flow, veh/h	1691	4940	1524	3343	3096	425	4954	3574	1558	3442	3406	1524
Grp Volume(v), veh/h	43	346	0	341	420	425	562	345	292	43	224	0
Grp Sat Flow(s),veh/h/ln	1691	1647	1524	1672	1752	1768	1651	1787	1558	1721	1703	1524
Q Serve(g_s), s	1.7	3.9	0.0	6.6	14.0	14.1	7.7	5.3	11.4	0.8	3.8	0.0
Cycle Q Clear(g_c), s	1.7	3.9	0.0	6.6	14.0	14.1	7.7	5.3	11.4	0.8	3.8	0.0
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	104	1294	399	529	629	635	643	1028	448	211	747	290
V/C Ratio(X)	0.41	0.27	0.00	0.64	0.67	0.67	0.87	0.34	0.65	0.20	0.30	0.00
Avail Cap(c_a), veh/h	171	2920	901	627	1187	1198	643	1907	831	397	1768	747
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	31.4	20.3	0.0	27.4	18.7	19.0	29.6	19.5	21.7	30.9	22.6	0.0
Incr Delay (d2), s/veh	2.6	0.1	0.0	1.7	1.2	1.2	12.8	0.2	1.6	0.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	1.7	0.0	3.2	7.0	7.1	4.3	2.6	5.1	0.4	1.8	0.0
LnGrp Delay(d),s/veh	34.0	20.4	0.0	29.1	20.0	20.2	42.4	19.7	23.3	31.4	22.9	0.0
LnGrp LOS	C	C		C	B	C	D	B	C	C	C	
Approach Vol, veh/h		389			1186			1199			267	
Approach Delay, s/veh		21.9			22.7			31.2			24.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	24.0	15.0	22.2	13.0	19.2	8.3	28.9
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	35.0	11.0	39.0	7.0	34.0	5.0	45.0
Max Q Clear Time (g_c+I1), s	2.8	13.4	8.6	5.9	9.7	5.8	3.7	16.1
Green Ext Time (p_c), s	0.0	3.8	0.4	5.7	0.0	4.0	0.0	5.6

Intersection Summary	
HCM 2010 Ctrl Delay	26.1
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	155	799	645	194	637	631	412	216	129	313	109
v/c Ratio	0.89	0.42	0.78	0.66	0.51	1.26	0.44	0.42	0.37	0.40	0.25
Control Delay	83.3	17.8	15.4	48.4	18.8	164.8	26.8	11.5	38.5	27.0	3.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.3	17.8	15.4	48.4	18.8	164.8	26.8	11.5	38.5	27.0	3.4
Queue Length 50th (ft)	69	93	93	43	105	~126	84	20	27	62	0
Queue Length 95th (ft)	#232	142	252	#121	172	#240	140	72	67	118	18
Internal Link Dist (ft)		470			2710		2500			8394	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	175	2990	1087	295	1975	500	1794	843	348	1759	830
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.27	0.59	0.66	0.32	1.26	0.23	0.26	0.37	0.18	0.13

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	143	735	593	184	475	130	524	342	179	124	300	105
Future Volume (veh/h)	143	735	593	184	475	130	524	342	179	124	300	105
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	155	799	0	194	500	137	631	412	216	129	312	0
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.83	0.83	0.83	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	173	1758	553	291	911	248	493	957	412	302	898	365
Arrive On Green	0.10	0.34	0.00	0.08	0.33	0.30	0.10	0.27	0.27	0.09	0.25	0.00
Sat Flow, veh/h	1774	5136	1615	3476	2775	756	5052	3610	1554	3510	3539	1615
Grp Volume(v), veh/h	155	799	0	194	321	316	631	412	216	129	312	0
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1743	1684	1805	1554	1755	1770	1615
Q Serve(g_s), s	6.2	8.7	0.0	3.9	10.6	10.8	7.0	6.8	8.5	2.5	5.2	0.0
Cycle Q Clear(g_c), s	6.2	8.7	0.0	3.9	10.6	10.8	7.0	6.8	8.5	2.5	5.2	0.0
Prop In Lane	1.00		1.00	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	173	1758	553	291	587	572	493	957	412	302	898	365
V/C Ratio(X)	0.90	0.45	0.00	0.67	0.55	0.55	1.28	0.43	0.52	0.43	0.35	0.00
Avail Cap(c_a), veh/h	173	2933	922	291	996	972	493	1760	758	342	1726	742
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.0	18.4	0.0	31.9	19.7	20.2	32.4	21.9	22.5	31.1	21.9	0.0
Incr Delay (d2), s/veh	40.3	0.2	0.0	5.7	0.8	0.8	141.2	0.3	1.0	1.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	4.1	0.0	2.1	5.3	5.3	9.6	3.4	3.8	1.3	2.5	0.0
LnGrp Delay(d),s/veh	72.3	18.6	0.0	37.7	20.5	21.0	173.6	22.2	23.5	32.1	22.2	0.0
LnGrp LOS	E	B		D	C	C	F	C	C	C	C	
Approach Vol, veh/h		954			831			1259			441	
Approach Delay, s/veh		27.3			24.7			98.3			25.1	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.2	23.0	10.0	28.6	11.0	22.2	11.0	27.6
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	5.0	33.0	4.0	39.0	5.0	33.0	5.0	38.0
Max Q Clear Time (g_c+I1), s	4.5	10.5	5.9	10.7	9.0	7.2	8.2	12.8
Green Ext Time (p_c), s	0.0	4.2	0.0	7.2	0.0	4.3	0.0	7.0

Intersection Summary	
HCM 2010 Ctrl Delay	52.0
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	101	741	823	187	756	787	437	221	132	308	127
v/c Ratio	0.83	0.35	0.96	0.45	0.46	1.71	0.60	0.49	0.46	0.47	0.34
Control Delay	92.9	20.1	38.2	43.9	17.7	358.2	38.7	13.1	49.4	37.1	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	92.9	20.1	38.2	43.9	17.7	358.2	38.7	13.1	49.4	37.1	7.3
Queue Length 50th (ft)	63	112	305	56	150	~258	130	26	41	90	0
Queue Length 95th (ft)	#148	144	#527	95	223	#342	171	81	75	131	38
Internal Link Dist (ft)		470			2710		2500			8394	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	122	2098	860	449	1664	460	1370	702	284	1270	621
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.35	0.96	0.42	0.45	1.71	0.32	0.31	0.46	0.24	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	84	615	683	176	551	160	677	376	190	121	283	117
Future Volume (veh/h)	84	615	683	176	551	160	677	376	190	121	283	117
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	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	1776	1810	1792	1810	1845	1900	1845	1881	1863	1863	1792	1792
Adj Flow Rate, veh/h	101	741	0	187	586	170	787	437	221	132	308	0
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	7	5	6	5	3	3	3	1	2	2	6	6
Cap, veh/h	159	1683	519	364	953	276	598	890	388	298	732	287
Arrive On Green	0.09	0.34	0.00	0.11	0.36	0.33	0.12	0.25	0.25	0.09	0.21	0.00
Sat Flow, veh/h	1691	4940	1524	3343	2681	776	4954	3574	1557	3442	3406	1524
Grp Volume(v), veh/h	101	741	0	187	383	373	787	437	221	132	308	0
Grp Sat Flow(s),veh/h/ln	1691	1647	1524	1672	1752	1704	1651	1787	1557	1721	1703	1524
Q Serve(g_s), s	4.3	8.7	0.0	3.9	13.4	13.6	9.0	7.8	9.3	2.7	5.8	0.0
Cycle Q Clear(g_c), s	4.3	8.7	0.0	3.9	13.4	13.6	9.0	7.8	9.3	2.7	5.8	0.0
Prop In Lane	1.00		1.00	1.00		0.46	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	159	1683	519	364	623	606	598	890	388	298	732	287
V/C Ratio(X)	0.64	0.44	0.00	0.51	0.61	0.62	1.32	0.49	0.57	0.44	0.42	0.00
Avail Cap(c_a), veh/h	159	2718	838	583	1105	1075	598	1775	773	370	1645	695
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.5	19.1	0.0	31.3	19.8	20.2	32.8	23.9	24.5	32.3	25.2	0.0
Incr Delay (d2), s/veh	8.1	0.2	0.0	1.1	1.0	1.0	153.4	0.4	1.3	1.0	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	3.9	0.0	1.9	6.7	6.5	12.5	3.9	4.1	1.3	2.8	0.0
LnGrp Delay(d),s/veh	40.6	19.2	0.0	32.5	20.8	21.3	186.2	24.4	25.8	33.3	25.6	0.0
LnGrp LOS	D	B		C	C	C	F	C	C	C	C	
Approach Vol, veh/h		842			943			1445			440	
Approach Delay, s/veh		21.8			23.3			112.7			27.9	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	22.6	12.1	29.4	13.0	20.0	11.0	30.5
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	35.0	11.0	39.0	7.0	34.0	5.0	45.0
Max Q Clear Time (g_c+I1), s	4.7	11.3	5.9	10.7	11.0	7.8	6.3	15.6
Green Ext Time (p_c), s	0.1	4.4	0.3	7.6	0.0	4.5	0.0	7.7

Intersection Summary	
HCM 2010 Ctrl Delay	58.7
HCM 2010 LOS	E

EXISTING PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	58	346	240	341	851	571	345	292	51	229	152
v/c Ratio	0.35	0.26	0.42	0.57	0.64	0.92	0.32	0.44	0.14	0.32	0.56
Control Delay	41.8	21.7	5.6	34.5	21.8	57.4	24.0	5.8	34.7	26.9	37.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	21.7	5.6	34.5	21.8	57.4	24.0	5.8	34.7	26.9	37.3
Queue Length 50th (ft)	25	44	0	73	166	91	71	0	10	46	63
Queue Length 95th (ft)	65	68	37	142	258	#193	117	51	31	87	134
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	164	2820	959	603	2253	619	1841	944	382	1707	712
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.12	0.25	0.57	0.38	0.92	0.19	0.31	0.13	0.13	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	48	287	199	321	704	96	491	297	251	47	211	140
Future Volume (veh/h)	48	287	199	321	704	96	491	297	251	47	211	140
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	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	1776	1810	1792	1810	1845	1900	1845	1881	1863	1863	1792	1792
Adj Flow Rate, veh/h	58	346	0	341	749	102	571	345	292	51	229	152
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	7	5	6	5	3	3	3	1	2	2	6	6
Cap, veh/h	117	1331	410	520	1101	150	615	1041	454	217	784	307
Arrive On Green	0.07	0.27	0.00	0.16	0.36	0.33	0.12	0.29	0.29	0.06	0.23	0.20
Sat Flow, veh/h	1691	4940	1524	3343	3099	422	4954	3574	1558	3442	3406	1517
Grp Volume(v), veh/h	58	346	0	341	423	428	571	345	292	51	229	152
Grp Sat Flow(s),veh/h/ln	1691	1647	1524	1672	1752	1768	1651	1787	1558	1721	1703	1517
Q Serve(g_s), s	2.4	4.0	0.0	6.9	14.9	15.0	8.3	5.5	11.8	1.0	4.0	6.4
Cycle Q Clear(g_c), s	2.4	4.0	0.0	6.9	14.9	15.0	8.3	5.5	11.8	1.0	4.0	6.4
Prop In Lane	1.00		1.00	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	117	1331	410	520	623	628	615	1041	454	217	784	307
V/C Ratio(X)	0.49	0.26	0.00	0.66	0.68	0.68	0.93	0.33	0.64	0.24	0.29	0.49
Avail Cap(c_a), veh/h	163	2796	862	600	1137	1147	615	1826	796	380	1692	712
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	20.8	0.0	28.8	19.9	20.1	31.4	20.1	22.4	32.3	23.0	25.6
Incr Delay (d2), s/veh	3.2	0.1	0.0	2.1	1.3	1.3	20.4	0.2	1.5	0.6	0.2	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	1.8	0.0	3.4	7.4	7.5	4.9	2.7	5.2	0.5	1.9	2.8
LnGrp Delay(d),s/veh	35.7	20.9	0.0	30.9	21.2	21.4	51.8	20.3	23.9	32.8	23.2	26.8
LnGrp LOS	D	C		C	C	C	D	C	C	C	C	C
Approach Vol, veh/h		404			1192			1208			432	
Approach Delay, s/veh		23.0			24.0			36.1			25.6	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	25.1	15.3	23.5	13.0	20.7	9.0	29.7
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	35.0	11.0	39.0	7.0	34.0	5.0	45.0
Max Q Clear Time (g_c+I1), s	3.0	13.8	8.9	6.0	10.3	8.4	4.4	17.0
Green Ext Time (p_c), s	0.0	4.6	0.3	5.7	0.0	4.8	0.0	5.6

Intersection Summary	
HCM 2010 Ctrl Delay	28.6
HCM 2010 LOS	C

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Vol, veh/h	0	534	1311	26	0	8
Future Vol, veh/h	0	534	1311	26	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	534	1311	26	0	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	669
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	343
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	343
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15.7
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	343
HCM Lane V/C Ratio	-	-	-	0.023
HCM Control Delay (s)	-	-	-	15.7
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	12	0	429	386	5
Future Vol, veh/h	0	12	0	429	386	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	0	429	386	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	193	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	816	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	816	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	816	-	-
HCM Lane V/C Ratio	-	0.015	-	-
HCM Control Delay (s)	-	9.5	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	168	799	645	194	643	640	412	216	139	320	109
v/c Ratio	0.97	0.42	0.79	0.66	0.52	1.29	0.51	0.46	0.40	0.40	0.35
Control Delay	101.2	17.8	15.8	49.0	18.9	176.7	28.4	12.5	39.1	27.1	31.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	101.2	17.8	15.8	49.0	18.9	176.7	28.4	12.5	39.1	27.1	31.0
Queue Length 50th (ft)	76	93	97	43	107	~131	84	21	30	64	42
Queue Length 95th (ft)	#254	142	257	#121	173	#244	140	73	72	121	101
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	174	2961	1078	292	1956	496	1777	835	344	1742	739
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.27	0.60	0.66	0.33	1.29	0.23	0.26	0.40	0.18	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	735	593	184	481	130	531	342	179	133	307	105
Future Volume (veh/h)	155	735	593	184	481	130	531	342	179	133	307	105
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		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	168	799	0	194	506	137	640	412	216	139	320	109
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.83	0.83	0.83	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	170	1751	551	286	911	245	484	971	418	311	926	375
Arrive On Green	0.10	0.34	0.00	0.08	0.33	0.30	0.10	0.27	0.27	0.09	0.26	0.23
Sat Flow, veh/h	1774	5136	1615	3476	2782	749	5052	3610	1554	3510	3539	1598
Grp Volume(v), veh/h	168	799	0	194	324	319	640	412	216	139	320	109
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1745	1684	1805	1554	1755	1770	1598
Q Serve(g_s), s	6.9	8.9	0.0	4.0	10.9	11.1	7.0	6.9	8.6	2.7	5.4	4.1
Cycle Q Clear(g_c), s	6.9	8.9	0.0	4.0	10.9	11.1	7.0	6.9	8.6	2.7	5.4	4.1
Prop In Lane	1.00		1.00	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	170	1751	551	286	585	571	484	971	418	311	926	375
V/C Ratio(X)	0.99	0.46	0.00	0.68	0.55	0.56	1.32	0.42	0.52	0.45	0.35	0.29
Avail Cap(c_a), veh/h	170	2884	907	286	979	956	484	1731	745	337	1697	723
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.0	18.8	0.0	32.6	20.2	20.6	33.0	22.0	22.7	31.6	21.9	23.0
Incr Delay (d2), s/veh	65.2	0.2	0.0	6.3	0.8	0.9	158.4	0.3	1.0	1.0	0.2	0.4
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	6.4	4.2	0.0	2.2	5.4	5.5	10.3	3.5	3.8	1.4	2.7	1.9
LnGrp Delay(d),s/veh	98.1	19.0	0.0	38.9	21.0	21.5	191.4	22.3	23.6	32.6	22.1	23.4
LnGrp LOS	F	B		D	C	C	F	C	C	C	C	C
Approach Vol, veh/h		967			837			1268			568	
Approach Delay, s/veh		32.7			25.3			107.9			24.9	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.5	23.6	10.0	28.9	11.0	23.1	11.0	27.9
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	5.0	33.0	4.0	39.0	5.0	33.0	5.0	38.0
Max Q Clear Time (g_c+I1), s	4.7	10.6	6.0	10.9	9.0	7.4	8.9	13.1
Green Ext Time (p_c), s	0.0	4.8	0.0	7.3	0.0	4.9	0.0	7.0

Intersection Summary	
HCM 2010 Ctrl Delay	56.0
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↳			↱
Traffic Vol, veh/h	0	1483	1081	25	0	11
Future Vol, veh/h	0	1483	1081	25	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1483	1081	25	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	553
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	408
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	408
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	408
HCM Lane V/C Ratio	-	-	-	0.027
HCM Control Delay (s)	-	-	-	14.1
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	16	0	606	529	4
Future Vol, veh/h	0	16	0	606	529	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	16	0	606	529	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	265	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	733	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	733	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	733	-	-
HCM Lane V/C Ratio	-	0.022	-	-
HCM Control Delay (s)	-	10	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	119	741	823	187	765	799	437	221	143	316	127
v/c Ratio	0.98	0.35	0.96	0.45	0.47	1.74	0.60	0.49	0.50	0.48	0.49
Control Delay	124.0	20.1	39.6	43.9	17.8	369.4	38.7	13.4	50.3	37.3	43.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	124.0	20.1	39.6	43.9	17.8	369.4	38.7	13.4	50.3	37.3	43.1
Queue Length 50th (ft)	75	112	312	56	153	~263	130	27	44	92	72
Queue Length 95th (ft)	#180	144	#534	95	226	#348	171	82	80	134	128
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	122	2098	855	449	1665	460	1370	701	284	1270	529
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.35	0.96	0.42	0.46	1.74	0.32	0.32	0.50	0.25	0.24

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	615	683	176	559	160	687	376	190	132	291	117
Future Volume (veh/h)	99	615	683	176	559	160	687	376	190	132	291	117
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	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	1776	1810	1792	1810	1845	1900	1845	1881	1863	1863	1792	1792
Adj Flow Rate, veh/h	119	741	0	187	595	170	799	437	221	143	316	127
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	7	5	6	5	3	3	3	1	2	2	6	6
Cap, veh/h	155	1674	516	360	954	272	585	908	396	308	768	302
Arrive On Green	0.09	0.34	0.00	0.11	0.35	0.33	0.12	0.25	0.25	0.09	0.23	0.20
Sat Flow, veh/h	1691	4940	1524	3343	2691	767	4954	3574	1557	3442	3406	1517
Grp Volume(v), veh/h	119	741	0	187	387	378	799	437	221	143	316	127
Grp Sat Flow(s),veh/h/ln	1691	1647	1524	1672	1752	1706	1651	1787	1557	1721	1703	1517
Q Serve(g_s), s	5.2	8.9	0.0	4.0	13.9	14.1	9.0	7.9	9.4	3.0	6.0	5.6
Cycle Q Clear(g_c), s	5.2	8.9	0.0	4.0	13.9	14.1	9.0	7.9	9.4	3.0	6.0	5.6
Prop In Lane	1.00		1.00	1.00		0.45	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	155	1674	516	360	622	605	585	908	396	308	768	302
V/C Ratio(X)	0.77	0.44	0.00	0.52	0.62	0.62	1.37	0.48	0.56	0.46	0.41	0.42
Avail Cap(c_a), veh/h	155	2658	820	570	1081	1052	585	1736	756	361	1609	677
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.8	19.6	0.0	32.1	20.4	20.8	33.6	24.1	24.7	33.0	25.2	26.7
Incr Delay (d2), s/veh	20.1	0.2	0.0	1.2	1.0	1.1	175.2	0.4	1.2	1.1	0.4	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	4.1	0.0	1.9	6.8	6.8	13.6	3.9	4.2	1.5	2.9	2.4
LnGrp Delay(d),s/veh	53.9	19.8	0.0	33.3	21.4	21.9	208.8	24.5	25.9	34.1	25.6	27.6
LnGrp LOS	D	B		C	C	C	F	C	C	C	C	C
Approach Vol, veh/h		860			952			1457			586	
Approach Delay, s/veh		24.5			23.9			125.8			28.1	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	23.4	12.2	29.8	13.0	21.2	11.0	31.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	35.0	11.0	39.0	7.0	34.0	5.0	45.0
Max Q Clear Time (g_c+I1), s	5.0	11.4	6.0	10.9	11.0	8.0	7.2	16.1
Green Ext Time (p_c), s	0.0	5.1	0.3	7.7	0.0	5.2	0.0	7.7

Intersection Summary	
HCM 2010 Ctrl Delay	63.2
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↳			↱
Traffic Vol, veh/h	0	1397	1330	32	0	12
Future Vol, veh/h	0	1397	1330	32	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1397	1330	32	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	681
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	337
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	337
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.1
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	337
HCM Lane V/C Ratio	-	-	-	0.036
HCM Control Delay (s)	-	-	-	16.1
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	18	0	617	521	6
Future Vol, veh/h	0	18	0	617	521	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	18	0	617	521	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	261	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	738	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	738	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	738	-	-
HCM Lane V/C Ratio	-	0.024	-	-
HCM Control Delay (s)	-	10	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

EXISTING PLUS BACKGROUND TRAFFIC CONDITIONS ANALYSIS SHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	52	436	333	341	896	633	345	292	43	224	160
v/c Ratio	0.31	0.33	0.51	0.57	0.61	1.01	0.33	0.44	0.11	0.33	0.41
Control Delay	40.8	21.7	5.7	34.1	19.5	75.6	24.7	6.0	34.7	27.7	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.8	21.7	5.7	34.1	19.5	75.6	24.7	6.0	34.7	27.7	8.9
Queue Length 50th (ft)	23	57	0	75	177	~116	73	0	9	47	0
Queue Length 95th (ft)	60	81	39	#143	267	#222	121	52	28	87	50
Internal Link Dist (ft)		470			2710		2500			8394	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	166	2847	1005	609	2277	625	1859	950	386	1723	802
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.15	0.33	0.56	0.39	1.01	0.19	0.31	0.11	0.13	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	43	362	276	321	746	96	544	297	251	40	206	147
Future Volume (veh/h)	43	362	276	321	746	96	544	297	251	40	206	147
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	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	1776	1810	1792	1810	1845	1900	1845	1881	1863	1863	1792	1792
Adj Flow Rate, veh/h	52	436	0	341	794	102	633	345	292	43	224	0
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	7	5	6	5	3	3	3	1	2	2	6	6
Cap, veh/h	110	1395	430	519	1164	150	614	1011	441	205	744	291
Arrive On Green	0.06	0.28	0.00	0.16	0.37	0.35	0.12	0.28	0.28	0.06	0.22	0.00
Sat Flow, veh/h	1691	4940	1524	3343	3123	401	4954	3574	1558	3442	3406	1524
Grp Volume(v), veh/h	52	436	0	341	445	451	633	345	292	43	224	0
Grp Sat Flow(s),veh/h/ln	1691	1647	1524	1672	1752	1772	1651	1787	1558	1721	1703	1524
Q Serve(g_s), s	2.2	5.0	0.0	7.0	15.5	15.6	9.0	5.6	12.0	0.9	4.0	0.0
Cycle Q Clear(g_c), s	2.2	5.0	0.0	7.0	15.5	15.6	9.0	5.6	12.0	0.9	4.0	0.0
Prop In Lane	1.00		1.00	1.00		0.23	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	110	1395	430	519	653	661	614	1011	441	205	744	291
V/C Ratio(X)	0.47	0.31	0.00	0.66	0.68	0.68	1.03	0.34	0.66	0.21	0.30	0.00
Avail Cap(c_a), veh/h	163	2787	860	598	1133	1146	614	1820	793	379	1687	713
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	32.8	20.5	0.0	28.9	19.2	19.4	31.8	20.7	23.0	32.5	23.8	0.0
Incr Delay (d2), s/veh	3.2	0.1	0.0	2.1	1.3	1.3	44.7	0.2	1.7	0.5	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	2.3	0.0	3.4	7.7	7.8	6.6	2.8	5.3	0.4	1.9	0.0
LnGrp Delay(d),s/veh	36.0	20.7	0.0	31.0	20.4	20.6	76.5	20.9	24.7	33.1	24.0	0.0
LnGrp LOS	D	C		C	C	C	F	C	C	C	C	
Approach Vol, veh/h		488			1237			1270			267	
Approach Delay, s/veh		22.3			23.4			49.5			25.4	
Approach LOS		C			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.3	24.6	15.3	24.5	13.0	19.9	8.7	31.1
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	35.0	11.0	39.0	7.0	34.0	5.0	45.0
Max Q Clear Time (g_c+I1), s	2.9	14.0	9.0	7.0	11.0	6.0	4.2	17.6
Green Ext Time (p_c), s	0.0	3.8	0.3	6.5	0.0	4.0	0.0	6.4

Intersection Summary	
HCM 2010 Ctrl Delay	33.6
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	168	932	808	194	784	814	412	216	129	313	125
v/c Ratio	1.15	0.40	0.87	0.79	0.51	1.96	0.56	0.49	0.45	0.43	0.30
Control Delay	160.4	16.4	22.9	64.7	18.2	463.4	33.9	13.9	44.5	31.9	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	160.4	16.4	22.9	64.7	18.2	463.4	33.9	13.9	44.5	31.9	4.9
Queue Length 50th (ft)	~112	115	208	55	145	~250	108	28	35	80	0
Queue Length 95th (ft)	#254	168	#522	#121	222	#320	140	74	67	118	28
Internal Link Dist (ft)		470			2710		2500			8394	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	146	2487	968	245	1654	416	1492	726	289	1463	716
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.37	0.83	0.79	0.47	1.96	0.28	0.30	0.45	0.21	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	857	743	184	615	130	676	342	179	124	300	120
Future Volume (veh/h)	155	857	743	184	615	130	676	342	179	124	300	120
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	168	932	0	194	647	137	814	412	216	129	312	0
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.83	0.83	0.83	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	161	1923	605	271	1061	224	459	927	399	292	881	360
Arrive On Green	0.09	0.37	0.00	0.08	0.36	0.34	0.09	0.26	0.26	0.08	0.25	0.00
Sat Flow, veh/h	1774	5136	1615	3476	2935	621	5052	3610	1553	3510	3539	1615
Grp Volume(v), veh/h	168	932	0	194	394	390	814	412	216	129	312	0
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1768	1684	1805	1553	1755	1770	1615
Q Serve(g_s), s	7.0	10.7	0.0	4.2	13.9	14.0	7.0	7.4	9.2	2.7	5.6	0.0
Cycle Q Clear(g_c), s	7.0	10.7	0.0	4.2	13.9	14.0	7.0	7.4	9.2	2.7	5.6	0.0
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	161	1923	605	271	646	639	459	927	399	292	881	360
V/C Ratio(X)	1.04	0.48	0.00	0.72	0.61	0.61	1.77	0.44	0.54	0.44	0.35	0.00
Avail Cap(c_a), veh/h	161	2734	860	271	928	918	459	1640	706	319	1608	692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	35.0	18.4	0.0	34.7	20.1	20.5	35.0	24.0	24.7	33.6	23.8	0.0
Incr Delay (d2), s/veh	82.4	0.2	0.0	8.7	0.9	0.9	356.5	0.3	1.1	1.0	0.2	0.0
Initial Q Delay(d3),s/veh	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	5.0	0.0	2.3	6.9	6.9	18.4	3.7	4.1	1.4	2.8	0.0
LnGrp Delay(d),s/veh	117.6	18.6	0.0	43.4	21.1	21.4	391.5	24.4	25.9	34.7	24.1	0.0
LnGrp LOS	F	B		D	C	C	F	C	C	C	C	
Approach Vol, veh/h		1100			978			1442			441	
Approach Delay, s/veh		33.7			25.6			231.8			27.2	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.4	23.8	10.0	32.8	11.0	23.2	11.0	31.8
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	5.0	33.0	4.0	39.0	5.0	33.0	5.0	38.0
Max Q Clear Time (g_c+I1), s	4.7	11.2	6.2	12.7	9.0	7.6	9.0	16.0
Green Ext Time (p_c), s	0.0	4.2	0.0	9.0	0.0	4.3	0.0	8.4

Intersection Summary		
HCM 2010 Ctrl Delay		103.1
HCM 2010 LOS		F

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	117	898	1018	187	910	980	437	221	132	308	145
v/c Ratio	0.96	0.43	1.18	0.45	0.56	2.13	0.60	0.51	0.46	0.47	0.38
Control Delay	119.9	21.0	113.9	43.9	19.5	540.1	38.7	16.6	49.4	37.1	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	119.9	21.0	113.9	43.9	19.5	540.1	38.7	16.6	49.4	37.1	9.0
Queue Length 50th (ft)	74	141	~622	56	196	~347	130	39	41	90	0
Queue Length 95th (ft)	#176	177	#792	95	285	#436	171	97	75	131	50
Internal Link Dist (ft)		470			2710		2500			8394	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	122	2098	860	449	1670	460	1370	688	284	1270	623
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.43	1.18	0.42	0.54	2.13	0.32	0.32	0.46	0.24	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	745	845	176	696	160	843	376	190	121	283	133
Future Volume (veh/h)	97	745	845	176	696	160	843	376	190	121	283	133
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	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	1776	1810	1792	1810	1845	1900	1845	1881	1863	1863	1792	1792
Adj Flow Rate, veh/h	117	898	0	187	740	170	980	437	221	132	308	0
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	7	5	6	5	3	3	3	1	2	2	6	6
Cap, veh/h	146	1850	571	350	1112	255	550	859	374	287	724	286
Arrive On Green	0.09	0.37	0.00	0.10	0.39	0.37	0.11	0.24	0.24	0.08	0.21	0.00
Sat Flow, veh/h	1691	4940	1524	3343	2830	650	4954	3574	1557	3442	3406	1524
Grp Volume(v), veh/h	117	898	0	187	458	452	980	437	221	132	308	0
Grp Sat Flow(s),veh/h/ln	1691	1647	1524	1672	1752	1727	1651	1787	1557	1721	1703	1524
Q Serve(g_s), s	5.5	11.3	0.0	4.3	17.4	17.6	9.0	8.6	10.2	3.0	6.4	0.0
Cycle Q Clear(g_c), s	5.5	11.3	0.0	4.3	17.4	17.6	9.0	8.6	10.2	3.0	6.4	0.0
Prop In Lane	1.00		1.00	1.00		0.38	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	146	1850	571	350	689	679	550	859	374	287	724	286
V/C Ratio(X)	0.80	0.49	0.00	0.53	0.67	0.67	1.78	0.51	0.59	0.46	0.43	0.00
Avail Cap(c_a), veh/h	146	2497	770	536	1016	1001	550	1631	710	340	1512	639
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	36.4	19.4	0.0	34.4	20.2	20.6	36.0	26.7	27.3	35.4	27.6	0.0
Incr Delay (d2), s/veh	26.5	0.2	0.0	1.3	1.1	1.1	359.4	0.5	1.5	1.2	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.6	5.1	0.0	2.0	8.6	8.5	22.4	4.3	4.6	1.5	3.0	0.0
LnGrp Delay(d),s/veh	62.8	19.6	0.0	35.7	21.3	21.7	395.5	27.1	28.8	36.6	28.0	0.0
LnGrp LOS	E	B		D	C	C	F	C	C	D	C	
Approach Vol, veh/h		1015			1097			1638			440	
Approach Delay, s/veh		24.6			23.9			247.7			30.6	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.8	23.5	12.5	34.4	13.0	21.2	11.0	35.9
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	35.0	11.0	39.0	7.0	34.0	5.0	45.0
Max Q Clear Time (g_c+I1), s	5.0	12.2	6.3	13.3	11.0	8.4	7.5	19.6
Green Ext Time (p_c), s	0.0	4.4	0.3	9.6	0.0	4.5	0.0	9.5

Intersection Summary	
HCM 2010 Ctrl Delay	112.3
HCM 2010 LOS	F

EXISTING PLUS BACKGROUND PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	66	436	333	341	902	642	345	292	51	229	160
v/c Ratio	0.42	0.31	0.50	0.59	0.66	1.07	0.32	0.44	0.14	0.32	0.58
Control Delay	46.1	22.1	5.6	36.8	22.3	94.4	24.9	5.9	36.7	27.8	39.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.1	22.1	5.6	36.8	22.3	94.4	24.9	5.9	36.7	27.8	39.0
Queue Length 50th (ft)	30	58	0	77	184	~124	74	0	11	48	70
Queue Length 95th (ft)	76	85	40	#161	284	#241	123	52	33	91	146
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	158	2725	976	583	2180	598	1779	922	369	1649	688
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.16	0.34	0.58	0.41	1.07	0.19	0.32	0.14	0.14	0.23

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	362	276	321	752	96	552	297	251	47	211	147
Future Volume (veh/h)	55	362	276	321	752	96	552	297	251	47	211	147
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	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	1776	1810	1792	1810	1845	1900	1845	1881	1863	1863	1792	1792
Adj Flow Rate, veh/h	66	436	0	341	800	102	642	345	292	51	229	160
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	7	5	6	5	3	3	3	1	2	2	6	6
Cap, veh/h	126	1435	443	509	1152	147	586	1023	446	210	780	307
Arrive On Green	0.07	0.29	0.00	0.15	0.37	0.34	0.12	0.29	0.29	0.06	0.23	0.20
Sat Flow, veh/h	1691	4940	1524	3343	3127	399	4954	3574	1558	3442	3406	1517
Grp Volume(v), veh/h	66	436	0	341	448	454	642	345	292	51	229	160
Grp Sat Flow(s),veh/h/ln	1691	1647	1524	1672	1752	1773	1651	1787	1558	1721	1703	1517
Q Serve(g_s), s	2.9	5.2	0.0	7.3	16.5	16.6	9.0	5.8	12.5	1.1	4.2	7.2
Cycle Q Clear(g_c), s	2.9	5.2	0.0	7.3	16.5	16.6	9.0	5.8	12.5	1.1	4.2	7.2
Prop In Lane	1.00		1.00	1.00		0.22	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	126	1435	443	509	646	653	586	1023	446	210	780	307
V/C Ratio(X)	0.53	0.30	0.00	0.67	0.69	0.69	1.10	0.34	0.65	0.24	0.29	0.52
Avail Cap(c_a), veh/h	155	2660	820	571	1082	1094	586	1737	757	362	1610	677
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.9	21.0	0.0	30.5	20.4	20.6	33.6	21.5	23.9	34.1	24.3	27.1
Incr Delay (d2), s/veh	3.4	0.1	0.0	2.6	1.4	1.3	66.2	0.2	1.6	0.6	0.2	1.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	2.4	0.0	3.5	8.2	8.3	7.7	2.9	5.6	0.5	2.0	3.1
LnGrp Delay(d),s/veh	37.3	21.1	0.0	33.1	21.8	22.0	99.8	21.7	25.5	34.7	24.5	28.4
LnGrp LOS	D	C		C	C	C	F	C	C	C	C	C
Approach Vol, veh/h		502			1243			1279			440	
Approach Delay, s/veh		23.3			24.9			61.8			27.1	
Approach LOS		C			C			E			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.6	25.8	15.6	26.1	13.0	21.4	9.7	32.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	35.0	11.0	39.0	7.0	34.0	5.0	45.0
Max Q Clear Time (g_c+I1), s	3.1	14.5	9.3	7.2	11.0	9.2	4.9	18.6
Green Ext Time (p_c), s	0.0	4.6	0.3	6.6	0.0	4.8	0.0	6.4

Intersection Summary	
HCM 2010 Ctrl Delay	38.6
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Vol, veh/h	0	693	1427	26	0	8
Future Vol, veh/h	0	693	1427	26	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	693	1427	26	0	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	727
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	314
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	314
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	314
HCM Lane V/C Ratio	-	-	-	0.025
HCM Control Delay (s)	-	-	-	16.8
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	12	0	436	393	5
Future Vol, veh/h	0	12	0	436	393	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	0	436	393	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	197	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	811	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	811	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.5	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	811	-	-
HCM Lane V/C Ratio	-	0.015	-	-
HCM Control Delay (s)	-	9.5	-	-
HCM Lane LOS	-	A	-	-
HCM 95th %tile Q(veh)	-	0	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	182	932	808	194	791	823	412	216	139	320	125
v/c Ratio	1.26	0.40	0.87	0.80	0.51	1.98	0.56	0.49	0.48	0.44	0.44
Control Delay	194.5	16.4	23.3	65.1	18.2	476.3	34.0	13.9	45.4	32.1	36.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	194.5	16.4	23.3	65.1	18.2	476.3	34.0	13.9	45.4	32.1	36.7
Queue Length 50th (ft)	~128	115	213	55	147	~253	108	28	38	82	62
Queue Length 95th (ft)	#275	168	#527	#121	225	#323	140	74	72	121	114
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	145	2477	963	244	1648	415	1486	724	288	1457	618
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.26	0.38	0.84	0.80	0.48	1.98	0.28	0.30	0.48	0.22	0.20

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	857	743	184	621	130	683	342	179	133	307	120
Future Volume (veh/h)	167	857	743	184	621	130	683	342	179	133	307	120
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	182	932	0	194	654	137	823	412	216	139	320	125
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.83	0.83	0.83	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	158	1915	602	266	1059	222	451	942	405	301	910	370
Arrive On Green	0.09	0.37	0.00	0.08	0.36	0.33	0.09	0.26	0.26	0.09	0.26	0.23
Sat Flow, veh/h	1774	5136	1615	3476	2941	615	5052	3610	1554	3510	3539	1598
Grp Volume(v), veh/h	182	932	0	194	397	394	823	412	216	139	320	125
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1769	1684	1805	1554	1755	1770	1598
Q Serve(g_s), s	7.0	10.9	0.0	4.3	14.3	14.5	7.0	7.5	9.4	3.0	5.8	5.1
Cycle Q Clear(g_c), s	7.0	10.9	0.0	4.3	14.3	14.5	7.0	7.5	9.4	3.0	5.8	5.1
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	158	1915	602	266	644	637	451	942	405	301	910	370
V/C Ratio(X)	1.15	0.49	0.00	0.73	0.62	0.62	1.82	0.44	0.53	0.46	0.35	0.34
Avail Cap(c_a), veh/h	158	2686	845	266	912	903	451	1612	694	313	1580	673
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.7	18.8	0.0	35.4	20.6	21.0	35.7	24.2	24.9	34.1	23.8	25.1
Incr Delay (d2), s/veh	117.2	0.2	0.0	9.7	1.0	1.0	379.6	0.3	1.1	1.1	0.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	5.1	0.0	2.4	7.2	7.2	19.1	3.8	4.1	1.5	2.8	2.3
LnGrp Delay(d),s/veh	152.9	19.0	0.0	45.1	21.6	21.9	415.3	24.5	26.0	35.2	24.0	25.6
LnGrp LOS	F	B		D	C	C	F	C	C	D	C	C
Approach Vol, veh/h		1114			985			1451			584	
Approach Delay, s/veh		40.9			26.4			246.4			27.0	
Approach LOS		D			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	10.7	24.4	10.0	33.2	11.0	24.2	11.0	32.2
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	5.0	33.0	4.0	39.0	5.0	33.0	5.0	38.0
Max Q Clear Time (g_c+I1), s	5.0	11.4	6.3	12.9	9.0	7.8	9.0	16.5
Green Ext Time (p_c), s	0.0	4.8	0.0	9.0	0.0	5.0	0.0	8.4

Intersection Summary	
HCM 2010 Ctrl Delay	107.6
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↱			↱
Traffic Vol, veh/h	0	1767	1388	25	0	11
Future Vol, veh/h	0	1767	1388	25	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1767	1388	25	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	707
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	324
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	324
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	324
HCM Lane V/C Ratio	-	-	-	0.034
HCM Control Delay (s)	-	-	-	16.5
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	16	0	618	544	4
Future Vol, veh/h	0	16	0	618	544	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	16	0	618	544	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	272	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	726	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	726	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	726	-	-
HCM Lane V/C Ratio	-	0.022	-	-
HCM Control Delay (s)	-	10.1	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	135	898	1018	187	919	992	437	221	143	316	145
v/c Ratio	1.11	0.43	1.19	0.45	0.56	2.16	0.60	0.51	0.50	0.48	0.56
Control Delay	158.0	21.0	116.8	43.9	19.6	551.5	38.7	16.9	50.3	37.3	45.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	158.0	21.0	116.8	43.9	19.6	551.5	38.7	16.9	50.3	37.3	45.6
Queue Length 50th (ft)	~97	141	~628	56	199	~352	130	40	44	92	83
Queue Length 95th (ft)	#207	177	#798	95	289	#442	171	98	80	134	146
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	122	2098	855	449	1670	460	1370	686	284	1270	529
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.43	1.19	0.42	0.55	2.16	0.32	0.32	0.50	0.25	0.27

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	745	845	176	704	160	853	376	190	132	291	133
Future Volume (veh/h)	112	745	845	176	704	160	853	376	190	132	291	133
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	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	1776	1810	1792	1810	1845	1900	1845	1881	1863	1863	1792	1792
Adj Flow Rate, veh/h	135	898	0	187	749	170	992	437	221	143	316	145
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	7	5	6	5	3	3	3	1	2	2	6	6
Cap, veh/h	143	1838	567	346	1110	252	537	878	382	296	759	302
Arrive On Green	0.08	0.37	0.00	0.10	0.39	0.37	0.11	0.25	0.25	0.09	0.22	0.20
Sat Flow, veh/h	1691	4940	1524	3343	2837	644	4954	3574	1557	3442	3406	1517
Grp Volume(v), veh/h	135	898	0	187	463	456	992	437	221	143	316	145
Grp Sat Flow(s),veh/h/ln	1691	1647	1524	1672	1752	1729	1651	1787	1557	1721	1703	1517
Q Serve(g_s), s	6.6	11.6	0.0	4.4	18.1	18.2	9.0	8.7	10.4	3.3	6.6	7.0
Cycle Q Clear(g_c), s	6.6	11.6	0.0	4.4	18.1	18.2	9.0	8.7	10.4	3.3	6.6	7.0
Prop In Lane	1.00		1.00	1.00		0.37	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	143	1838	567	346	686	677	537	878	382	296	759	302
V/C Ratio(X)	0.95	0.49	0.00	0.54	0.67	0.67	1.85	0.50	0.58	0.48	0.42	0.48
Avail Cap(c_a), veh/h	143	2441	753	524	993	979	537	1594	694	332	1478	622
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	37.8	20.0	0.0	35.3	20.9	21.2	37.0	26.9	27.5	36.2	27.6	29.4
Incr Delay (d2), s/veh	59.0	0.2	0.0	1.3	1.2	1.2	387.8	0.4	1.4	1.2	0.4	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	5.3	0.0	2.1	9.0	8.9	23.4	4.4	4.6	1.6	3.1	3.0
LnGrp Delay(d),s/veh	96.8	20.2	0.0	36.6	22.0	22.4	424.8	27.3	28.9	37.4	28.0	30.6
LnGrp LOS	F	C		D	C	C	F	C	C	D	C	C
Approach Vol, veh/h		1033			1106			1650			604	
Approach Delay, s/veh		30.2			24.7			266.5			30.8	
Approach LOS		C			C			F			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.1	24.4	12.6	34.9	13.0	22.5	11.0	36.5
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	35.0	11.0	39.0	7.0	34.0	5.0	45.0
Max Q Clear Time (g_c+I1), s	5.3	12.4	6.4	13.6	11.0	9.0	8.6	20.2
Green Ext Time (p_c), s	0.0	5.2	0.3	9.6	0.0	5.3	0.0	9.5

Intersection Summary	
HCM 2010 Ctrl Delay	117.6
HCM 2010 LOS	F

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑			↱
Traffic Vol, veh/h	0	1702	1657	32	0	12
Future Vol, veh/h	0	1702	1657	32	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1702	1657	32	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	845
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	263
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	263
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	19.3
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	263
HCM Lane V/C Ratio	-	-	-	0.046
HCM Control Delay (s)	-	-	-	19.3
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	18	0	630	537	6
Future Vol, veh/h	0	18	0	630	537	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	18	0	630	537	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	269	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.94	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.32	-	-	-	-
Pot Cap-1 Maneuver	0	729	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	729	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.1	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	729	-	-
HCM Lane V/C Ratio	-	0.025	-	-
HCM Control Delay (s)	-	10.1	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

CUMULATIVE (2035) TRAFFIC CONDITIONS ANALYSIS SHEETS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	90	279	361	155	771	486	845	113	433	474	137
v/c Ratio	0.41	0.18	0.49	0.39	0.73	0.56	0.63	0.23	0.53	0.38	0.29
Control Delay	54.3	28.0	5.5	51.1	38.2	45.5	38.6	7.9	46.3	35.9	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.3	28.0	5.5	51.1	38.2	45.5	38.6	7.9	46.3	35.9	8.2
Queue Length 50th (ft)	58	51	0	52	245	110	189	0	98	100	0
Queue Length 95th (ft)	131	85	67	104	373	180	284	47	164	161	53
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	200		585	100		200		200	175		275
Base Capacity (vph)	288	2609	984	465	1671	1111	2784	881	1024	2632	861
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.11	0.37	0.33	0.46	0.44	0.30	0.13	0.42	0.18	0.16

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	87	271	350	150	618	130	471	820	110	420	460	133
Future Volume (veh/h)	87	271	350	150	618	130	471	820	110	420	460	133
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	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	90	279	0	155	637	134	486	845	113	433	474	0
Adj No. of Lanes	1	3	1	2	2	0	3	3	1	3	3	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	156	1569	494	311	903	190	784	1462	441	722	1363	396
Arrive On Green	0.09	0.31	0.00	0.09	0.31	0.28	0.16	0.28	0.28	0.14	0.27	0.00
Sat Flow, veh/h	1774	5136	1615	3476	2939	617	5052	5187	1565	5103	5085	1615
Grp Volume(v), veh/h	90	279	0	155	387	384	486	845	113	433	474	0
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1769	1684	1729	1565	1701	1695	1615
Q Serve(g_s), s	4.3	3.5	0.0	3.7	16.9	17.0	7.9	12.3	4.9	7.0	6.6	0.0
Cycle Q Clear(g_c), s	4.3	3.5	0.0	3.7	16.9	17.0	7.9	12.3	4.9	7.0	6.6	0.0
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	156	1569	494	311	549	544	784	1462	441	722	1363	396
V/C Ratio(X)	0.58	0.18	0.00	0.50	0.70	0.71	0.62	0.58	0.26	0.60	0.35	0.00
Avail Cap(c_a), veh/h	342	3090	972	552	1014	1004	1319	3297	995	1216	3117	953
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	38.6	22.5	0.0	38.2	27.0	27.3	34.8	27.1	24.5	35.5	26.0	0.0
Incr Delay (d2), s/veh	3.4	0.1	0.0	1.2	1.7	1.7	0.8	0.4	0.3	0.8	0.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	1.7	0.0	1.9	8.5	8.5	3.7	5.9	2.1	3.3	3.1	0.0
LnGrp Delay(d),s/veh	42.0	22.5	0.0	39.5	28.6	29.0	35.6	27.5	24.8	36.3	26.2	0.0
LnGrp LOS	D	C		D	C	C	D	C	C	D	C	
Approach Vol, veh/h		369			926			1444			907	
Approach Delay, s/veh		27.3			30.6			30.0			31.0	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.5	28.8	11.9	30.9	17.7	27.6	11.7	31.1
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	54.0	12.0	51.0	21.0	52.0	15.0	48.0
Max Q Clear Time (g_c+I1), s	9.0	14.3	5.7	5.5	9.9	8.6	6.3	19.0
Green Ext Time (p_c), s	1.4	8.1	0.3	4.9	1.7	8.2	0.1	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	30.1
HCM 2010 LOS	C

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	115	991	918	186	1062	527	876	180	464	773	247
v/c Ratio	0.61	0.43	1.06	0.66	0.71	0.75	0.73	0.37	0.75	0.71	0.55
Control Delay	76.8	28.2	73.6	77.5	38.0	68.3	55.3	11.1	70.9	56.7	23.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.8	28.2	73.6	77.5	38.0	68.3	55.3	11.1	70.9	56.7	23.1
Queue Length 50th (ft)	105	231	~802	90	432	172	284	16	153	252	71
Queue Length 95th (ft)	180	296	#1134	139	571	228	334	80	205	301	163
Internal Link Dist (ft)		228			3357		3067			204	
Turn Bay Length (ft)	200		585	100		200		200	175		275
Base Capacity (vph)	219	2330	870	285	1501	727	1711	615	629	1572	582
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.43	1.06	0.65	0.71	0.72	0.51	0.29	0.74	0.49	0.42

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	961	890	180	870	160	511	850	175	450	750	240
Future Volume (veh/h)	112	961	890	180	870	160	511	850	175	450	750	240
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	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	115	991	0	186	897	165	527	876	180	464	773	0
Adj No. of Lanes	1	3	1	2	2	0	3	3	1	3	3	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	168	2018	635	296	1155	212	715	1381	416	642	1273	378
Arrive On Green	0.09	0.39	0.00	0.09	0.38	0.37	0.14	0.27	0.27	0.13	0.25	0.00
Sat Flow, veh/h	1774	5136	1615	3476	3014	554	5052	5187	1564	5103	5085	1615
Grp Volume(v), veh/h	115	991	0	186	532	530	527	876	180	464	773	0
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1781	1684	1729	1564	1701	1695	1615
Q Serve(g_s), s	7.7	17.9	0.0	6.4	32.1	32.3	12.3	18.3	11.7	10.8	16.5	0.0
Cycle Q Clear(g_c), s	7.7	17.9	0.0	6.4	32.1	32.3	12.3	18.3	11.7	10.8	16.5	0.0
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	168	2018	635	296	685	682	715	1381	416	642	1273	378
V/C Ratio(X)	0.68	0.49	0.00	0.63	0.78	0.78	0.74	0.63	0.43	0.72	0.61	0.00
Avail Cap(c_a), veh/h	260	2755	866	339	872	869	862	2024	610	747	1860	564
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	53.9	28.1	0.0	54.4	33.3	33.6	50.6	39.9	37.4	51.7	40.8	0.0
Incr Delay (d2), s/veh	4.8	0.2	0.0	3.0	3.4	3.5	2.7	0.5	0.7	2.9	0.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	8.5	0.0	3.2	16.5	16.4	5.9	8.8	5.1	5.2	7.8	0.0
LnGrp Delay(d),s/veh	58.7	28.3	0.0	57.4	36.8	37.1	53.3	40.3	38.1	54.6	41.2	0.0
LnGrp LOS	E	C		E	D	D	D	D	D	D	D	
Approach Vol, veh/h		1106			1248			1583			1237	
Approach Delay, s/veh		31.4			40.0			44.4			46.3	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	19.5	36.7	14.5	52.4	21.4	34.8	15.7	51.1
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	16.0	46.0	10.0	64.0	19.0	43.0	16.0	58.0
Max Q Clear Time (g_c+I1), s	12.8	20.3	8.4	19.9	14.3	18.5	9.7	34.3
Green Ext Time (p_c), s	0.7	10.2	0.1	13.4	1.1	10.0	0.2	10.9

Intersection Summary	
HCM 2010 Ctrl Delay	41.0
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	68	829	1057	177	1276	702	964	192	454	732	286
v/c Ratio	0.42	0.42	1.32	0.53	0.88	0.83	0.71	0.37	0.65	0.63	0.60
Control Delay	67.7	32.2	180.4	66.4	46.9	64.8	49.3	10.0	61.2	49.7	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.7	32.2	180.4	66.4	46.9	64.8	49.3	10.0	61.2	49.7	23.8
Queue Length 50th (ft)	58	198	~1059	78	563	218	290	16	137	217	90
Queue Length 95th (ft)	113	264	#1429	126	#853	#305	345	79	188	262	185
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	200		585	100		200		200	175		275
Base Capacity (vph)	220	1997	798	356	1444	850	2131	733	784	2014	713
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.42	1.32	0.50	0.88	0.83	0.45	0.26	0.58	0.36	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	66	804	1025	172	1041	197	681	935	186	440	710	277
Future Volume (veh/h)	66	804	1025	172	1041	197	681	935	186	440	710	277
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	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	68	829	0	177	1073	203	702	964	192	454	732	0
Adj No. of Lanes	1	3	1	2	2	0	3	3	1	3	3	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	114	1905	599	286	1166	220	863	1534	463	641	1274	379
Arrive On Green	0.06	0.37	0.00	0.08	0.39	0.37	0.17	0.30	0.30	0.13	0.25	0.00
Sat Flow, veh/h	1774	5136	1615	3476	3000	566	5052	5187	1565	5103	5085	1615
Grp Volume(v), veh/h	68	829	0	177	638	638	702	964	192	454	732	0
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1779	1684	1729	1565	1701	1695	1615
Q Serve(g_s), s	4.8	15.4	0.0	6.3	43.3	43.7	17.1	20.5	12.6	10.9	16.1	0.0
Cycle Q Clear(g_c), s	4.8	15.4	0.0	6.3	43.3	43.7	17.1	20.5	12.6	10.9	16.1	0.0
Prop In Lane	1.00		1.00	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	114	1905	599	286	695	691	863	1534	463	641	1274	379
V/C Ratio(X)	0.59	0.44	0.00	0.62	0.92	0.92	0.81	0.63	0.41	0.71	0.57	0.00
Avail Cap(c_a), veh/h	237	2135	671	382	701	698	911	2278	687	840	2154	659
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	58.0	30.1	0.0	56.6	37.1	37.5	50.9	38.8	36.0	53.5	41.8	0.0
Incr Delay (d2), s/veh	4.8	0.2	0.0	2.2	17.1	17.9	5.5	0.4	0.6	1.9	0.4	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	7.3	0.0	3.1	24.6	24.9	8.4	9.9	5.5	5.2	7.6	0.0
LnGrp Delay(d),s/veh	62.9	30.2	0.0	58.8	54.1	55.3	56.4	39.3	36.6	55.4	42.2	0.0
LnGrp LOS	E	C		E	D	E	E	D	D	E	D	
Approach Vol, veh/h		897			1453			1858			1186	
Approach Delay, s/veh		32.7			55.2			45.5			47.3	
Approach LOS		C			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	20.0	41.7	14.5	51.3	25.8	35.9	12.2	53.6
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	54.0	12.0	51.0	21.0	52.0	15.0	48.0
Max Q Clear Time (g_c+I1), s	12.9	22.5	8.3	17.4	19.1	18.1	6.8	45.7
Green Ext Time (p_c), s	1.1	11.4	0.2	13.0	0.7	11.6	0.1	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	46.4
HCM 2010 LOS	D

CUMULATIVE (2035) PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

1: Corral Hollow Rd & Grant Line Rd

Timing Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	102	279	361	155	777	494	845	113	440	479	137
v/c Ratio	0.50	0.18	0.49	0.44	0.76	0.62	0.75	0.20	0.59	0.45	0.30
Control Delay	66.3	33.1	5.9	61.5	45.7	55.1	44.1	9.0	56.0	37.9	39.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.3	33.1	5.9	61.5	45.7	55.1	44.1	9.0	56.0	37.9	39.1
Queue Length 50th (ft)	79	61	0	62	298	135	325	6	120	166	88
Queue Length 95th (ft)	168	99	74	120	438	215	473	54	195	256	168
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	200		585	100		200		200	175		275
Base Capacity (vph)	250	2262	901	403	1452	963	1680	773	888	1588	687
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.12	0.40	0.38	0.54	0.51	0.50	0.15	0.50	0.30	0.20

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	271	350	150	624	130	479	820	110	427	465	133
Future Volume (veh/h)	99	271	350	150	624	130	479	820	110	427	465	133
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	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	102	279	0	155	643	134	494	845	113	440	479	137
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	3	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	162	1550	488	289	864	180	742	1182	512	681	1111	475
Arrive On Green	0.09	0.30	0.00	0.08	0.29	0.27	0.15	0.33	0.33	0.13	0.31	0.29
Sat Flow, veh/h	1774	5136	1615	3476	2944	613	5052	3610	1565	5103	3539	1612
Grp Volume(v), veh/h	102	279	0	155	390	387	494	845	113	440	479	137
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1770	1684	1805	1565	1701	1770	1612
Q Serve(g_s), s	5.7	4.2	0.0	4.4	20.4	20.6	9.6	21.3	5.4	8.5	11.1	6.8
Cycle Q Clear(g_c), s	5.7	4.2	0.0	4.4	20.4	20.6	9.6	21.3	5.4	8.5	11.1	6.8
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	162	1550	488	289	525	520	742	1182	512	681	1111	475
V/C Ratio(X)	0.63	0.18	0.00	0.54	0.74	0.75	0.67	0.72	0.22	0.65	0.43	0.29
Avail Cap(c_a), veh/h	291	2626	826	469	862	854	1121	1950	846	1034	1844	809
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	45.4	26.7	0.0	45.6	33.1	33.4	41.8	30.6	25.3	42.6	28.2	28.2
Incr Delay (d2), s/veh	4.0	0.1	0.0	1.6	2.1	2.1	1.0	0.8	0.2	1.0	0.3	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	3.0	2.0	0.0	2.2	10.4	10.3	4.5	10.7	2.4	4.1	5.5	3.1
LnGrp Delay(d),s/veh	49.4	26.8	0.0	47.2	35.2	35.6	42.9	31.4	25.5	43.6	28.5	28.5
LnGrp LOS	D	C		D	D	D	D	C	C	D	C	C
Approach Vol, veh/h		381			932			1452			1056	
Approach Delay, s/veh		32.8			37.3			34.9			34.8	
Approach LOS		C			D			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	17.8	37.9	12.6	35.3	19.2	36.5	13.5	34.4
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	54.0	12.0	51.0	21.0	52.0	15.0	48.0
Max Q Clear Time (g_c+I1), s	10.5	23.3	6.4	6.2	11.6	13.1	7.7	22.6
Green Ext Time (p_c), s	1.3	8.6	0.2	4.9	1.6	9.0	0.1	4.7

Intersection Summary	
HCM 2010 Ctrl Delay	35.2
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↳			↱
Traffic Vol, veh/h	0	720	1222	26	0	8
Future Vol, veh/h	0	720	1222	26	0	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	720	1222	26	0	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	624
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	367
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	367
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	367
HCM Lane V/C Ratio	-	-	-	0.022
HCM Control Delay (s)	-	-	-	15
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	12	0	1040	1013	5
Future Vol, veh/h	0	12	0	1040	1013	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	12	0	1040	1013	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	507	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	437	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	437	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	437	-	-
HCM Lane V/C Ratio	-	0.027	-	-
HCM Control Delay (s)	-	13.5	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.1	-	-

1: Corral Hollow Rd & Grant Line Rd

Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	128	991	918	186	1068	534	876	180	473	780	247
v/c Ratio	0.69	0.46	1.11	0.70	0.77	0.81	0.86	0.35	0.81	0.83	0.61
Control Delay	87.3	33.5	94.5	85.6	46.1	76.5	62.3	18.4	79.7	62.4	58.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	87.3	33.5	94.5	85.6	46.1	76.5	62.3	18.4	79.7	62.4	58.8
Queue Length 50th (ft)	129	271	~919	98	514	193	447	52	173	398	225
Queue Length 95th (ft)	206	318	#1195	#146	613	241	532	122	#221	479	325
Internal Link Dist (ft)		228			3357		3067			204	
Turn Bay Length (ft)	200		585	100		200		200	175		275
Base Capacity (vph)	204	2171	829	266	1383	678	1110	553	586	1020	438
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.46	1.11	0.70	0.77	0.79	0.79	0.33	0.81	0.76	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	961	890	180	876	160	518	850	175	459	757	240
Future Volume (veh/h)	124	961	890	180	876	160	518	850	175	459	757	240
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	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	128	991	0	186	903	165	534	876	180	473	780	247
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	3	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	175	1967	619	279	1101	201	681	1099	476	612	1025	444
Arrive On Green	0.10	0.38	0.00	0.08	0.36	0.35	0.13	0.30	0.30	0.12	0.29	0.28
Sat Flow, veh/h	1774	5136	1615	3476	3018	551	5052	3610	1565	5103	3539	1611
Grp Volume(v), veh/h	128	991	0	186	535	533	534	876	180	473	780	247
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1782	1684	1805	1565	1701	1770	1611
Q Serve(g_s), s	10.0	21.0	0.0	7.4	38.7	38.8	14.6	31.8	12.9	12.8	28.6	18.7
Cycle Q Clear(g_c), s	10.0	21.0	0.0	7.4	38.7	38.8	14.6	31.8	12.9	12.8	28.6	18.7
Prop In Lane	1.00		1.00	1.00		0.31	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	175	1967	619	279	652	650	681	1099	476	612	1025	444
V/C Ratio(X)	0.73	0.50	0.00	0.67	0.82	0.82	0.78	0.80	0.38	0.77	0.76	0.56
Avail Cap(c_a), veh/h	224	2377	747	292	752	750	744	1215	527	644	1117	486
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.5	33.6	0.0	63.7	41.1	41.4	59.7	45.5	39.0	60.9	46.2	44.2
Incr Delay (d2), s/veh	8.6	0.2	0.0	5.3	6.4	6.4	5.1	3.5	0.5	5.5	2.9	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	9.9	0.0	3.8	20.2	20.1	7.1	16.3	5.6	6.4	14.4	8.5
LnGrp Delay(d),s/veh	71.1	33.8	0.0	69.1	47.4	47.8	64.7	49.0	39.5	66.4	49.0	45.3
LnGrp LOS	E	C		E	D	D	E	D	D	E	D	D
Approach Vol, veh/h		1119			1254			1590			1500	
Approach Delay, s/veh		38.1			50.8			53.2			53.9	
Approach LOS		D			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.1	47.4	15.5	58.6	23.2	45.3	18.0	56.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	16.0	46.0	10.0	64.0	19.0	43.0	16.0	58.0
Max Q Clear Time (g_c+I1), s	14.8	33.8	9.4	23.0	16.6	30.6	12.0	40.8
Green Ext Time (p_c), s	0.3	7.6	0.0	13.2	0.7	7.7	0.1	9.3

Intersection Summary	
HCM 2010 Ctrl Delay	49.7
HCM 2010 LOS	D

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↳			↱
Traffic Vol, veh/h	0	1975	1621	25	0	11
Future Vol, veh/h	0	1975	1621	25	0	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1975	1621	25	0	11

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	823
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	272
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	272
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	18.8
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	272
HCM Lane V/C Ratio	-	-	-	0.04
HCM Control Delay (s)	-	-	-	18.8
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	16	0	1126	1440	4
Future Vol, veh/h	0	16	0	1126	1440	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	16	0	1126	1440	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	720	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	318	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	318	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	318	-	-
HCM Lane V/C Ratio	-	0.05	-	-
HCM Control Delay (s)	-	16.9	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	84	829	1057	177	1284	712	964	192	465	740	286
v/c Ratio	0.51	0.46	1.41	0.58	1.05	0.92	0.83	0.33	0.70	0.70	0.63
Control Delay	77.9	39.6	217.6	75.5	86.3	81.1	54.4	16.4	69.8	50.5	53.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	39.6	217.6	75.5	86.3	81.1	54.4	16.4	69.8	50.5	53.3
Queue Length 50th (ft)	82	239	~1232	89	~750	255	471	53	159	342	247
Queue Length 95th (ft)	145	299	#1566	136	#979	#358	555	119	210	413	349
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	200		585	100		200		200	175		275
Base Capacity (vph)	200	1814	752	323	1223	772	1347	650	712	1273	551
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.46	1.41	0.55	1.05	0.92	0.72	0.30	0.65	0.58	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	804	1025	172	1049	197	691	935	186	451	718	277
Future Volume (veh/h)	81	804	1025	172	1049	197	691	935	186	451	718	277
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	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	84	829	0	177	1081	203	712	964	192	465	740	286
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	3	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	129	1775	558	274	1057	198	817	1229	533	626	1066	463
Arrive On Green	0.07	0.35	0.00	0.08	0.35	0.34	0.16	0.34	0.34	0.12	0.30	0.29
Sat Flow, veh/h	1774	5136	1615	3476	3004	562	5052	3610	1565	5103	3539	1612
Grp Volume(v), veh/h	84	829	0	177	642	642	712	964	192	465	740	286
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1780	1684	1805	1565	1701	1770	1612
Q Serve(g_s), s	6.6	17.9	0.0	7.0	50.0	50.0	19.5	34.2	13.1	12.5	26.3	21.9
Cycle Q Clear(g_c), s	6.6	17.9	0.0	7.0	50.0	50.0	19.5	34.2	13.1	12.5	26.3	21.9
Prop In Lane	1.00		1.00	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	129	1775	558	274	629	626	817	1229	533	626	1066	463
V/C Ratio(X)	0.65	0.47	0.00	0.65	1.02	1.03	0.87	0.78	0.36	0.74	0.69	0.62
Avail Cap(c_a), veh/h	212	1915	602	342	629	626	817	1422	617	754	1344	589
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	64.2	36.3	0.0	63.6	46.1	46.4	58.1	42.2	35.2	60.2	43.9	43.9
Incr Delay (d2), s/veh	5.4	0.2	0.0	2.9	41.2	42.9	10.1	2.6	0.4	3.2	1.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	8.5	0.0	3.5	31.8	32.0	9.9	17.4	5.7	6.1	13.0	9.9
LnGrp Delay(d),s/veh	69.6	36.5	0.0	66.4	87.3	89.3	68.2	44.8	35.7	63.4	45.0	45.3
LnGrp LOS	E	D		E	F	F	E	D	D	E	D	D
Approach Vol, veh/h		913			1461			1868			1491	
Approach Delay, s/veh		39.5			85.6			52.8			50.8	
Approach LOS		D			F			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.4	52.4	15.2	53.1	27.0	46.8	14.3	54.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	54.0	12.0	51.0	21.0	52.0	15.0	48.0
Max Q Clear Time (g_c+I1), s	14.5	36.2	9.0	19.9	21.5	28.3	8.6	52.0
Green Ext Time (p_c), s	0.9	10.2	0.2	12.8	0.0	12.0	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	58.5
HCM 2010 LOS	E

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑↑	↑↑↑↳			↱
Traffic Vol, veh/h	0	1910	1999	32	0	12
Future Vol, veh/h	0	1910	1999	32	0	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	1910	1999	32	0	12

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	-	1016
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	-	-	-	7.14
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	3.92
Pot Cap-1 Maneuver	0	-	-	-	0	202
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	-	-	-	-	-	202
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	23.9
HCM LOS			C

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	202
HCM Lane V/C Ratio	-	-	-	0.059
HCM Control Delay (s)	-	-	-	23.9
HCM Lane LOS	-	-	-	C
HCM 95th %tile Q(veh)	-	-	-	0.2

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	18	0	1203	1427	6
Future Vol, veh/h	0	18	0	1203	1427	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	100	100	100	100	100	100
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	18	0	1203	1427	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	-	714	-	0	-	0
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	7.14	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.92	-	-	-	-
Pot Cap-1 Maneuver	0	321	0	-	-	-
Stage 1	0	-	0	-	-	-
Stage 2	0	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	-	321	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	16.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	321	-	-
HCM Lane V/C Ratio	-	0.056	-	-
HCM Control Delay (s)	-	16.9	-	-
HCM Lane LOS	-	C	-	-
HCM 95th %tile Q(veh)	-	0.2	-	-

MITIGATED EXISTING PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

1: Corral Hollow Rd & Grant Line Rd

Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	168	799	645	194	643	640	412	216	139	320	109
v/c Ratio	0.79	0.43	0.81	0.58	0.55	0.75	0.45	0.41	0.41	0.50	0.44
Control Delay	65.8	20.9	19.5	47.1	23.0	41.9	29.6	9.5	43.2	35.3	40.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.8	20.9	19.5	47.1	23.0	41.9	29.6	9.5	43.2	35.3	40.4
Queue Length 50th (ft)	88	114	138	52	134	116	97	13	36	81	53
Queue Length 95th (ft)	#236	157	301	#109	196	#181	147	59	75	138	115
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	214	2615	984	336	1689	855	1794	855	340	1502	637
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.31	0.66	0.58	0.38	0.75	0.23	0.25	0.41	0.21	0.17

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	735	593	184	481	130	531	342	179	133	307	105
Future Volume (veh/h)	155	735	593	184	481	130	531	342	179	133	307	105
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		0.99	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	168	799	0	194	506	137	640	412	216	139	320	109
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.83	0.83	0.83	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	209	1692	532	328	851	229	834	1099	474	292	787	317
Arrive On Green	0.12	0.33	0.00	0.09	0.31	0.28	0.17	0.30	0.30	0.08	0.22	0.20
Sat Flow, veh/h	1774	5136	1615	3476	2782	749	5052	3610	1556	3510	3539	1596
Grp Volume(v), veh/h	168	799	0	194	324	319	640	412	216	139	320	109
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1744	1684	1805	1556	1755	1770	1596
Q Serve(g_s), s	7.8	10.5	0.0	4.5	13.0	13.3	10.3	7.6	9.5	3.2	6.6	5.0
Cycle Q Clear(g_c), s	7.8	10.5	0.0	4.5	13.0	13.3	10.3	7.6	9.5	3.2	6.6	5.0
Prop In Lane	1.00		1.00	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	209	1692	532	328	547	533	834	1099	474	292	787	317
V/C Ratio(X)	0.80	0.47	0.00	0.59	0.59	0.60	0.77	0.37	0.46	0.48	0.41	0.34
Avail Cap(c_a), veh/h	209	2544	800	328	843	823	834	1745	752	331	1461	621
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.4	22.6	0.0	36.8	25.0	25.4	33.8	23.1	23.8	37.1	28.2	29.2
Incr Delay (d2), s/veh	19.8	0.2	0.0	2.8	1.0	1.1	4.3	0.2	0.7	1.2	0.3	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	5.0	0.0	2.3	6.5	6.5	5.1	3.8	4.2	1.6	3.2	2.2
LnGrp Delay(d),s/veh	56.2	22.8	0.0	39.6	26.0	26.5	38.2	23.4	24.5	38.3	28.5	29.8
LnGrp LOS	E	C		D	C	C	D	C	C	D	C	C
Approach Vol, veh/h		967			837			1268			568	
Approach Delay, s/veh		28.6			29.3			31.0			31.2	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	29.8	12.0	31.9	18.0	22.9	14.0	29.9
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	39.0	6.0	40.0	12.0	33.0	8.0	38.0
Max Q Clear Time (g_c+I1), s	5.2	11.5	6.5	12.5	12.3	8.6	9.8	15.3
Green Ext Time (p_c), s	0.0	5.0	0.0	7.2	0.0	4.9	0.0	6.9

Intersection Summary	
HCM 2010 Ctrl Delay	30.0
HCM 2010 LOS	C

1: Corral Hollow Rd & Grant Line Rd

Timing Plan: Saturday Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	119	741	823	187	765	799	437	221	143	316	127
v/c Ratio	0.98	0.35	0.94	0.90	0.54	0.92	0.48	0.43	0.45	0.54	0.57
Control Delay	124.0	19.8	33.6	88.7	22.4	56.2	32.4	12.7	47.0	40.2	48.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	124.0	19.8	33.6	88.7	22.4	56.2	32.4	12.7	47.0	40.2	48.2
Queue Length 50th (ft)	74	108	271	59	172	171	120	32	43	94	73
Queue Length 95th (ft)	#177	141	#493	#134	252	#247	157	85	78	136	131
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	122	2100	876	207	1422	871	1593	779	320	1236	514
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.35	0.94	0.90	0.54	0.92	0.27	0.28	0.45	0.26	0.25

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	99	615	683	176	559	160	687	376	190	132	291	117
Future Volume (veh/h)	99	615	683	176	559	160	687	376	190	132	291	117
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1810	1792	1810	1845	1900	1845	1881	1863	1863	1792	1792
Adj Flow Rate, veh/h	119	741	0	187	595	170	799	437	221	143	316	127
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	7	5	6	5	3	3	3	1	2	2	6	6
Cap, veh/h	138	1696	523	233	892	254	979	1129	493	292	692	273
Arrive On Green	0.08	0.34	0.00	0.07	0.33	0.31	0.20	0.32	0.32	0.08	0.20	0.18
Sat Flow, veh/h	1691	4940	1524	3343	2691	767	4954	3574	1559	3442	3406	1516
Grp Volume(v), veh/h	119	741	0	187	387	378	799	437	221	143	316	127
Grp Sat Flow(s),veh/h/ln	1691	1647	1524	1672	1752	1706	1651	1787	1559	1721	1703	1516
Q Serve(g_s), s	6.0	10.0	0.0	4.7	16.3	16.5	13.3	8.2	9.7	3.4	7.0	6.4
Cycle Q Clear(g_c), s	6.0	10.0	0.0	4.7	16.3	16.5	13.3	8.2	9.7	3.4	7.0	6.4
Prop In Lane	1.00		1.00	1.00		0.45	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	138	1696	523	233	581	566	979	1129	493	292	692	273
V/C Ratio(X)	0.86	0.44	0.00	0.80	0.67	0.67	0.82	0.39	0.45	0.49	0.46	0.47
Avail Cap(c_a), veh/h	138	2355	726	233	815	793	979	1787	779	360	1386	582
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.0	21.8	0.0	39.4	24.7	25.1	33.0	22.9	23.4	37.6	30.1	31.6
Incr Delay (d2), s/veh	39.8	0.2	0.0	17.9	1.3	1.4	5.4	0.2	0.6	1.3	0.5	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	4.6	0.0	2.8	8.1	7.9	6.6	4.0	4.3	1.7	3.3	2.8
LnGrp Delay(d),s/veh	78.8	22.0	0.0	57.3	26.0	26.5	38.4	23.1	24.1	38.8	30.6	32.8
LnGrp LOS	E	C		E	C	C	D	C	C	D	C	C
Approach Vol, veh/h		860			952			1457			586	
Approach Delay, s/veh		29.9			32.3			31.7			33.1	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.3	31.2	10.0	33.5	21.0	21.5	11.0	32.5
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	7.0	41.0	4.0	39.0	15.0	33.0	5.0	38.0
Max Q Clear Time (g_c+I1), s	5.4	11.7	6.7	12.0	15.3	9.0	8.0	18.5
Green Ext Time (p_c), s	0.1	5.3	0.0	7.6	0.0	5.1	0.0	6.9

Intersection Summary	
HCM 2010 Ctrl Delay	31.6
HCM 2010 LOS	C

MITIGATED EXISTING PLUS BACKGROUND PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

1: Corral Hollow Rd & Grant Line Rd

Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	182	932	808	194	791	823	412	216	139	320	125
v/c Ratio	1.09	0.41	0.89	0.76	0.54	1.11	0.49	0.46	0.47	0.54	0.53
Control Delay	138.1	19.1	27.5	63.7	21.9	105.8	33.8	14.2	47.9	39.5	46.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	138.1	19.1	27.5	63.7	21.9	105.8	33.8	14.2	47.9	39.5	46.1
Queue Length 50th (ft)	~124	135	263	60	176	~201	113	34	41	93	71
Queue Length 95th (ft)	#272	186	#575	#121	254	#266	145	81	75	136	127
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	167	2271	907	255	1475	742	1596	760	294	1340	570
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	0.41	0.89	0.76	0.54	1.11	0.26	0.28	0.47	0.24	0.22

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	857	743	184	621	130	683	342	179	133	307	120
Future Volume (veh/h)	167	857	743	184	621	130	683	342	179	133	307	120
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.99	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	182	932	0	194	654	137	823	412	216	139	320	125
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.83	0.83	0.83	0.96	0.96	0.96
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	180	1864	586	275	1001	209	800	1067	460	286	774	313
Arrive On Green	0.10	0.36	0.00	0.08	0.34	0.32	0.16	0.30	0.30	0.08	0.22	0.20
Sat Flow, veh/h	1774	5136	1615	3476	2941	615	5052	3610	1555	3510	3539	1595
Grp Volume(v), veh/h	182	932	0	194	397	394	823	412	216	139	320	125
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1769	1684	1805	1555	1755	1770	1595
Q Serve(g_s), s	9.0	12.5	0.0	4.8	16.7	16.8	14.0	8.0	10.1	3.4	6.9	6.0
Cycle Q Clear(g_c), s	9.0	12.5	0.0	4.8	16.7	16.8	14.0	8.0	10.1	3.4	6.9	6.0
Prop In Lane	1.00		1.00	1.00		0.35	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	180	1864	586	275	608	602	800	1067	460	286	774	313
V/C Ratio(X)	1.01	0.50	0.00	0.71	0.65	0.65	1.03	0.39	0.47	0.49	0.41	0.40
Avail Cap(c_a), veh/h	180	2438	767	275	808	800	800	1714	738	317	1440	613
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.7	21.9	0.0	39.7	24.7	25.1	37.2	24.8	25.5	38.9	29.7	31.0
Incr Delay (d2), s/veh	69.2	0.2	0.0	8.0	1.2	1.2	39.5	0.2	0.7	1.3	0.4	0.8
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	7.8	5.9	0.0	2.6	8.4	8.3	9.4	4.0	4.4	1.7	3.4	2.7
LnGrp Delay(d),s/veh	108.9	22.1	0.0	47.7	25.9	26.3	76.8	25.0	26.2	40.1	30.0	31.8
LnGrp LOS	F	C		D	C	C	F	C	C	D	C	C
Approach Vol, veh/h		1114			985			1451			584	
Approach Delay, s/veh		36.3			30.4			54.5			32.8	
Approach LOS		D			C			D			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	30.1	11.0	36.1	18.0	23.4	13.0	34.1
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	6.0	40.0	5.0	40.0	12.0	34.0	7.0	38.0
Max Q Clear Time (g_c+I1), s	5.4	12.1	6.8	14.5	16.0	8.9	11.0	18.8
Green Ext Time (p_c), s	0.0	5.1	0.0	8.9	0.0	5.0	0.0	8.0

Intersection Summary	
HCM 2010 Ctrl Delay	40.8
HCM 2010 LOS	D

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	135	898	1018	187	919	992	437	221	143	316	145
v/c Ratio	0.71	0.39	1.08	1.03	0.67	0.99	0.44	0.41	0.50	0.59	0.68
Control Delay	76.0	23.9	72.8	133.3	34.2	77.1	39.7	13.6	63.4	54.8	68.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.0	23.9	72.8	133.3	34.2	77.1	39.7	13.6	63.4	54.8	68.7
Queue Length 50th (ft)	109	174	~715	~84	316	291	158	40	58	130	116
Queue Length 95th (ft)	#183	213	#874	#176	433	#396	197	97	100	178	188
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	275		435	170		90		220	240		265
Base Capacity (vph)	197	2274	942	182	1378	1002	1450	725	294	983	410
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.39	1.08	1.03	0.67	0.99	0.30	0.30	0.49	0.32	0.35

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	112	745	845	176	704	160	853	376	190	132	291	133
Future Volume (veh/h)	112	745	845	176	704	160	853	376	190	132	291	133
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1776	1810	1792	1810	1845	1900	1845	1881	1863	1863	1792	1792
Adj Flow Rate, veh/h	135	898	0	187	749	170	992	437	221	143	316	145
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	2	2	1
Peak Hour Factor	0.83	0.83	0.83	0.94	0.94	0.94	0.86	0.86	0.86	0.92	0.92	0.92
Percent Heavy Veh, %	7	5	6	5	3	3	3	1	2	2	6	6
Cap, veh/h	188	1955	603	202	979	222	1114	1181	515	258	615	247
Arrive On Green	0.11	0.40	0.00	0.06	0.35	0.33	0.22	0.33	0.33	0.08	0.18	0.16
Sat Flow, veh/h	1691	4940	1524	3343	2837	644	4954	3574	1559	3442	3406	1515
Grp Volume(v), veh/h	135	898	0	187	463	456	992	437	221	143	316	145
Grp Sat Flow(s),veh/h/ln	1691	1647	1524	1672	1752	1728	1651	1787	1559	1721	1703	1515
Q Serve(g_s), s	8.9	15.5	0.0	6.4	27.2	27.3	22.4	10.8	12.8	4.6	9.7	10.2
Cycle Q Clear(g_c), s	8.9	15.5	0.0	6.4	27.2	27.3	22.4	10.8	12.8	4.6	9.7	10.2
Prop In Lane	1.00		1.00	1.00		0.37	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	188	1955	603	202	605	596	1114	1181	515	258	615	247
V/C Ratio(X)	0.72	0.46	0.00	0.92	0.76	0.77	0.89	0.37	0.43	0.55	0.51	0.59
Avail Cap(c_a), veh/h	219	2521	777	202	773	762	1114	1607	701	327	1090	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	49.6	25.8	0.0	54.1	33.7	34.0	43.4	29.5	30.2	51.6	42.8	44.8
Incr Delay (d2), s/veh	9.1	0.2	0.0	42.5	3.5	3.5	9.2	0.2	0.6	1.9	0.7	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	4.6	7.1	0.0	4.2	13.7	13.5	11.1	5.4	5.6	2.3	4.6	4.5
LnGrp Delay(d),s/veh	58.7	26.0	0.0	96.5	37.2	37.6	52.6	29.7	30.8	53.5	43.5	47.0
LnGrp LOS	E	C		F	D	D	D	C	C	D	D	D
Approach Vol, veh/h		1033			1106			1650			604	
Approach Delay, s/veh		30.2			47.4			43.6			46.7	
Approach LOS		C			D			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	12.7	42.2	11.0	49.8	30.0	24.9	16.8	43.9
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	9.0	50.0	5.0	57.0	24.0	35.0	13.0	49.0
Max Q Clear Time (g_c+I1), s	6.6	14.8	8.4	17.5	24.4	12.2	10.9	29.3
Green Ext Time (p_c), s	0.1	5.6	0.0	10.8	0.0	5.2	0.1	8.6

Intersection Summary	
HCM 2010 Ctrl Delay	41.8
HCM 2010 LOS	D

MITIGATED CUMULATIVE (2035) PLUS PROJECT TRAFFIC CONDITIONS ANALYSIS SHEETS

1: Corral Hollow Rd & Grant Line Rd

Timing Plan: Saturday Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	84	829	1057	177	1284	712	964	192	465	740	286
v/c Ratio	0.51	0.46	1.36	0.58	1.05	0.78	0.83	0.33	0.70	0.77	0.70
Control Delay	77.9	39.6	197.3	75.5	86.3	66.2	54.4	16.4	69.8	56.6	60.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	77.9	39.6	197.3	75.5	86.3	66.2	54.4	16.4	69.8	56.6	60.4
Queue Length 50th (ft)	82	239	~1179	89	~750	241	471	53	159	365	264
Queue Length 95th (ft)	145	299	#1509	136	#979	#316	555	119	210	425	359
Internal Link Dist (ft)		220			2710		2500			200	
Turn Bay Length (ft)	200		585	100		200		200	175		275
Base Capacity (vph)	200	1814	777	323	1223	911	1347	650	712	1273	551
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.46	1.36	0.55	1.05	0.78	0.72	0.30	0.65	0.58	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	81	804	1025	172	1049	197	691	935	186	451	718	277
Future Volume (veh/h)	81	804	1025	172	1049	197	691	935	186	451	718	277
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	1881	1900	1881	1881	1900	1881	1900	1845	1900	1863	1900
Adj Flow Rate, veh/h	84	829	0	177	1081	203	712	964	192	465	740	286
Adj No. of Lanes	1	3	1	2	2	0	3	2	1	3	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	2	1	0	1	1	1	1	0	3	0	2	0
Cap, veh/h	130	1824	574	277	1086	203	958	1176	510	632	920	395
Arrive On Green	0.07	0.36	0.00	0.08	0.36	0.35	0.19	0.33	0.33	0.12	0.26	0.25
Sat Flow, veh/h	1774	5136	1615	3476	3004	562	5052	3610	1565	5103	3539	1611
Grp Volume(v), veh/h	84	829	0	177	642	642	712	964	192	465	740	286
Grp Sat Flow(s),veh/h/ln	1774	1712	1615	1738	1787	1780	1684	1805	1565	1701	1770	1611
Q Serve(g_s), s	6.4	17.2	0.0	6.8	49.5	49.9	18.4	34.0	13.0	12.2	27.1	18.2
Cycle Q Clear(g_c), s	6.4	17.2	0.0	6.8	49.5	49.9	18.4	34.0	13.0	12.2	27.1	18.2
Prop In Lane	1.00		1.00	1.00		0.32	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	130	1824	574	277	646	643	958	1176	510	632	920	395
V/C Ratio(X)	0.65	0.45	0.00	0.64	0.99	1.00	0.74	0.82	0.38	0.74	0.80	0.72
Avail Cap(c_a), veh/h	218	1968	619	352	646	643	958	1461	634	775	1382	606
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	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	62.4	34.3	0.0	61.7	44.0	44.4	52.9	42.9	35.8	58.4	47.9	31.2
Incr Delay (d2), s/veh	5.3	0.2	0.0	2.5	33.6	35.1	3.2	3.1	0.5	2.9	2.1	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	3.3	8.2	0.0	3.4	30.4	30.7	8.9	17.4	5.7	5.9	13.5	8.5
LnGrp Delay(d),s/veh	67.6	34.5	0.0	64.3	77.6	79.6	56.0	46.0	36.3	61.3	50.0	33.7
LnGrp LOS	E	C		E	E	E	E	D	D	E	D	C
Approach Vol, veh/h		913			1461			1868			1491	
Approach Delay, s/veh		37.5			76.9			48.8			50.4	
Approach LOS		D			E			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.1	49.1	15.0	53.1	30.2	39.9	14.1	54.0
Change Period (Y+Rc), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Green Setting (Gmax), s	19.0	54.0	12.0	51.0	21.0	52.0	15.0	48.0
Max Q Clear Time (g_c+I1), s	14.2	36.0	8.8	19.2	20.4	29.1	8.4	51.9
Green Ext Time (p_c), s	1.0	7.1	0.2	12.9	0.5	4.9	0.1	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	54.6
HCM 2010 LOS	D

VEHICLE QUEUING ANALYSIS SHEETS

1008 El Camino Real TOA Queuing Summary

Scenarios Analyzed	Turning Movement	Corral Hollow Road			
		Grant Line Road #1			
		Link	AM	PM	Sat
Existing Traffic	EBL	275	51	232	148
	EBR	435	37	252	**527**
	WBL	170	137	121	95
	WBR				
	NBL	90	**180**	**240**	**342**
	NBR	220	51	72	81
	SBL	240	27	67	75
	SBR	265	48	18	38
Existing + Project Traffic	EBL	275	65	254	180
	EBR	435	37	257	**534**
	WBL	170	142	121	95
	WBR				
	NBL	90	**193**	**244**	**348**
	NBR	220	51	73	82
	SBL	180	31	72	80
	SBR	265	134	101	128
Existing + Background Traffic	EBL	275	60	254	176
	EBR	435	39	**522**	**792**
	WBL	170	143	121	95
	WBR				
	NBL	450	222	320	436
	NBR	220	52	74	97
	SBL	240	28	67	75
	SBR	265	50	28	50
Existing + Background+Project Traffic	EBL	275	76	275	207
	EBR	435	40	**527**	**798**
	WBL	170	161	121	95
	WBR				
	NBL	450	241	323	442
	NBR	220	52	74	98
	SBL	180	33	72	80
	SBR	265	146	114	146
Cumulative + Traffic	EBL	275	131	180	113
	EBR	435	67	**1134**	**1429**
	WBL	170	104	139	126
	WBR				
	NBL	450	180	228	305
	NBR	220	47	80	79
	SBL	240	164	205	188
	SBR	265	53	163	185
Cumulative + Project Traffic	EBL	275	168	206	145
	EBR	435	74	**1195**	**1566**
	WBL	170	120	146	136
	WBR				
	NBL	450	215	241	358
	NBR	220	54	122	119
	SBL	180	195	221	210
	SBR	265	168	**325**	**349**

Note: Locations where the queue length exceeds the link storage by 25 feet or more are shown in shaded cells.