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July 3, 2018 11040-7266

Tori Massie
Baldwin & Sons
Project Coordinator
610 West Ash, Suite 1500
San Diego, California 92101

Subject: PA-12 East – Addendum to Prior Noise Study

Dear Ms. Massie:

Dudek has completed this focused noise re-assessment for the Otay Ranch Freeway Commercial Sectional Planning Area (SPA) Plan – Planning Area 12 (PA-12), in the City of Chula Vista, California. This letter specifically addresses the East portion of the PA-12 development, specifically east of Town Center Drive. At your request, we have re-evaluated the adjacent roadway traffic noise and BRT noise based upon current site information. Please note that all sound levels in this report are A-weighted. Definitions of acoustical terms used in this report are provided in Attachment 1.

CITY NOISE CRITERIA

The City of Chula Vista General Plan Noise Element indicates that the maximum allowable exterior noise level for new residential developments is a Community Noise Equivalent Level (CNEL) of 65 A-weighted decibels (dBA) (City of Chula Vista 2005). California Building Code (Part 2, Title 24, California Code of Regulations) requires that the interior noise level attributable to exterior noise sources not exceed 45 dBA CNEL for multi-family residential buildings.

The City of Chula Vista also requires that interior noise levels attributable to exterior noise sources not exceed a CNEL of 45 dBA within residences. Typically, with the windows open, building shells provide approximately 15 dBA of noise reduction. Therefore, rooms exposed to an exterior CNEL greater than 60 dBA could result in an interior CNEL greater than 45 dBA. The California Building Code recognizes this relationship and therefore requires interior noise studies when the exterior noise level is projected to exceed 60 dBA CNEL.

METHODOLOGY

The exterior noise analysis follows the same general procedure outlined in Noise Assessment Technical Report for the Otay Ranch Freeway Commercial Sectional Planning Area (SPA)

Plan – Planning Area 12 (PA-12). Average Daily Traffic (ADT) data for the adjacent arterial roadways was input in a computer model along with topographical data and site plan information. CadnaA (Computer Aided Noise Abatement) is a software program for calculation, presentation, assessment and prediction of environmental noise. This program was used to build an updated exterior noise model for the project specific area.

For the updated modeling, the more detailed site plan provided by the applicant was utilized for the analysis. Figure 1 shows the location of the modeled receiver based on these updated plans.

TRAFFIC NOISE

Olympic Parkway and Eastlake Parkway make up the northern and eastern boundaries of the site. These two roads are the focus of the traffic noise modeling update. The posted speed on Olympic Parkway is 50 mph (80 kmh). This speed was assumed for both Olympic Parkway and Eastlake Parkway. Table 1 shows the traffic data used for the noise model.

Table 1
Traffic Volumes Associated with Local Roadways Segments

Road Segment	Existing ADT	Existing + Project ADT	Horizon Year ADT	Horizon Year + Project ADT
Olympic Parkway	35,608	39,310	48,000	51,700
Eastlake Parkway	12,092	13,030	23,660	24,600

Source: Chen Ryan. 2015

Utilizing the most recent plan sets and grading elevations available for the mixed use product types currently planned for the site, we refined a traffic noise model in CadnaA for the project. The same traffic volumes as used in the prior noise Addendum (Dudek 2015) were utilized for this analysis – specifically, the Horizon Year future traffic volumes as provided by Chen Ryan (Chen Ryan 2015), because these volumes are still current (i.e., there have been no revised projections).

Modeled receiver points were placed at the proposed poolside location, the parklet, and other outdoor areas as well as balcony areas, as shown in Figure 1. Receiver heights corresponding to 1st, 2nd, 3rd and 4th floor elevations were modeled for balconies, based on the provided plans (Baldwin and Sons 2018). The planned pool area was also incorporated into the updated model.

Table 2 and Table 3 show the updated calculated exterior traffic noise levels. To place the reported exterior noise levels in context, where noise levels exceed 65 A-weighted decibels (dBA) Community Noise Equivalent Level (CNEL), exterior mitigation is required; At locations

where exterior noise levels exceed 60 dBA CNEL, interior analysis is required. Numbers displayed in bold indicate where levels exceed 65 dBA CNEL, and italicized numbers indicate where levels exceed 60 dBA CNEL.

Table 2
Summary of On-Site Traffic Noise Levels1 (dBA CNEL) at Outdoor Use Locations

Receiver Name	Existing	Existing Plus Project	Horizon	Horizon Year Plus Project
M1 Parklet / Fire Access	*65*	*65*	***68***	***68***
M2 Outdoor Corridor Area	54	54	56	56
M3 Area Amenities North Patio (Playground)	*65*	*65*	***66***	***67***

Notes:
Bold = noise level exceeds 65 dBA CNEL Standard for exterior noise.
Italics = noise level exceeds 60 dBA CNEL, indicating that the interior noise standard could be exceeded.

Table 3
Summary of On-Site Traffic Noise Levels (dBA CNEL) at Balconies

Receiver Location On Map	Floor (Level)	Existing	Existing Plus Project	Horizon	Horizon Year Plus Project
A1	F1	*65*	**66**	**66**	**67**
A1	F2	*61*	*62*	*63*	*63*
A1	F3	*61*	*61*	*62*	*62*
A1	F4	*61*	*61*	*62*	*63*
A2	F1	*61*	*62*	*63*	*63*
A2	F2	*61*	*62*	*63*	*63*
A2	F3	*61*	*62*	*62*	*63*
A2	F4	*61*	*62*	*62*	*63*
A3	F1	*63*	*64*	*65*	*65*
A3	F2	*63*	*64*	*64*	*65*
A3	F3	*61*	*62*	*63*	*63*
A3	F4	*61*	*62*	*63*	*63*
A4	F1	**67**	**68**	**69**	**69**
A4	F2	*64*	*64*	*65*	*65*
A4	F3	*62*	*62*	*63*	*63*
A4	F4	*62*	*62*	*63*	*63*
A5	F1	*65*	*65*	**66**	**66**
A5	F2	*63*	*64*	*65*	*65*
A5	F3	*62*	*63*	*63*	*64*
A5	F4	*62*	*62*	*63*	*63*
A6	F1	**66**	**67**	**67**	**68**
A6	F2	*63*	*63*	*64*	*65*
A6	F3	*62*	*62*	*63*	*64*
A6	F4	*62*	*62*	*63*	*63*

Table 3
Summary of On-Site Traffic Noise Levels (dBA CNEL) at Balconies

Receiver Location On Map	Floor (Level)	Existing	Existing Plus Project	Horizon	Horizon Year Plus Project
A7	F1	**66**	**67**	**68**	**68**
A7	F2	*63*	*63*	*64*	*64*
A7	F3	*62*	*62*	*63*	*63*
A7	F4	*62*	*62*	*63*	*63*
A8	F1	**67**	**67**	**68**	**69**
A8	F2	*62*	*63*	*64*	*64*
A8	F3	*62*	*62*	*63*	*63*
A8	F4	*61*	*62*	*63*	*63*
B1	F1	*64*	*64*	*65*	**66**
B1	F2	*65*	*65*	**66**	**66**
B1	F3	*62*	*62*	*63*	*63*
B1	F4	*61*	*62*	*63*	*63*
B2	F1	**67**	**68**	**69**	**69**
B2	F2	*63*	*63*	*64*	*64*
B2	F3	*61*	*62*	*63*	*63*
B2	F4	*61*	*62*	*62*	*63*
B3	F1	**66**	**67**	**67**	**68**
B3	F2	*62*	*63*	*64*	*64*
B3	F3	*61*	*62*	*63*	*63*
B3	F4	*61*	*62*	*63*	*63*
B4	F1	*65*	**66**	**67**	**67**
B4	F2	*62*	*62*	*63*	*63*
B4	F3	*61*	*62*	*63*	*63*
B4	F4	*61*	*62*	*63*	*63*
B5	F1	*64*	*65*	**66**	**66**
B5	F2	*62*	*62*	*63*	*63*
B5	F3	*61*	*62*	*62*	*63*
B5	F4	*61*	*62*	*62*	*63*
B6	F1	**69**	**69**	**70**	**70**
B6	F2	*62*	*62*	*63*	*63*
B6	F3	*62*	*62*	*63*	*63*
B6	F4	*61*	*62*	*63*	*63*
B7	F1	**68**	**69**	**70**	**70**
B7	F2	*62*	*62*	*63*	*64*
B7	F3	*62*	*62*	*63*	*63*
B7	F4	*62*	*62*	*63*	*63*
B8	F1	56	57	58	58
B8	F2	*61*	*62*	*63*	*63*
B8	F3	*61*	*62*	*63*	*63*
B8	F4	*61*	*61*	*62*	*63*
B9	F1	48	48	50	50

Table 3
Summary of On-Site Traffic Noise Levels (dBA CNEL) at Balconies

Receiver Location On Map	Floor (Level)	Existing	Existing Plus Project	Horizon	Horizon Year Plus Project
B9	F2	59	60	*62*	*62*
B9	F3	*61*	*61*	*62*	*62*
B9	F4	*60*	*61*	*62*	*62*
B10	F1	*61*	*61*	*63*	*63*
B10	F2	*60*	*60*	*62*	*62*
B10	F3	*61*	*61*	*63*	*63*
B10	F4	*61*	*61*	*63*	*63*
B11	F1	54	55	57	57
B11	F2	56	56	58	59
B11	F3	58	58	*61*	*61*
B11	F4	58	59	*61*	*61*

Notes:
Bold = noise level exceeds 65 dBA CNEL Standard for exterior noise.
Italics = noise level exceeds 60 dBA CNEL, indicating that the interior noise standard could be exceeded.

Balcony barriers. For exterior noise levels at the multi-family residential buildings, the Otay Ranch GDP has policies in place to require appropriate sound attenuation project features for all required residential open space and public open space areas that are exposed to a noise level of 65 dBA CNEL or greater. Consistent with these policies, balconies planned on these residential units that are counted as part of an open space requirement would need to incorporate appropriate sound attenuating project features around the perimeter of the balconies so as not to exceed the 65 dB CNEL threshold.

Based upon the data shown in Table 3, building receptors A1, A4, A5, A6, A7, A8, B1, B2, B3, B4, B5, B6, and B7 at first-floor balconies/open space areas and B1 at the second floor balcony would require Plexiglass or other clear-view panels within the line-of-sight of Olympic Parkway if the balconies/open space areas are being used to satisfy the project's open space requirement. The height of such panels should be a minimum of 6 feet, in order to ensure a minimum noise reduction of 5 decibels.

Noise wall. Based upon the data shown in Table 2, the ground-floor level exterior common areas (Parklet and Northern Patio Amenity Area) within the line-of-sight of Olympic Parkway and Eastlake Parkway would require noise attenuation in the form of noise barriers. The height of such panels should be a minimum of 6 feet, in order to ensure a minimum noise reduction of 5 decibels. The noise barrier would be extended along Eastlake Parkway as shown in Figure 1 for the parklet. For the Northern Patio Amenity Area, the wall would need to be positioned as shown in Figure 1.

The noise barriers should have a surface density of at least four pounds per square foot and be free of openings and cracks (with the exception of expansion joints gaps and other construction techniques, which could create an opening or crack). The noise barriers may be constructed of acrylic glass, masonry material, earthen berm, or a combination of these materials.

With construction of a solid noise barrier between the Parklet and Eastlake Parkway, and the Northern Patio Amenity Area and Olympic Parkway, exterior noise impacts would be less than significant.

Interior Noise. Based upon Table 2, traffic noise levels would exceed 60 dB CNEL for residential units facing Olympic Parkway. These units/floors will require subsequent acoustical analyses to verify compliance with the state of California (CCR Title 24) and City of Chula Vista 45 dB CNEL interior noise standard.

NOISE FROM BUS RAPID TRANSIT (BRT) LINE

As discussed in a prior noise study for the project (Dudek, 2015), the South Bay Bus Rapid Transit (BRT) route will be located along the future extension of East Palomar Street adjacent to the southern boundary of the project site. Noise sensitive receptors that would be affected by the South Bay Bus Rapid Transit project that would extend East Palomar Street along the southern portion of the project site include the multi-family residential buildings on the southwest portion of the PA-12 site. Previous noise modeling based on methodology identified by the Federal Transit Authority (FTA 2006) and utilizing the FHWA TNM 2.5 traffic noise model (FHWA) was conducted to determine the noise level associated with the South Bay Bus Rapid Transit project on a separate portion of Otay Ranch. It was determined that at a distance of 40 feet from the centerline of the nearest side of East Palomar Street the buildings would experience a maximum future noise level of 64 dB CNEL at the first floor.

Based upon recently discovered noise emission levels used for the South Bay Bus Rapid Transit Project (Kimley-Horn and Associates, 2012), the BRT line is anticipated to result in 60 dB CNEL at a distance of 50 feet. This would equate to a 65 dB CNEL at a distance of 28 feet from the BRT centerline. Providing that the nearest residential units are not located within 28 feet of the BRT centerline, the exterior use areas (patios or balconies) would not exceed the City's exterior noise standard. Additionally, residential units within 50 feet of the BRT centerline would require subsequent acoustical analysis to verify compliance with the state of California (CCR Title 24) and the City of Chula Vista 45 dB CNEL interior noise standard. Based upon the current site plans, none of the buildings in the PA-12 east portion of the site are located within 50 feet of the BRT centerline. Therefore, noise impacts from the BRT line would be less than significant. No noise mitigation would be required for the BRT line noise.

MITIGATION

1. Consistent with Mitigation Measure 5.5-1 of the approved EIR (City of Chula Vista 2002), and to comply with the City and State's 45 dB CNEL interior noise standard, the following mitigation measure is required:

   a. Prior to the approval of site development plans, the applicant shall submit a supplemental noise analysis acceptable to the Director of Planning and Building demonstrating that interior noise levels would not exceed 45 dB CNEL.

   b. A noise barrier with a minimum height of 6 feet shall be constructed along the eastern edge of the site next to Eastlake Parkway, unless that proposed open space area is not needed to meet the project's exterior open space requirement. Figure 1 shows the location of the barrier.

   c. A noise barrier with a minimum height of 6 feet shall be constructed (as shown in Figure 1) to block the noise from Olympic Parkway from the Northern Patio Amenity Area.

   d. Building receptors A1, A4, A5, A6, A7, A8, B1, B2, B3, B4, B5, B6, and B7 would require Plexiglass or other clear-view panels at first-floor balconies/open space areas within the line-of-sight Olympic Parkway if the balconies/open space areas are used to satisfy the project's open space requirement.

This completes this focused noise report for the PA-12 East project. Should you have any questions regarding the above information, please call me at 760.479.4248.

Sincerely,

Brian Grover
Environmental Specialist/Project Manager
bgrover@dudek.com
760.479.4248

Christopher Barnobi, INCE Bd.Cert.
Environmental Acoustician
cbarnobi@dudek.com

Att.: Figure 1
Attachment 1 – Definitions

REFERENCES

Chen Ryan. 2015. *Otay Ranch PA 12 – Trip Generation Review*. February 12.

City of Chula Vista. 2002. *Otay Ranch Planning Area 12 EIR – Freeway Commercial*. "Section 5.5 – Noise."

City of Chula Vista. 2005. *City of Chula Vista General Plan*. "Chapter 9 Noise Element." December 13.

Dudek. 2015. *PA-12 FC-2 Amendment Acoustical Assessment Report*. March 20, 2015.

FHWA (Federal Highway Administration). 2004. *FHWA Traffic Noise Model User's Guide* (Version 2.5 Addendum). April.

Kimley-Horn and Associates, Inc. 2012. *Draft Noise Analysis Report, South Bay Bus Rapid Transit*. Prepared for San Diego Association of Governments. December 2012.

SOURCE: Baldwin &Sons 2018

FIGURE 1

Noise Measurement Locations and Proposed Soundwall

PA-12 Exterior Noise Study

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ATTACHMENT 1

Definitions

ATTACHMENT 1
Definitions

Term	Definition
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
A-Weighted Sound Level, (Dba)	The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with
Community Equivalent Sound Level (CNEL)	CNEL is the A-weighted equivalent continuous sound exposure (CNEL) level for a 24-hour period with a 10 dB adjustment added to sound levels occurring during the nighttime hours (10 p.m. to 7 a.m.) and 5 dB added to the sound during the evening hours (7 p.m. to 10 p.m.).
Decibel, (dB)	A unit for measuring sound pressure level and is equal to 10 times the logarithm to the base 10 of the ratio of the measured sound pressure squared to a reference pressure, which is 20 micropascals.
Time-Average Sound Level	The sound level corresponding to a steady state level containing the same total energy as a time varying signal over a given sample period. TAV is designed to average all of the loud and quiet sound levels occurring over a time period.

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DEXTER WILSON ENGINEERING, INC.

WATER • WASTEWATER • RECYCLED WATER

CONSULTING ENGINEERS

SEWER SYSTEM EVALUATION
FOR THE
OTAY RANCH PLANNING AREA 12
FREEWAY COMMERCIAL SPA AMENDMENT

September 25, 2017

2234 FARADAY AVENUE • CARLSBAD, CA • (760) 438-4422

SEWER SYSTEM EVALUATION
FOR THE
OTAY RANCH PLANNING AREA 12
FREEWAY COMMERCIAL SPA AMENDMENT

September 25, 2017

Prepared by:
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September 25, 2017 605-835

Baldwin & Sons
610 W. Ash Street, Suite 1500
San Diego, CA 92101

Attention: Nick Lee, Project Manager

Subject: Otay Ranch Planning Area 12 Freeway Commercial SPA Amendment
Sewer System Evaluation

Background

The proposed PA-12 project is located in the Otay Ranch Freeway Commercial core area. The northern portion of the PA-12 project is identified as FC-2 in the August 2004 approved SPA plan. The FC-2 site consisted of 34.5 acres of property zoned commercial and entitled for 347,000 square feet of commercial. A SPA amendment was processed in 2015 to change the entitlement to allow 600 multi-family residential units, 300 hotel rooms, a 2.0 acre park site, and 15,000 square feet of commercial. Another SPA Amendment is being proposed to increase the residential unit count to 900 units while leaving the remaining land uses unchanged.

Purpose

The purpose of this letter-report is to provide an evaluation of the effect that this current proposed SPA amendment development will have on the PA-12 local and regional sewer system. This letter-report is a supporting document to the PA-12 SPA Plan Amendment being processed by Baldwin & Sons.

Land Use Summary

Table 1 summarizes the previously approved development in the PA-12 SPA Amendment area along with the new development currently being proposed.

TABLE 1
PA-12 FREEWAY COMMERCIAL SPA AMENDMENT

Land Use	Originally	Currently Entitled	Currently Proposed
MF Residential Units	---	600 units	900 units
Hotels	---	300 rooms	300 rooms
Park	---	2.0 acre	2.0 acre
Commercial	34.5 acres	1.4 acres[1]	1.4 acres[1]

[1] Assumes gross acreage based on 15,000 SF of retail space and a floor to area ratio of 0.25.

Sewer Generation Factors

The City of Chula Vista has recently adopted new sewer generation factors to estimate flows from various land uses. Table 2 summarizes the sewer generation factors that were utilized in the preparation of this study.

TABLE 2
SEWER GENERATION FACTORS

Land Use	Generation Factor
MF Residential Units	182 gpd/unit
Hotels	76 gpd/room[1]
Park	410 gpd/ac
Commercial	1,401 gpd/ac

[1] Based on 0.33 EDU per room.

Projected Sewer Flows

To evaluate the impact that the proposed land use changes will have on the sewer collection system, an estimate of projected sewage flows is necessary. The August 2004 approved SPA plan provided the projected sewer flows when the project was initially approved. Table 3 provides a comparison between projected sewer flows from the approved sewer study and based on the current land use plan with updated sewer generation factors, per the proposed PA-12 Amendment. As shown, a total increase of approximately 448 EDUs is estimated from the 2004 SPA Plan.

TABLE 3
PA-12 SPA AMENDMENT SEWER FLOW SUMMARY

Land Use	Acres	Building Units	Generation Factor	Average Flow (gpd)
Originally Approved Sewer Flow				
Commercial	34.5	---	2,500 gpd/ac	86,250
Current Proposed Sewer Flow				
MF Residential Units	---	900	182 gpd/unit	163,800
Hotels	---	300	76 gpd/unit[1]	22,800
Park	2.0	---	410 gpd/ac	820
Commercial	1.4	---	1,401 gpd/ac	1,960
Subtotal				**189,380**
Increased Sewer Flow				**103,130**
Increased Sewer EDUs[2]				**448**

[1] Based on 0.33 EDU per room.
[2] Based on 230 gpd/EDU.

Comparison to DIF Report

Since our evaluation of the Poggi Canyon Interceptor will be largely based on the April 2009 Poggi Canyon Basin Gravity Sewer Development Impact Fee Update (DIF Report), a comparison of the current land use plan and proposed amendment versus the assumptions in the DIF Report is necessary. Table 4 provides the sewer flow projections for the current land use plan for the proposed amendment compared to the 2009 DIF Report. As shown, the Poggi Basin projections in the 2009 DIF Report would be increased by approximately 403 EDUs based on the current plan for the proposed PA-12 SPA Amendment.

TABLE 4
FREEWAY COMMERCIAL SPA AMENDMENT
POGGI BASIN EDU SUMMARY

Description	Quantity	Unit Flow Factor	Average Flow, gpd	EDUs[1]
2009 DIF Study				
C-1	30.4 Ac	2,500 gpd/ac	76,000	330.4
C-2	8.2 Ac	2,500 gpd/ac	20,500	89.1
Subtotal 2009 DIF Study				**420**
Current Plan with Amendment				
MF Res.	900 units	182 gpd/unit	163,800	712.2
Hotels	300 units	76 gpd/unit	22,800	99.1
Park	2.0 Ac	410 gpd/ac	820	3.6
Commercial	1.4	1,401 gpd/ac	1,960	8.5
Subtotal Current Plan with Amendment				**823**
Increase				**403**

[1] Based on 230 gpd/EDU. 2009 DIF Study was based on 265 gpd/EDU.

Onsite Sewer System

The proposed onsite sewer system for the PA-12 SPA area consists of gravity sewer lines that will convey flow to the Poggi Canyon Interceptor in Olympic Parkway. Based on the average flow presented in Table 3 and a peak factor of 2.22 from the City Subdivision Manual, the projected peak flow for the project is 0.42 mgd. An 8-inch gravity sewer line with a minimum slope of 1.0 percent is adequate to convey this total project flow.

Poggi Canyon Interceptor

The available capacity in the Poggi Canyon Interceptor was evaluated under the proposed condition. Data on the Poggi Canyon Interceptor was obtained from the April 2009 Poggi Canyon Basin Gravity Sewer Development Impact Fee Update prepared by PMC. Data from this report includes existing permitted EDUs in the basin as well as committed EDUs based on previous project approvals.

Since the time of the 2009 PMC Study a few projects have been proposed that will increase the amount of units to the Poggi Interceptor. The EDU projections from these projects have not been adjusted based on the City's updated sewer generation factors. A brief description of these projects is provided as follows:

1. **Village 2 Unit Transfer.** As outlined in an August 4, 2011 memorandum, Baldwin and Sons processed a unit transfer that did not change the total unit count in Village 2, but transferred units between neighborhoods. The net effect of these transfers was a shift of 84 EDUs from the Wolf Canyon Basin to the Poggi Basin. These EDUs have been considered in this sewer system evaluation.

2. **JPB Village 2 SPA Amendment.** The JPB Village 2 SPA Amendment increased the unit count in Village 2 by 197 units. Per the November 21, 2011 Sewer System Evaluation that was done for this project, the net effect of this land use change was the addition of 160 EDUs to the Poggi Basin. These additional EDUs have been considered in this sewer system evaluation.

3. **Village 2 Comprehensive SPA Amendment.** Baldwin and Sons has proposed a comprehensive SPA Amendment that could increase the number of units in Village 2 by approximately 1,564 units. The impact of this would be an increase of 1,098 EDUs in the Poggi Basin. These numbers include the unit transfer and JPB Amendment discussed above.

4. **Eastern Urban Center (EUC).** The EUC was approved in September 2009, shortly after the 2009 PMC Study was prepared. The PMC Study did, however, anticipate the EUC project and included 429 EDUs from the EUC (Table 3-2) in the

calculation of the Poggi Interceptor Fee. These units include 189 EDUs within the Poggi Basin and 240 EDUs that are proposed to be permanently diverted from the Salt Creek Basin to the Poggi Basin. The current estimate for the EUC is 457 EDUs and so an additional 28 EDUs from the EUC have been considered in this sewer system evaluation.

Table 5 provides a reach by reach summary of permitted and committed EDUs for the Poggi Interceptor and provides the impact that the PA-12 Amendment would have on remaining capacity. Exhibit A identifies the reach locations and indicates where the PA-12 EDUs will connect to the Poggi Interceptor. As shown in Table 4, the two reaches already identified for future replacement are shown as being over capacity. Upon approval of the proposed PA-12 Amendment, the Poggi Basin Gravity Sewer Development Impact Fee should be updated to reflect the additional units associated with this project.

Conclusion

Although the proposed PA-12 Amendment will exceed the units foreseen in the 2009 Poggi DIF update, the limits of the required DIF improvements remain the same. The cost related to the DIF improvements has been identified in the Poggi DIF program and the PA-12 Amendment project will be required to update the Poggi DIF study as a condition of approval for the project.

If you have any questions or require additional information, please let us know.

Dexter Wilson Engineering, Inc.

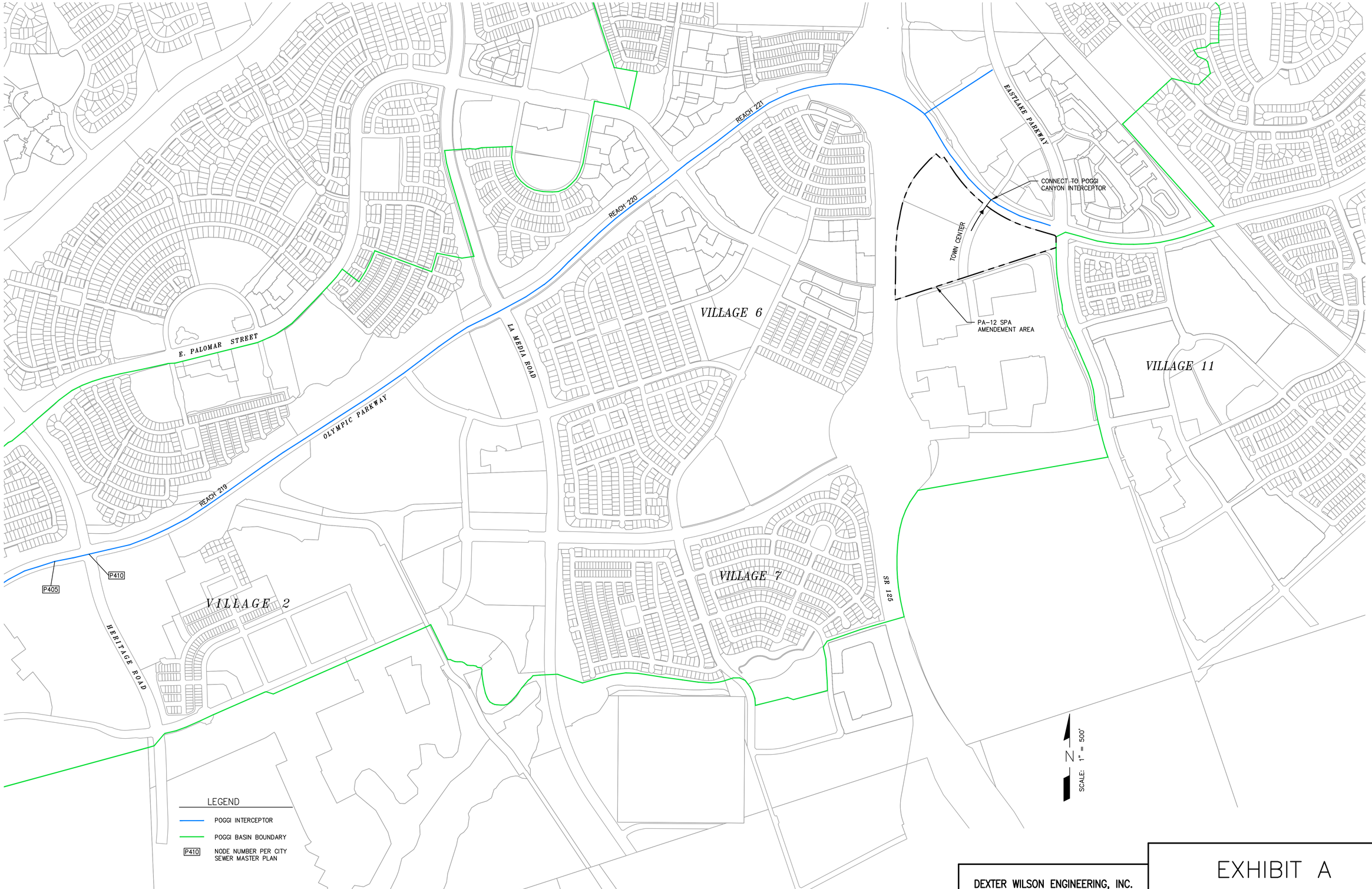
Stephen M. Nielsen, P.E.

SMN:ps

TABLE 5
POGGI CANYON INTERCEPTOR SUMMARY
FREEWAY COMMERCIAL SCENARIO

Reach	Capacity at[1] d/D=0.85 EDUs	Permitted EDUs		Committed EDUs[3]		Freeway Commercial Amendment		
		Current[2]	Remaining Capacity	Current[2]	Remaining Capacity	Additional EDUs[4]	Net EDUs Permitted Remaining	Net Committed Remaining EDUs
P102 to P140	21,162	11,602	9,560	16,204	4,958	1,529	8,031	3,429
P140 to P175R	25,569	11,602	13,967	16,204	9,365	1,529	12,438	7,836
P175R to P195	41,361	11,602	29,759	16,204	25,157	1,529	28,430	23,628
P195 to P230	21,162	10,726	10,436	15,328	5,834	1,529	8,907	4,305
P230 to P240	18,927	10,053	8,874	14,655	4,262	1,529	7,335	2,733
P240 to P253R	18,927	10,053	8,874	14,655	4,262	1,529	7,335	2,733
R253R to P270	14,028	9,763	4,265	14,365	(337)	1,529	2,736	(1,866)
P270 to P305	14,028	8,587	5,441	13,125	903	1,529	3,912	(626)
P305 to P310	44,362	8,587	35,775	12,609	31,753	1,529	34,246	30,224
P310 to P345	19,641	8,447	11,194	12,469	7,172	1,529	9,665	5,643
P345 to P365	15,369	8,289	7,080	12,312	3,057	1,529	5,551	1,538
P365 to P405	19,938	8,289	11,649	11,590	8,348	1,529	10,120	6,819
P405 to P410	15,369	7,770	7,599	11,070	4,299	1,529	6,070	2,770
u/s P410 to SR125	15,369	6,605	8,764	9,906	5,463	1,529	7,235	3,934

[1] Revised based on current factor of 230 gpd/EDU
[2] These numbers have not been updated based on the current sewer generation factors.
[3] Committed EDUs do not include interim 464 EDUs from Village 7, 281 EDUs from EUC.
[4] Includes 1,098 EDUs from Village 2, 28 EDUs from the EUC, and 403 units from PA-12.



DEXTER WILSON ENGINEERING, INC.
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2234 FARADAY AVENUE
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EXHIBIT A

POGGI INTERCEPTOR MAP

OTAY RANCH
FREEWAY COMMERCIAL NORTH

TRAFFIC ANALYSIS

May 8, 2019

CHEN RYAN

Table of Contents

List of Attachments

Attachment A – Ayres Hotel Trip Generation Memorandum by LLG.

Attachment B – SANDAG MXD CALCULATION

Attachment C – Analysis for CEQA; Signal Timing Worksheets; 2018 Traffic Counts.

Attachment D – Analysis for CEQA; Level of Service Calculation Worksheets; Existing Conditions.

Attachment E – Analysis for CEQA; Level of Service Calculation Worksheets; Existing Plus Project Conditions.

Attachment F – Analysis for CEQA; Level of Service Calculation Worksheets; Horizon Year 2030 Base and Base Plus Project Conditions.

Attachment G – Access & Frontage Operational Analysis. 2017 Traffic Counts.

Attachment H – Access & Frontage Operational Analysis. Level of Service Calculation Worksheets. Existing Conditions.

Attachment I – Access & Frontage Operational Analysis. Level of Service Calculation Worksheets. Existing Plus Project Conditions.

Attachment J – Access & Frontage Operational Analysis. Level of Service Calculation Worksheets. Horizon Year 2030 Plus Project Conditions. Queueing Analysis.

CHEN RYAN

MEMORANDUM

TO: Nick Lee, Baldwin & Sons

FROM: Phuong Nguyen, PE

DATE: May 8, 2019

RE: Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

The purpose of this technical memorandum is to assess the potential transportation related impacts and traffic operation along the PA 12 Freeway Commercial North development (Proposed Project).

Project Description

The Otay Ranch PA 12 Freeway Commercial North development is located between SR-125 and Eastlake Parkway, just south of Olympic Parkway in the City of Chula Vista. The PA 12 Freeway Commercial North project consists of the following land uses:

- Up to 608 apartment units
- 292 townhomes
- 15,000 square feet of mixed use commercial
- 2 acres neighborhood park; and
- 300 rooms hotel

The Proposed Project is also located within 1,500 feet (less than 10 minutes of walking) of the Otay Ranch Town Center, grocery, banking, drugstore, postal services, both fast food and sit-down restaurants, as well as a BRT station.

Figure 1 illustrates the project site plan. As shown, project access is provided via two (2) driveways along Town Center Drive (one signalized with full access at the main entrance and one signalized without northbound left-turn in at the hotel entrance), and one (1) right-in/right-out driveway along Olympic Parkway, between Town Center Drive and Eastlake Parkway.

The PA 12 Freeway Commercial north project was previously approved for 347,000 square feet super regional shopping center uses under the Otay Ranch Freeway Commercial Sectional Planning Area (SPA) Plan Planning Area 12 EIR (SCH#1989010154).

Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

CHEN RYAN

Figure 1
Project Site Plan

This technical memorandum will be organized into the following sections:

1.0 Project Traffic Generation
2.0 Traffic Analysis for CEQA Clearance
3.0 Traffic Operation along Project Frontage

1.0 PROJECT TRAFFIC GENERATION

Table 1 displays daily and peak hour trip generation for the PA 12 Freeway Commercial North project, under both the 2002 EIR and the currently proposed land use. Trip generation rates were developed utilizing *SANDAG's Guide to Vehicular Traffic Generation Rates for the San Diego Region (SANDAG, April 2002)*.

Table 1

PA 12 Freeway Commercial North Project Trip Generation

Land Use	Quantity	Rate	Daily Trips	AM Peak Hour	PM Peak Hour
Otay Ranch Freeway Commercial Sectional Planning Area (SPA) Plan Planning Area 12 EIR					
Super Regional Shopping Center	347 ksf	35/1ksf	12,145	486 (340-in/146-out)	1,215 (607-in/608-out)
Proposed Project					
Apartment (density >20 du/acre)	608 units	6 / unit AM: 8% (2:8) PM: 9% (7:3)	3,648	292 (58-in / 234-out)	328 (230-in / 98-out)
Townhomes (density >20 du/acre)	292 units	6 / unit AM: 8% (2:8) PM: 9% (7:3)	1,752	140 (28-in / 112-out)	158 (110-in / 47-out)
Mixed-Use Commercial Center	15 KSF	110 / 1ksf AM: 3% (6:4) PM: 9% (5:5)	1,650	50 (30-in /20-out)	149 (75-in / 74-out)
Neighborhood Park	2 acres	5 / Acre AM: 4% (5:5) PM: 4% (5:5)	10	0 (0-in / 0-out)	1 (1-in / 0-out)
		15% Transit and Mixed-Use Reduction*	-1,059	-72 (-17-in / -55-out)	-96 (-63-in / -33-out)
		Sub-Total	6,001	410 (99-in / 311-out)	540 (354-in / 186-out)
Business Hotel	300 rooms	7 / room AM: 8% (4:6) PM: 9% (6:4)	2,100	168 (67-in / 101-out)	189 (113-in / 76-out)
		10% Transit Reduction**	-210	-17 (-17-in / -10-out)	-19 (-11-in / -8-out)
		10% Walk/Bike Mode-Share Reduction**	-210	-17 (-17-in / -10-out)	-19 (-11-in / -8-out)
		Sub-Total Business Hotel	1,680	134 (53-in / 81-out)	151 (91-in / 60-out)

Table 1

PA 12 Freeway Commercial North Project Trip Generation

Land Use	Quantity	Rate	Daily Trips	AM Peak Hour	PM Peak Hour
		Total	7,681	544 (152-in / 392-out)	691 (445-in / 246-out)
Proposed Project "-" Currently Approved Trip Generation			-4,464	58 (-188-in / 246 out)	-524 (-162 / -362)

Source: 2002 SANDAG Trip Generation Manual, Chen Ryan Associates; July 2018

Notes:

*Per SANDAG's Guide to Vehicular Traffic Generation Rates for the San Diego Region.

10% Transit Reduction and 10% Walk/Bike Mode-Share Reduction for Business Hotel Trips were obtained from the Ayres Hotel Trip Generation Memo by LLG (March 20, 2017), which was recently approved by City of Chula Vista City Council. A copy of the memo is included in **Attachment A.

As shown, PA 12 Freeway Commercial North would generate approximately 7,681 daily trips including 544 and 691 trips during the AM and PM peak hours, respectively. In comparison, the 2002 EIR land use would generate approximately 12,145 daily trips including 486 and 1,215 trips during the AM and PM peak hours, respectively. The proposed project would generate less traffic both in daily trips (by 36.8%) and PM peak hour trips (by 43.4%) when comparing to the previously approved land use under the 2002, however, it would generate more traffic in the AM peak hour (by 11.9% or 58 trips). Since the currently proposed project would generate more trips than those already approved under the 2002 EIR in the AM peak hour, a focused traffic analysis was conducted to determine any potential impacts may be associated with the 58 additional AM Peak hour trips. Analysis was not conducted for the daily or PM peak as the proposed project would generate less than those in the 2002 EIR.

2.0 TRAFFIC ANALYSIS FOR CEQA CLEARANCE

As discussed above, the proposed project would generate more AM peak hour traffic (by 58 trips) than the previously approved 2002 EIR studied land uses, therefore, a focused traffic analysis was conducted to determine any potential impacts may be associated with these additional AM Peak hour trips.

2.1 Significant Impact Criteria

This section outlines the thresholds for determination of significant project-related impacts to intersections in the City of Chula Vista.

The City of Chula Vista define project impacts as either project specific impacts or cumulative impacts. Project specific impacts are those impacts for which the addition of project trips result in an identifiable degradation in level of service on an intersection, triggering the need for specific project-related improvement strategies. Cumulative impacts are those in which the project trips contribute to a poor level of service, at a nominal level.

Criteria for determining whether the project results in either project specific or cumulative impacts on intersections are as follows:

(a) Project specific impact if both the following criteria are met:
    i. Level of service is LOS E or LOS F.
    ii. Project trips comprise 5% or more of entering volume.

(b) Cumulative impact if only #1 is met.

2.2 Project Study Area

The traffic analysis prepared for this memo was performed in accordance with City of Chula Vista traffic impact analysis guidelines. The City of Chula Vista's guidelines require that a project study area be established as follows:

- All freeway mainline segments to which the proposed project will add 2,400 total trips (Average Daily Traffic - ADT) or 150 or more peak hour trips in either direction must be analyzed.
- All arterial segments and intersections (including freeway on/off ramp intersections), to which the proposed project will add 800 or more total trips (ADT) or 50 or more peak-hour trips in either direction must be analyzed.

To provide a more conservative analysis, in addition to applying the City of Chula Vista traffic impact analysis guidelines, a couple of intersections in the vicinity of the project site were also added to this effort for a total of five (5) study intersections, as shown below:

1. Olympic Parkway & East Palomar Street (Signal);
2. Olympic Parkway & SR-125 SB Ramps (Signal);
3. Olympic Parkway & SR-125 NB Ramps (Signal);
4. Olympic Parkway & Town Center Drive (Signal); and
5. Olympic Parkway & Eastlake Parkway (Signal).

2.3 Project Trip Distribution and Assignment

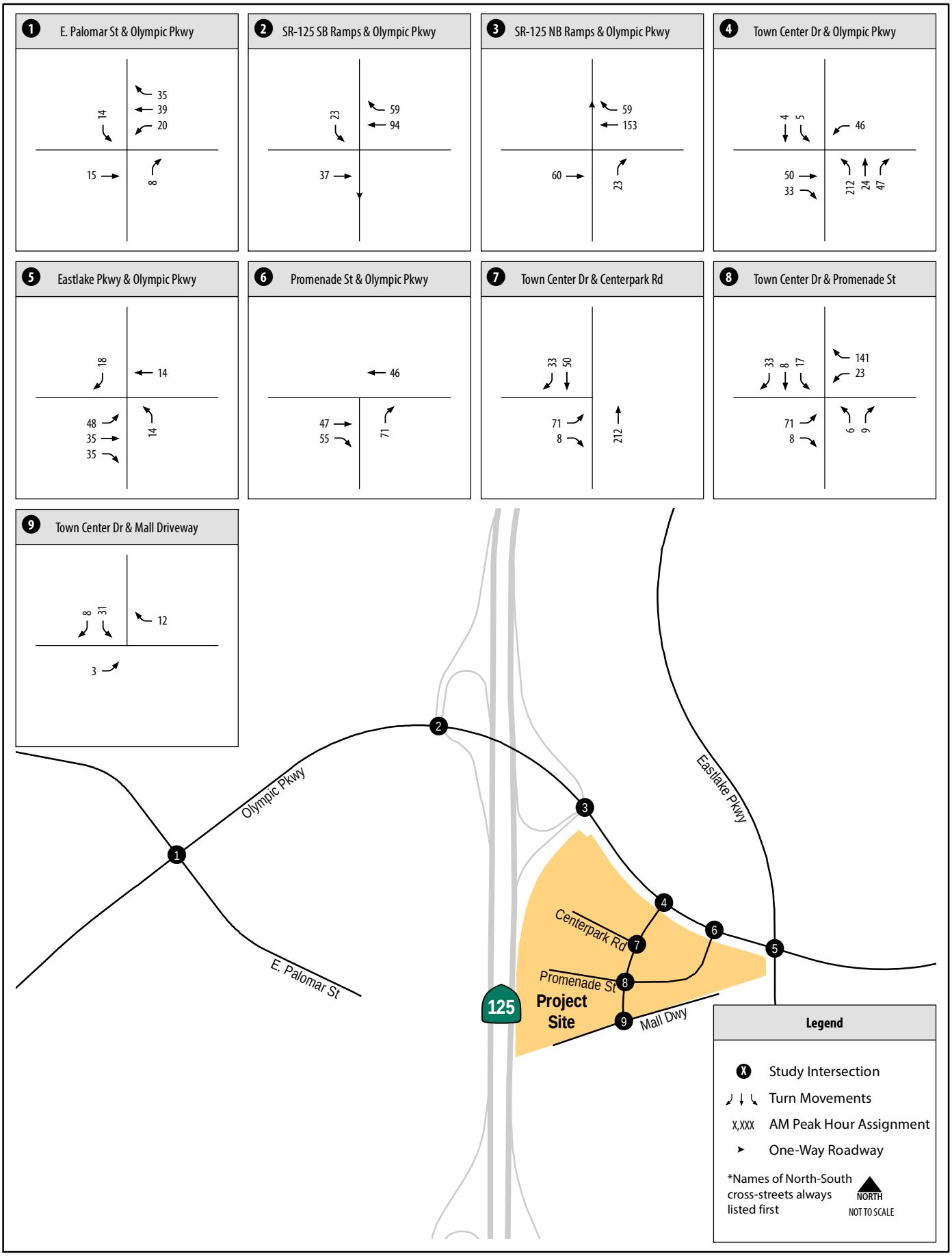
The project trip distribution patterns were developed based on existing travel patterns, the Proposed Project location in relation to nearby land uses and freeway access. **Figure 2** displays the trip distribution patterns associated with the project.

Based upon the project trip distribution, AM peak hour project trips were assigned to the adjacent roadway network and displayed in **Figure 3**.

Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

CHEN RYAN

Figure 2
Project Traffic Distribution



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

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Figure 3
AM Peak Hour Trip Assignment

2.4 Traffic Analysis

The section below provides the discussion on traffic analysis for the Proposed Project, under existing and horizon year (2030) conditions both without and with the PA 12 Freeway Commercial North project. The signalized intersection analysis utilized in this study conforms to the operational analysis methodology outlined in Chapter 19 of the Highway Capacity Manual 2010 (HCM 2010). The computerized analysis of intersection operations was performed utilizing the Synchro 10.1.2.20 traffic analysis software (by Trafficware). Signalized intersection signal timing plans were obtained from the City of Chula Vista on April 2018, and utilized in this analysis.

The following assumptions were utilized in conducting all intersection level of service analyses:

- Heavy Vehicle Factor: A 2% heavy vehicle factor was assumed for all intersections within the study area. 2% is the standard, default heavy vehicle factor provided in HCM and Synchro 10.0 software.
- Peak Hour Factor: 0.95 or obtained from existing peak hour counts, whichever is greater.
- Signal Timing: Obtained from existing signal timing plans (as of May 2018). Based on discussion with City staff, the pedestrian Flash Don't Walk timing was adjusted from 4 feet per second to 3.5 feet per second. Traffic signal timing worksheets are included as **Attachment C**. All traffic signals were assumed to be optimized in Plus Project and future year analyses, optimization to the signal timing results in improvements in average delay.
- Pedestrian Calls per Hour: Peak hour pedestrian counts were collected at the intersection of Olympic Parkway and Town Center Drive. The counts indicated 2 pedestrian movements during the AM peak hours and 5 pedestrian movements during the PM peak hours. In order to provide a conservative analysis, 20 pedestrian calls per hour was utilized at all study intersections under all study scenarios.

  Since the proposed PA 12 project is a mixed-use project and within a walking distance to the existing shopping center (Eastlake Terrace) to the north and the Otay Ranch Town Center to the South, it is reasonable to anticipate that additional pedestrian activities could occur in the study area. In order to estimate pedestrian trips generated by the proposed project, a number of research papers and published articles were reviewed in determining the most appropriate approach to derive future pedestrian trips:

  - *How to Estimate Pedestrian Demand by Kelly Clifton, Patrick Singleton, Christopher Muhs, and Robert Schneider, Portland State University (2015)* – This research paper proposed to calculate pedestrian demand using a 4-step travel demand model as the base. The San Diego Association of Governments (SANDAG) no longer supports the 4-step travel demand model, which was superseded by the SANDAG Series 13 Activity Based Model (ABM). The ABM was used to develop the San Diego Forward: The Regional Plan (2015) report.

  - *San Diego Forward: The Regional Plan (2015)* estimated that the daily mode share for walking in the Otay Ranch area would increase from 10.4% under Base Year 2012 conditions to 10.6% under the Horizon Year 2050 conditions, which represents a small increase in walking mode share in the general area of Otay Ranch. However, this estimation is not site specific, therefore, not utilized for pedestrian trip generation

calculation. The San Diego Forward: The Regional Plan daily mode shared was calculated using the SANDAG Series 13 ABM. https://www.sandag.org/index.asp?subclassid=120&fuseaction=home.subclasshome

- *Federal Highway Administration (FHWA) Bicycle/Pedestrian Trip Generation Workshop (1996)* – This workshop provides a summary of the bicycle and pedestrian trip generation efforts as of 1996. The workshop information was superseded by the FHWA Guidebook on Methods to Estimate Non-Motorized Travel in 1999. See below.

- *FHWA Guidebook on Methods to Estimate Non-Motorized Travel (1999)* – The FHWA Guidebook recommended a variety of tools for estimating non-motorized travel, including comparison studies, aggregate behavior studies, sketch plan methods, discrete choice models, and the regional travel model. SANDAG has conducted a regionwide study in 2009 and 2010 to calculate trip generation for smart growth and mixed-use/transit-oriented development (TOD) projects, which includes estimating pedestrian trips. See below.

- *Trip Generation for Smart Growth - A Planning Tool for the San Diego Region* was a project led by SANDAG and called for as a strategic initiative of the Regional Comprehensive Plan (RCP) and is a component of the SANDAG Smart Growth Toolbox. This planning tool, MXD, is intended to be a resource for local agencies as they implement smart growth developments, considering the "7Ds" that are known to influence travel behavior: density, diversity, design, destination accessibility, development scale, demographics, and distance to transit. A number of applicable sites in the San Diego region including Chula Vista were studied in order to develop this San Diego specific tool. https://www.sandag.org/index.asp?projectid=378&fuseaction=projects.detail

Based upon in-depth research and review of the various national methods to estimate pedestrian trip generation for an undeveloped site, the *Trip Generation for Smart Growth - A Planning Tool (MXD*) for the San Diego Region discussed above is determined to be the most suitable for PA 12.

Using the MXD analysis tool, the PA 12 project would generate 280 daily pedestrian trips, with 15 occurring during the AM peak hour and 23 during the PM peak hour. The spreadsheet is included in **Attachment B**. Based on the MXD results, existing pedestrian counts, and a conservative assumption that 75% (17.25 pedestrian trips) of the pedestrian trips generated by PA 12 would travel northward towards the Eastlake Terrace shopping center (this is especially conservative given that it is anticipated that the majority of the pedestrian trips will likely be between the project and the Otay Ranch Town Center) via the Olympic Parkway and Town Center Drive intersection. In addition, there are 5 PM peak hour pedestrian trips already exist currently according to the traffic counts in **Attachment G**. A total of 22.25 pedestrian trips can be assumed under the worst scenario would occur at the intersection of Olympic Parkway and Town Center Drive in the PM peak hour (future). For a conservative analysis 22.25 pedestrian trips was rounded up to 25 pedestrian trips per hour.

Additionally, the PM peak hour cycle length at the intersection of Olympic Parkway and Town Center Drive is 145 seconds, which equates to approximately 25 (3600/145 = 24.83) cycles per hour. The assumption of 25 pedestrian calls per hour is to assume that there is a pedestrian call during each and every cycle, meaning all 25 pedestrians arrive separately, which is ultra conservative. Therefore the intersection level of service analysis accounts for adequate pedestrian crossing time during every signal phase during the peak hour.

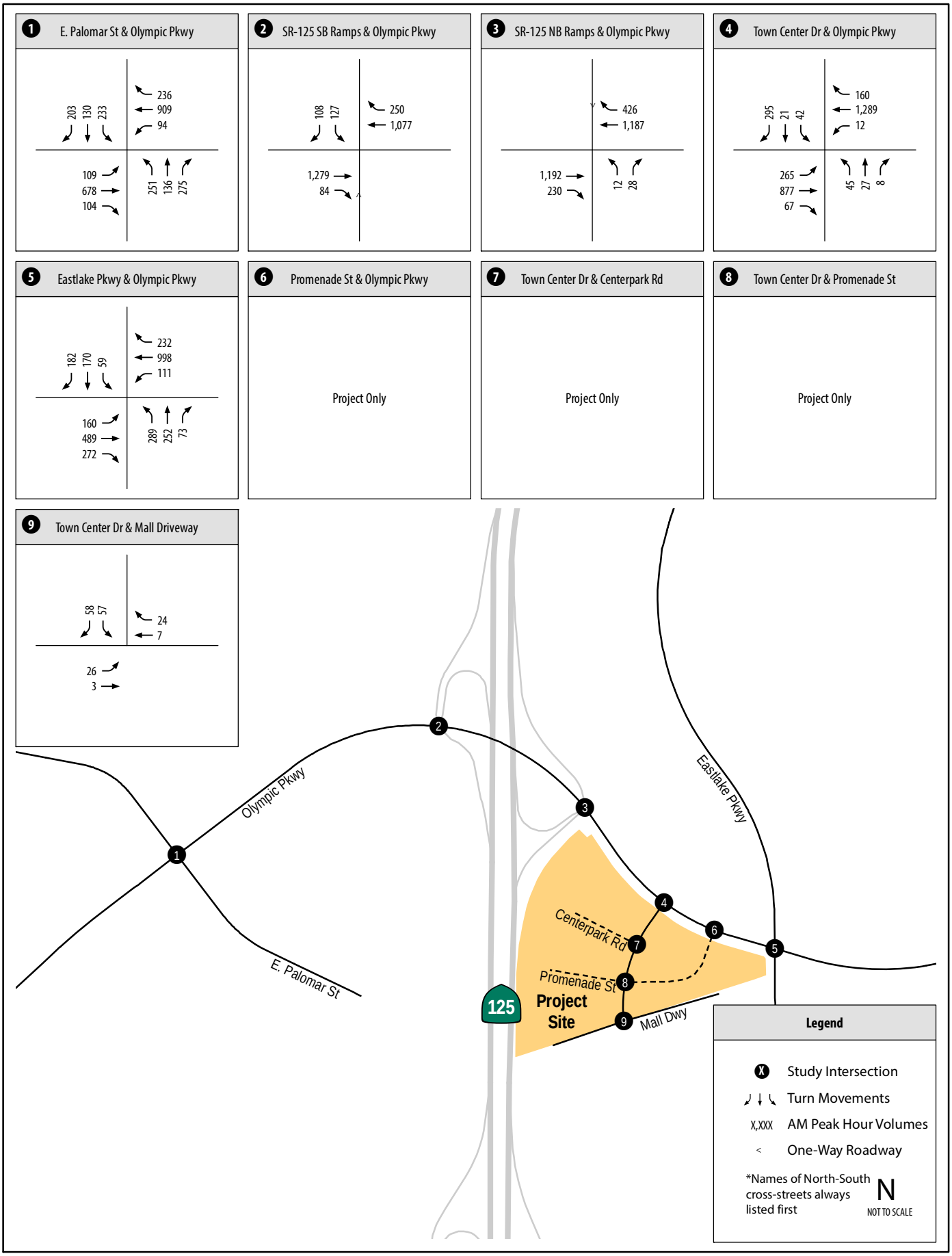
Existing Conditions

Traffic counts were conducted in April 2018 and are provided in Attachment C. **Figure 4** displays the existing AM peak hour intersection turning movement volumes, while **Figure 5** illustrates the study intersection geometrics. **Table 2** displays intersection AM peak hour LOS and average vehicle delay results for the key study area intersections under Existing conditions. LOS calculation worksheets for Existing AM Peak Hour conditions are provided in **Attachment D**. As shown in Table 2, all of the study intersections currently operate at acceptable LOS D or better during the AM peak hour.

Table 2
Peak Hour Intersection LOS Results - Existing Conditions

Intersection	Traffic Control	AM Peak Hour	
		Avg. Delay (sec.)	LOS
1. Olympic Parkway & East Palomar Street	Signal	32.4	C
2. Olympic Parkway & SR-125 SB Ramps	Signal	4.1	A
3. Olympic Parkway & SR-125 NB Ramps	Signal	1.5	A
4. Olympic Parkway & Town Center Drive	Signal	31.8	C
5. Olympic Parkway & Eastlake Parkway	Signal	33.9	C

Source: NDS, Chen Ryan Associates; April 2019



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

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Figure 4
Existing AM Peak Hour Volumes

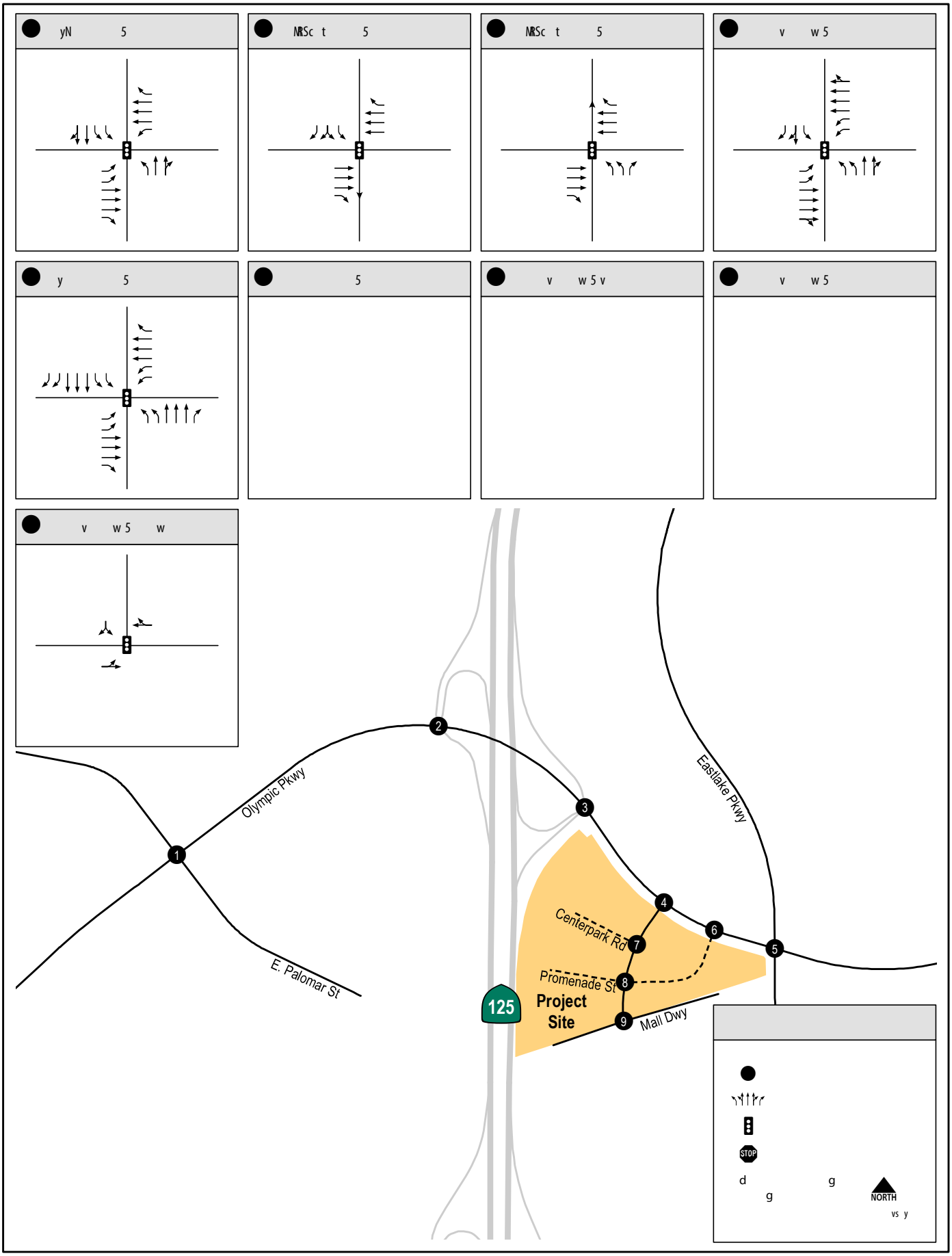

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Figure 5
Existing Intersection Geometrics

Existing Plus Project Conditions

This section provides an analysis of existing traffic conditions with the addition of the PA 12 Freeway Commercial North project. Existing Plus Project traffic volumes were derived by combining the existing traffic volumes (displayed in Figure 4) and the project trip assignment volumes (displayed in Figure 3). AM peak hour traffic volumes for this scenario are displayed in **Figure 6**. All intersection geometrics are assumed to be the same as Existing conditions, with the exception of the following:

- Olympic Parkway & Town Center Drive: The PA 12 Freeway Commercial North project is proposing to reconfigure the existing eastbound right-through share lane to an eastbound right-turn only. The project will also restripe the existing eastbound Class II bike lane into a buffered Class II bike lane, between SR-125 NB ramps and Town Center Drive.

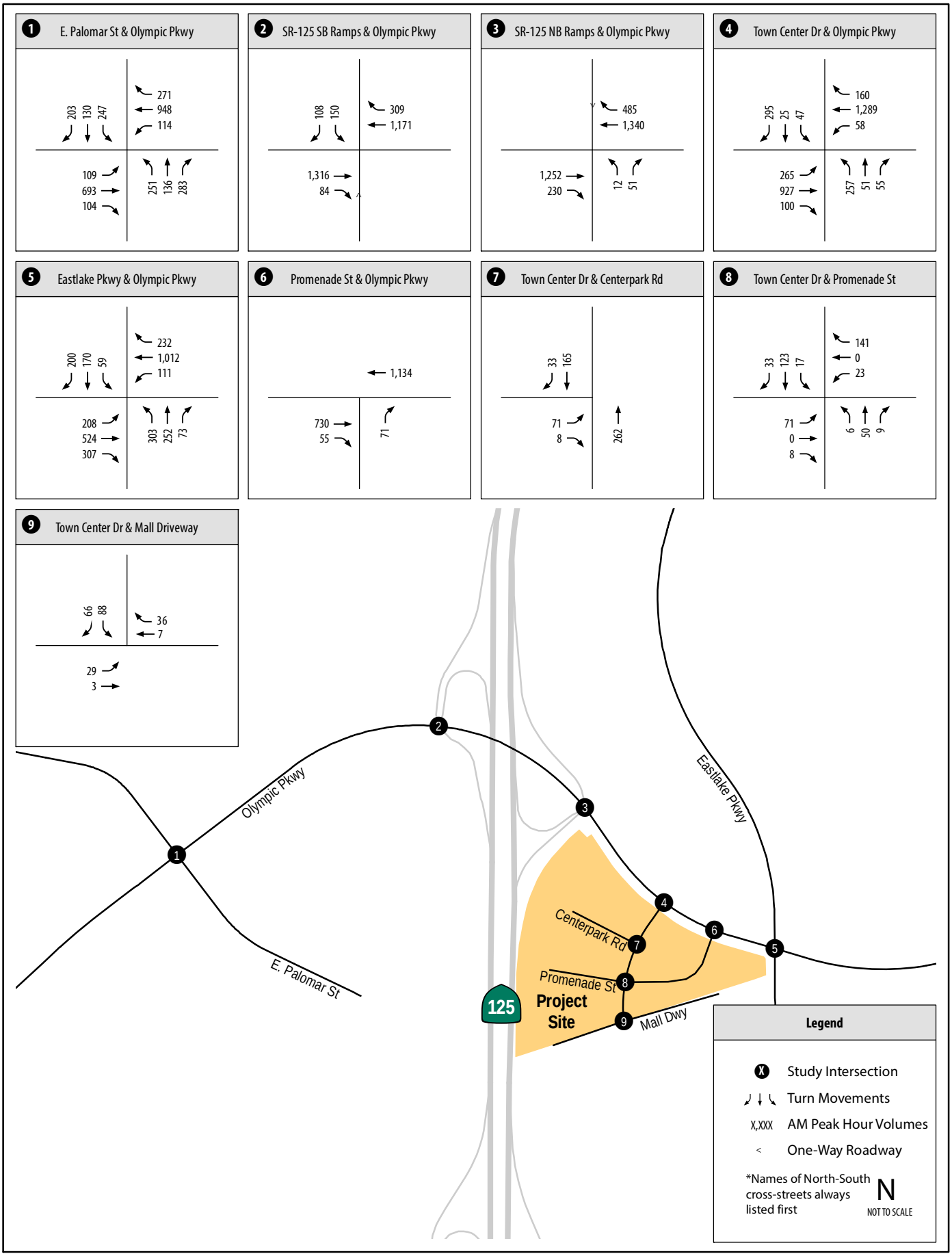
Table 3 displays intersection LOS and average vehicle delay results under Existing Plus Project conditions. LOS calculation worksheets for the Existing Plus Project conditions are provided in **Attachment E**.

Table 3
Peak Hour Intersection LOS Results - Existing Plus Project Conditions

Intersection	Traffic Control	AM Peak Hour		Delay w/o Project (sec)	LOS w/o Project AM	Project % of Entering Volume (>5%)	Significant Impact?
		Avg. Delay (sec)	LOS				
1. Olympic Parkway & East Palomar Street	Signal	37.8	D	32.4	C	3.80%	No
2. Olympic Parkway & SR-125 SB Ramps	Signal	4.3	A	4.1	A	6.80%	No
3. Olympic Parkway & SR-125 NB Ramps	Signal	1.2	A	1.5	A	8.80%	No
4. Olympic Parkway & Town Center Drive	Signal	40.8	D	31.8	C	11.90%	No
5. Olympic Parkway & Eastlake Parkway	Signal	41.0	D	33.9	C	4.80%	No

Source: Chen Ryan Associates; April 2019

As shown in Table 3, all of the project study area intersections would continue to operate at acceptable LOS D or better with addition of the project traffic during the AM peak hour. The addition of project traffic would not result in any traffic impacts on any of the study intersections.



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

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Figure 6
Existing Plus Project AM Peak Hour Volumes

Horizon Year (2030) Conditions

This section provides an analysis of horizon Year 2030 traffic conditions both without and with the PA 12 Freeway Commercial North project. The horizon year without project traffic volumes were developed based on the Village 2 Comprehensive SPA Year 2030 SANDAG Series 11 Southbay2 model (dated 1/14/2013). This model run included the most recently adopted City of Chula Vista's Circulation Element, as well as on-going land use development projects (i.e. University Villages and Village Two Comprehensive SPA Amendment).

Figures 7 and **8** show AM peak hour traffic volumes under both horizon Year 2030 "base" and "base plus project" conditions, respectively.

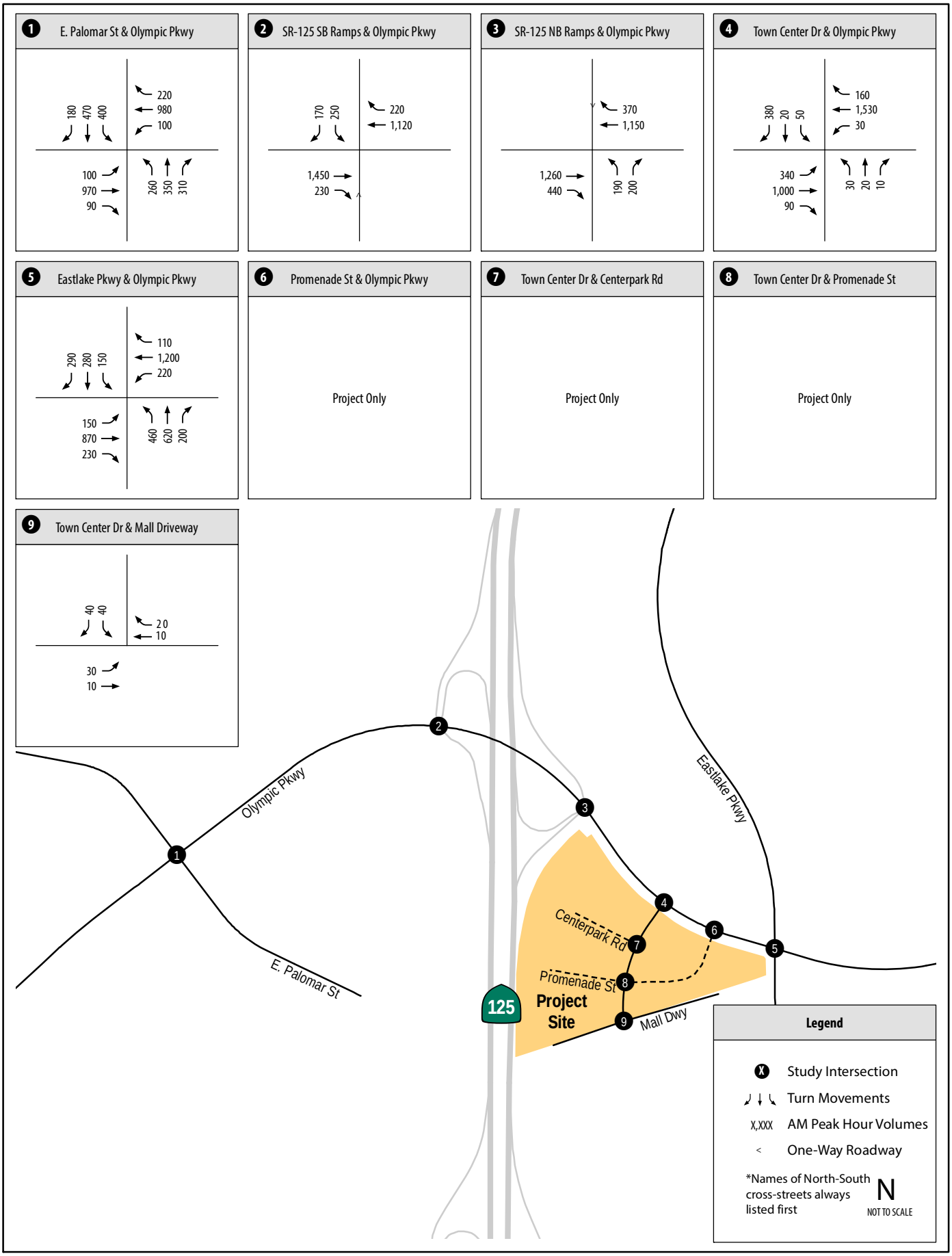
Table 4 displays intersection level of service and average vehicle delay results for the study intersections during the AM peak hour under both Year 2030 without and with project conditions. Level of service calculation worksheets for Year 2030 conditions are provided in **Attachment F.**

Table 4
Peak Hour Intersection LOS Results – Horizon Year 2030 Conditions

Intersection	Traffic Control	AM Peak Hour		Avg. Delay w/o Project (sec)	LOS w/o Project AM	Project % of Entering Volume (>5%)	Significant Impact?
		Avg. Delay (sec)	LOS				
1. Olympic Parkway & East Palomar Street	Signal	43.6	D	49.4	D	2.90%	No
2. Olympic Parkway & SR-125 SB Ramps	Signal	6.2	A	11.1	B	5.80%	No
3. Olympic Parkway & SR-125 NB Ramps	Signal	4.0	A	4.1	A	7.60%	No
4. Olympic Parkway & Town Center Drive	Signal	35.3	D	18.2	B	10.30%	No
5. Olympic Parkway & Eastlake Parkway	Signal	49.1	D	43.5	D	3.30%	No

Source: Chen Ryan Associates; April 2019

As shown in Table 4, all of the project study area intersections are projected to operate at acceptable LOS D or better during the AM peak hour under the horizon Year 2030 conditions both without and with the PA 12 Freeway Commercial North project. Thus, the addition of project traffic would not result in any traffic impacts at any of the study intersections.



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

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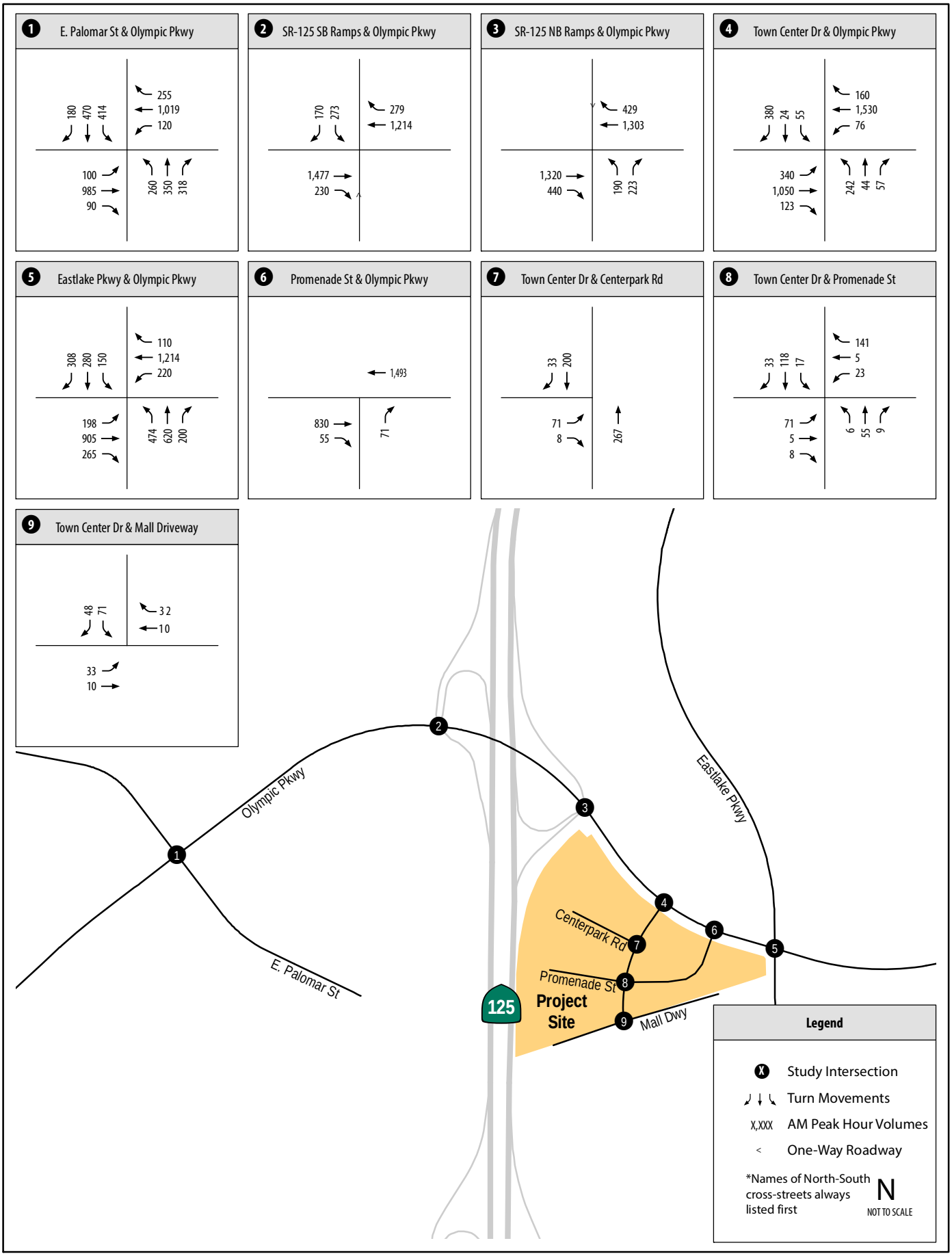
Figure 7
Horizon Year 2030 AM Peak Hour Volumes



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

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Figure 8
Horizon Year 2030 Plus Project
AM Peak Hour Volumes

3.0 TRAFFIC OPERATIONS ALONG TOWN CENTER DRIVE

Traffic operations along project frontage (Town Center Drive) and all project access points were evaluated and reported in sections below. Project site plan is displayed in Figure 1, while **Figure 9** displays the proposed roadway and driveway access geometrics.

Existing Conditions

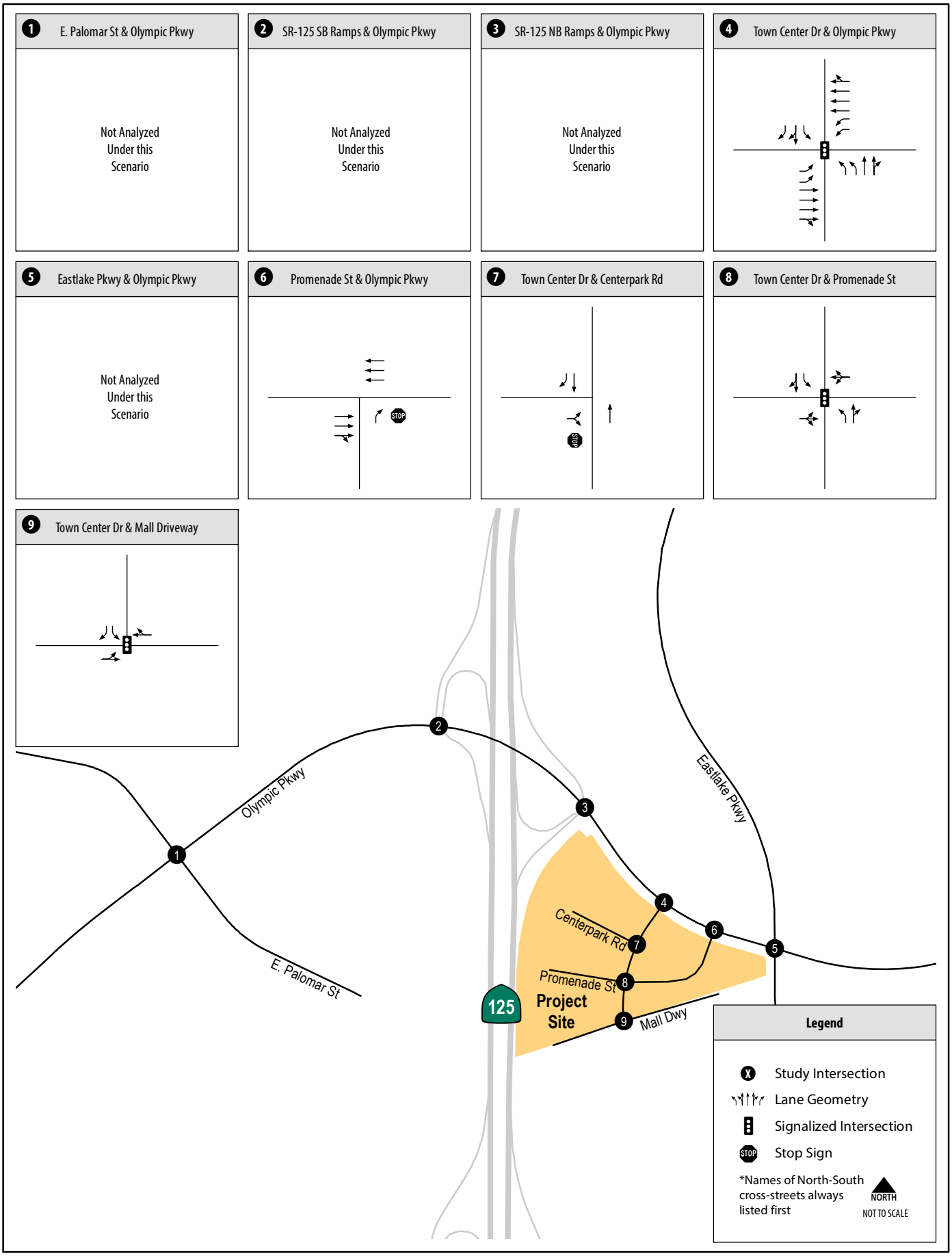
Figures 9 and **10** illustrate existing geometrics and traffic volumes, respectively. Traffic counts were conducted in October 2017 and are provided in **Attachment G**. Daily traffic counts were conducted on a typical Tuesday (Farmers Market Day) and on a typical Friday (heavy movie theater attendance). Based on a comparison between the daily traffic between Tuesday and Friday, it was determined that traffic on Friday is generally higher than Tuesday. Therefore, the peak hour turning movement counts for Tuesday were adjusted to account for the increase in traffic on a typical Friday. Volume adjustment results are provided in Attachment G. **Table 5** displays intersection LOS and average vehicle delay results for the key study area intersections under Existing conditions. LOS calculation worksheets for Existing conditions are provided in **Attachment H**.

Table 5
Peak Hour Intersection LOS Results - Existing Conditions

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
		Avg. Delay (sec.)	LOS	Avg. Delay (sec.)	LOS
4. Olympic Parkway & Town Center Drive	Signal	31.8	C	53.6	D
9. Town Center Drive & Ring Road	Signal	12.4	B	28.1	C

Source: Chen Ryan Associates; April 2019

As shown in Table 5, the two study intersections along the project frontage currently operate at acceptable LOS D or better during both the AM and PM peak hours. .



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

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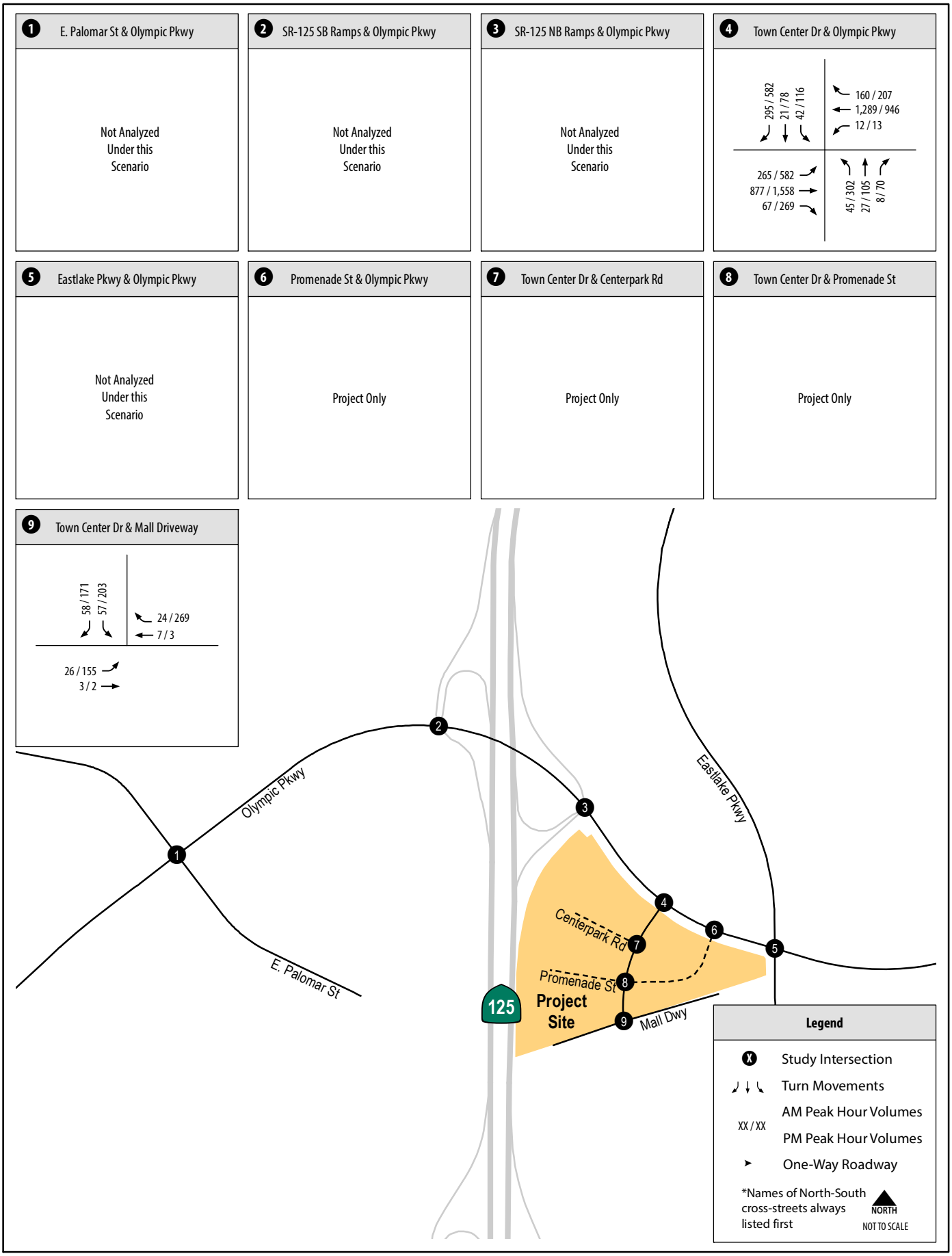
Figure 9
Existing Plus Project Intersection Geometrics



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

CHEN RYAN

Figure 10
Existing Peak Hour Volumes

Existing Plus Project Conditions

This section provides an analysis of existing traffic conditions with the addition of the PA 12 Freeway Commercial North project. Existing Plus Project traffic volumes were derived by combining the existing traffic volumes (displayed in Figure 10) and the project trip assignment volumes (displayed in **Figure 11**). Roadway and intersection geometrics are displayed in Figure 19, while traffic volumes for this scenario are displayed in **Figure 12**. All intersection geometrics are assumed to be the same as Existing conditions, with the exception of the following:

- Olympic Parkway & Town Center Drive: The PA 12 Freeway Commercial North project is proposing to reconfigure the existing eastbound right-through share lane to an eastbound right-turn only with right-turn overlap. The project will also restripe the existing eastbound Class II bike lane into a buffered Class II bike lane, between SR-125 NB ramps and Town Center Drive.
- Olympic Parkway & Promenade Street: The PA 12 Freeway Commercial North project is proposing to construct this intersection as a right-in/right-out one-way stop control intersection.
- Town Center Drive & Centerpark Road: The PA 12 Freeway Commercial North project is proposing to construct this intersection as a one-way stop control intersection with a R10-7 "Do Not Block Intersection" sign located along the eastbound approach.
- Town Center Drive & Promenade Street: The PA 12 Freeway Commercial North project is proposing to construct this intersection as a signalized intersection.
- Town Center Drive & Ring Road: Reconfigure the southbound approach from a southbound left-right shared lane under Existing conditions to an exclusive southbound left and a southbound right turn lane.

Table 6 displays intersection LOS and average vehicle delay results under Existing Plus Project conditions. LOS calculation worksheets for the Existing Plus Project conditions are provided in **Attachment I**.

Table 6
Peak Hour Intersection LOS Results - Existing Plus Project Conditions

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Project % of Entering Volume (>5%)	Significant Impact?
		Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS				
4. Olympic Parkway & Town Center Drive	Signal	40.8	D	54.8	D	31.8 / 53.6	C / D	11.9%/10.8%	No
6. Olympic Parkway & Promenade Street	Right-in / Right-out*	13.9	B	20.8	C	NA	NA	8.4%/11.3%	No
7. Town Center Drive & Centerpark Road	One-Way Stop Control*	12.7	B	27.6	D	NA	NA	69.4%/33.7%	No
8. Town Center Drive & Promenade Street	Signal	8.9	A	10.8	B	NA	NA	65.7%/29.3%	No

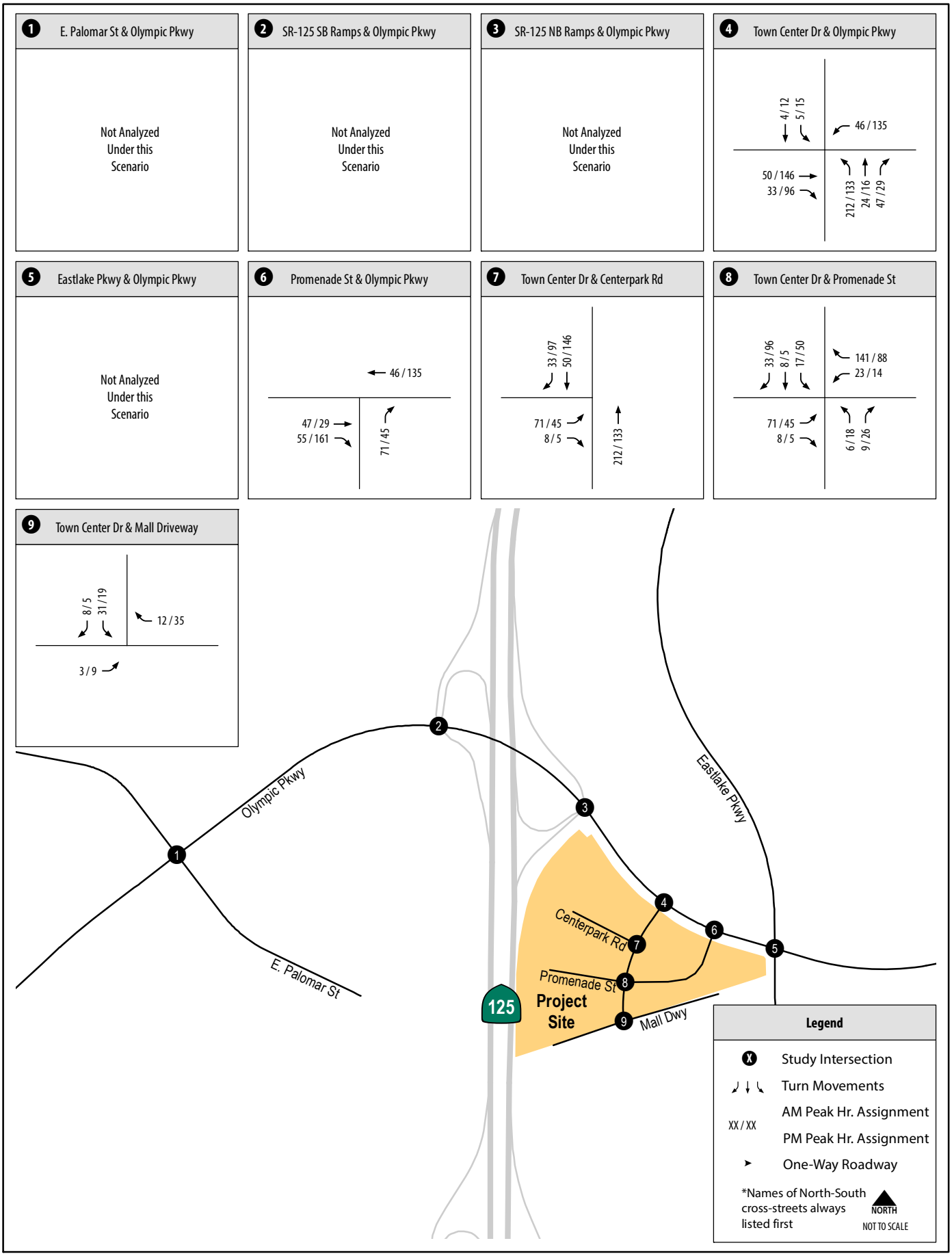
Table 6
Peak Hour Intersection LOS Results - Existing Plus Project Conditions

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Project % of Entering Volume (>5%)	Significant Impact?
		Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS				
9. Town Center Drive & Ring Road	Signal	10.9	B	17.2	B	12.4 / 28.1	B / C	23.6%/7.8%	No

Source: Chen Ryan Associates; April 2019

Notes:
*Indicates one or two-way stop-controlled intersections, the delay shown is the worst delay experienced by any of the approaches.
NA = Not analyzed under this scenario.

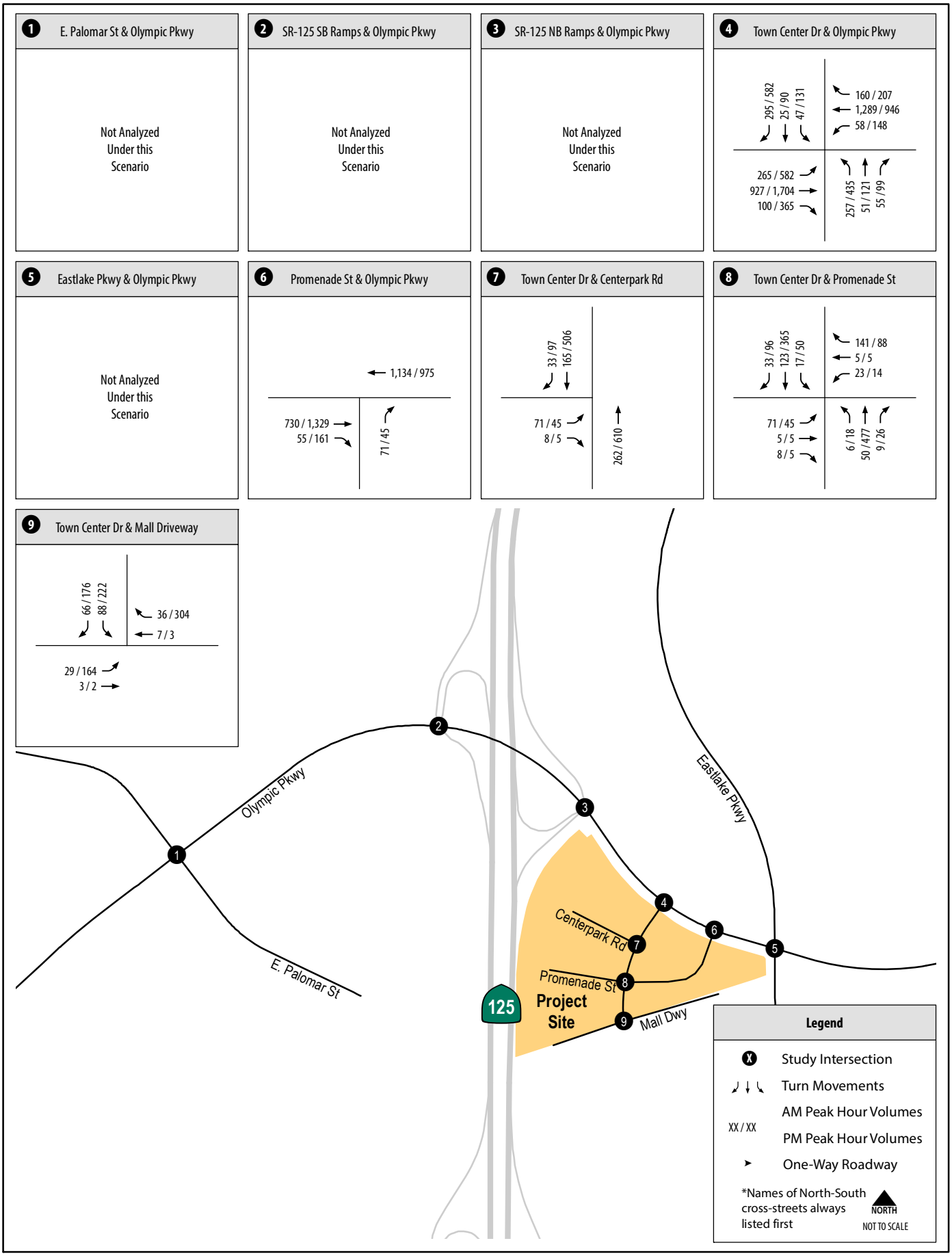
As shown in Table 6, both intersections of Town Center Drive & Olympic Parkway and Town Center Drive & Ring Road would continue to operate at acceptable LOS D or better with addition of the project traffic. All three proposed project driveways would operate at acceptable LOS D or better under Existing Plus Project conditions. The addition of project traffic would not result in any traffic impact within the project study area.



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

CHEN RYAN

Figure 11
Peak Hour Trip Assignment



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

CHEN RYAN

Figure 12
Existing Plus Project Peak Hour Volumes

Horizon Year (2030) Conditions

This section provides an analysis of Year 2030 traffic conditions both without and with the PA 12 Freeway Commercial North project. The Year 2030 geometrics are displayed in **Figure 13**, while **Figures 14** and **15** show traffic volumes under both Horizon Year 2030 "base" and "base plus project" conditions, respectively.

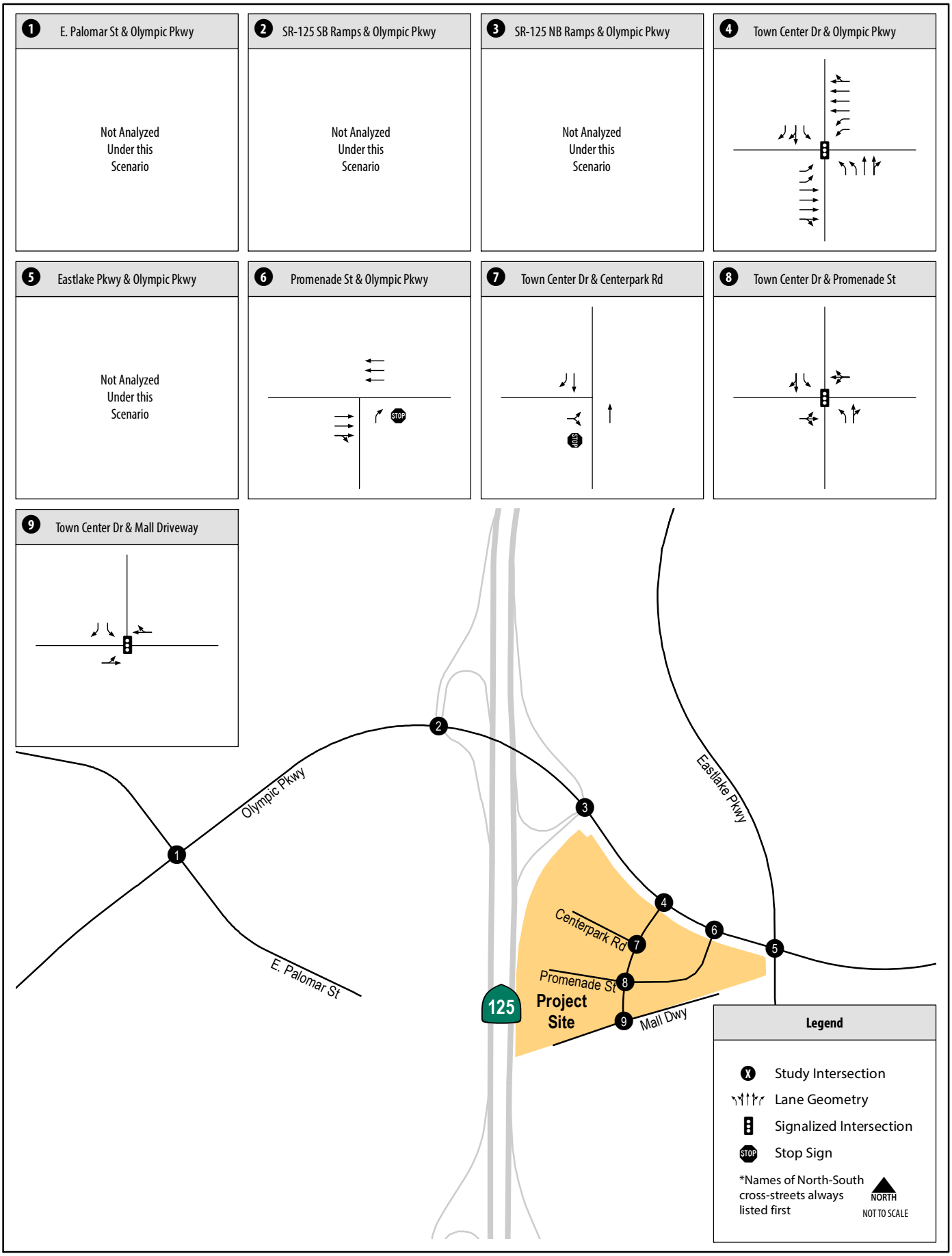
Based upon the Chapter 2 of the Otay Ranch General GDP, Section B, page 209, which states that "Each village will provide a complex integrated system of roads, low-speed electric vehicles and bike paths, and pedestrian ways. The system is defined by individual road types that may be found in all villages except for the rural standard. However, the actual pattern of roads varies within each village in response to site features, circulation element roads, topography, land use organization, etc. While circulation element roads must adhere to prescribed levels of service, these interior roads are permitted to operate at less than established LOS. This is done to further encourage use of alternative modes of transportation." Therefore, the roadway capacity comparison provided below is for informational purpose only.

As shown in Figure 15, the projected 2030 with PA 12 Freeway Commercial North project daily traffic volumes along Town Center Drive are:

- Town Center Drive, north of the hotel driveway – 13,687 ADT;
- Town Center Drive, between the hotel driveway and apartment driveway – 11,766 ADT;
- Town Center Drive, south of the apartment driveway – 9,078 ADT.

Based on these forecast traffic volumes, Town Center Drive a Class II Collector (2-lanes with a raised median and left-turn pocket), which has a capacity of 15,000 ADT, would be sufficient to accommodate the project traffic along Town Center Drive.

Table 7 displays intersection level of service and average vehicle delay results for the study area intersections under both Year 2030 with and without project conditions. Level of service calculation worksheets for Year 2030 conditions are provided in **Attachment J.**



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

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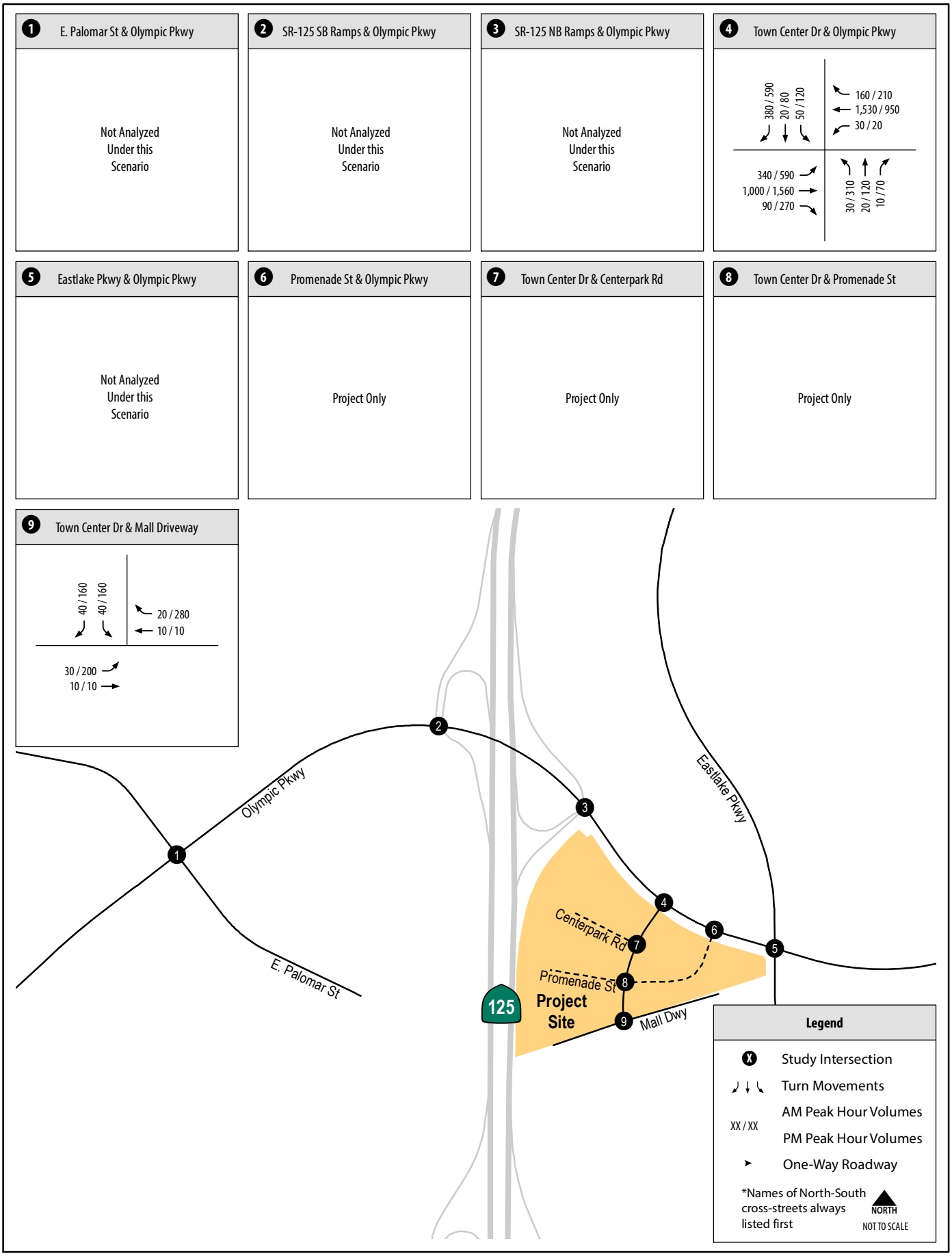
Figure 13
Horizon Year 2030 Intersection Geometrics



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

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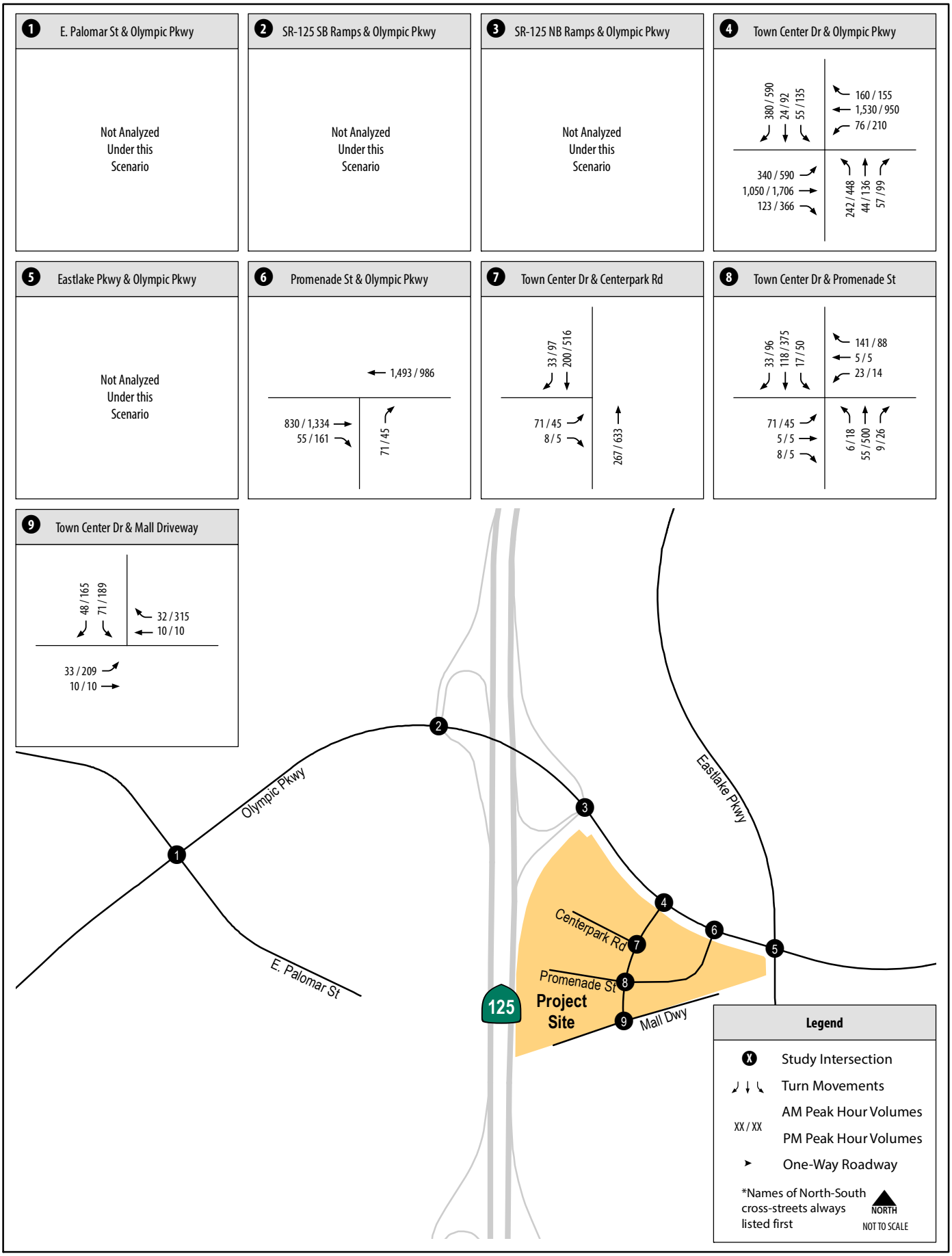
Figure 14
Horizon Year 2030 Peak Hour Volumes



Otay Ranch PA 12 Freeway Commercial North – Traffic Analysis Memorandum

CHEN RYAN

Figure 15
Horizon Year 2030 Plus Project Peak Hour Volumes

Table 7
Peak Hour Intersection LOS Results – Horizon Year 2030 Conditions

Intersection	Traffic Control	AM Peak Hour		PM Peak Hour		Delay w/o Project (sec) AM/PM	LOS w/o Project AM/PM	Project % of Entering Volume (>5%)	Significant Impact?
		Avg. Delay (sec)	LOS	Avg. Delay (sec)	LOS				
4. Olympic Parkway & Town Center Drive	Signal	35.3	D	48.1	D	18.2 / 52.2	B / D	11.9% /10.6%	No
6. Olympic Parkway & Promenade Street	Right-in / Right-out*	14.2	B	20.9	C	NA	NA	6.8%/11.2%	No
7. Town Center Drive & Centerpark Road	One-Way Stop Control*	13.2	B	29.0	D	NA	NA	64.0%/32.9%	No
8. Town Center Drive & Promenade Street	Signal	9.1	A	9.9	A	NA	NA	61.2%28.5%	No
9. Town Center Drive & Ring Road	Signal	11.1	B	21.3	C	8.7 / 14.3	A / B	17.8%/6.8%	No

Source: Chen Ryan Associates; April 2019

Notes:
*Indicates one or two-way stop-controlled intersections, the delay shown is the worst delay experienced by any of the approaches.
NA = Not analyzed under this scenario.

As shown in Table 7, both intersections of Town Center Drive & Olympic Parkway and Town Center Drive & Ring Road are projected to operate at acceptable LOS D or better under the horizon Year 2030 conditions without and with the PA 12 Freeway Commercial North project. All three proposed project driveways would also operate at acceptable LOS D or better. The addition of project traffic would not result in any traffic impact within the study area.

In addition to the intersection level of service analysis, queuing analysis was also conducted to assist in determining the proposed driveway locations and ensure the provision of adequate storage length since the two proposed project driveways along Town Center Drive are located closely to the intersection of Town Center Drive & Olympic Parkway and Town Center Drive & Ring Road.

The following five movements are considered critical movements:

- Northbound left-turn at the intersection of Town Center Drive & Olympic Parkway;
- Eastbound left-turn at the intersection of hotel driveway @ Town Center Drive;
- Southbound left-turn at the main project driveway @ Town Center Drive;
- Northbound left-turn at the major project driveway @ Town Center Drive; and
- Southbound left-turn at the intersection of Town Center Drive & Town Center Loop.

Table 8 displays potential intersection queue during the AM and PM peak hours under horizon Year 2030 Plus Project conditions. Queuing analysis worksheets are also provided in Attachment J.

Table 8
Peak Hour Intersection Queuing Analysis – Year 2030 Base Plus Project Conditions

Intersection	Traffic Control	Turning Movement	Peak Hour	95% Queue Length (ft)	Required Pocket Length (ft)	Available Pocket Length (ft)
4. Olympic Parkway & Town Center Drive	Signal	NBL	AM / PM	208 / 345	350	200
7. Town Center Drive & Centerpark Road	One-Way Stop Control*	EBL	AM / PM	25 / 25	50*	50*
8. Town Center Drive & Promenade Street	Signal	SBL	AM / PM	20 / 50	50	50
		NBL	AM / PM	10 / 25	50	50
9. Town Center Drive & Ring Road	Signal	SBL	AM / PM	60 / 198	200	150

Source: Chen Ryan Associates; April 2019

Notes:
*A minimum storage length of 50' was assumed for turning movement with less than 50' queue length.

As shown in Table 8, all of the 95th percentile queue length would be less than the available pocket length, with the exception of the following:

- Olympic Parkway & Town Center Drive - northbound left-turn movement by 8 feet during the AM peak hour and 150 feet during the PM peak hour; and
- Town Center Drive & Ring Road – southbound left-turn movement by 50 feet during the PM peak hour.

CONCLUSION

In summary, the proposed project would generate less traffic both on a daily and PM peak hour basis when comparing with the previously approved 2020 EIR, however would generate more traffic in the AM peak hour (by 58 trips). A focused traffic study was prepared and concluded that there will not be any significant traffic impacts associated with the additional 58 trips in the AM peak hour at any of the study intersections.

In addition, all project driveways as well as the project frontage would operate at acceptable levels of services with adequate queuing storage along Town Center Drive, with the exception of the northbound left-turn movement during the AM and PM peak hour at Olympic Parkway & Town Center Drive and the southbound left-turn movement at Town Center Drive & Ring Road. The northbound left-turn movement at Olympic Parkway & Town Center Drive queue length would exceed the available pocket length.

However, since a “do not block” signage was installed at the intersection of Town Center Drive & Centerpark Road, it can be concluded that traffic making left-turn from Centerpark Road would not block the southbound traffic along Town Center Drive. The southbound left-turn movement at Town Center Drive & Ring Road would exceed the available pocket length, however this is a worst-case scenario as the 95th percentile queue length rarely exists in the field. As shown in Attachment J, the 50th percentile queue length, which is the more common queue length, is well below the available storage length. Should the future queue length exceed the available storage length for the southbound approach at Town Center Drive & Ring Road, “keep clear” signage will be provided at the upstream intersection (Town Center Drive & Promenade Street) to help prevent southbound traffic from blocking the eastbound and westbound traffic at the upstream intersection.

ATTACHMENT A
AYRES HOTEL TRIP GENERATION MEMORANDUM BY LLG

BALDWIN & SONS

Building Quality Communities for Three Generations

MEMORANDUM

Date: September 28, 2017

To: Tiffany Allen

From: Nick Lee

Re: Residence Inn Marriott Trip Generation

Current City of Chula Vista *Vehicle Trip Generation Table* lists trip generation rates for a hotel with convention facilities & restaurant at 10 ADT per room. The Residence Inn Marriott will operate more closely like a business hotel because of the lack of convention/banquet facilities, restaurants and limited supporting facilities. The hotel is close to the future South Bay Bus Rapid Transit (BRT) line and is close to walkable amenities.

Since the Residence Inn Marriott has similar property characteristics like the Ayers Hotel in Millenia, we request the city use the trip generation factor of 4.62 trips/room as outlined in the Linscott, Law & Greenspan Memorandum dated March 20, 2017 (attached).

610 W. Ash Street, Suite 1500 • San Diego, CA 92101 • 619-234-4050

MEMORANDUM

To:	Jana Beekman Ayres Hotel of Southern California	Date:	March 20, 2017
From:	John Boarman, P.E. K.C. Yellapu, P.E. Erika Carino, E.I.T. LLG, Engineers	LLG Ref:	3-17-2715
Subject:	Ayres Hotel Trip Generation		

LINSCOTT LAW & GREENSPAN engineers

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Transportation
Parking

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Pasadena
Irvine
San Diego
Woodland Hills

Linscott, Law & Greenspan, Engineers (LLG) has prepared the following memorandum detailing our trip generation assessment for the proposed Ayres Hotel project to be located within the Millenia Specific Plan Area (SPA) at 1710 Millenia Avenue in the City of Chula Vista. The purpose of this memorandum is to determine the Average Daily Traffic (ADT) that the project generates and to determine how much of that travels outside of the Millenia, onto City of Chula Vista roads.

DRIVEWAY ADT

Per the City of Chula Vista's *Vehicle Trip Generation Table*, the trip generation rate for a Hotel with Convention Facilities & Restaurants is 10 ADT per room. See ***Attachment A*** for the table. However, the proposed project will not function as a Hotel with Convention Facilities and Restaurants.

Based on the project's characteristics listed below, the proposed Ayres Hotel operates more closely to a Business Hotel.

- No convention/banquet facilities
- No restaurants
- Limited supporting facilities

It should be noted that the Ayres Hotel proposes to provide a board room with a maximum occupancy of 27, conference rooms with a combined maximum occupancy of 77 and no catering services. These amenities were not considered as convention facilities because they are not comparable to that of the hotels surveyed by SANDAG, such as the Hyatt and Crown Plaza in Mission Valley and the Sheraton in La Jolla. These hotels provide full catering services, and the largest convention/banquet room has a capacity of 250, 674 and 900, respectively. Additional information describing a Hotel with Convention Facilities & Restaurants and a Business Hotel are included in ***Attachment B***:

The City's trip generation table does not contain a Business Hotel land use. However, it references SANDAG's *Not so Brief Guide to Vehicular Traffic Generation Rates for the San Diego Region (*see ***Attachment C)*** which includes a trip generation rate for a business hotel. Therefore, per SANDAG, a trip generation rate of 7 trips per room was utilized based on the specifics associated with the Ayres Hotel. Based on the above, the project's trip generation, tabulated in ***Table 1*** is 945 ADT trips.

Table 1

Land Use	Quantity	Daily Trip Ends (ADT)	
		Rate	Volume
Business Hotel	135 rooms	7 / room	945
Total Trips			**945**

Since the trip rate obtained from SANDAG is based on locations with little to no mixed-use, Transportation Demand Management (TDM) or nearby transit opportunities, additional trip generation credits as described below were applied. It should also be noted that the SANDAG trip rate studies were conducted in the 1980's.

1. 10% Transit Reduction: Since the project is in close proximity to the future South Bay Bus Rapid Transit (BRT) station, a transit reduction was utilized. Per the Eastern Urban Center FEIR dated September 2009, SANDAG and the City have agreed to a 10% transit credit, which is consistent with the Regional Transportation Plan (RTP). ***Attachment D*** contains excerpts of the study.

2. 10% Walk/Bike Mode-Share Reduction: Due to the proximity of the project to the office and other land use amenities in Millennia, it is anticipated that hotel guests will walk to/from other land uses. Per SANDAG's *Not so Brief Guide to Vehicular Traffic Generation Rates for the San Diego Region* document, a 10% reduction identified for mixed-use projects was utilized.

3. 3% Shuttle Service/Transportation Demand Management (TDM): The project proposes to provide shuttle services to the Chula Vista Elite Athlete Training Center (formerly known as the U.S. Olympic Training Facility), the San Diego Airport and the Tijuana Airport, therefore reducing the number of driveway trips. This 3% reduction is based on the lower range of effectiveness from Table 5 of SANDAG's *Parking Strategies for Smart Growth.* ***Attachment E*** contains this table.

Based on the above, the project is proposed to generate 727 vehicular driveway ADT trips. ***Table 2*** tabulates the results.

Table 2

Land Use	Quantity	Daily Trip Ends (ADT)	
		Rate	Volume
Business Hotel	135 rooms	7 / room	945
Total Trips			*945*
Transit Reduction	10%		*-95*
Mode-Share Reduction	10%		*-95*
Shuttle Service Reduction/TDM	3%		*-28*
Total Driveway Trips			**727**

INTERNAL CAPTURE

Millenia plans to establish a high-density, mixed-use development with an environment that promotes pedestrian activity, sustainability, and connectivity. Due to the project characteristics, some vehicular trips will travel between the different land uses within Millenia and will not need to leave the site and utilize the surrounding arterial roadway network. As a result, these trips are considered internal trips as they remain inside Millenia and do not impact the Chula Vista roadway system.

Even though the Eastern Urban Center traffic study dated March 2009, utilized a 24.2% internal capture reduction, to be conservative and also since a 10% mode-share reduction was already applied, a reduction of only 14.2% was utilized. *Attachment D* contains excerpts of the study. It should be noted that this internal capture also includes several factors such as mixed-use reduction, pass by traffic, diverted traffic, etc., which are further explained in ***Attachment F.*** As an example, the pass-by and diverted traffic reduction combined per SANDAG guidelines is 42%.

Based on the above, the project is proposed to generate 624 trips outside of the Millenia SPA boundary. ***Table 3*** tabulates the final results.

LINSCOTT LAW & GREENSPAN engineers

Table 3

Land Use	Quantity		Daily Trip Ends (ADT)	
			Rate	Volume
Business Hotel	135	rooms	7 / room	945
Total Trips				*945*
Transit Reduction	10%			*-95*
Mode-Share Reduction	10%			*-95*
Shuttle Service Reduction/TDM	3%			*-28*
Total Driveway Trips				*727*
Internal Capture Reduction	14.2%[a]			*-103*
Total Trips Travelling Outside of Millenia				**624**

Footnotes:
a. Reduction percentage applied to the total driveway trips.

cc: File

Attachments:
Attachment A: City of Chula Vista's Trip Generation Table
Attachment B: Hotel Land Use Descriptions
Attachment C: SANDAG Trip Generation Table
Attachment D: Excerpts of the March 2009 Traffic Study
Attachment E: SANDAGS Parking Reduction Table
Attachment F: Pass-By/Diverted Trip Information

ATTACHMENT B
SANDAG MXD CALCULATION

MIXED USE TRIP GENERATION MODEL V4 - RESULTS

MODEL APPLICATION - ALL TRIPS

		Daily				AM Peak Hour				PM Peak Hour			
		HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Number of "Raw" SANDAG Rate Trips Subject to Model		2716	5116	1779	9610	317	281	25	624	275	396	165	835
Predicted Probabilities:													
	Internal Capture	3.73%	5.58%	6.94%	5.31%	3.73%	5.58%	6.94%	4.69%	3.73%	5.58%	6.94%	5.24%
	Walking External	1.12%	4.30%	2.61%	3.08%	1.12%	4.30%	2.61%	2.60%	1.12%	4.30%	2.61%	2.91%
	Transit External	3.17%	2.51%	3.57%	2.89%	3.17%	2.51%	3.57%	2.89%	3.17%	2.51%	3.57%	2.93%
Number of Trips:													
	Internal Capture	101	285	124	510	12	16	2	29	10	22	11	44
	Walking External	29	208	43	280	3	11	1	15	3	16	4	23
	Transit External	83	121	59	263	10	7	1	17	8	9	5	23
Net Number of IXXI Vehicle Trips		**2502**	**4501**	**1553**	**8556**	**292**	**248**	**22**	**562**	**253**	**348**	**144**	**745**

	External Vehicle Trips			VMT		
Results	Raw	Net	Reduction %	Raw	Net	Reduction %
Daily	9,610	8,556	11%	40,377	36,341	10%
AM Peak Hour	624	562	10%	3,061	2,785	9%
PM Peak Hour	835	745	11%	3,632	3,276	10%

NOTE: External trips are attributed half to project site uses, internal trips all to site uses for purposes of VMT allocation.

MODEL APPLICATION - TRIP ENDS TO/FROM RESIDENCES IN THE PROJECT ONLY

		Daily				AM Peak Hour				PM Peak Hour			
		HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Number of "Raw" ITE Trips Subject to Model		1110	3511	780	5400	194	223	15	432	136	273	77	486
Predicted Probabilities:													
	Internal Capture	3.73%	5.58%	6.94%	5.40%	3.73%	5.58%	6.94%	4.80%	3.73%	5.58%	6.94%	5.28%
	Walking External	1.12%	4.30%	2.61%	3.40%	1.12%	4.30%	2.61%	2.80%	1.12%	4.30%	2.61%	3.13%
	Transit External	3.17%	2.51%	3.57%	2.80%	3.17%	2.51%	3.57%	2.84%	3.17%	2.51%	3.57%	2.86%
Number of Trips:													
	Internal Capture	41	196	54	291	7	12	1	21	5	15	5	26
	Walking External	12	143	19	174	2	9	0	12	1	11	2	14
	Transit External	34	83	26	143	6	5	0	12	4	6	3	13
Net Number of IXXI Vehicle Trips generated by Project Residences		**1023**	**3089**	**681**	**4792**	**179**	**196**	**13**	**388**	**126**	**240**	**67**	**433**

	External Vehicle Trips			VMT		
Results	Raw	Net	Reduction %	Raw	Net	Reduction %
Daily	5,400	4,792	11%	42,701	43,075	-1%
AM Peak Hour	432	388	10%	4,075	3,771	7%
PM Peak Hour	486	433	11%	4,076	4,112	-1%

NOTE: all trips generated by project households (either produced or attracted or both) are counted 100%. This cannot be compared directly to the VMT in the section above.

ATTACHMENT C – ANALYSIS FOR CEQA
TRAFFIC SIGNAL TIMING WORKSHEETS
2018 TRAFFIC COUNTS

TRAFFIC SIGNAL TIMING SHEET -- CITY OF CHULA VISTA

EAST PALOMAR / OLYMPIC

SCN: 176 ADDRESS: 12

Program:233; SET CLOCK: SET DATE:81=ddyym ; SET TIME:80=hhmms [day]; 8F=mmss.s ; E KEY ENABLE: F-9-E = 9 ;SET MODE:{C-0-C=0} C-A-1=0 ; F-C-0=5.0 ; F-O-F=3.0 ;
ESTABLISH COMM: C-0-0=ADDRESS ; C-0-1=1 ; C-0-2=1 ; C-0-3=SCN ; SET PED PHASES: {C-0-E=125} E-F-5=[2] ; E-F-6=[6] ; E-F-7=[4] ; E-F-8=[8] ;
SET OPTICOM: {C-0-E=125} E-E-A=[2,5] ; E-E-B=[4,7] ; E-E-C=[1,6] ; E-E-D=[3,8] ; E-F-F=[3] ; F-0-8=F-0-9=2 ;

PHASE FLAGS {C-0-F = 1} (F-F-X)

PHASE	0	1	2	3	4	6	7	8	9	A	B	C	D	E	F
1	X														
→ 2	X			X											X
3	X														
↓ 4	X														
5	X														
← 6	X			X											X
7	X														
↑ 8	X														

PHASE TIMING BANK 1 {C-0-F = 1} (F-PHASE-X)

PHASE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1			4			2.5	2.5	2.5	30						3.2	1.0
→ 2	7	25	10			5.2	4.5	2.0	50					1.2	5.0	1.0
3			4			2,5	2.5	2.5	30						3.2	1.0
↓ 4	7	30	7			3.5	3.5	3.5	40						4.2	1.0
5			4			2.5	2.5	2.5	30						3.2	1.0
← 6	7	25	10			5.2	4.5	2.0	50					1.2	5.0	1.0
7			4			2.5	2.5	2.5	30						3.2	1.0
↑ 8	7	30	7			3.5	3.5	3.5	40						3.6	1.0

LOCAL SCHEDULER{C-0-9 = 0.1}(PAGE 1)

9-EVENT	TIME	PLAN/OS		DAY
0 =	0000	E	A	[1,2,3,4,5,6,7]
1 =	0630	2	A	[2,3,4,5,6]
2 =	0800	3	A	[2,3,4,5,6]
3 =	1400	4	A	[2,3,4,5,6]
4 =	1530	5	A	[2,3,4,5,6]
5 =	1830	E	A	[2,3,4,5,6]
6 =	1100	6	A	[7]
7 =	1730	E	A	[7]
8 =			A	
9 =			A	
A =			A	
B =			A	
C =			A	
D =			A	
E =			A	
F =			A	

OTHER INPUTS: {C-0-E = 126} E-1-8 = E-1-9 = E-1-A = E-1-B = [4,5,7]
{C-0-C = 1} C-F-0 = [2,4,6,8] ;

NOTE:Plan E=Free ; Plan F=Flash

DETECTOR PARAM: {C-0-D = 0} D-1-0 = 2.0 ; D-3-0 = 1.5 ; D-2-0 = 2.0 ; D-4-0 = 1.5 ; D-1-6 = 2.0 ; D-3-6 = 1.5 ; D-2-6 = 2.0 ; D-4-6 = 1.5 ;

COORDINATION TIMING PLAN {C-0-C = 1} (C-PLAN-X)

PLAN	CYCLE	FORCE-OFF 1	2	3	4	5	6	7	8	OFFSET 9	A	B	C	D	E	F	[SYNC ϕ s] C-E-PLAN	[LAG ϕ s] C-F-PLAN
1																		
2	144	95	0	47	74	88	0	26	74	0	138	0	0	50	255	0	[2,6]	[2,4,6,8]
3	115	66	0	23	44	61	0	22	44	0	96	0	0	26	255	0	[2,6]	[2,4,6,8]
4	130	75	0	23	46	61	0	24	46	0	98	0	0	25	255	0	[2,6]	[2,4,6,8]
5	144	86	0	27	51	72	0	29	51	0	32	0	0	32	255	0	[2,6]	[2,4,6,8]
6	120	75	0	27	47	68	0	25	47	0	92	0	0	30	255	0	[2,6]	[2,4,6,8]
7																		
8																		
9																		

TIMING PLAN FUNCTIONS {C-0-C = 2} (C-PLAN-X)

PLAN	PED-ADJ	RSRV-TIME[RESERVED ϕs] 0	5	6	8	[PRETIMED ϕs] 9	[MAX RECALL ϕs]
1							
2						9	
3						15	
4						14	
5						14	
6						16	
7							
8							
9							

NOTE: VIEW CURRENT BANK: {C-0-F = 0} F-C-E = (Current Bank) ; BATT. CHECK: {C-0-E = 112} E-0-A = (85 is OK) = (84 is BAD) ; DATE : April 20, 2015 VERSION: 1.8

TRAFFIC SIGNAL TIMING SHEET -- CITY OF CHULA VISTA

OLYMPIC / SR125 SB

SCN: 268 (255+13) ADDRESS: 11

Program:233; SET CLOCK: SET DATE:81=ddyym ; SET TIME:80=hhmms [day]; 8F=mmss.s ; E KEY ENABLE: F-9-E = 9 ;SET MODE:{C-0-C=0} C-A-1=0 ; F-C-0=5.0 ; F-O-F=3.0 ;
ESTABLISH COMM: C-0-0=ADDRESS ; C-0-1=1 ; C-0-2=2 ; C-0-3=13 ; SET PED PHASES: {C-0-E=125} E-F-5=[ ] ; E-F-6=[6] ; E-F-7=[ ] ; E-F-8=[ ] ;
SET OPTICOM: {C-0-E=125} E-E-A=[ ] ; E-E-B=[ ] ; E-E-C=[ ] ; E-E-D=[ ] ; E-F-F=[3] ; F-0-8=F-0-9=2 ;

PHASE FLAGS {C-0-F = 1} (F-F-X)

PHASE	0	1	2	3	4	6	7	8	9	A	B	C	D	E	F
1															
→ 2	X			X											X
3															
↓ 4	X														
5															
← 6	X			X											X
7															
8															

PHASE TIMING BANK 1 {C-0-F = 1} (F-PHASE-X)

PHASE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1																
2			10			5.0	5.5	2.0	50					1.1	5.0	1.0
3																
4			4			3.2	3.2	3.2	30						3.2	1.0
5																
6	7	25	10			5.0	5.5	2.0	50					1.1	5.0	1.0
7																
8																

LOCAL SCHEDULER{C-0-9 = 0.1}(PAGE 1)

9-EVENT	TIME	PLAN/OS		DAY
0 =	0000	E	A	[1,2,3,4,5,6,7]
1 =	0630	2	A	[2,3,4,5,6]
2 =	0800	3	A	[2,3,4,5,6]
3 =	1400	4	A	[2,3,4,5,6]
4 =	1530	5	A	[2,3,4,5,6]
5 =	1830	E	A	[2,3,4,5,6]
6 =	1100	6	A	[7]
7 =	1730	E	A	[7]
8 =			A	
9 =			A	
A =			A	
B =			A	
C =			A	
D =			A	
E =			A	
F =			A	

NOTE:Plan E=Free ; Plan F=Flash

OTHER INPUTS: {C-0-E = 126} E-1-8 = E-1-9 = E-1-A = E-1-B = [4,5,7]
{C-0-C = 1} C-F-0 = [2,4,6,8] ;

DETECTOR PARAM: {C-0-D = 0}

COORDINATION TIMING PLAN {C-0-C = 1} (C-PLAN-X)

PLAN	CYCLE	FORCE-OFF 0	1	2	3	4	OFFSET 5	6	7	8	9	A	B	C	D	E	F	[SYNC ϕ s] C-E-PLAN	[LAG ϕ s] C-F-PLAN
1																			
2	72	0	0	0	28	0	0	0	0	0	12	0	0	10	255	0		[2,6]	[2,4,6]
3	115	0	0	0	31	0	0	0	0	0	20	0	0	10	255	0		[2,6]	[2,4,6]
4	130	0	0	0	37	0	0	0	0	0	2	0	0	10	255	0		[2,6]	[2,4,6]
5	126	0	0	0	38	0	0	0	0	0	77	0	0	10	255	0		[2,6]	[2,4,6]
6	120	0	0	0	32	0	0	0	0	0	3	0	0	10	255	0		[2,6]	[2,4,6]
7																			
8																			
9																			

TIMING PLAN FUNCTIONS {C-0-C = 2} (C-PLAN-X)

PLAN	PED-ADJ	RSRV-TIME[	RESERVED ϕs][	PRETIMED ϕs][MAX RECALL ϕs]			
	0	5	6	8	9		
1							
2			6				
3							
4							
5							
6							
7							
8							
9							

NOTE: VIEW CURRENT BANK: {C-0-F = 0} F-C-E = (Current Bank) ; BATT. CHECK: {C-0-E = 112} E-0-A = (85 is OK) = (84 is BAD) ; DATE : April 20, 2015 VERSION: 1.2

TRAFFIC SIGNAL TIMING SHEET -- CITY OF CHULA VISTA

OLYMPIC / SR125 NB

SCN: 269 (255+14) ADDRESS: 12

Program:233; SET CLOCK: SET DATE:81=ddyym ; SET TIME:80=hhmms [day]; 8F=mmss.s ; E KEY ENABLE: F-9-E = 9 ;SET MODE:{C-0-C=0} C-A-1=0 ; F-C-0=5.0 ; F-O-F=3.0 ;
ESTABLISH COMM: C-0-0=ADDRESS ; C-0-1=1 ; C-0-2=2 ; C-0-3=14 ; SET PED PHASES: {C-0-E=125} E-F-5=[2] ; E-F-6=[ ] ; E-F-7=[ ] ; E-F-8=[ ] ;
SET OPTICOM: {C-0-E=125} E-E-A=[ ] ; E-E-B=[ ] ; E-E-C=[ ] ; E-E-D=[ ] ; E-F-F=[3] ; F-0-8=F-0-9=2 ;

PHASE FLAGS {C-0-F = 1} (F-F-X)

PHASE	0	1	2	3	4	6	7	8	9	A	B	C	D	E	F
1															
→ 2	X			X											X
3															
4															
5															
← 6	X			X											X
7															
↑ 8	X														

PHASE TIMING BANK 1 {C-0-F = 1} (F-PHASE-X)

PHASE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1																
2	7	28	10		5.0	5.5	2.0	50						1.1	5.0	1.0
3																
4																
5																
6			10		5.0	5.5	2.0	50						1.1	5.5	1.0
7																
8			4		3.2	3.2	3.2	30							3.2	1.0

LOCAL SCHEDULER{C-0-9 = 0.1}(PAGE 1)

9-EVENT	TIME	PLAN/OS		DAY
0 =	0000	E	A	[1,2,3,4,5,6,7]
1 =	0630	2	A	[2,3,4,5,6]
2 =	0800	3	A	[2,3,4,5,6]
3 =	1400	4	A	[2,3,4,5,6]
4 =	1530	5	A	[2,3,4,5,6]
5 =	1830	E	A	[2,3,4,5,6]
6 =	1100	6	A	[7]
7 =	1730	E	A	[7]
8 =			A	
9 =			A	
A =			A	
B =			A	
C =			A	
D =			A	
E =			A	
F =			A	

NOTE:Plan E=Free ; Plan F=Flash

OTHER INPUTS: {C-0-E = 126} E-1-8 = E-1-9 = E-1-A = E-1-B = [4,5,7]
{C-0-C = 1} C-F-0 = [2,4,6,8] ;

DETECTOR PARAM: {C-0-D = 0}

COORDINATION TIMING PLAN {C-0-C = 1} (C-PLAN-X)

PLAN	CYCLE	FORCE-OFF 0	1	2	3	4	5	6	7	OFFSET 8	9	A	B	C	D	E	F	[SYNC ϕ s] C-E-PLAN	[LAG ϕ s] C-F-PLAN
1																			
2	72	0	0	0	0	0	0	0	24	0	0	0	0	10	255	0		[2,6]	[2,6,8]
3	115	0	0	0	0	0	0	0	28	0	54	0	0	10	255	0		[2,6]	[2,6,8]
4	130	0	0	0	0	0	0	0	30	0	57	0	0	10	255	0		[2,6]	[2,6,8]
5	126	0	0	0	0	0	0	0	28	0	3	0	0	10	255	0		[2,6]	[2,6,8]
6	120	0	0	0	0	0	0	0	26	0	54	0	0	10	255	0		[2,6]	[2,6,8]
7																			
8																			
9																			

TIMING PLAN FUNCTIONS {C-0-C = 2} (C-PLAN-X)

PLAN	PED-ADJ	RSRV-TIME[	RESERVED ϕs][	PRETIMED ϕs][MAX RECALL ϕs]			
	0	5	6	8	9		
1							
2	11						
3							
4							
5							
6							
7							
8							
9							

NOTE: VIEW CURRENT BANK: {C-0-F = 0} F-C-E = (Current Bank) ; BATT. CHECK: {C-0-E = 112} E-0-A = (85 is OK) = (84 is BAD) ; DATE : April 20, 2015 VERSION: 1.2

TRAFFIC SIGNAL TIMING SHEET -- CITY OF CHULA VISTA

OLYMPIC /TOWN CENTER

SCN: 201 ADDRESS: 09

Program:233; SET CLOCK: SET DATE:81=ddyym ; SET TIME:80=hhmms [day]; 8F=mmss.s ; E KEY ENABLE: F-9-E = 9 ;SET MODE:{C-0-C=0} C-A-1=0 ; F-C-0=5.0 ; F-O-F=3.0 ;
ESTABLISH COMM: C-0-0=ADDRESS ; C-0-1=1 ; C-0-2=1 ; C-0-3=SCN ; SET PED PHASES: {C-0-E=125} E-F-5=[2] ; E-F-6=[6] ; E-F-7=[4] ; E-F-8=[8] ;
SET OPTICOM: {C-0-E=125} E-E-A=[2,5] ; E-E-B=[4,7] ; E-E-C=[1,6] ; E-E-D=[3,8] ; E-F-F=[3] ; F-0-8=F-0-9=2 ;

PHASE FLAGS {C-0-F = 1} (F-F-X)

PHASE	0	1	2	3	4	6	7	8	9	A	B	C	D	E	F
1	X														
→ 2	X			X											X
3	X														
↓ 4	X														
5	X														
← 6	X			X											X
7	X														
↑ 8	X														

PHASE TIMING BANK 1 {C-0-F = 1} (F-PHASE-X)

PHASE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1			4		2.0	2.0	2.0	30							3.2	1.0
→ 2	7	20	10	1.2	5.5	5.9	2.0	60						1.4	5.0	1.5
3			4		2.0	2.0	2.0	30							3.2	1.0
↓ 4	7	34	7		2.6	2.6	2.6	40							3.6	1.5
5			4		2.0	2.0	2.0	30							3.2	1.0
← 6	7	16	10	1.2	5.5	5.9	2.0	60						1.4	5.1	1.5
7			4		2.0	2.0	2.0	30							3.2	1.0
↑ 8	7	34	7		2.6	2.6	2.6	40							3.6	1.0

LOCAL SCHEDULER{C-0-9 = 0.1}(PAGE 1)

9-EVENT	TIME	PLAN/OS		DAY
0 =	0000	E	A	[1,2,3,4,5,6,7]
1 =	0630	2	A	[2,3,4,5,6]
2 =	0800	3	A	[2,3,4,5,6]
3 =	1400	4	A	[2,3,4,5,6]
4 =	1530	5	A	[2,3,4,5,6]
5 =	1830	E	A	[2,3,4,5,6]
6 =	1100	6	A	[7]
7 =	1730	E	A	[7]
8 =			A	
9 =			A	
A =			A	
B =			A	
C =			A	
D =			A	
E =			A	
F =			A	

NOTE:Plan E=Free ; Plan F=Flash

OTHER INPUTS: {C-0-E = 126} E-1-8 = E-1-9 = E-1-A = E-1-B = [4,5,7]
{C-0-C = 1} C-F-0 = [2,4,6,8] ;

DETECTOR PARAM: {C-0-D = 0}

COORDINATION TIMING PLAN {C-0-C = 1} (C-PLAN-X)

PLAN	CYCLE	FORCE-OFF 0	1	2	3	4	5	6	7	8	9	A	OFFSET B	C	D	E	F	[SYNC ϕ s] C-E-PLAN	[LAG ϕ s] C-F-PLAN
1																			
2	144	54	0	17	43	74	0	17	43	0	100	0	0	20	255	0		[2,6]	[2,4,6,8]
3	115	58	0	16	42	70	0	17	42	0	42	0	0	20	255	0		[2,6]	[2,4,6,8]
4	130	67	0	18	50	83	0	20	50	0	49	0	0	23	255	0		[2,6]	[2,4,6,8]
5	126	68	0	20	51	85	0	20	51	0	116	0	0	23	255	0		[2,6]	[2,4,6,8]
6	120	69	0	22	50	78	0	23	50	0	42	0	0	26	255	0		[2,6]	[2,4,6,8]
7																			
8																			
9																			

TIMING PLAN FUNCTIONS {C-0-C = 2} (C-PLAN-X)

PLAN	PED-ADJ	RSRV-TIME[RESERVED ϕs] 0	5	6	8	9	[PRETIMED ϕs]	[MAX RECALL ϕs]
1								
2								14
3								15
4								10
5								9
6								14
7								
8								
9								

NOTE: VIEW CURRENT BANK: {C-0-F = 0} F-C-E = (Current Bank) ; BATT. CHECK: {C-0-E = 112} E-0-A = (85 is OK) = (84 is BAD) ; DATE : April 20, 2015 VERSI0N: 2.0

TRAFFIC SIGNAL TIMING SHEET -- CITY OF CHULA VISTA

EASTLAKE / OLYMPIC

SCN: 185 **ADDRESS: 6**

Program:233; SET CLOCK: SET DATE:81=ddyym ; SET TIME:80=hhmms [day]; 8F=mmss.s ; E KEY ENABLE: F-9-E = 9 ;SET MODE:{C-0-C=0} C-A-1=0 ; F-C-0=5.0 ; F-O-F=3.0 ;
ESTABLISH COMM: C-0-0=ADDRESS ; C-0-1=1 ; C-0-2=1 ; C-0-3=SCN ; SET PED PHASES: {C-0-E=125} E-F-5=[2] ; E-F-6=[6] ; E-F-7=[4] ; E-F-8=[8] ;
SET OPTICOM: {C-0-E=125} E-E-A=[2,5] ; E-E-B=[4,7] ; E-E-C=[1,6] ; E-E-D=[3,8] ; E-F-F=[3] ; F-0-8=F-0-9=2 ;

PHASE FLAGS {C-0-F = 1} (F-F-X) — PHASE TIMING BANK 1 {C-0-F = 1} (F-PHASE-X)

PHASE	F 0	F 1	F 2	F 3	F 4	F 6	F 7	F 8	F 9	F A	F B	F C	F D	F E	F F	T 0	T 1	T 2	T 3	T 4	T 5	T 6	T 7	T 8	T 9	T A	T B	T C	T D	T E	T F
1	X																	4		0.0	2.5	2.5	2.5	30						3.2	1.0
→ 2	X			X											X	7	30	10		0.0	6.0	7.1	2.0	50	40				0.8	5.0	1.5
3	X																	4		0.0	2.5	2.5	2.5	30						3.2	1.0
↓ 4	X															7	38	7		0.0	3.1	3.1	3.1	40						4.3	1.5
5	X																	4		0.0	2.5	2.5	2.5	30						3.2	1.0
← 6	X			X											X	7	34	10		0.0	6.0	7.1	2.0	50	40				0.8	5.0	1.5
7	X																	4		0.0	2.5	2.5	2.5	30						3.2	1.0
↑ 8	X															7	32	7		0.0	3.1	3.1	3.1	40						4.7	1.5

LOCAL SCHEDULER{C-0-9 = 0.1}(PAGE 1)

9-EVENT	TIME	PLAN	/OS	[DAY]
0 =	0000	E	A	[1,2,3,4,5,6,7]
1 =	0630	2	A	[2,3,4,5,6]
2 =	0800	E	A	[2,3,4,5,6]
3 =	1400	E	A	[2,3,4,5,6]
4 =	1530	E	A	[2,3,4,5,6]
5 =	1830	E	A	[2,3,4,5,6]
6 =	1100	6	A	[7]
7 =	1730	E	A	[7]
8 =			A	
9 =			A	
A =			A	
B =			A	
C =			A	
D =			A	
E =			A	
F =			A	

NOTE:Plan E=Free ; Plan F=Flash

OTHER INPUTS: {C-0-E = 126} E-1-8 = E-1-9 = E-1-A = E-1-B = [4,5,7]
{C-0-C = 1} C-F-0 = [2,4,6,8] ;

DETECTOR PARAM: {C-0-D = 0}

COORDINATION TIMING PLAN {C-0-C = 1} (C-PLAN-X) — TIMING PLAN FUNCTIONS {C-0-C = 2} (C-PLAN-X)

PLAN	CYCLE 0	FORCE-OFF 1	2	3	4	5	6	OFFSET 7	8	9	A	B	C	D	E	F	[SYNC ϕ s] C-E-PLAN	[LAG ϕ s] C-F-PLAN	PED-ADJ 0	RSRV-TIME[RESERVED ϕs] 5	6	[PRETIMED ϕs] 8	[MAX RECALL ϕs] 9
1																							
2	144	80	0	37	61	87	0	18	61	0	92	0	0	40	255	0	[2,6]	[2,4,6,8]	15				
3	115	76	0	29	54	81	0	18	54	0	29	0	0	32	255	0	[2,6]	[2,4,6,8]	14				
4	130	82	0	28	58	87	0	26	58	0	35	0	0	30	255	0	[2,6]	[2,4,6,8]	10				
5	126	79	0	29	58	89	0	27	58	0	113	0	0	30	255	0	[2,6]	[2,4,6,8]	10				
6	125	75	0	24	53	78	0	20	53	0	29	0	0	27	255	0	[2,6]	[2,4,6,8]	14				
7																							
8																							
9																							

NOTE: VIEW CURRENT BANK: {C-0-F = 0} F-C-E = (Current Bank) ; BATT. CHECK: {C-0-E = 112} E-0-A = (85 is OK) = (84 is BAD) ; DATE : August 18, 2017 VERSION: 2.0

PROGRAM 233 PAGE 2 SCN : _185_

LOCAL T.O.D. FUNCTIONS {C-0-7 = 0.1} {C-0-E = 27}

7-EVENT	TIME	FUNCT	DAY	E-4-EVENT	PHASE / BIT
0 =	1400	B	[2,3,4,5,6]	0 =	[2,6]
1 =	1830	B	[2,3,4,5,6]	1 =	[ ]
2 =	1400	9	[2,3,4,5,6]	2 =	[2,6]
3 =	1830	9	[2,3,4,5,6]	3 =	[ ]
4 =				4 =	
5 =				5 =	
6 =				6 =	
7 =				7 =	
8 =				8 =	
9 =				9 =	
A =				A =	
B =				B =	
C =				C =	
D =				D =	
E =				E =	
F =				F =	

LOCAL SCHEDULER {C-0-9=0.2}(PAGE 2)

9-EVENT	TIME	PLAN/OS	DAY
0 =			
1 =			
2 =			
3 =			
4 =			
5 =			
6 =			
7 =			
8 =			
9 =			
A =			
B =			
C =			
D =			
E =			
F =			

Note: Plan E=Free ; Plan F=Flash

HOLIDAY T.O.D. FUNCTIONS {C-0-7 = 0.2} {C-0-E = 28}

7-EVENT	TIME	FUNCT	HOLIDAY TYPE	E-4-EVENT	PHASE/BIT
0 =				0 =	
1 =				1 =	
2 =				2 =	
3 =				3 =	
4 =				4 =	
5 =				5 =	
6 =				6 =	
7 =				7 =	
8 =				8 =	
9 =				9 =	
A =				A =	
B =				B =	
C =				C =	
D =				D =	
E =				E =	
F =				F =	

PHASE TIMING BANK 2 {C-0-F = 2} (F-PHASE-X)

PHASE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1																
2																
3																
4																
5																
6																
7																
8																

PHASE TIMING BANK 3 {C-0-F = 3} (F-PHASE-X)

PHASE	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
1																
2																
3																
4																
5																
6																
7																
8																

HOLIDAY EVENTS {C-0-9 = 1.1}(PAGE 1)

9-EVENT	TIME	PLAN/OS	HOLIDAY TYPE
0 =			
1 =			
2 =			
3 =			
4 =			
5 =			
6 =			
7 =			
8 =			
9 =			
A =			
B =			
C =			
D =			
E =			
F =			

Note: Plan E = Free ; Plan F = Flash

HOLIDAY EVENTS {C-0-9 = 1.2}(PAGE 2)

9-EVENT	TIME	PLAN/OS	HOLIDAY TYPE
0 =			
1 =			
2 =			
3 =			
4 =			
5 =			
6 =			
7 =			
8 =			
9 =			
A =			
B =			
C =			
D =			
E =			
F =			

Note: Plan E = Free ; Plan F = Flash

HOLDIDAY DATES {C-0-8 = 1.1}(PAGE 1)

8-DATE	DAY	YEAR	MONTH	TYPE
0 =				
1 =				
2 =				
3 =				
4 =				
5 =				
6 =				
7 =				
8 =				
9 =				
A =				
B =				
C =				
D =				
E =				
F =				

HOLIDAY DATES {C-0-8 = 1.2}(PAGE 2)

8-DATE	DAY	YEAR	MONTH	TYPE
0 =				
1 =				
2 =				
3 =				
4 =				
5 =				
6 =				
7 =				
8 =				
9 =				
A =				
B =				
C =				
D =				
E =				
F =				

Organization
295 East Palomar/Ring Rd/Town Center > Unit Configuration > Unit Configuration

B.3 System Information

System Id	295
Name	295 Town Center & Ring
Location	Town Center Dr & Ring Rd

1.2 Unit Setup

Auto Ped Clear	Disabled
Red Revert	3
Min Yellow Time	3
Texas Dmd Mode	Disabled
Texas Dmd Type	4-Phase

1.3 Startup

Flash	0
All Red	5
Start Veh Call	2,7
Start Ped Call	8

1.4 Channel Setup (1-16)

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Type	V	V	P	V	V	P	V	V	P	V	V	P	O	O	O	O
Source		2		9	0					7		8				
Alt 1/2 Hz																
Flash Red		X		X	X					X						
Flash Yel																

1.4 Channel Setup (17-32)

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Type	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V
Source																
Alt 1/2 Hz																
Flsh Red																
Flsh Yel																

Start Next Phases	

Program Type	McCain Omni eX
Firmware	1.10
Street 1	East Palomar St
Street 2	Town Center Dr
Last Modified	3/20/2019 4:57 PM

5.1 Coordination Constants

Correction Mode	Shortway
Max Cycles Trans	3
Coord Max Mode	Max Inhibit
Coord Force Mode	Fixed
Perm Strategy	Maximum
Omit Strategy	Minimum
Sync Point	Begin Green
No Early Return	Disable
Sync Ref Time	0
Operational Mode	0

2.5 Phase Concurrency

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phase 1																
Phase 2																
Phase 3																
Phase 4																
Phase 5																
Phase 6																
Phase 7																
Phase 8																
Phase 9										X						
Phase 10									X							
Phase 11																
Phase 12																
Phase 13																
Phase 14																
Phase 15																
Phase 16																

2.4 Phase Enable and Rings

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Startup	2	2	2	2	2	2	4	2	2	2	2	2	2	2	2	2
Enabled		X					X	X	X	X						
Ring1		X							X							
Ring2							X	X		X						
Ring3																
Ring4																

Phase Diagram

2.3 Phase Sequence 1

Ring 1	9,2
Ring 2	10,7,8
Ring 3	
Ring 4	

2.3 Phase Sequence 2

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 3

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 4

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 5

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 6

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 7

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 8

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 9

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 10

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 11

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 12

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 13

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 14

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 15

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.3 Phase Sequence 16

Ring 1	
Ring 2	
Ring 3	
Ring 4	

2.1 Phase Parameters Set 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Min. Green	0	7	0	0	0	0	7	0	4	4	0	0	0	0	0	0
Pass/10	0	3	0	0	0	0	3	0	2	2	0	0	0	0	0	0
Max. 1	0	30	0	0	0	0	30	30	30	30	0	0	0	0	0	0
Max. 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yel/10	0	3.6	0	0	0	0	3.6	0	4.5	4.5	0	0	0	0	0	0
Red/10	0	1.5	0	0	0	0	1	1	1	1	0	0	0	0	0	0
Walk	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0
Pedestrian Clear	0	0	0	0	0	0	0	21	0	0	0	0	0	0	0	0
Add In/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max. Initial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CBR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TTR	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Reduce/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Gp/10	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0
DM Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
DM Stp/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Red Rv/10	0	3	0	0	0	0	3	3	3	3	0	0	0	0	0	0
Cond Svc Min	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt Min Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt Ps/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt Ped Clear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Advanced Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay Walk	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St Dly/10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Green Clear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

2.2 Phase Options Set 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phase Omit																
Ped Omit																
Min Recall							X									
Max Recall																
Soft Recall																
Ped Recall																
Pedestrian Recycle																
Cond Srv																
Detector Lock																
Dual Entry																
Simul Gap	X	X	X	X	X	X	X	X	X	X						
Guar Pass																
Add Init Calc																
Walk Rest																
Red Rest									X	X						
Flash Entry																
Flash Exit																
CNA-1																
CNA-2																
No Backup																
Max Walk																
Max Extension																
Sequential Timing																
No Min Yellow								X								
FDW Ped Recycle																

3.1 Vehicle Overlap Set 1	1	2	3	4
Type	Normal	Normal	Normal	Normal
Included Phases				
Modifier Phases				
Excluded Phases				
Excluded Peds				
Excluded Walks				
Trail Grn	0	0	0	0
Trailing Yel	0	0	0	0
Trailing Red	0	0	0	0
Start Delay	0	0	0	0
No Trail Grn Phs				
Call Phases				
Actuated Only	False	False	False	False
Detector Lock	False	False	False	False
No Min Yellow	False	False	False	False

3.1 Vehicle Overlap Set 1	5	6	7	8
Type	Normal	Normal	Normal	Normal
Included Phases				
Modifier Phases				
Excluded Phases				
Excluded Peds				
Excluded Walks				
Trail Grn	0	0	0	0
Trailing Yel	0	0	0	0
Trailing Red	0	0	0	0
Start Delay	0	0	0	0
No Trail Grn Phs				
Call Phases				
Actuated Only	False	False	False	False
Detector Lock	False	False	False	False
No Min Yellow	False	False	False	False

3.2 Pedestrian Overlap Set 1	1
Included Phases	
Excluded Phases	
Intervals	None
Call Phases	
Actuated Only	False

3.2 Pedestrian Overlap Set 1	2
Included Phases	
Excluded Phases	
Intervals	None
Call Phases	
Actuated Only	False

3.2 Pedestrian Overlap Set 1	3
Included Phases	
Excluded Phases	
Intervals	None
Call Phases	
Actuated Only	False

3.2 Pedestrian Overlap Set 1	4
Included Phases	
Excluded Phases	
Intervals	None
Call Phases	
Actuated Only	False

3.2 Pedestrian Overlap Set 1	5
Included Phases	
Excluded Phases	
Intervals	None
Call Phases	
Actuated Only	False

3.2 Pedestrian Overlap Set 1	6
Included Phases	
Excluded Phases	
Intervals	None
Call Phases	
Actuated Only	False

3.2 Pedestrian Overlap Set 1	7
Included Phases	
Excluded Phases	
Intervals	None
Call Phases	
Actuated Only	False

3.2 Pedestrian Overlap Set 1	8
Included Phases	
Excluded Phases	
Intervals	None
Call Phases	
Actuated Only	False

4.1 Vehicle Detector Set 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Call	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X					
Queue																																
Add Init	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X				
Passage	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X					
Red Lock																																
Yellow Lock																																
Volume																																
Occupancy																																
Call Phase	1	2	2	2	2	2	3	7	7	7	7	9	9	0	5	6	6	6	6	6	7	8	8	8	8	10	10	0	0	0	0	0
Switch Phase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Delay	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	0
Queue Limit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
VOS Length	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Alt Passage																																
Alt Min Green																																
Adaptive																																
Extra Call Phases																																
Call Overlaps																																

4.3 Vehicle Detector Diag Set 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
No Act	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max Pr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Err Cnts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fail Time	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

4.2 Ped Detector Set 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Phase	2	4	6	8	0	0	0	0	0	0	0	0	0	0	0	0
Alternate Walk																
Extra Call Phases																
Call Overlaps																

4.4 Ped Detector Diag Set 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
No Activity	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Max. Presence	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Erratic Counts	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

9.3.3.2 Speed Trap

Speed Trap	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Detector 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Detector 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Distance	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

9.3.3.3 Speed Trap Bin Ranges

Bin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Range	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.2 Patterns	1	2	3	4	5	6	7	8
Cycle Time	0	0	0	0	0	0	0	0
Offset Time	0	0	0	0	0	0	0	0
Split	1	2	3	4	5	6	7	8
Sequence	1	1	1	1	1	1	1	1
Correction Mode								
Maximum Mode								
Force Mode								
Perm Strategy								
Omit Strategy								
Early Return	Default	Default	Default	Default	Default	Default	Default	Default
Texas Diamond								
Max2 Phases								
Phase Timing Set	1	1	1	1	1	1	1	1
Phase Option Set	1	1	1	1	1	1	1	1
Overlap Set	1	1	1	1	1	1	1	1
Veh. Det. Set	1	1	1	1	1	1	1	1
Ped. Det. Set	1	1	1	1	1	1	1	1
Veh. Det. Diag Set	1	1	1	1	1	1	1	1
Ped. Det. Diag Set	1	1	1	1	1	1	1	1
Priority Set	1	1	1	1	1	1	1	1
Ped Ovlp Set	1	1	1	1	1	1	1	1
Det. Reset								

5.2 Patterns	9	10	11	12	13	14	15	16
Cycle Time	0	0	0	0	0	0	0	0
Offset Time	0	0	0	0	0	0	0	0
Split	9	10	11	12	13	14	15	16
Sequence	1	1	1	1	1	1	1	1
Correction Mode								
Maximum Mode								
Force Mode								
Perm Strategy								
Omit Strategy								
Early Return	Default	Default	Default	Default	Default	Default	Default	Default
Texas Diamond								
Max2 Phases								
Phase Timing Set	1	1	1	1	1	1	1	1
Phase Option Set	1	1	1	1	1	1	1	1
Overlap Set	1	1	1	1	1	1	1	1
Veh. Det. Set	1	1	1	1	1	1	1	1
Ped. Det. Set	1	1	1	1	1	1	1	1
Veh. Det. Diag Set	1	1	1	1	1	1	1	1
Ped. Det. Diag Set	1	1	1	1	1	1	1	1
Priority Set	1	1	1	1	1	1	1	1
Ped Ovlp Set	1	1	1	1	1	1	1	1
Det. Reset								

5.3 Split Table 1

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 2

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 3

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 4

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 5

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 6

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 7

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 8

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 9

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 10

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 11

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 12

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 13

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 14

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 15

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

5.3 Split Table 16

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Time (sec)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mode	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Coord. Phase																
Manual Permit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manual Omit	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Min Split	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.4 Schedules

	Month												Days Of Week							Date																															Day
	J	F	M	A	M	J	J	A	S	O	N	D	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Plan
1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	1
2																																																			0
3																																																			0
4																																																			0
5																																																			0
6																																																			0
7																																																			0
8																																																			0
9																																																			0
10																																																			0
11																																																			0
12																																																			0
13																																																			0
14																																																			0
15																																																			0
16																																																			0

6.5 Day Plan 1

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 1

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 2

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 2

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 3

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 3

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 4

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 4

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 5

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 5

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 6

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 6

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 7

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 7

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 8

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 8

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 9

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 9

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 10

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 10

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 11

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 11

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 12

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 12

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 13

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 13

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 14

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 14

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 15

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 15

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 16

Event#	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.5 Day Plan 16

Event#	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Hour	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Minute	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Action	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

6.6 Action Parameters	1	2	3	4	5	6	7	8
Pattern	0	0	0	0	0	0	0	0
Auxiliary Function								
Special Functions 1-8								
Special Functions 9-16								
Detector Reset								
Detector VOS Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
Speed Trap Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
Cycle MOE Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
High Res Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action

6.6 Action Parameters	9	10	11	12	13	14	15	16
Pattern	0	0	0	0	0	254	0	0
Auxiliary Function								
Special Functions 1-8								
Special Functions 9-16								
Detector Reset								
Detector VOS Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
Speed Trap Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
Cycle MOE Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
High Res Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action

6.6 Action Parameters	17	18	19	20	21	22	23	24
Pattern	0	0	0	0	0	0	0	0
Auxiliary Function								
Special Functions 1-8								
Special Functions 9-16								
Detector Reset								
Detector VOS Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
Speed Trap Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
Cycle MOE Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
High Res Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action

6.6 Action Parameters	25	26	27	28	29	30	31	32
Pattern	0	0	0	0	0	0	0	0
Auxiliary Function								
Special Functions 1-8								
Special Functions 9-16								
Detector Reset								
Detector VOS Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
Speed Trap Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
Cycle MOE Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action
High Res Log	No Action	No Action	No Action	No Action	No Action	No Action	No Action	No Action

7 Preempts	Preempt 1	Preempt 2	Preempt 3	Preempt 4	Preempt 5	Preempt 6	Preempt 7	Preempt 8
Track Phases								
Track Overlaps								
Track Ped								
Track Ped Overlap								
Dwell Phases			2	7				
Dwell Overlaps								
Dwell Peds								
Dwell Ped Overlap								
Cycling Phases								
Cycling Overlaps								
Cycling Ped								
Cycling Ped Overlap								
Exit Phase								
Locking	X	X			X	X	X	X
Override Flash	X	X			X	X	X	X
Override +1	X	X			X	X	X	X
Flash Dwell								
Enter All Red								
Ignore No Backup								
Max Presence Flash								
Track Green	0	0	0	0	0	0	0	0
Delay	0	0	0	0	0	0	0	0
Maximum Presence	0	0	120	120	0	0	0	0
Minimum Duration	0	0	0	0	0	0	0	0
Minimum Dwell	0	0	0	0	0	0	0	0
Linked Preempt	0	0	0	0	0	0	0	0
Enter Min Green	255	255	0	0	255	255	255	255
Enter Min Walk	255	255	0	0	255	255	255	255
Enter Min Ped Clear	255	255	0	0	255	255	255	255
Enter Min Yellow	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Enter Min Red Clear	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Track Min Yellow	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Track Min Red Clear	25.5	25.5	25.5	25.5	25.5	25.5	25.5	25.5
Exit Ped Clear	0	0	0	0	0	0	0	0
Exit Yellow Change	0	0	0	0	0	0	0	0
Exit Red Clear	0	0	0	0	0	0	0	0

8.1 TSP Global Options

Enable	
1	X
2	X
3	
4	X
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
Headway	0
Lockout	0
Node	1
Name	

8.2 TSP Strategy Options	Strategy 1	Set 1
Enable	X	
Override + 1		
Service Phases	9	
Call Phases		
Omit Phases	2, 7, 8	
Omit Peds	8	
Queue Jump Ph		
ETA	0	
Input Function	Priority	
Input Index	1	
Input Type	Steady	
Request Mode	Checkin (Leading Edge)	
Checkout Mode	Checkout (Leading Edge)	
Checkout Time	30	
Max Presence	180	
Max Presence Clr	0	
Min ON Time	0	
Min OFF Time	0	
Delay Time	0	
Extend Time	0	
Headway Time	0	
Preempt Lockout	0	
Arrival Window	0	

8.2 TSP Strategy Options	Strategy 2	Set 1
Enable	X	
Override + 1	X	
Service Phases	10	
Call Phases		
Omit Phases	2, 7, 8	
Omit Peds	8	
Queue Jump Ph		
ETA	14	
Input Function	Priority	
Input Index	2	
Input Type	Steady	
Request Mode	Checkin (Leading Edge)	
Checkout Mode	Checkout (Leading Edge)	
Checkout Time	20	
Max Presence	180	
Max Presence Clr	0	
Min ON Time	0	
Min OFF Time	0	
Delay Time	0	
Extend Time	0	
Headway Time	0	
Preempt Lockout	0	
Arrival Window	0	

8.2 TSP Strategy Options	Strategy 3	Set 1
Enable		
Override + 1		
Service Phases		
Call Phases		
Omit Phases		
Omit Peds		
Queue Jump Ph		
ETA	0	
Input Function	None	
Input Index	0	
Input Type	Steady	
Request Mode	Presence	
Checkout Mode	Checkout (Leading Edge)	
Checkout Time	180	
Max Presence	180	
Max Presence Clr	0	
Min ON Time	0	
Min OFF Time	0	
Delay Time	0	
Extend Time	0	
Headway Time	0	
Preempt Lockout	0	
Arrival Window	0	

8.2 TSP Strategy Options	Strategy 4	Set 1
Enable	X	
Override + 1		
Service Phases	2, 7	
Call Phases		
Omit Phases	8	
Omit Peds	8	
Queue Jump Ph		
ETA	40	
Input Function	Priority	
Input Index	4	
Input Type	Steady	
Request Mode	Checkin (Leading Edge)	
Checkout Mode	Checkout (Leading Edge)	
Checkout Time	30	
Max Presence	180	
Max Presence Clr	0	
Min ON Time	0	
Min OFF Time	0	
Delay Time	0.6	
Extend Time	0	
Headway Time	0	
Preempt Lockout	0	
Arrival Window	0	

8.2 TSP Strategy Options	Strategy 5	Set 1
Enable	X	
Override + 1	X	
Service Phases	2, 7	
Call Phases		
Omit Phases	8	
Omit Peds	8	
Queue Jump Ph		
ETA	40	
Input Function	Priority	
Input Index	4	
Input Type	Steady	
Request Mode	Presence	
Checkout Mode	Checkout (Leading Edge)	
Checkout Time	180	
Max Presence	180	
Max Presence Clr	0	
Min ON Time	0	
Min OFF Time	0	
Delay Time	0	
Extend Time	0	
Headway Time	0	
Preempt Lockout	0	
Arrival Window	0	

8.2 TSP Strategy Options	Strategy 6	Set 1
Enable		
Override + 1		
Service Phases		
Call Phases		
Omit Phases		
Omit Peds		
Queue Jump Ph		
ETA	0	
Input Function	None	
Input Index	0	
Input Type	Steady	
Request Mode	Presence	
Checkout Mode	Checkout (Leading Edge)	
Checkout Time	180	
Max Presence	180	
Max Presence Clr	0	
Min ON Time	0	
Min OFF Time	0	
Delay Time	0	
Extend Time	0	
Headway Time	0	
Preempt Lockout	0	
Arrival Window	0	

8.2 TSP Strategy Options	Strategy 7	Set 1
Enable		
Override + 1		
Service Phases		
Call Phases		

8.2 TSP Strategy Options	Strategy 8	Set 1
Enable		
Override + 1		
Service Phases		
Call Phases		

8.2 TSP Strategy Options	Strategy 9	Set 1
Enable		
Override + 1		
Service Phases		
Call Phases		

Omit Phases	
Omit Peds	
Queue Jump Ph	
ETA	0
Input Function	None
Input Index	0
Input Type	Steady
Request Mode	Presence
Checkout Mode	Checkout (Leading Edge)
Checkout Time	180
Max Presence	180
Max Presence Clr	0
Min ON Time	0
Min OFF Time	0
Delay Time	0
Extend Time	0
Headway Time	0
Preempt Lockout	0
Arrival Window	0

Omit Phases	
Omit Peds	
Queue Jump Ph	
ETA	0
Input Function	None
Input Index	0
Input Type	Steady
Request Mode	Presence
Checkout Mode	Checkout (Leading Edge)
Checkout Time	180
Max Presence	180
Max Presence Clr	0
Min ON Time	0
Min OFF Time	0
Delay Time	0
Extend Time	0
Headway Time	0
Preempt Lockout	0
Arrival Window	0

Omit Phases	
Omit Peds	
Queue Jump Ph	
ETA	0
Input Function	None
Input Index	0
Input Type	Steady
Request Mode	Presence
Checkout Mode	Checkout (Leading Edge)
Checkout Time	180
Max Presence	180
Max Presence Clr	0
Min ON Time	0
Min OFF Time	0
Delay Time	0
Extend Time	0
Headway Time	0
Preempt Lockout	0
Arrival Window	0

8.2 TSP Strategy Options — Strategy 10 | Set 1

Enable	
Override + 1	
Service Phases	
Call Phases	
Omit Phases	
Omit Peds	
Queue Jump Ph	
ETA	0
Input Function	None
Input Index	0
Input Type	Steady
Request Mode	Presence
Checkout Mode	Checkout (Leading Edge)
Checkout Time	180
Max Presence	180
Max Presence Clr	0
Min ON Time	0
Min OFF Time	0
Delay Time	0
Extend Time	0
Headway Time	0
Preempt Lockout	0
Arrival Window	0

8.2 TSP Strategy Options — Strategy 11 | Set 1

Enable	
Override + 1	
Service Phases	
Call Phases	
Omit Phases	
Omit Peds	
Queue Jump Ph	
ETA	0
Input Function	None
Input Index	0
Input Type	Steady
Request Mode	Presence
Checkout Mode	Checkout (Leading Edge)
Checkout Time	180
Max Presence	180
Max Presence Clr	0
Min ON Time	0
Min OFF Time	0
Delay Time	0
Extend Time	0
Headway Time	0
Preempt Lockout	0
Arrival Window	0

8.2 TSP Strategy Options — Strategy 12 | Set 1

Enable	
Override + 1	
Service Phases	
Call Phases	
Omit Phases	
Omit Peds	
Queue Jump Ph	
ETA	0
Input Function	None
Input Index	0
Input Type	Steady
Request Mode	Presence
Checkout Mode	Checkout (Leading Edge)
Checkout Time	180
Max Presence	180
Max Presence Clr	0
Min ON Time	0
Min OFF Time	0
Delay Time	0
Extend Time	0
Headway Time	0
Preempt Lockout	0
Arrival Window	0

8.2 TSP Strategy Options — Strategy 13 | Set 1

Enable	
Override + 1	
Service Phases	
Call Phases	
Omit Phases	
Omit Peds	
Queue Jump Ph	
ETA	0
Input Function	None

8.2 TSP Strategy Options — Strategy 14 | Set 1

Enable	
Override + 1	
Service Phases	
Call Phases	
Omit Phases	
Omit Peds	
Queue Jump Ph	
ETA	0
Input Function	None

8.2 TSP Strategy Options — Strategy 15 | Set 1

Enable	
Override + 1	
Service Phases	
Call Phases	
Omit Phases	
Omit Peds	
Queue Jump Ph	
ETA	0
Input Function	None

Input Index	0
Input Type	Steady
Request Mode	Presence
Checkout Mode	Checkout (Leading Edge)
Checkout Time	180
Max Presence	180
Max Presence Clr	0
Min ON Time	0
Min OFF Time	0
Delay Time	0
Extend Time	0
Headway Time	0
Preempt Lockout	0
Arrival Window	0

Input Index	0
Input Type	Steady
Request Mode	Presence
Checkout Mode	Checkout (Leading Edge)
Checkout Time	180
Max Presence	180
Max Presence Clr	0
Min ON Time	0
Min OFF Time	0
Delay Time	0
Extend Time	0
Headway Time	0
Preempt Lockout	0
Arrival Window	0

Input Index	0
Input Type	Steady
Request Mode	Presence
Checkout Mode	Checkout (Leading Edge)
Checkout Time	180
Max Presence	180
Max Presence Clr	0
Min ON Time	0
Min OFF Time	0
Delay Time	0
Extend Time	0
Headway Time	0
Preempt Lockout	0
Arrival Window	0

8.2 TSP Strategy Options Strategy 16 | Set 1

Enable	
Override + 1	
Service Phases	
Call Phases	
Omit Phases	
Omit Peds	
Queue Jump Ph	
ETA	0
Input Function	None
Input Index	0
Input Type	Steady
Request Mode	Presence
Checkout Mode	Checkout (Leading Edge)
Checkout Time	180
Max Presence	180
Max Presence Clr	0
Min ON Time	0
Min OFF Time	0
Delay Time	0
Extend Time	0
Headway Time	0
Preempt Lockout	0
Arrival Window	0

8.3 TSP Phase Adjustment Times Strategy 1 | Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	20	0	0	0	0	20	0	0	0	0	0	0	0	0	0
Extend	0	20	0	0	0	0	20	0	0	0	0	0	0	0	0	0
QJump	0	20	0	0	0	0	20	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times Strategy 2 | Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	20	0	0	0	0	20	0	0	0	0	0	0	0	0	0
Extend	0	20	0	0	0	0	20	0	0	0	0	0	0	0	0	0
QJump	0	20	0	0	0	0	20	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times Strategy 3 | Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times Strategy 4 | Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 5 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 6 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 7 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 8 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 9 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 10 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 11 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 12 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 13 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 14 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 15 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

8.3 TSP Phase Adjustment Times — Strategy 16 — Set 1

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Reduce	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Extend	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
QJump	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

1.6 Logic Gate 1

	Functions	IDX	!	DLY	EXT
Type	Or				
Out Mode	Flash 100				
IN1	Channel Yellow	4		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Logic Output	4		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 2

	Functions	IDX	!	DLY	EXT
Type	Or				
Out Mode	Normal				
IN1	Channel Green	4		0	0
IN2	Logic Output	4		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Logic Output	3		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 3

	Functions	IDX	!	DLY	EXT
Type	And				
Out Mode	Flash 100				
IN1	Channel Yellow	5		0	0
IN2	Logic Output	9	X	0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Logic Output	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 4

	Functions	IDX	!	DLY	EXT
Type	And				
Out Mode	Normal				
IN1	Channel Green	5		0	0
IN2	Logic Output	9	X	0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Logic Output	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 5

	Functions	IDX	!	DLY	EXT
Type	And				
Out Mode	Normal				
IN1	Channel Red	4		0	0
IN2	Vehicle Detector	13		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Logic Output	5		50	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 6

	Functions	IDX	!	DLY	EXT
Type	And				
Out Mode	Normal				
IN1	Channel Red	5		0	0
IN2	Vehicle Detector	27		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Logic Output	6		50	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 7

	Functions	IDX	!	DLY	EXT
Type	Or				
Out Mode	Flash 60				
IN1	Channel Green	4		0	0
IN2	Channel Green	5		36	0
IN3	Unused	1		36	0
IN4	Unused	1		0	0
OUT	Logic Output	7		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 8

	Functions	IDX	!	DLY	EXT
Type	Or				
Out Mode	Normal				
IN1	Phase On	9		0	0
IN2	Phase On	10		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Logic Output	8		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 9

	Functions	IDX	!	DLY	EXT
Type	Or				
Out Mode	Normal				
IN1	Channel Green	4		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Priority Checkout	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 10

	Functions	IDX	!	DLY	EXT
Type	Or				
Out Mode	Normal				
IN1	Channel Green	4		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Priority Checkout	3		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 11

	Functions	IDX	!	DLY	EXT
Type	Or				
Out Mode	Normal				
IN1	Vehicle Detector	28		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Priority Checkout	2		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 12

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 13

	Functions	IDX	!	DLY	EXT
Type	Or				
Out Mode	Flash 60				
IN1	Logic Output	9		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Logic Output	11		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 14

	Functions	IDX	!	DLY	EXT
Type	Or				
Out Mode	Normal				
IN1	Channel Red	5		0	0
IN2	Logic Output	11		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Logic Output	10		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 15

	Functions	IDX	!	DLY	EXT
Type	Or				
Out Mode	Normal				
IN1	Vehicle Detector	12		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Priority Request	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 16

	Functions	IDX	!	DLY	EXT
Type	Or				
Out Mode	Normal				
IN1	Vehicle Detector	26		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Priority Request	2		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 17

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 18

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 19

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 20

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 21

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 22

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 23

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 24

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 25

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 26

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 27

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 28

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 29

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 30

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 31

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.6 Logic Gate 32

	Functions	IDX	!	DLY	EXT
Type	Unused				
Out Mode	Normal				
IN1	Unused	1		0	0
IN2	Unused	1		0	0
IN3	Unused	1		0	0
IN4	Unused	1		0	0
OUT	Unused	1		0	0
Delay/Extend Units	Tenths				

1.5.3.1 2070 FIO Input Mapping

Pins	Function	IDX
C1-39	Vehicle Detector	2
C1-40	Vehicle Detector	16
C1-41	Vehicle Detector	8
C1-42	Vehicle Detector	22
C1-43	Vehicle Detector	3
C1-44	Vehicle Detector	17
C1-45	Vehicle Detector	9
C1-46	Vehicle Detector	23
C1-47	Vehicle Detector	6
C1-48	Vehicle Detector	20
C1-49	Vehicle Detector	12
C1-50	Vehicle Detector	26
C1-51	Preempt Detector	1
C1-52	Preempt Detector	2
C1-53	Man Control Enable	1
C1-54	Unused Input	1
C1-55	Vehicle Detector	15
C1-56	Vehicle Detector	1
C1-57	Vehicle Detector	21
C1-58	Vehicle Detector	7
C1-59	Vehicle Detector	27
C1-60	Vehicle Detector	13
C1-61	Vehicle Detector	28
C1-62	Vehicle Detector	14
C11-10	Unused Input	1
C11-11	Unused Input	1
C11-12	Unused Input	1
C11-13	Unused Input	1
C1-63	Vehicle Detector	4
C1-64	Vehicle Detector	18
C1-65	Vehicle Detector	10
C1-66	Vehicle Detector	24

Pins	Function	IDX
C1-67	Pedestrian Detector	1
C1-68	Pedestrian Detector	3
C1-69	Pedestrian Detector	2
C1-70	Pedestrian Detector	4
C1-71	Preempt Detector	3
C1-72	Preempt Detector	4
C1-73	Preempt Detector	5
C1-74	Preempt Detector	6
C1-75	Unused Input	1
C1-76	Vehicle Detector	5
C1-77	Vehicle Detector	19
C1-78	Vehicle Detector	11
C1-79	Vehicle Detector	25
C1-80	Interval Advance	1
C1-81	MMU Flash	1
C1-82	Stop Time All Rings	1
C11-15	Unused Input	1
C11-16	Unused Input	1
C11-17	Unused Input	1
C11-18	Unused Input	1
C11-19	Unused Input	1
C11-20	Unused Input	1
C11-21	Unused Input	1
C11-22	Unused Input	1
C11-23	Unused Input	1
C11-24	Unused Input	1
C11-25	Unused Input	1
C11-26	Unused Input	1
C11-27	Unused Input	1
C11-28	Unused Input	1
C11-29	Unused Input	1
C11-30	Unused Input	1

1.5.3.2 2070 FIO Output Mapping

Pins	Function	IDX
C1-02	Channel Red	6
C1-03	Channel Green	6
C1-04	Logic Output	10
C1-05	Channel Yellow	5
C1-06	Logic Output	1
C1-07	Channel Red	4
C1-08	Channel Yellow	4
C1-09	Logic Output	3
C1-10	Channel Red	3
C1-11	Channel Green	3
C1-12	Channel Red	2
C1-13	Channel Yellow	2
C1-15	Channel Green	2
C1-16	Channel Red	1
C1-17	Channel Yellow	1
C1-18	Channel Green	1
C1-19	Channel Red	12
C1-20	Channel Green	12
C1-21	Channel Red	11
C1-22	Channel Yellow	11
C1-23	Channel Green	11
C1-24	Channel Red	10
C1-25	Channel Yellow	10
C1-26	Channel Green	10
C1-27	Channel Red	9
C1-28	Channel Green	9
C1-29	Channel Red	8
C1-30	Channel Yellow	8
C1-31	Channel Green	8
C1-32	Channel Red	7
C1-33	Channel Yellow	7
C1-34	Channel Green	7

Pins	Function	IDX
C1-35	Unused Output	1
C1-36	Unused Output	1
C1-37	Logic Output	8
C1-38	Logic Output	7
C1-100	Unused Output	1
C1-101	Auto Flash Status	1
C1-102	Detector Reset	1
C1-103	Wdt Reset	1
C1-83	Unused Output	1
C1-84	Unused Output	1
C1-85	Channel Red	16
C1-86	Channel Yellow	16
C1-87	Channel Green	16
C1-88	Channel Red	15
C1-89	Channel Yellow	15
C1-90	Channel Green	15
C1-91	Unused Output	1
C1-93	Unused Output	1
C1-94	Channel Red	14
C1-95	Channel Yellow	14
C1-96	Channel Green	14
C1-97	Channel Red	13
C1-98	Channel Yellow	13
C1-99	Channel Green	13
C11-1	Unused Output	1
C11-2	Unused Output	1
C11-3	Unused Output	1
C11-4	Unused Output	1
C11-5	Unused Output	1
C11-6	Unused Output	1
C11-7	Unused Output	1
C11-8	Unused Output	1

9.3-4 Log Configuration

Volume Occupancy Period	60
VOS Log Combined Periods	0
Speed Trap Log Period	0
Display Metric	
Speed Trap Log Mode	Disabled
VOS Log Mode	Disabled
Cycle MOE Log Mode	Enabled
High Res Log Mode	Enabled
Power On/Off	X
Low Battery	X
Cycle Fault	X
Coord Fault	X
Coord Fail	X
Cycle Fail	X
MMU Flash	X
Local Flash	X
Local Free	X
Preempt Status Change	X
Response Fault	X
Alarm Status Change	X
Door Status Change	X
Pattern Change	X
Detector Status Change	X
Comm Status Change	X
Command Change	X
Data Change Keyboard	X
Controller Download	X
Access Code	X
Priority	X
Manual Control Enable	X
Stop Time	X

6.2 Time Zone

Global DST	Enable DST
Standard Time Zone (+/- hr)	0

A.3 Unit Comms

Unit Backup Time	0

1.5.5 Aux Switch

Function	Stop Time All Rings
Index	1

A.5-6 Time Sync

NTP Server Address	128.138.141.172
NTP Start Hour	0
NTP Start Minute	0
NTP Interval Hour	0
NTP Interval Minute	0
GPS Start Hour	0
GPS Start Minute	0
GPS Interval Hour	0
GPS Interval Minute	0
Enable NTP Svr	

1.7 Port 1

BIU 1 (T&F BIU 1)	Disabled
BIU 2 (T&F BIU 2)	Disabled
BIU 3 (T&F BIU 3)	Disabled
BIU 4 (T&F BIU 4)	Disabled
BIU 9 (Detector BIU 1)	Disabled
BIU 10 (Detector BIU 2)	Disabled
BIU 11 (Detector BIU 3)	Disabled
BIU 12 (Detector BIU 4)	Disabled
MMU	Disabled
Comm Port	SP3

9.3-4 Hi Res Log Setup

Phase Events	
Ped Events	
Barrier/Ring Events	
Phase Control Events	
Overlap Events	
Detector Events	
Preemption Events	
Coordination Events	
Cabinet/System Events	

B.1.1 Menu Security Options

Enable:		Allow Read-Only:		Timeout (min):	60

B.1.2 Menu Security Users

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
User Id	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operation																
Unit																
I/O Map																
Phase																
Overlap																
Detector																
Coord																
Time Base																
Preempt																
Transit																
Logs																
Comm																
Security																
Database																
SW Update																

	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
User Id	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operation																
Unit																
I/O Map																
Phase																
Overlap																
Detector																
Coord																
Time Base																
Preempt																
Transit																
Logs																
Comm																
Security																
Database																
SW Update																

	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
User Id	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operation																
Unit																
I/O Map																
Phase																
Overlap																
Detector																
Coord																
Time Base																
Preempt																
Transit																
Logs																
Comm																
Security																
Database																
SW Update																

	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64
User Id	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pin	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Operation																
Unit																
I/O Map																
Phase																
Overlap																
Detector																
Coord																
Time Base																
Preempt																
Transit																
Logs																
Comm																
Security																
Database																
SW Update																

A.1 Serial Comms

Port	1	2	3	4	5	8
Protocol	None	None	None	None	None	None
Speed	9600	9600	9600	115200	9600	9600
Parity	None	None	None	None	None	None
Flow Control	None	None	None	None	None	None
Address	0	0	0	0	0	0
Group Address	0	0	0	0	0	0
Data Bits	8 data bits	8 data bits	8 data bits	8 data bits	8 data bits	8 data bits
Stop Bits	1 stop bit	1 stop bit	1 stop bit	1 stop bit	1 stop bit	1 stop bit
CTS Delay	0	0	0	0	0	0
RTS Extend	0	0	0	0	0	0

A.2 Ethernet Comms

Port	1	2
IP Address	10.242.20.209	0.0.0.0
Net Mask	255.255.255.0	0.0.0.0
Gateway	10.242.20.252	0.0.0.0
NTCIP Port	8021	161
NTCIP Mode	UDP	UDP
AB3418 Port	8001	8001
AB3418 Mode	UDP	UDP
AB3418 Address	1	1
AB3418 Group Address	0	0
Peer to Peer Port	49255	49255

A.8 SPaT

Unicast Enable	
Dest IP Address	0.0.0.0
Dest Port	0

1.9.1 Peer Device	1	2	3	4	5	6	7	8
System Id	294	296	0	0	0	0	0	0
IP Address	10.242.20.241	10.242.20.180	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0	0.0.0.0
Port	49255	49255	49255	49255	49255	49255	49255	49255
Message Timeout	1	1	1	1	1	1	1	1
Max Retries	3	3	3	3	3	3	3	3
Heartbeat Time	30	30	30	30	30	30	30	30

1.9.2 Peer Function	1	2	3	4	5	6	7	8
Peer Device Num	1	2	0	0	0	0	0	0
Remote Function	Logic Output	Vehicle Detector	Unused	Unused	Unused	Unused	Unused	Unused
Remote Function Idx	6	28	1	1	1	1	1	1
Local Function	Logic Output	Priority Request	Unused	Unused	Unused	Unused	Unused	Unused
Local Function Idx	9	2	1	1	1	1	1	1
Default State	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

1.9.2 Peer Function	9	10	11	12	13	14	15	16
Peer Device Num	0	0	0	0	0	0	0	0
Remote Function	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused
Remote Function Idx	1	1	1	1	1	1	1	1
Local Function	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused
Local Function Idx	1	1	1	1	1	1	1	1
Default State	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

1.9.2 Peer Function	17	18	19	20	21	22	23	24
Peer Device Num	0	0	0	0	0	0	0	0
Remote Function	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused
Remote Function Idx	1	1	1	1	1	1	1	1
Local Function	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused
Local Function Idx	1	1	1	1	1	1	1	1
Default State	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

1.9.2 Peer Function	25	26	27	28	29	30	31	32
Peer Device Num	0	0	0	0	0	0	0	0
Remote Function	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused
Remote Function Idx	1	1	1	1	1	1	1	1
Local Function	Unused	Unused	Unused	Unused	Unused	Unused	Unused	Unused
Local Function Idx	1	1	1	1	1	1	1	1
Default State	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF

Prepared by National Data & Surveying Services

E Palomar St & Olympic Pkwy

Peak Hour Turning Movement Count

ID: 18-04132-001
City: Chula Vista

Day: Wednesday
Date: 04/11/2018

PEAK HOURS

AM	07:00 AM - 08:00 AM
NOON	NONE
PM	NONE

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	NONE

E Palomar St — SOUTHBOUND

AM	203	130	233	0	480	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

Olympic Pkwy — EASTBOUND

AM	NOON	PM		
1364	0	0		
1	0	0	0	
108	0	0	2	
678	0	0	3	
104	0	0	1	
AM	NOON	PM		

Olympic Pkwy — WESTBOUND

PM	NOON	AM	
0	0	236	1
0	0	909	3
0	0	92	1
0	0	2	0
0	0	1188	
PM	NOON	AM	

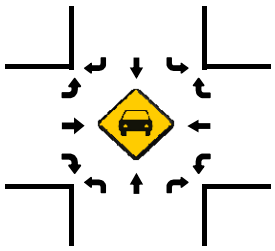
CONTROL: Signalized

TEV	3358	0	0
	AM	NOON	PM
PHF	0.95		

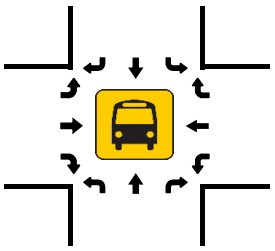
E Palomar St — NORTHBOUND

PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	326	0	251	136	275	AM

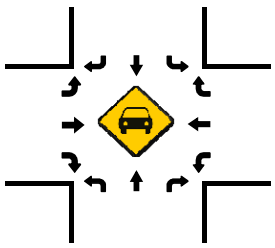
Total Vehicles (AM)



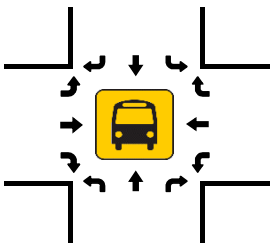
Total Vehicles (AM)



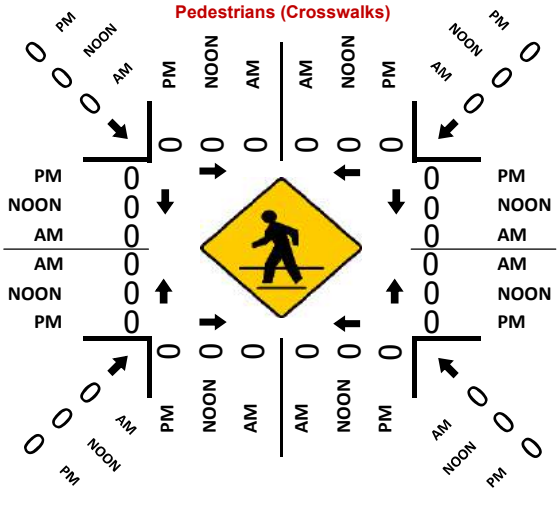
Total Vehicles (NOON)



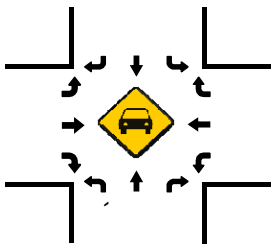
Total Vehicles (NOON)



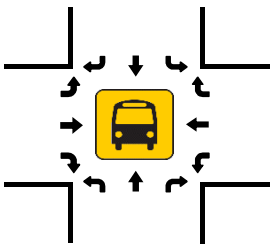
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



Prepared by National Data & Surveying Services

SR-125 SB Ramps & Olympic Pkwy

Peak Hour Turning Movement Count

ID: 18-04132-002
City: Chula Vista

Day: Wednesday
Date: 04/11/2018

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
NONE	NONE

SR-125 SB Ramps — SOUTHBOUND

AM	108	0	127	0	250	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND (Olympic Pkwy)

AM	NOON	PM		
1185	0	0	⇦	
0	0	0	↶	0
0	0	0	↱	0
1279	0	0	→	3
84	0	0	↴	1
AM	NOON	PM		

WESTBOUND (Olympic Pkwy)

PM	NOON	AM		
0	0	250	↰	1
0	0	1077	←	3
0	0	0	↰	0
0	0	0	↰	0
0	0	1406	⇨	
PM	NOON	AM		

CONTROL: Signalized

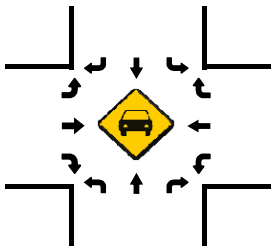
		AM	NOON	PM
TEV	2805	0	0	
PHF	0.96			

NORTHBOUND — SR-125 SB Ramps

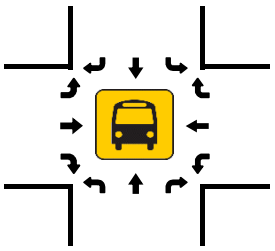
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	84	0	0	0	0	AM

1.5 0 1.5 0 — 0 0 0 0

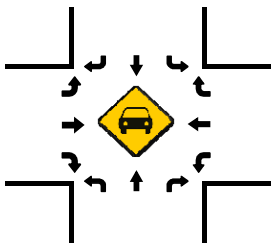
Total Vehicles (AM)



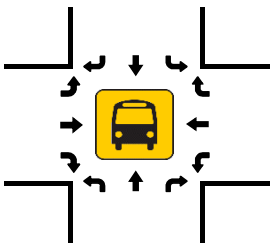
Total Vehicles (AM)



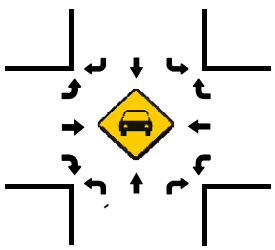
Total Vehicles (NOON)



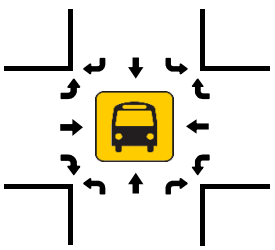
Total Vehicles (NOON)



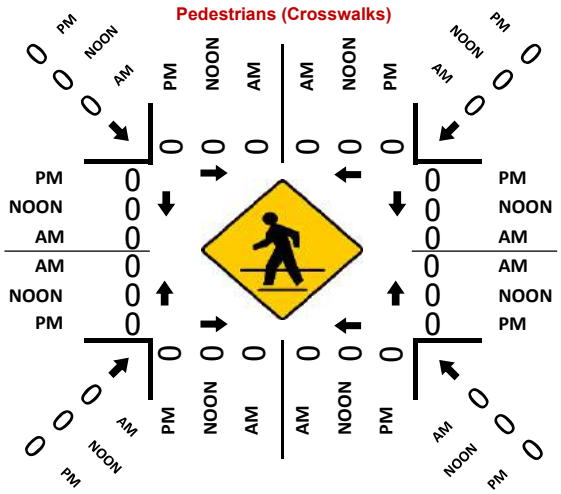
Total Vehicles (PM)



Total Vehicles (PM)



Pedestrians (Crosswalks)



Prepared by National Data & Surveying Services

SR-125 NB Ramps & Olympic Pkwy

Peak Hour Turning Movement Count

ID: 18-04132-003
City: Chula Vista

Day: Wednesday
Date: 04/11/2018

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
NONE	NONE

SOUTHBOUND — SR-125 NB Ramps

AM	0	0	0	0	426	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND — Olympic Pkwy

AM	NOON	PM		
1199	0	0	⇦	
0	0	0	↶	0
0	0	0	↱	0
1192	0	0	→	3
230	0	0	↴	1
AM	NOON	PM		

WESTBOUND — Olympic Pkwy

PM	NOON	AM		
0	0	426	↰	1
0	0	1187	←	3
0	0	0	↰	0
0	0	0	↰	0
0	0	1220	⇨	
PM	NOON	AM		

CONTROL: Signalized

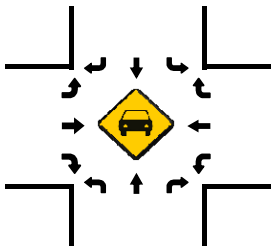
TEV	3075	0	0
	AM	NOON	PM
PHF	0.98		

NORTHBOUND — SR-125 NB Ramps

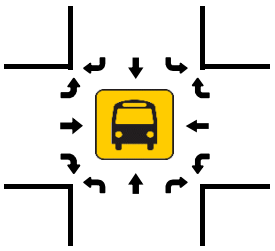
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	230	0	12	0	28	AM

⇧	↰	↰	↑	↱
	0	2	0	1

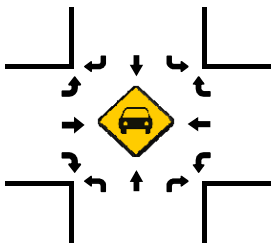
Total Vehicles (AM)



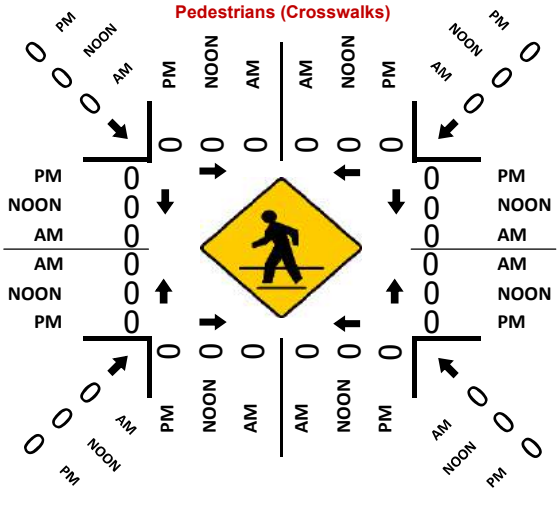
Total Vehicles (AM)



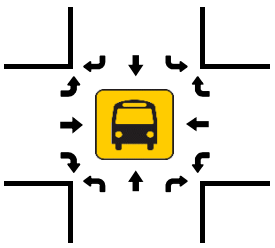
Total Vehicles (NOON)



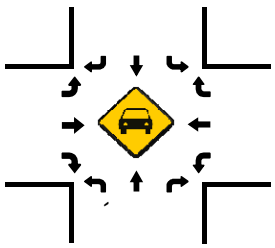
Pedestrians (Crosswalks)



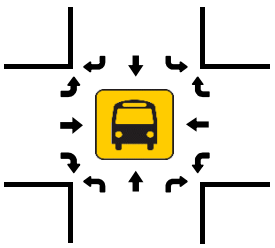
Total Vehicles (NOON)



Total Vehicles (PM)



Total Vehicles (PM)



Prepared by National Data & Surveying Services

Town Center Dr & Olympic Pkwy

Peak Hour Turning Movement Count

ID: 18-04132-004
City: Chula Vista

Day: Wednesday
Date: 04/11/2018

PEAK HOURS	COUNT PERIODS
07:30 AM - 08:30 AM	07:00 AM - 09:00 AM
NONE	NONE
NONE	NONE

SOUTHBOUND — Town Center Dr

	L	T	R	U	Total	
AM	295	21	42	0	448	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM

EASTBOUND — Olympic Pkwy

AM	NOON	PM		
1633	0	0	⇦	
4	0	0	↰	0
261	0	0	↱	2
877	0	0	→	4
67	0	0	↱	0
AM	NOON	PM		

WESTBOUND — Olympic Pkwy

PM	NOON	AM		
0	0	160	↰	0
0	0	1289	←	4
0	0	12	↰	2
0	0	0	↰	0
0	0	927	⇨	
PM	NOON	AM		

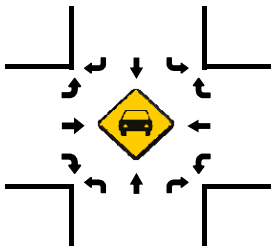
NORTHBOUND — Town Center Dr

	L	T	R	U	Total	
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	100	0	45	27	8	AM

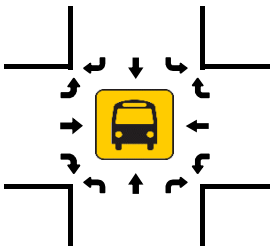
	L	T	R	U
	1.5	0.5	1	0
	0	2	1.5	0.5

CONTROL			
Signalized			
TEV	3108	0	0
	AM	NOON	PM
PHF	0.92		

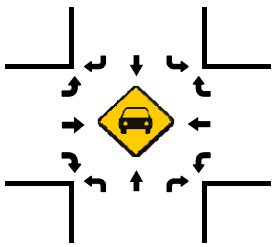
Total Vehicles (AM)



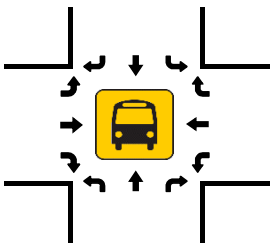
Total Vehicles (AM)



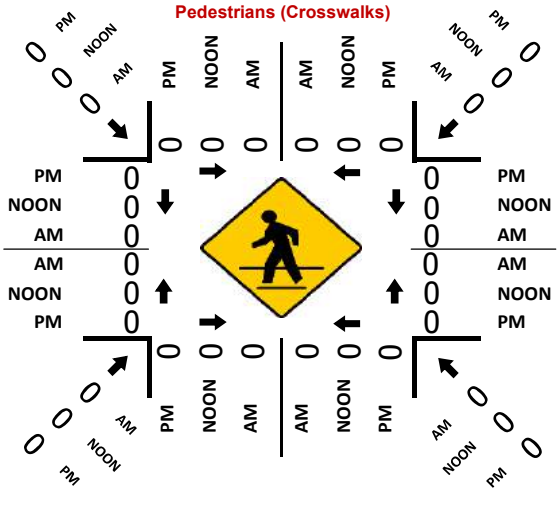
Total Vehicles (NOON)



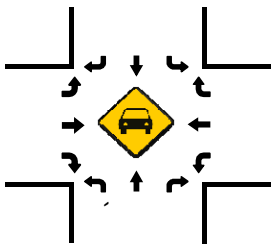
Total Vehicles (NOON)



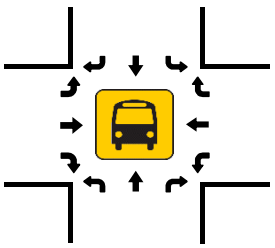
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



Prepared by National Data & Surveying Services

Eastlake Pkwy & Olympic Pkwy

Peak Hour Turning Movement Count

ID: 18-04132-005
City: Chula Vista

Day: Wednesday
Date: 04/11/2018

PEAK HOURS

AM	07:30 AM - 08:30 AM
NOON	NONE
PM	NONE

COUNT PERIODS

AM	07:00 AM - 09:00 AM
NOON	NONE
PM	NONE

SOUTHBOUND — Eastlake Pkwy

AM	182	170	59	0	644	AM
NOON	0	0	0	0	0	NOON
PM	0	0	0	0	0	PM
	2	3	2	0		

EASTBOUND — Olympic Pkwy

AM	NOON	PM		
1467	0	0		
0	0	0	0	
160	0	0	2	
489	0	0	3	
272	0	0	1	
AM	NOON	PM		

WESTBOUND — Olympic Pkwy

	PM	NOON	AM
1	0	0	232
3	0	0	998
2	0	0	111
0	0	0	0
	0	0	621
	PM	NOON	AM

CONTROL

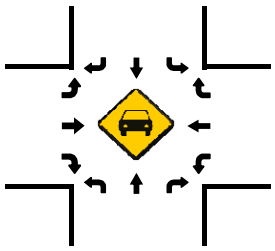
Signalized

TEV	3177	0	0
	AM	NOON	PM
PHF	0.92		

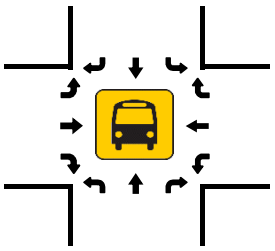
NORTHBOUND — Eastlake Pkwy

	0	2	3	1		
PM	0	0	0	0	0	PM
NOON	0	0	0	0	0	NOON
AM	555	2	287	252	73	AM

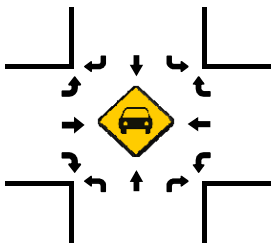
Total Vehicles (AM)



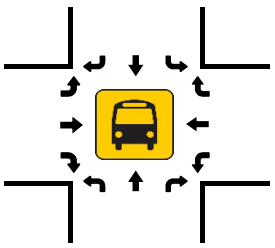
Total Vehicles (AM)



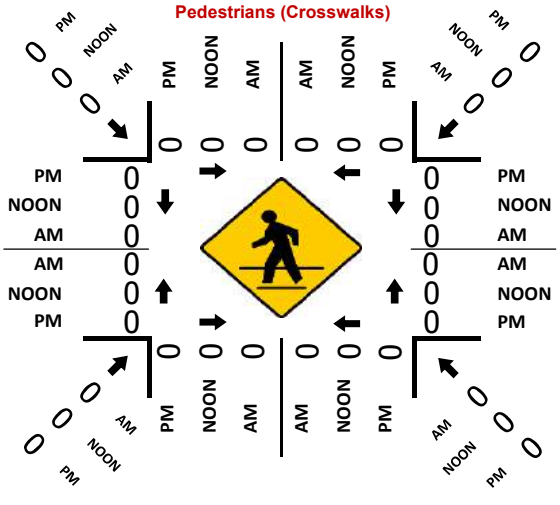
Total Vehicles (NOON)



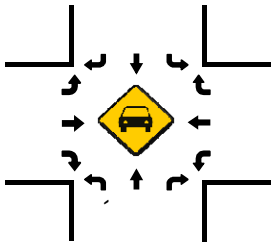
Total Vehicles (NOON)



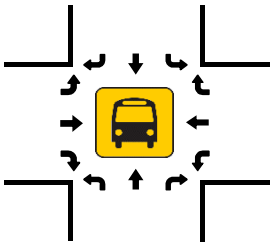
Pedestrians (Crosswalks)



Total Vehicles (PM)



Total Vehicles (PM)



ATTACHMENT D - ANALYSIS FOR CEQA
LEVEL OF SERVICE CALCULATION WORKSHEETS
EXISTING CONDITIONS (AM)

HCM 2010 Signalized Intersection Summary
1: East Palomar Street & Olympic Parkway

04/16/2019

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	1	108	678	104	2	92	909	236	251	136	275	233
Future Volume (veh/h)	1	108	678	104	2	92	909	236	251	136	275	233
Number		5	2	12		1	6	16	3	8	18	7
Initial Q (Qb), veh		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
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863		1863	1863	1863	1863	1863	1900	1863
Adj Flow Rate, veh/h		114	714	67		97	957	164	264	143	205	245
Adj No. of Lanes		2	3	1		1	3	1	1	2	0	2
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		160	2697	840		117	2798	871	290	320	286	298
Arrive On Green		0.05	0.53	0.53		0.13	1.00	1.00	0.16	0.18	0.18	0.09
Sat Flow, veh/h		3442	5085	1583		1774	5085	1583	1774	1770	1583	3442
Grp Volume(v), veh/h		114	714	67		97	957	164	264	143	205	245
Grp Sat Flow(s),veh/h/ln		1721	1695	1583		1774	1695	1583	1774	1770	1583	1721
Q Serve(g_s), s		4.7	11.0	3.0		7.7	0.0	0.0	21.1	10.4	17.5	10.1
Cycle Q Clear(g_c), s		4.7	11.0	3.0		7.7	0.0	0.0	21.1	10.4	17.5	10.1
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		160	2697	840		117	2798	871	290	320	286	298
V/C Ratio(X)		0.71	0.26	0.08		0.83	0.34	0.19	0.91	0.45	0.72	0.82
Avail Cap(c_a), veh/h		225	2697	840		195	2798	871	473	538	482	478
HCM Platoon Ratio		1.00	1.00	1.00		2.00	2.00	2.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.96	0.96	0.96	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		67.7	18.5	16.6		61.7	0.0	0.0	59.2	52.6	55.5	64.7
Incr Delay (d2), s/veh		4.7	0.2	0.2		9.9	0.3	0.5	12.4	1.2	4.0	4.8
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
%ile BackOfQ(50%),veh/ln		2.4	5.2	1.3		4.1	0.1	0.1	11.3	5.2	8.0	5.0
LnGrp Delay(d),s/veh		72.4	18.7	16.8		71.6	0.3	0.5	71.6	53.8	59.5	69.5
LnGrp LOS		E	B	B		E	A	A	E	D	E	E
Approach Vol, veh/h			895				1218			612		
Approach Delay, s/veh			25.4				6.0			63.4		
Approach LOS			C				A			E		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.7	82.4	27.7	20.1	10.9	85.2	16.7	31.2
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.2	* 4.2	6.0	* 4.2	* 5.2
Max Green Setting (Gmax), s	* 16	45.3	* 38	24.8	* 9.4	51.8	* 20	* 44
Max Q Clear Time (g_c+I1), s	9.7	13.0	23.1	13.7	6.7	2.0	12.1	19.5
Green Ext Time (p_c), s	0.1	10.4	0.5	1.3	0.1	18.5	0.4	2.5

Intersection Summary	
HCM 2010 Ctrl Delay	32.4
HCM 2010 LOS	C

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	130	203
Future Volume (veh/h)	130	203
Number	4	14
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900
Adj Flow Rate, veh/h	137	130
Adj No. of Lanes	2	0
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	2	2
Cap, veh/h	186	163
Arrive On Green	0.10	0.10
Sat Flow, veh/h	1789	1567
Grp Volume(v), veh/h	135	132
Grp Sat Flow(s),veh/h/ln	1770	1586
Q Serve(g_s), s	10.7	11.7
Cycle Q Clear(g_c), s	10.7	11.7
Prop In Lane		0.99
Lane Grp Cap(c), veh/h	184	165
V/C Ratio(X)	0.74	0.80
Avail Cap(c_a), veh/h	305	273
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	62.6	63.1
Incr Delay (d2), s/veh	6.8	10.2
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.6	5.6
LnGrp Delay(d),s/veh	69.4	73.3
LnGrp LOS	E	E
Approach Vol, veh/h	512	
Approach Delay, s/veh	70.4	
Approach LOS	E	
Timer		

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1279	84	0	1077	250	0	0	0	127	0	108
Future Volume (veh/h)	0	1279	84	0	1077	250	0	0	0	127	0	108
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	1863	1863
Adj Flow Rate, veh/h	0	1332	0	0	1122	260				167	0	75
Adj No. of Lanes	0	3	1	0	3	1				2	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3941	1227	0	3941	1359				296	0	132
Arrive On Green	0.00	0.78	0.00	0.00	1.00	1.00				0.08	0.00	0.08
Sat Flow, veh/h	0	5253	1583	0	5253	1583				3548	0	1583
Grp Volume(v), veh/h	0	1332	0	0	1122	260				167	0	75
Grp Sat Flow(s),veh/h/ln	0	1695	1583	0	1695	1583				1774	0	1583
Q Serve(g_s), s	0.0	5.7	0.0	0.0	0.0	0.0				3.3	0.0	3.3
Cycle Q Clear(g_c), s	0.0	5.7	0.0	0.0	0.0	0.0				3.3	0.0	3.3
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3941	1227	0	3941	1359				296	0	132
V/C Ratio(X)	0.00	0.34	0.00	0.00	0.28	0.19				0.56	0.00	0.57
Avail Cap(c_a), veh/h	0	3941	1227	0	3941	1359				1084	0	484
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.93	0.00	0.00	0.96	0.96				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	2.5	0.0	0.0	0.0	0.0				31.7	0.0	31.8
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.3				1.8	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.7	0.0	0.0	0.1	0.1				1.7	0.0	1.6
LnGrp Delay(d),s/veh	0.0	2.7	0.0	0.0	0.2	0.3				33.6	0.0	35.9
LnGrp LOS		A			A	A				C		D
Approach Vol, veh/h		1332			1382						242	
Approach Delay, s/veh		2.7			0.2						34.3	
Approach LOS		A			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		61.8		10.2		61.8		
Change Period (Y+Rc), s		6.0		* 4.2		6.0		
Max Green Setting (Gmax), s		39.8		* 22		39.8		
Max Q Clear Time (g_c+I1), s		2.0		5.3		7.7		
Green Ext Time (p_c), s		20.0		0.8		18.9		

Intersection Summary	
HCM 2010 Ctrl Delay	4.1
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1192	230	0	1187	426	12	0	28	0	0	0
Future Volume (veh/h)	0	1192	230	0	1187	426	12	0	28	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863	1863	0	1863			
Adj Flow Rate, veh/h	0	1216	235	0	1211	0	12	0	29			
Adj No. of Lanes	0	3	1	0	3	1	2	0	1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	4171	1348	0	4171	1299	107	0	49			
Arrive On Green	0.00	1.00	1.00	0.00	0.82	0.00	0.03	0.00	0.03			
Sat Flow, veh/h	0	5253	1583	0	5253	1583	3442	0	1583			
Grp Volume(v), veh/h	0	1216	235	0	1211	0	12	0	29			
Grp Sat Flow(s),veh/h/ln	0	1695	1583	0	1695	1583	1721	0	1583			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	4.0	0.0	0.2	0.0	1.3			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	4.0	0.0	0.2	0.0	1.3			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	4171	1348	0	4171	1299	107	0	49			
V/C Ratio(X)	0.00	0.29	0.17	0.00	0.29	0.00	0.11	0.00	0.59			
Avail Cap(c_a), veh/h	0	4171	1348	0	4171	1299	860	0	396			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.94	0.94	0.00	0.89	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	1.5	0.0	33.9	0.0	34.4			
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.0	0.2	0.0	0.5	0.0	11.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	0.0	1.9	0.0	0.1	0.0	0.7			
LnGrp Delay(d),s/veh	0.0	0.2	0.3	0.0	1.7	0.0	34.4	0.0	46.0			
LnGrp LOS		A	A		A		C		D			
Approach Vol, veh/h		1451			1211			41				
Approach Delay, s/veh		0.2			1.7			42.6				
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		65.6				65.6		6.4
Change Period (Y+Rc), s		* 6.5				6.5		4.2
Max Green Setting (Gmax), s		* 44				43.3		18.0
Max Q Clear Time (g_c+I1), s		2.0				6.0		3.3
Green Ext Time (p_c), s		22.6				18.4		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	1.5
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	4	261	877	67	12	1289	160	45	27	8	42	21	295
Future Volume (veh/h)	4	261	877	67	12	1289	160	45	27	8	42	21	295
Number		5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h		275	923	60	13	1357	126	47	28	8	44	0	326
Adj No. of Lanes		2	4	0	2	4	0	2	2	0	1	0	2
Peak Hour Factor		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		321	3947	255	39	3337	309	81	491	133	57	0	577
Arrive On Green		0.19	1.00	1.00	0.00	0.18	0.18	0.02	0.18	0.18	0.03	0.00	0.19
Sat Flow, veh/h		3442	6191	399	3442	6007	556	3442	2732	740	1774	0	3066
Grp Volume(v), veh/h		275	715	268	13	1085	398	47	18	18	44	0	326
Grp Sat Flow(s),veh/h/ln		1721	1602	1785	1721	1602	1757	1721	1770	1702	1774	0	1533
Q Serve(g_s), s		11.1	0.0	0.0	0.5	28.7	28.8	1.9	1.2	1.3	3.5	0.0	13.9
Cycle Q Clear(g_c), s		11.1	0.0	0.0	0.5	28.7	28.8	1.9	1.2	1.3	3.5	0.0	13.9
Prop In Lane		1.00		0.22	1.00		0.32	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h		321	3063	1138	39	2670	976	81	318	306	57	0	577
V/C Ratio(X)		0.86	0.23	0.24	0.34	0.41	0.41	0.58	0.06	0.06	0.78	0.00	0.57
Avail Cap(c_a), veh/h		473	3063	1138	98	2670	976	134	590	567	121	0	1101
HCM Platoon Ratio		2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.96	0.96	0.96	0.89	0.89	0.89	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		57.7	0.0	0.0	71.2	37.9	37.9	69.6	48.9	49.0	69.2	0.0	53.1
Incr Delay (d2), s/veh		6.7	0.2	0.5	1.7	0.4	1.1	2.4	0.1	0.1	8.2	0.0	0.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.6	0.0	0.1	0.3	12.9	14.3	1.0	0.6	0.6	1.9	0.0	5.9
LnGrp Delay(d),s/veh		64.4	0.2	0.5	72.9	38.3	39.0	72.0	49.0	49.0	77.4	0.0	53.8
LnGrp LOS		E	A	A	E	D	D	E	D	D	E		D
Approach Vol, veh/h			1258			1496			83			370	
Approach Delay, s/veh			14.3			38.8			62.0			56.6	
Approach LOS			B			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	98.4	7.6	32.2	17.6	86.6	8.8	31.0
Change Period (Y+Rc), s	* 4.2	* 6.6	* 4.2	5.1	* 4.2	6.6	* 4.2	* 5.1
Max Green Setting (Gmax), s	* 4	* 63	* 5.6	51.7	* 20	46.8	* 9.8	* 48
Max Q Clear Time (g_c+I1), s	2.5	2.0	3.9	15.9	13.1	30.8	5.5	3.3
Green Ext Time (p_c), s	0.0	18.3	0.0	1.2	0.3	12.8	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	31.8
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBU	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	160	489	272	111	998	232	2	287	252	73	59	170	182
Future Volume (veh/h)	160	489	272	111	998	232	2	287	252	73	59	170	182
Number	5	2	12	1	6	16		3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0		0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863		1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	168	515	223	117	1051	181		302	265	56	62	179	129
Adj No. of Lanes	2	3	1	2	3	1		2	3	1	2	3	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2		2	2	2	2	2	2
Cap, veh/h	191	3263	1016	163	3221	1003		330	688	289	100	349	346
Arrive On Green	0.11	1.00	1.00	0.05	0.63	0.63		0.10	0.14	0.14	0.03	0.07	0.07
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583		3442	5085	1583	3442	5085	2787
Grp Volume(v), veh/h	168	515	223	117	1051	181		302	265	56	62	179	129
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583		1721	1695	1583	1721	1695	1393
Q Serve(g_s), s	6.9	0.0	0.0	4.8	13.7	6.8		12.5	6.8	4.3	2.6	4.9	6.1
Cycle Q Clear(g_c), s	6.9	0.0	0.0	4.8	13.7	6.8		12.5	6.8	4.3	2.6	4.9	6.1
Prop In Lane	1.00		1.00	1.00		1.00		1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	191	3263	1016	163	3221	1003		330	688	289	100	349	346
V/C Ratio(X)	0.88	0.16	0.22	0.72	0.33	0.18		0.92	0.39	0.19	0.62	0.51	0.37
Avail Cap(c_a), veh/h	191	3263	1016	229	3221	1003		330	2101	729	141	1836	1161
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.98	0.98	0.98	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	63.5	0.0	0.0	67.6	12.2	10.9		64.5	56.8	49.9	69.1	64.7	57.9
Incr Delay (d2), s/veh	33.1	0.1	0.5	4.8	0.3	0.4		28.9	0.4	0.3	4.6	1.2	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.1	0.0	0.1	2.4	6.5	3.1		7.3	3.2	1.9	1.3	2.3	2.4
LnGrp Delay(d),s/veh	96.6	0.1	0.5	72.4	12.5	11.3		93.4	57.2	50.2	73.7	66.0	58.6
LnGrp LOS	F	A	A	E	B	B		F	E	D	E	E	E
Approach Vol, veh/h		906			1349				623			370	
Approach Delay, s/veh		18.1			17.5				74.1			64.7	
Approach LOS		B			B				E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.0	98.9	18.0	16.1	12.2	97.7	8.4	25.7
Change Period (Y+Rc), s	* 4.2	6.5	* 4.2	* 6.2	* 4.2	6.5	* 4.2	6.2
Max Green Setting (Gmax), s	* 6.8	47.9	* 14	* 52	* 8	49.5	* 5.9	59.5
Max Q Clear Time (g_c+I1), s	16.8	2.0	14.5	8.1	8.9	15.7	4.6	8.8
Green Ext Time (p_c), s	0.1	12.4	0.0	1.8	0.0	20.6	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	33.9
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

ATTACHMENT E - ANALYSIS FOR CEQA
LEVEL OF SERVICE CALCULATION WORKSHEETS
EXISTING PLUS PROJECT CONDITIONS (AM)

HCM 2010 Signalized Intersection Summary
1: East Palomar Street & Olympic Parkway

04/16/2019

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBL	NBT	NBR	SBL
Lane Configurations												
Traffic Volume (veh/h)	1	108	693	104	2	112	948	271	251	136	283	247
Future Volume (veh/h)	1	108	693	104	2	112	948	271	251	136	283	247
Number		5	2	12		1	6	16	3	8	18	7
Initial Q (Qb), veh		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
Parking Bus, Adj		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1863		1863	1863	1863	1863	1863	1900	1863
Adj Flow Rate, veh/h		114	729	67		118	998	201	264	143	214	260
Adj No. of Lanes		2	3	1		1	3	1	1	2	0	2
Peak Hour Factor		0.95	0.95	0.95		0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2		2	2	2	2	2	2	2
Cap, veh/h		158	2653	826		140	2819	878	289	317	283	309
Arrive On Green		0.05	0.52	0.52		0.10	0.74	0.74	0.16	0.18	0.18	0.09
Sat Flow, veh/h		3442	5085	1583		1774	5085	1583	1774	1770	1583	3442
Grp Volume(v), veh/h		114	729	67		118	998	201	264	143	214	260
Grp Sat Flow(s),veh/h/ln		1721	1695	1583		1774	1695	1583	1774	1770	1583	1721
Q Serve(g_s), s		4.9	12.0	3.2		9.8	10.5	6.0	22.0	10.8	19.2	11.2
Cycle Q Clear(g_c), s		4.9	12.0	3.2		9.8	10.5	6.0	22.0	10.8	19.2	11.2
Prop In Lane		1.00		1.00		1.00		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h		158	2653	826		140	2819	878	289	317	283	309
V/C Ratio(X)		0.72	0.27	0.08		0.84	0.35	0.23	0.91	0.45	0.75	0.84
Avail Cap(c_a), veh/h		225	2653	826		234	2819	878	435	665	595	431
HCM Platoon Ratio		1.00	1.00	1.00		1.33	1.33	1.33	1.00	1.00	1.00	1.00
Upstream Filter(I)		1.00	1.00	1.00		0.95	0.95	0.95	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh		70.6	20.0	17.9		66.2	10.2	9.6	61.8	55.0	58.4	67.2
Incr Delay (d2), s/veh		4.9	0.3	0.2		9.7	0.3	0.6	16.0	1.2	4.9	9.0
Initial Q Delay(d3),s/veh		0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		2.5	5.7	1.4		5.2	5.0	2.7	12.1	5.4	8.8	5.7
LnGrp Delay(d),s/veh		75.5	20.3	18.1		76.0	10.5	10.1	77.8	56.2	63.3	76.2
LnGrp LOS		E	C	B		E	B	B	E	E	E	E
Approach Vol, veh/h			910				1317			621		
Approach Delay, s/veh			27.0				16.3			67.8		
Approach LOS			C				B			E		

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.0	84.2	28.6	21.1	11.1	89.2	17.7	32.1
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.2	* 4.2	6.0	* 4.2	* 5.2
Max Green Setting (Gmax), s	* 20	36.0	* 37	37.8	* 9.8	46.0	* 19	* 56
Max Q Clear Time (g_c+I1), s	11.8	14.0	24.0	14.1	6.9	12.5	13.2	21.2
Green Ext Time (p_c), s	0.1	9.0	0.4	1.8	0.1	16.8	0.3	2.8

Intersection Summary	
HCM 2010 Ctrl Delay	37.8
HCM 2010 LOS	D

Notes

Movement	SBT	SBR
Lane Configurations		
Traffic Volume (veh/h)	130	203
Future Volume (veh/h)	130	203
Number	4	14
Initial Q (Qb), veh	0	0
Ped-Bike Adj(A_pbT)		1.00
Parking Bus, Adj	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1900
Adj Flow Rate, veh/h	137	130
Adj No. of Lanes	2	0
Peak Hour Factor	0.95	0.95
Percent Heavy Veh, %	2	2
Cap, veh/h	190	166
Arrive On Green	0.11	0.11
Sat Flow, veh/h	1789	1567
Grp Volume(v), veh/h	135	132
Grp Sat Flow(s),veh/h/ln	1770	1586
Q Serve(g_s), s	11.1	12.1
Cycle Q Clear(g_c), s	11.1	12.1
Prop In Lane		0.99
Lane Grp Cap(c), veh/h	188	169
V/C Ratio(X)	0.72	0.78
Avail Cap(c_a), veh/h	446	400
HCM Platoon Ratio	1.00	1.00
Upstream Filter(I)	1.00	1.00
Uniform Delay (d), s/veh	64.9	65.3
Incr Delay (d2), s/veh	6.1	9.1
Initial Q Delay(d3),s/veh	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	5.8
LnGrp Delay(d),s/veh	71.0	74.4
LnGrp LOS	E	E
Approach Vol, veh/h	527	
Approach Delay, s/veh	74.4	
Approach LOS	E	
Timer		

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1316	84	0	1171	309	0	0	0	150	0	108
Future Volume (veh/h)	0	1316	84	0	1171	309	0	0	0	150	0	108
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	1863	1863
Adj Flow Rate, veh/h	0	1371	0	0	1220	322				191	0	75
Adj No. of Lanes	0	3	1	0	3	1				2	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3946	1229	0	3946	1368				312	0	139
Arrive On Green	0.00	0.78	0.00	0.00	1.00	1.00				0.09	0.00	0.09
Sat Flow, veh/h	0	5253	1583	0	5253	1583				3548	0	1583
Grp Volume(v), veh/h	0	1371	0	0	1220	322				191	0	75
Grp Sat Flow(s),veh/h/ln	0	1695	1583	0	1695	1583				1774	0	1583
Q Serve(g_s), s	0.0	6.2	0.0	0.0	0.0	0.0				3.9	0.0	3.4
Cycle Q Clear(g_c), s	0.0	6.2	0.0	0.0	0.0	0.0				3.9	0.0	3.4
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3946	1229	0	3946	1368				312	0	139
V/C Ratio(X)	0.00	0.35	0.00	0.00	0.31	0.24				0.61	0.00	0.54
Avail Cap(c_a), veh/h	0	3946	1229	0	3946	1368				842	0	376
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.92	0.00	0.00	0.95	0.95				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	2.6	0.0	0.0	0.0	0.0				33.0	0.0	32.7
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.4				2.1	0.0	3.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	2.9	0.0	0.0	0.1	0.1				2.0	0.0	1.6
LnGrp Delay(d),s/veh	0.0	2.8	0.0	0.0	0.2	0.4				35.1	0.0	36.2
LnGrp LOS		A			A	A				D		D
Approach Vol, veh/h		1371			1542						266	
Approach Delay, s/veh		2.8			0.2						35.4	
Approach LOS		A			A						D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		64.2		10.8		64.2		
Change Period (Y+Rc), s		6.0		* 4.2		6.0		
Max Green Setting (Gmax), s		47.0		* 18		47.0		
Max Q Clear Time (g_c+I1), s		2.0		5.9		8.2		
Green Ext Time (p_c), s		25.0		0.7		21.9		

Intersection Summary	
HCM 2010 Ctrl Delay	4.3
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

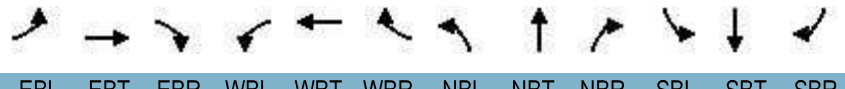
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1252	230	0	1340	485	12	0	51	0	0	0
Future Volume (veh/h)	0	1252	230	0	1340	485	12	0	51	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863	1863	0	1863			
Adj Flow Rate, veh/h	0	1278	235	0	1367	0	12	0	52			
Adj No. of Lanes	0	3	1	0	3	1	2	0	1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	4134	1357	0	4134	1287	153	0	70			
Arrive On Green	0.00	1.00	1.00	0.00	1.00	0.00	0.04	0.00	0.04			
Sat Flow, veh/h	0	5253	1583	0	5253	1583	3442	0	1583			
Grp Volume(v), veh/h	0	1278	235	0	1367	0	12	0	52			
Grp Sat Flow(s),veh/h/ln	0	1695	1583	0	1695	1583	1721	0	1583			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	2.4			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	2.4			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	4134	1357	0	4134	1287	153	0	70			
V/C Ratio(X)	0.00	0.31	0.17	0.00	0.33	0.00	0.08	0.00	0.74			
Avail Cap(c_a), veh/h	0	4134	1357	0	4134	1287	633	0	291			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	1.33	1.33	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.93	0.93	0.00	0.69	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	34.4	0.0	35.4			
Incr Delay (d2), s/veh	0.0	0.2	0.3	0.0	0.1	0.0	0.2	0.0	15.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0	1.4			
LnGrp Delay(d),s/veh	0.0	0.2	0.3	0.0	0.1	0.0	34.6	0.0	50.5			
LnGrp LOS		A	A		A		C		D			
Approach Vol, veh/h		1513			1367			64				
Approach Delay, s/veh		0.2			0.1			47.5				
Approach LOS		A			A			D				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		67.5				67.5		7.5
Change Period (Y+Rc), s		* 6.5				6.5		4.2
Max Green Setting (Gmax), s		* 51				50.5		13.8
Max Q Clear Time (g_c+I1), s		2.0				2.0		4.4
Green Ext Time (p_c), s		26.0				24.5		0.1

Intersection Summary	
HCM 2010 Ctrl Delay	1.2
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	927	100	58	1289	160	257	51	55	47	25	295
Future Volume (veh/h)	261	927	100	58	1289	160	257	51	55	47	25	295
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1919	1919	1919
Adj Flow Rate, veh/h	275	976	0	61	1357	149	271	54	4	49	0	328
Adj No. of Lanes	2	3	1	2	4	0	2	1	0	1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	2733	996	98	2796	306	316	453	34	64	0	649
Arrive On Green	0.18	1.00	0.00	0.01	0.16	0.16	0.09	0.27	0.27	0.03	0.00	0.21
Sat Flow, veh/h	3442	5085	1583	3442	5895	645	3442	1709	127	1827	0	3121
Grp Volume(v), veh/h	275	976	0	61	1106	400	271	0	58	49	0	328
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1602	1734	1721	0	1835	1827	0	1560
Q Serve(g_s), s	11.6	0.0	0.0	2.6	31.5	31.6	11.6	0.0	3.6	4.0	0.0	14.0
Cycle Q Clear(g_c), s	11.6	0.0	0.0	2.6	31.5	31.6	11.6	0.0	3.6	4.0	0.0	14.0
Prop In Lane	1.00		1.00	1.00		0.37	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	316	2733	996	98	2280	823	316	0	486	64	0	649
V/C Ratio(X)	0.87	0.36	0.00	0.62	0.48	0.49	0.86	0.00	0.12	0.77	0.00	0.51
Avail Cap(c_a), veh/h	363	2733	996	149	2280	823	363	0	707	116	0	1061
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.4	0.0	0.0	73.5	46.5	46.6	67.2	0.0	41.8	71.8	0.0	52.6
Incr Delay (d2), s/veh	16.0	0.3	0.0	2.4	0.7	2.1	14.9	0.0	0.1	7.1	0.0	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	6.2	0.1	0.0	1.3	14.2	15.7	6.2	0.0	1.8	2.1	0.0	6.0
LnGrp Delay(d),s/veh	76.4	0.3	0.0	75.8	47.3	48.6	82.1	0.0	41.9	78.9	0.0	53.0
LnGrp LOS	E	A		E	D	D	F		D	E		D
Approach Vol, veh/h		1251			1567			329			377	
Approach Delay, s/veh		17.1			48.7			75.0			56.4	
Approach LOS		B			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	87.2	18.0	36.3	18.0	77.8	9.4	44.9
Change Period (Y+Rc), s	* 4.2	* 6.6	* 4.2	5.1	* 4.2	6.6	* 4.2	* 5.1
Max Green Setting (Gmax), s	* 6.5	* 57	* 16	51.0	* 16	47.3	* 9.5	* 58
Max Q Clear Time (g_c+I1), s	13.6	2.0	13.6	16.0	13.6	33.6	6.0	5.6
Green Ext Time (p_c), s	0.0	18.5	0.1	1.2	0.1	11.3	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	40.8
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	208	524	307	111	1012	232	301	252	73	59	170	200
Future Volume (veh/h)	208	524	307	111	1012	232	301	252	73	59	170	200
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	219	552	260	117	1065	181	317	265	35	62	179	148
Adj No. of Lanes	2	3	1	2	3	1	2	3	1	2	3	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	264	3226	1004	161	3074	957	361	759	311	99	373	418
Arrive On Green	0.03	0.21	0.21	0.05	0.60	0.60	0.10	0.15	0.15	0.03	0.07	0.07
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	1583	3442	5085	2787
Grp Volume(v), veh/h	219	552	260	117	1065	181	317	265	35	62	179	148
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1583	1721	1695	1393
Q Serve(g_s), s	9.5	13.4	20.6	5.0	15.7	7.7	13.6	7.0	2.7	2.7	5.1	7.2
Cycle Q Clear(g_c), s	9.5	13.4	20.6	5.0	15.7	7.7	13.6	7.0	2.7	2.7	5.1	7.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	264	3226	1004	161	3074	957	361	759	311	99	373	418
V/C Ratio(X)	0.83	0.17	0.26	0.73	0.35	0.19	0.88	0.35	0.11	0.62	0.48	0.35
Avail Cap(c_a), veh/h	271	3226	1004	225	3074	957	385	2099	728	149	1763	1180
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	72.1	27.0	29.8	70.5	14.8	13.3	66.2	57.3	49.6	72.0	66.8	57.2
Incr Delay (d2), s/veh	18.1	0.1	0.6	5.5	0.3	0.4	18.8	0.3	0.2	4.7	1.0	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	5.2	6.3	9.2	2.5	7.4	3.5	7.4	3.3	1.2	1.3	2.4	2.8
LnGrp Delay(d),s/veh	90.2	27.1	30.5	76.0	15.2	13.7	85.0	57.6	49.7	76.7	67.8	57.8
LnGrp LOS	F	C	C	E	B	B	F	E	D	E	E	E
Approach Vol, veh/h		1031			1363			617			389	
Approach Delay, s/veh		41.3			20.2			71.2			65.4	
Approach LOS		D			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	11.2	101.6	19.9	17.2	15.7	97.2	8.5	28.6
Change Period (Y+Rc), s	* 4.2	6.5	* 4.2	* 6.2	* 4.2	6.5	* 4.2	6.2
Max Green Setting (Gmax), s	* 9.8	50.7	* 17	* 52	* 12	48.7	* 6.5	61.9
Max Q Clear Time (g_c+I1), s	11.5	22.6	15.6	9.2	11.5	17.7	4.7	9.0
Green Ext Time (p_c), s	0.1	11.5	0.1	1.8	0.0	19.7	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	41.0
HCM 2010 LOS	D

Notes

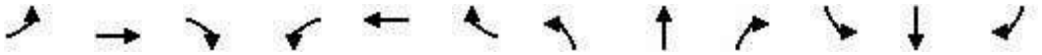
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

ATTACHMENT F - ANALYSIS FOR CEQA
LEVEL OF SERVICE CALCULATION WORKSHEETS
HORIZON YEAR 2030 BASE AND BASE PLUS PROJECT CONDITIONS (AM)

HORIZON YEAR 2030 BASE

HCM 2010 Signalized Intersection Summary
1: East Palomar Street & Olympic Parkway

04/16/2019



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	970	90	100	980	220	260	350	310	400	470	180
Future Volume (veh/h)	100	970	90	100	980	220	260	350	310	400	470	180
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	105	1021	53	105	1032	148	274	368	242	421	495	126
Adj No. of Lanes	2	3	1	1	3	1	1	2	0	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	2150	669	127	2293	714	298	489	317	475	580	147
Arrive On Green	0.04	0.42	0.42	0.07	0.45	0.45	0.17	0.24	0.24	0.14	0.21	0.21
Sat Flow, veh/h	3442	5085	1583	1774	5085	1583	1774	2062	1335	3442	2799	708
Grp Volume(v), veh/h	105	1021	53	105	1032	148	274	315	295	421	312	309
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1774	1695	1583	1774	1770	1627	1721	1770	1738
Q Serve(g_s), s	4.5	21.8	3.0	8.8	21.0	8.5	22.8	24.8	25.3	18.0	25.5	25.7
Cycle Q Clear(g_c), s	4.5	21.8	3.0	8.8	21.0	8.5	22.8	24.8	25.3	18.0	25.5	25.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.82	1.00		0.41
Lane Grp Cap(c), veh/h	149	2150	669	127	2293	714	298	420	386	475	367	360
V/C Ratio(X)	0.71	0.47	0.08	0.83	0.45	0.21	0.92	0.75	0.76	0.89	0.85	0.86
Avail Cap(c_a), veh/h	206	2150	669	194	2293	714	414	571	525	606	462	454
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.8	31.3	25.9	68.8	28.4	24.9	61.4	53.1	53.3	63.5	57.2	57.3
Incr Delay (d2), s/veh	4.9	0.8	0.2	12.9	0.6	0.6	19.3	4.2	5.1	11.8	12.3	13.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	10.4	1.3	4.8	10.0	3.8	12.8	12.7	11.9	9.4	13.7	13.7
LnGrp Delay(d),s/veh	75.7	32.0	26.1	81.7	29.0	25.6	80.7	57.3	58.3	75.3	69.5	70.6
LnGrp LOS	E	C	C	F	C	C	F	E	E	E	E	E
Approach Vol, veh/h		1179			1285			884			1042	
Approach Delay, s/veh		35.7			32.9			64.9			72.2	
Approach LOS		D			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	14.9	69.4	29.4	36.3	10.7	73.6	24.9	40.8
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.2	* 4.2	6.0	* 4.2	* 5.2
Max Green Setting (Gmax), s	* 16	39.8	* 35	39.2	* 9	47.2	* 26	* 48
Max Q Clear Time (g_c+I1), s	10.8	23.8	24.8	27.7	6.5	23.0	20.0	27.3
Green Ext Time (p_c), s	0.1	9.9	0.4	3.3	0.0	13.9	0.7	4.5

Intersection Summary	
HCM 2010 Ctrl Delay	49.4
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1445	230	0	1120	220	0	0	0	250	0	170
Future Volume (veh/h)	0	1445	230	0	1120	220	0	0	0	250	0	170
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	1863	1863
Adj Flow Rate, veh/h	0	1505	0	0	1167	229				315	0	118
Adj No. of Lanes	0	3	1	0	3	1				2	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	2504	780	0	2504	984				457	0	204
Arrive On Green	0.00	0.49	0.00	0.00	0.98	0.98				0.13	0.00	0.13
Sat Flow, veh/h	0	5253	1583	0	5253	1583				3548	0	1583
Grp Volume(v), veh/h	0	1505	0	0	1167	229				315	0	118
Grp Sat Flow(s),veh/h/ln	0	1695	1583	0	1695	1583				1774	0	1583
Q Serve(g_s), s	0.0	16.0	0.0	0.0	0.5	0.2				6.4	0.0	5.3
Cycle Q Clear(g_c), s	0.0	16.0	0.0	0.0	0.5	0.2				6.4	0.0	5.3
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	2504	780	0	2504	984				457	0	204
V/C Ratio(X)	0.00	0.60	0.00	0.00	0.47	0.23				0.69	0.00	0.58
Avail Cap(c_a), veh/h	0	3051	950	0	3051	1154				937	0	418
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.74	0.00	0.00	0.95	0.95				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	13.7	0.0	0.0	0.3	0.2				31.2	0.0	30.7
Incr Delay (d2), s/veh	0.0	0.8	0.0	0.0	0.3	0.2				2.0	0.0	2.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	7.6	0.0	0.0	0.2	0.1				3.2	0.0	2.5
LnGrp Delay(d),s/veh	0.0	14.5	0.0	0.0	0.6	0.4				33.2	0.0	33.5
LnGrp LOS		B			A	A				C		C
Approach Vol, veh/h		1505			1396						433	
Approach Delay, s/veh		14.5			0.5						33.3	
Approach LOS		B			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		42.9		13.9		42.9		
Change Period (Y+Rc), s		6.0		* 4.2		6.0		
Max Green Setting (Gmax), s		45.0		* 20		45.0		
Max Q Clear Time (g_c+I1), s		2.5		8.4		18.0		
Green Ext Time (p_c), s		21.8		1.3		18.9		

Intersection Summary	
HCM 2010 Ctrl Delay	11.1
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1260	440	0	1150	370	190	0	200	0	0	0
Future Volume (veh/h)	0	1260	440	0	1150	370	190	0	200	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863	1863	0	1863			
Adj Flow Rate, veh/h	0	1286	449	0	1173	0	194	0	204			
Adj No. of Lanes	0	3	1	0	3	1	2	0	1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	3517	1357	0	3517	1095	570	0	262			
Arrive On Green	0.00	1.00	1.00	0.00	1.00	0.00	0.17	0.00	0.17			
Sat Flow, veh/h	0	5253	1583	0	5253	1583	3442	0	1583			
Grp Volume(v), veh/h	0	1286	449	0	1173	0	194	0	204			
Grp Sat Flow(s),veh/h/ln	0	1695	1583	0	1695	1583	1721	0	1583			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	9.3			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	9.3			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3517	1357	0	3517	1095	570	0	262			
V/C Ratio(X)	0.00	0.37	0.33	0.00	0.33	0.00	0.34	0.00	0.78			
Avail Cap(c_a), veh/h	0	3517	1357	0	3517	1095	1046	0	481			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.90	0.90	0.00	0.76	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	27.7	0.0	30.0			
Incr Delay (d2), s/veh	0.0	0.3	0.6	0.0	0.2	0.0	0.4	0.0	5.3			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.2	0.0	0.1	0.0	1.8	0.0	4.4			
LnGrp Delay(d),s/veh	0.0	0.3	0.6	0.0	0.2	0.0	28.0	0.0	35.3			
LnGrp LOS		A	A		A		C		D			
Approach Vol, veh/h		1735			1173			398				
Approach Delay, s/veh		0.3			0.2			31.8				
Approach LOS		A			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		58.4				58.4		16.6
Change Period (Y+Rc), s		* 6.5				6.5		4.2
Max Green Setting (Gmax), s		* 42				41.5		22.8
Max Q Clear Time (g_c+I1), s		2.0				2.0		11.3
Green Ext Time (p_c), s		26.3				18.2		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	4.1
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	1000	90	30	1530	160	30	20	10	50	20	380
Future Volume (veh/h)	340	1000	90	30	1530	160	30	20	10	50	20	380
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	358	1053	74	32	1611	126	32	21	11	53	0	414
Adj No. of Lanes	2	4	0	2	4	0	2	1	0	1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	404	3706	259	68	3076	240	68	233	122	68	0	683
Arrive On Green	0.16	0.80	0.80	0.04	1.00	1.00	0.02	0.21	0.21	0.04	0.00	0.22
Sat Flow, veh/h	3442	6155	430	3442	6098	477	3442	1133	593	1774	0	3040
Grp Volume(v), veh/h	358	821	306	32	1270	467	32	0	32	53	0	414
Grp Sat Flow(s),veh/h/ln	1721	1602	1779	1721	1602	1768	1721	0	1726	1774	0	1520
Q Serve(g_s), s	15.3	6.6	6.7	1.4	0.0	0.0	1.4	0.0	2.2	4.4	0.0	18.3
Cycle Q Clear(g_c), s	15.3	6.6	6.7	1.4	0.0	0.0	1.4	0.0	2.2	4.4	0.0	18.3
Prop In Lane	1.00		0.24	1.00		0.27	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	404	2893	1071	68	2424	892	68	0	356	68	0	683
V/C Ratio(X)	0.89	0.28	0.29	0.47	0.52	0.52	0.47	0.00	0.09	0.78	0.00	0.61
Avail Cap(c_a), veh/h	500	2893	1071	96	2424	892	96	0	552	104	0	1056
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.3	6.6	6.6	71.3	0.0	0.0	72.8	0.0	48.2	71.5	0.0	52.2
Incr Delay (d2), s/veh	12.4	0.2	0.6	1.9	0.8	2.2	1.9	0.0	0.1	8.4	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	3.0	3.4	0.7	0.2	0.5	0.7	0.0	1.1	2.3	0.0	7.8
LnGrp Delay(d),s/veh	74.7	6.8	7.2	73.2	0.8	2.2	74.7	0.0	48.3	79.9	0.0	52.9
LnGrp LOS	E	A	A	E	A	A	E		D	E		D
Approach Vol, veh/h		1485			1769			64			467	
Approach Delay, s/veh		23.3			2.5			61.5			56.0	
Approach LOS		C			A			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	96.9	7.1	38.8	21.8	82.3	9.9	36.0
Change Period (Y+Rc), s	* 4.2	* 6.6	* 4.2	5.1	* 4.2	6.6	* 4.2	* 5.1
Max Green Setting (Gmax), s	* 4.8	* 70	* 4.2	52.1	* 22	51.8	* 8.8	* 48
Max Q Clear Time (g_c+I1), s	3.4	8.7	3.4	20.3	17.3	2.0	6.4	4.2
Green Ext Time (p_c), s	0.0	22.4	0.0	1.5	0.3	35.3	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	18.2
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	870	230	220	1200	110	460	620	200	150	280	290
Future Volume (veh/h)	150	870	230	220	1200	110	460	620	200	150	280	290
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	158	916	179	232	1263	53	484	653	169	158	295	242
Adj No. of Lanes	2	3	1	2	3	1	2	3	1	2	3	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	174	2704	842	255	2823	879	482	988	425	204	578	458
Arrive On Green	0.10	1.00	1.00	0.07	0.56	0.56	0.14	0.19	0.19	0.06	0.11	0.11
Sat Flow, veh/h	3442	5085	1583	3442	5085	1583	3442	5085	1583	3442	5085	2787
Grp Volume(v), veh/h	158	916	179	232	1263	53	484	653	169	158	295	242
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1695	1583	1721	1695	1583	1721	1695	1393
Q Serve(g_s), s	6.8	0.0	0.0	10.0	22.1	2.3	21.0	17.8	13.1	6.8	8.2	11.9
Cycle Q Clear(g_c), s	6.8	0.0	0.0	10.0	22.1	2.3	21.0	17.8	13.1	6.8	8.2	11.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	174	2704	842	255	2823	879	482	988	425	204	578	458
V/C Ratio(X)	0.91	0.34	0.21	0.91	0.45	0.06	1.00	0.66	0.40	0.77	0.51	0.53
Avail Cap(c_a), veh/h	174	2704	842	255	2823	879	482	2044	754	282	1763	1107
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	67.0	0.0	0.0	69.0	19.8	15.4	64.5	55.9	44.9	69.6	62.6	57.4
Incr Delay (d2), s/veh	42.0	0.3	0.6	33.5	0.5	0.1	42.1	0.8	0.6	7.4	0.7	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	0.1	0.1	6.0	10.4	1.0	12.8	8.4	5.8	3.4	3.9	4.6
LnGrp Delay(d),s/veh	109.1	0.3	0.6	102.5	20.3	15.5	106.6	56.7	45.6	77.0	63.3	58.4
LnGrp LOS	F	A	A	F	C	B	F	E	D	E	E	E
Approach Vol, veh/h		1253			1548			1306			695	
Approach Delay, s/veh		14.1			32.4			73.7			64.7	
Approach LOS		B			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.3	86.3	25.2	23.2	11.8	89.8	13.1	35.3
Change Period (Y+Rc), s	* 4.2	6.5	* 4.2	* 6.2	* 4.2	6.5	* 4.2	6.2
Max Green Setting (Gmax), s	* 11	45.2	* 21	* 52	* 7.6	48.7	* 12	60.3
Max Q Clear Time (g_c+I1), s	12.8	2.0	23.0	13.9	8.8	24.1	8.8	19.8
Green Ext Time (p_c), s	0.0	20.6	0.0	3.1	0.0	17.9	0.1	5.2

Intersection Summary	
HCM 2010 Ctrl Delay	43.5
HCM 2010 LOS	D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HORIZON YEAR 2030 BASE PLUS PROJECT

HCM 2010 Signalized Intersection Summary
1: East Palomar Street & Olympic Parkway

04/16/2019

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	100	985	90	120	1019	255	260	350	318	414	470	180
Future Volume (veh/h)	100	985	90	120	1019	255	260	350	318	414	470	180
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	105	1037	53	126	1073	184	274	368	251	436	495	126
Adj No. of Lanes	2	3	1	1	3	1	1	2	0	2	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	149	2100	654	147	2301	716	298	469	315	490	576	146
Arrive On Green	0.04	0.41	0.41	0.17	0.90	0.90	0.17	0.23	0.23	0.14	0.21	0.21
Sat Flow, veh/h	3442	5085	1583	1774	5085	1583	1774	2029	1363	3442	2799	708
Grp Volume(v), veh/h	105	1037	53	126	1073	184	274	320	299	436	312	309
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1774	1695	1583	1774	1770	1622	1721	1770	1738
Q Serve(g_s), s	4.5	22.6	3.0	10.4	5.2	2.2	22.8	25.5	26.0	18.7	25.5	25.8
Cycle Q Clear(g_c), s	4.5	22.6	3.0	10.4	5.2	2.2	22.8	25.5	26.0	18.7	25.5	25.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.84	1.00		0.41
Lane Grp Cap(c), veh/h	149	2100	654	147	2301	716	298	409	375	490	364	358
V/C Ratio(X)	0.71	0.49	0.08	0.86	0.47	0.26	0.92	0.78	0.80	0.89	0.86	0.86
Avail Cap(c_a), veh/h	206	2100	654	211	2301	716	400	532	488	622	446	438
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.93	0.93	0.93	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	70.8	32.5	26.7	61.8	4.2	4.0	61.4	54.1	54.3	63.2	57.4	57.5
Incr Delay (d2), s/veh	4.9	0.8	0.2	17.9	0.6	0.8	20.7	6.1	7.4	11.9	13.6	14.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	10.7	1.4	5.8	2.3	1.0	12.9	13.2	12.5	9.7	13.9	13.8
LnGrp Delay(d),s/veh	75.7	33.3	27.0	79.6	4.8	4.8	82.1	60.2	61.7	75.0	71.0	72.2
LnGrp LOS	E	C	C	E	A	A	F	E	E	E	E	E
Approach Vol, veh/h		1195			1383			893			1057	
Approach Delay, s/veh		36.7			11.6			67.5			73.0	
Approach LOS		D			B			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	16.6	68.0	29.4	36.1	10.7	73.9	25.6	39.9
Change Period (Y+Rc), s	* 4.2	6.0	* 4.2	5.2	* 4.2	6.0	* 4.2	* 5.2
Max Green Setting (Gmax), s	* 18	41.0	* 34	37.8	* 9	49.8	* 27	* 45
Max Q Clear Time (g_c+I1), s	12.4	24.6	24.8	27.8	6.5	7.2	20.7	28.0
Green Ext Time (p_c), s	0.1	10.2	0.4	3.1	0.0	20.2	0.7	4.2

Intersection Summary	
HCM 2010 Ctrl Delay	43.6
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1477	230	0	1214	279	0	0	0	273	0	170
Future Volume (veh/h)	0	1477	230	0	1214	279	0	0	0	273	0	170
Number	1	6	16	5	2	12				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863				1863	1863	1863
Adj Flow Rate, veh/h	0	1539	0	0	1265	291				339	0	118
Adj No. of Lanes	0	3	1	0	3	1				2	0	1
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	2	2	0	2	2				2	2	2
Cap, veh/h	0	3702	1153	0	3702	1368				483	0	215
Arrive On Green	0.00	0.73	0.00	0.00	1.00	1.00				0.14	0.00	0.14
Sat Flow, veh/h	0	5253	1583	0	5253	1583				3548	0	1583
Grp Volume(v), veh/h	0	1539	0	0	1265	291				339	0	118
Grp Sat Flow(s),veh/h/ln	0	1695	1583	0	1695	1583				1774	0	1583
Q Serve(g_s), s	0.0	8.9	0.0	0.0	0.0	0.0				6.8	0.0	5.2
Cycle Q Clear(g_c), s	0.0	8.9	0.0	0.0	0.0	0.0				6.8	0.0	5.2
Prop In Lane	0.00		1.00	0.00		1.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	3702	1153	0	3702	1368				483	0	215
V/C Ratio(X)	0.00	0.42	0.00	0.00	0.34	0.21				0.70	0.00	0.55
Avail Cap(c_a), veh/h	0	3702	1153	0	3702	1368				937	0	418
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.72	0.00	0.00	0.93	0.93				1.00	0.00	1.00
Uniform Delay (d), s/veh	0.0	4.0	0.0	0.0	0.0	0.0				30.9	0.0	30.2
Incr Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.2	0.3				2.0	0.0	2.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	4.1	0.0	0.0	0.1	0.1				3.5	0.0	2.4
LnGrp Delay(d),s/veh	0.0	4.2	0.0	0.0	0.2	0.3				33.0	0.0	32.6
LnGrp LOS		A			A	A				C		C
Approach Vol, veh/h		1539			1556						457	
Approach Delay, s/veh		4.2			0.3						32.9	
Approach LOS		A			A						C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		
Phs Duration (G+Y+Rc), s		60.6		14.4		60.6		
Change Period (Y+Rc), s		6.0		* 4.2		6.0		
Max Green Setting (Gmax), s		45.0		* 20		45.0		
Max Q Clear Time (g_c+I1), s		2.0		8.8		10.9		
Green Ext Time (p_c), s		24.8		1.4		22.9		

Intersection Summary	
HCM 2010 Ctrl Delay	6.2
HCM 2010 LOS	A

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1320	440	0	1303	429	190	0	223	0	0	0
Future Volume (veh/h)	0	1320	440	0	1303	429	190	0	223	0	0	0
Number	5	2	12	1	6	16	3	8	18			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	0	1863	1863	0	1863	1863	1863	0	1863			
Adj Flow Rate, veh/h	0	1347	449	0	1330	0	194	0	228			
Adj No. of Lanes	0	3	1	0	3	1	2	0	1			
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98			
Percent Heavy Veh, %	0	2	2	0	2	2	2	0	2			
Cap, veh/h	0	3442	1357	0	3442	1072	621	0	286			
Arrive On Green	0.00	1.00	1.00	0.00	1.00	0.00	0.18	0.00	0.18			
Sat Flow, veh/h	0	5253	1583	0	5253	1583	3442	0	1583			
Grp Volume(v), veh/h	0	1347	449	0	1330	0	194	0	228			
Grp Sat Flow(s),veh/h/ln	0	1695	1583	0	1695	1583	1721	0	1583			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	10.3			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	3.7	0.0	10.3			
Prop In Lane	0.00		1.00	0.00		1.00	1.00		1.00			
Lane Grp Cap(c), veh/h	0	3442	1357	0	3442	1072	621	0	286			
V/C Ratio(X)	0.00	0.39	0.33	0.00	0.39	0.00	0.31	0.00	0.80			
Avail Cap(c_a), veh/h	0	3442	1357	0	3442	1072	1046	0	481			
HCM Platoon Ratio	1.00	2.00	2.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.00	0.89	0.89	0.00	0.54	0.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	26.7	0.0	29.4			
Incr Delay (d2), s/veh	0.0	0.3	0.6	0.0	0.2	0.0	0.3	0.0	5.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	0.1	0.2	0.0	0.1	0.0	1.8	0.0	4.9			
LnGrp Delay(d),s/veh	0.0	0.3	0.6	0.0	0.2	0.0	27.0	0.0	34.9			
LnGrp LOS		A	A		A		C		C			
Approach Vol, veh/h		1796			1330			422				
Approach Delay, s/veh		0.4			0.2			31.3				
Approach LOS		A			A			C				

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2				6		8
Phs Duration (G+Y+Rc), s		57.3				57.3		17.7
Change Period (Y+Rc), s		* 6.5				6.5		4.2
Max Green Setting (Gmax), s		* 42				41.5		22.8
Max Q Clear Time (g_c+I1), s		2.0				2.0		12.3
Green Ext Time (p_c), s		27.3				21.3		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	4.0
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	1050	123	76	1530	160	242	44	57	55	24	380
Future Volume (veh/h)	340	1050	123	76	1530	160	242	44	57	55	24	380
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	358	1105	0	80	1611	149	255	46	6	58	0	417
Adj No. of Lanes	2	3	1	2	4	0	2	1	0	1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	395	2694	974	121	2702	250	294	417	54	74	0	659
Arrive On Green	0.23	1.00	0.00	0.04	0.45	0.45	0.09	0.26	0.26	0.04	0.00	0.22
Sat Flow, veh/h	3442	5085	1583	3442	6004	555	3442	1609	210	1774	0	3057
Grp Volume(v), veh/h	358	1105	0	80	1289	471	255	0	52	58	0	417
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1602	1754	1721	0	1818	1774	0	1528
Q Serve(g_s), s	15.2	0.0	0.0	3.4	30.2	30.3	11.0	0.0	3.3	4.9	0.0	18.6
Cycle Q Clear(g_c), s	15.2	0.0	0.0	3.4	30.2	30.3	11.0	0.0	3.3	4.9	0.0	18.6
Prop In Lane	1.00		1.00	1.00		0.32	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	395	2694	974	121	2163	789	294	0	472	74	0	659
V/C Ratio(X)	0.91	0.41	0.00	0.66	0.60	0.60	0.87	0.00	0.11	0.78	0.00	0.63
Avail Cap(c_a), veh/h	408	2694	974	167	2163	789	294	0	652	124	0	1039
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.0	0.0	0.0	71.5	31.0	31.0	67.8	0.0	42.4	71.2	0.0	53.4
Incr Delay (d2), s/veh	20.5	0.4	0.0	2.3	1.2	3.3	22.3	0.0	0.1	6.6	0.0	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	8.3	0.1	0.0	1.7	13.6	15.4	6.1	0.0	1.7	2.5	0.0	7.9
LnGrp Delay(d),s/veh	77.5	0.4	0.0	73.8	32.2	34.3	90.0	0.0	42.4	77.8	0.0	54.2
LnGrp LOS	E	A		E	C	C	F		D	E		D
Approach Vol, veh/h		1463			1840			307			475	
Approach Delay, s/veh		19.3			34.6			82.0			57.1	
Approach LOS		B			C			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	86.1	17.0	37.5	21.4	74.1	10.5	44.0
Change Period (Y+Rc), s	* 4.2	* 6.6	* 4.2	5.1	* 4.2	6.6	* 4.2	* 5.1
Max Green Setting (Gmax), s	* 7.3	* 59	* 13	51.0	* 18	48.3	* 11	* 54
Max Q Clear Time (g_c+I1), s	5.4	2.0	13.0	20.6	17.2	32.3	6.9	5.3
Green Ext Time (p_c), s	0.0	22.3	0.0	1.5	0.1	14.0	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	35.3
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	198	905	265	220	1214	110	474	620	200	150	280	308
Future Volume (veh/h)	198	905	265	220	1214	110	474	620	200	150	280	308
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.99	1.00		0.98	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	208	953	216	232	1278	53	499	653	169	158	295	261
Adj No. of Lanes	2	3	1	2	3	1	2	3	1	2	3	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	212	1985	609	293	2105	646	400	1367	551	220	1102	759
Arrive On Green	0.06	0.39	0.39	0.09	0.41	0.41	0.12	0.27	0.27	0.06	0.22	0.22
Sat Flow, veh/h	3442	5085	1559	3442	5085	1560	3442	5085	1548	3442	5085	2709
Grp Volume(v), veh/h	208	953	216	232	1278	53	499	653	169	158	295	261
Grp Sat Flow(s),veh/h/ln	1721	1695	1559	1721	1695	1560	1721	1695	1548	1721	1695	1355
Q Serve(g_s), s	6.6	15.5	10.8	7.3	21.7	2.3	12.8	11.9	8.7	5.0	5.3	8.5
Cycle Q Clear(g_c), s	6.6	15.5	10.8	7.3	21.7	2.3	12.8	11.9	8.7	5.0	5.3	8.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	212	1985	609	293	2105	646	400	1367	551	220	1102	759
V/C Ratio(X)	0.98	0.48	0.35	0.79	0.61	0.08	1.25	0.48	0.31	0.72	0.27	0.34
Avail Cap(c_a), veh/h	212	2280	699	347	2479	761	400	2590	923	384	2585	1549
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	51.6	25.2	23.8	49.4	25.3	19.6	48.7	33.8	25.8	50.6	35.9	31.7
Incr Delay (d2), s/veh	55.5	0.7	1.3	9.4	1.0	0.2	130.8	0.3	0.3	3.2	0.1	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	4.8	7.4	4.8	3.9	10.3	1.0	13.3	5.6	3.8	2.5	2.5	3.2
LnGrp Delay(d),s/veh	107.1	25.8	25.0	58.8	26.3	19.8	179.5	34.1	26.1	53.8	36.0	32.0
LnGrp LOS	F	C	C	E	C	B	F	C	C	D	D	C
Approach Vol, veh/h		1377			1563			1321			714	
Approach Delay, s/veh		38.0			30.9			88.0			38.5	
Approach LOS		D			C			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	13.6	49.5	17.0	30.1	11.0	52.1	11.3	35.8
Change Period (Y+Rc), s	* 4.2	6.5	* 4.2	* 6.2	* 4.2	6.5	* 4.2	6.2
Max Green Setting (Gmax), s	* 13	49.4	* 13	* 56	* 6.8	53.7	* 12	56.1
Max Q Clear Time (g_c+I1), s	9.3	17.5	14.8	10.5	8.6	23.7	7.0	13.9
Green Ext Time (p_c), s	0.1	18.7	0.0	3.1	0.0	21.0	0.1	5.3

Intersection Summary	
HCM 2010 Ctrl Delay	49.1
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

ATTACHMENT G – ACCESS & FRONTAGE OPERATIONAL ANALYSIS
2017 TRAFFIC COUNTS

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Olympic Parkway @ Town Center Drive

Date of Count: *Tuesday, October 10, 2017*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *17-0768*

CHEN RYAN

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Olympic Parkway @ Town Center Drive

AM Period (7:00 AM - 9:00 AM)													
	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
7:00 AM	106	2	6	17	360	2	0	0	1	12	122	53	681
7:15 AM	81	6	10	24	315	2	0	1	6	9	133	41	628
7:30 AM	68	2	5	28	369	1	0	5	1	12	192	55	738
7:45 AM	80	7	10	27	282	3	0	4	4	27	223	75	742
8:00 AM	76	4	13	49	350	0	0	5	3	18	231	70	819
8:15 AM	103	6	14	36	325	1	1	4	7	17	226	91	831
8:30 AM	70	5	10	37	306	2	2	2	10	16	144	74	678
8:45 AM	94	2	8	35	217	0	2	8	12	25	148	61	612
Total	678	34	76	253	2,524	11	5	29	44	136	1,419	520	5,729

AM Intersection Peak Hour : **7:30 AM - 8:30 AM** Intersection PHF : **0.94**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	327	19	42	140	1,326	5	1	18	15	74	872	291	3,130
PHF	0.79	0.68	0.75	0.71	0.90	0.42	0.25	0.90	0.54	0.69	0.94	0.80	0.94
Movement PHF		0.79			0.92			0.71			0.93		0.94

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	TOTAL
4:00 PM	112	14	10	48	196	4	16	17	56	54	292	122	941
4:15 PM	102	34	28	58	179	4	12	28	42	74	292	124	977
4:30 PM	128	28	22	39	186	5	10	19	52	69	303	130	991
4:45 PM	117	25	19	45	190	8	17	20	47	75	345	138	1,046
5:00 PM	123	16	23	42	236	3	13	24	58	55	334	117	1,044
5:15 PM	118	17	28	46	207	2	8	24	77	75	351	103	1,056
5:30 PM	106	20	29	47	194	1	16	17	73	47	334	156	1,040
5:45 PM	159	15	21	45	186	5	24	26	55	57	336	130	1,059
Total	965	169	180	370	1,574	32	116	175	460	506	2,587	1,020	8,154

PM Intersection Peak Hour : **5:00 PM - 6:00 PM** Intersection PHF : **0.99**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	
Volume	506	68	101	180	823	11	61	91	263	234	1355	506	4199
PHF	0.80	0.85	0.871	0.957	0.872	0.55	0.635	0.875	0.854	0.78	0.965	0.811	0.99
Movement PHF		0.87			0.90			0.95			0.98		0.99

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: "T" intersection South of Olympic F @ Town Center Drive

Date of Count: *Tuesday, October 10, 2017*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *17-0768*

CHEN RYAN

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: rsection South of Olympic Parkway @ Town Center Drive

AM Period (7:00 AM - 9:00 AM)								
	Southbound		Westbound			Eastbound		
	Right	Left	Right	Thru		Thru	Left	TOTAL
7:00 AM	8	2	1	6		0	2	19
7:15 AM	7	4	0	1		2	4	18
7:30 AM	6	4	6	1		0	4	21
7:45 AM	7	13	2	1		2	2	27
8:00 AM	11	13	3	3		1	3	34
8:15 AM	15	12	5	1		0	4	37
8:30 AM	15	8	5	1		1	7	37
8:45 AM	10	17	8	1		1	9	46
Total	79	73	30	15		7	35	239

AM Intersection Peak Hour : **8:00 AM - 9:00 AM** Intersection PHF : **0.84**

	Southbound		Westbound			Eastbound		TOTAL
	Right	Left	Right	Thru		Thru	Left	
Volume	51	50	21	6		3	23	154
PHF	0.85	0.74	0.66	0.50		0.75	0.64	0.84
Movement PHF	0.94			0.75		0.65		0.84

PM Period (4:00 PM - 6:00 PM)								
	Southbound		Westbound			Eastbound		
	Right	Left	Right	Thru		Thru	Left	TOTAL
4:00 PM	30	43	60	2		2	20	157
4:15 PM	39	63	47	0		2	27	178
4:30 PM	43	57	48	1		1	23	173
4:45 PM	46	50	45	1		1	24	167
5:00 PM	33	35	54	3		2	36	163
5:15 PM	45	48	65	0		0	27	185
5:30 PM	31	53	60	0		0	35	179
5:45 PM	41	42	57	0		0	38	178
Total	308	391	436	7		8	230	1,380

PM Intersection Peak Hour : **5:00 PM - 6:00 PM** Intersection PHF : **0.95**

	Southbound		Westbound			Eastbound		TOTAL
	Right	Left	Right	Thru		Thru	Left	
Volume	150	178	236	3		2	136	705
PHF	0.83	0.84	0.908	0.25		0.25	0.895	0.95
Movement PHF	0.88			0.92		0.91		0.95

24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 1. Olympic Parkway east of Town Center Drive

Orientation: *East-West*

Date of Count: *Tuesday, October 10, 2017*

Analysts: *DASH*

Weather: *Sunny*

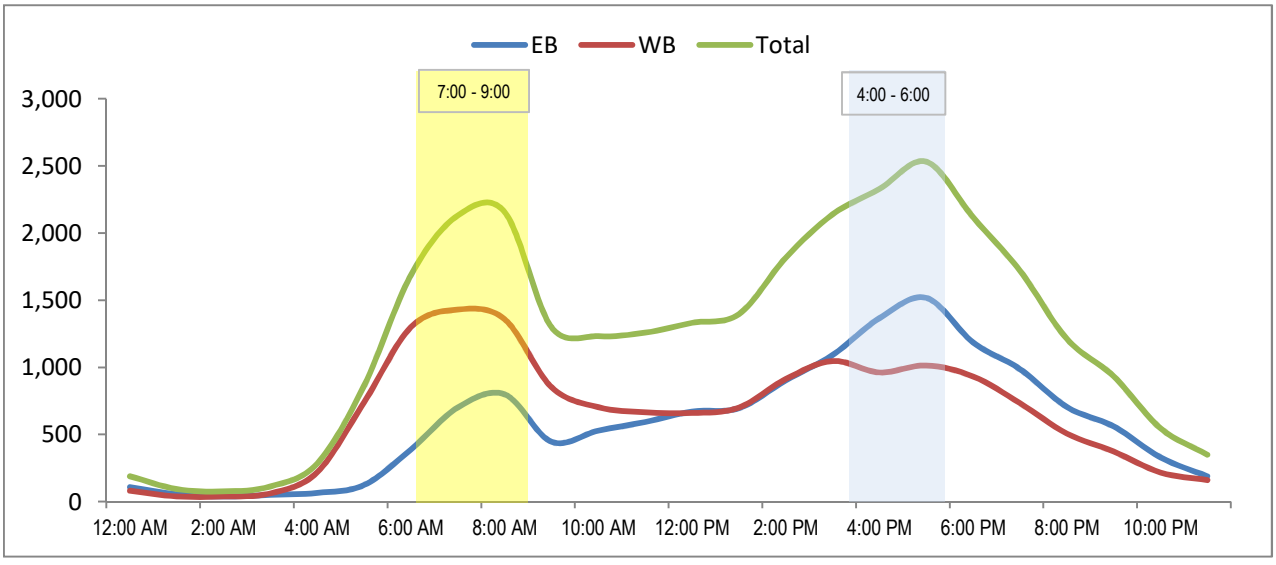
AVC Proj. No: *17-0768*

24 Hour Segment Volume			29,802

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	108	81	189
1:00 AM - 2:00 AM	55	39	94
2:00 AM - 3:00 AM	38	38	76
3:00 AM - 4:00 AM	51	62	113
4:00 AM - 5:00 AM	65	219	284
5:00 AM - 6:00 AM	124	740	864
6:00 AM - 7:00 AM	388	1,299	1,687
7:00 AM - 8:00 AM	701	1,430	2,131
8:00 AM - 9:00 AM	799	1,358	2,157
9:00 AM - 10:00 AM	446	853	1,299
10:00 AM - 11:00 AM	529	703	1,232
11:00 AM - 12:00 PM	593	665	1258
Total	**3,897**	**7,487**	**11,384**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	671	660	1,331
1:00 PM - 2:00 PM	696	700	1,396
2:00 PM - 3:00 PM	903	913	1,816
3:00 PM - 4:00 PM	1,092	1,047	2,139
4:00 PM - 5:00 PM	1,366	962	2,328
5:00 PM - 6:00 PM	1,517	1,014	2,531
6:00 PM - 7:00 PM	1,185	932	2,117
7:00 PM - 8:00 PM	987	733	1,720
8:00 PM - 9:00 PM	705	507	1,212
9:00 PM - 10:00 PM	560	373	933
10:00 PM - 11:00 PM	329	217	546
11:00 PM - 12:00 AM	189	160	349
Total	**10,200**	**8,218**	**18,418**

24-Hour EB Volume	14,097	24-Hour WB Volume	15,705



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 2. Olympic Parkway west of Town Center Drive

Orientation: *East-West*

Date of Count: *Tuesday, October 10, 2017*

Analysts: *DASH*

Weather: *Sunny*

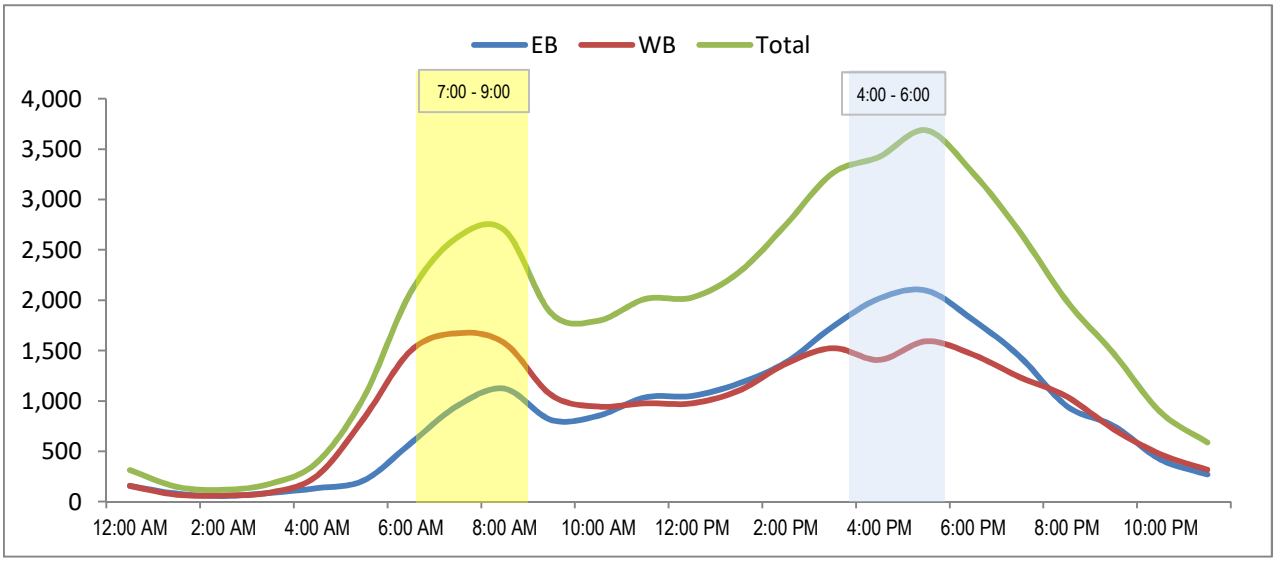
AVC Proj. No: *17-0768*

24 Hour Segment Volume			43,563

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	157	156	313
1:00 AM - 2:00 AM	79	68	147
2:00 AM - 3:00 AM	56	62	118
3:00 AM - 4:00 AM	87	91	178
4:00 AM - 5:00 AM	134	258	392
5:00 AM - 6:00 AM	212	829	1,041
6:00 AM - 7:00 AM	582	1,500	2,082
7:00 AM - 8:00 AM	954	1,673	2,627
8:00 AM - 9:00 AM	1,121	1,573	2,694
9:00 AM - 10:00 AM	810	1,057	1,867
10:00 AM - 11:00 AM	853	943	1,796
11:00 AM - 12:00 PM	1,035	977	2012
Total	**6,080**	**9,187**	**15,267**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	1,050	976	2,026
1:00 PM - 2:00 PM	1,174	1,102	2,276
2:00 PM - 3:00 PM	1,382	1,367	2,749
3:00 PM - 4:00 PM	1,736	1,524	3,260
4:00 PM - 5:00 PM	2,018	1,407	3,425
5:00 PM - 6:00 PM	2,095	1,592	3,687
6:00 PM - 7:00 PM	1,803	1,459	3,262
7:00 PM - 8:00 PM	1,439	1,235	2,674
8:00 PM - 9:00 PM	948	1,043	1,991
9:00 PM - 10:00 PM	752	719	1,471
10:00 PM - 11:00 PM	418	470	888
11:00 PM - 12:00 AM	270	317	587
Total	**15,085**	**13,211**	**28,296**

24-Hour EB Volume	21,165	24-Hour WB Volume	22,398



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 3. Town Center Drive South of Olympic Parkway

Orientation: *North-South*

Date of Count: *Tuesday, October 10, 2017*

Analysts: *DASH*

Weather: *Sunny*

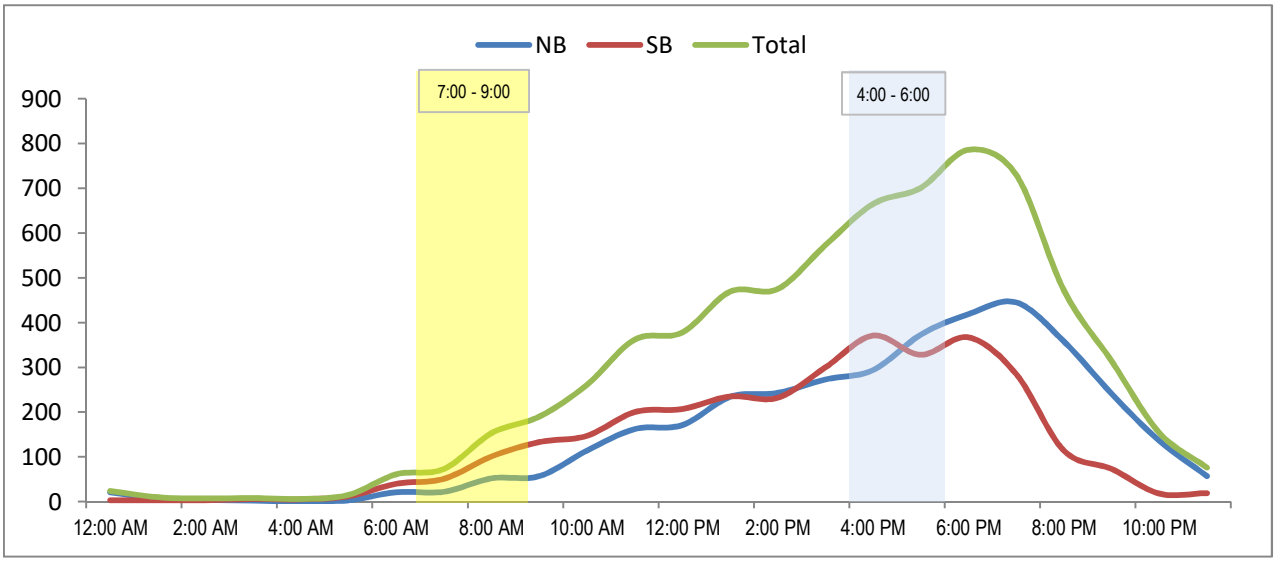
AVC Proj. No: *17-0768*

24 Hour Segment Volume			6,963

Time	Hourly Volume		
	NB	SB	Total
12:00 AM - 1:00 AM	21	3	24
1:00 AM - 2:00 AM	7	3	10
2:00 AM - 3:00 AM	4	3	7
3:00 AM - 4:00 AM	2	6	8
4:00 AM - 5:00 AM	1	5	6
5:00 AM - 6:00 AM	3	12	15
6:00 AM - 7:00 AM	21	40	61
7:00 AM - 8:00 AM	22	51	73
8:00 AM - 9:00 AM	52	101	153
9:00 AM - 10:00 AM	57	133	190
10:00 AM - 11:00 AM	114	147	261
11:00 AM - 12:00 PM	162	200	362
Total	**466**	**704**	**1,170**

Time	Hourly Volume		
	NB	SB	Total
12:00 PM - 1:00 PM	171	207	378
1:00 PM - 2:00 PM	234	235	469
2:00 PM - 3:00 PM	243	232	475
3:00 PM - 4:00 PM	273	300	573
4:00 PM - 5:00 PM	294	371	665
5:00 PM - 6:00 PM	373	328	701
6:00 PM - 7:00 PM	419	367	786
7:00 PM - 8:00 PM	445	285	730
8:00 PM - 9:00 PM	358	114	472
9:00 PM - 10:00 PM	241	73	314
10:00 PM - 11:00 PM	136	18	154
11:00 PM - 12:00 AM	57	19	76
Total	**3,244**	**2,549**	**5,793**

24-Hour NB Volume	3,710	24-Hour SB Volume	3,253



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 4. Driveway just east of Town Center Drive

Orientation: *East-West*

Date of Count: *Tuesday, October 10, 2017*

Analysts: *DASH*

Weather: *Sunny*

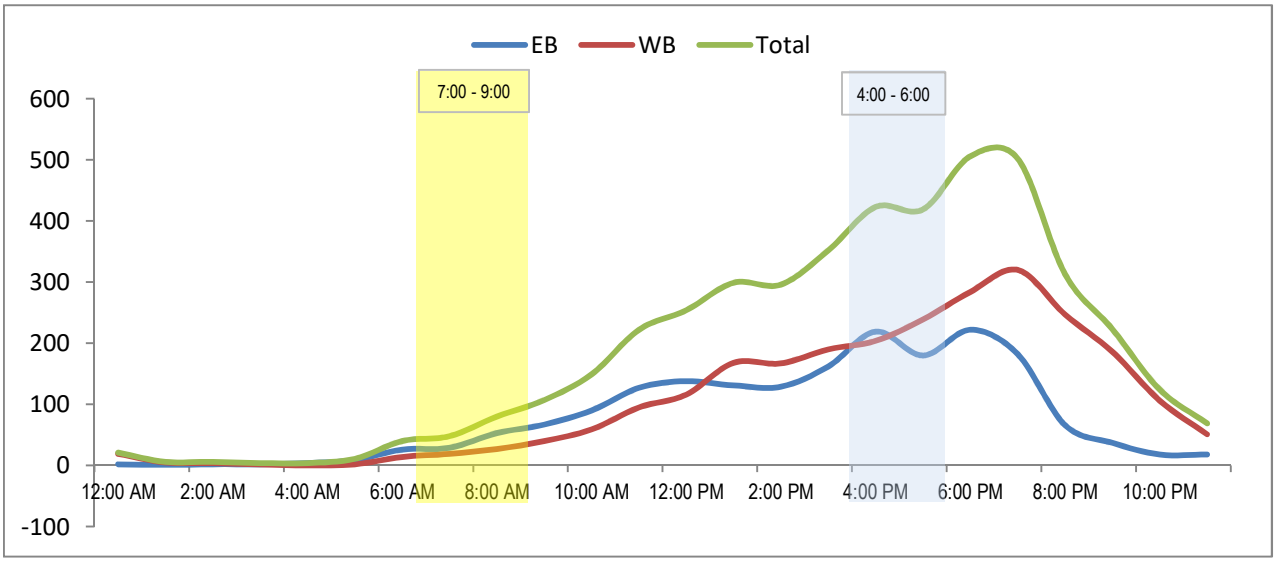
AVC Proj. No: *17-0768*

24 Hour Segment Volume 4,478

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	2	19	21
1:00 AM - 2:00 AM	1	5	6
2:00 AM - 3:00 AM	2	4	6
3:00 AM - 4:00 AM	2	2	4
4:00 AM - 5:00 AM	4	0	4
5:00 AM - 6:00 AM	9	2	11
6:00 AM - 7:00 AM	26	14	40
7:00 AM - 8:00 AM	29	19	48
8:00 AM - 9:00 AM	53	27	80
9:00 AM - 10:00 AM	67	40	107
10:00 AM - 11:00 AM	90	59	149
11:00 AM - 12:00 PM	127	95	222
Total	**412**	**286**	**698**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	138	116	254
1:00 PM - 2:00 PM	131	168	299
2:00 PM - 3:00 PM	129	167	296
3:00 PM - 4:00 PM	162	190	352
4:00 PM - 5:00 PM	219	204	423
5:00 PM - 6:00 PM	180	239	419
6:00 PM - 7:00 PM	222	284	506
7:00 PM - 8:00 PM	182	320	502
8:00 PM - 9:00 PM	66	247	313
9:00 PM - 10:00 PM	37	186	223
10:00 PM - 11:00 PM	18	106	124
11:00 PM - 12:00 AM	18	51	69
Total	**1,502**	**2,278**	**3,780**

24-Hour EB Volume 1,914 **24-Hour WB Volume 2,564**



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 5. Driveway just west of Town Center Drive

Orientation: *East-West*

Date of Count: *Tuesday, October 10, 2017*

Analysts: *DASH*

Weather: *Sunny*

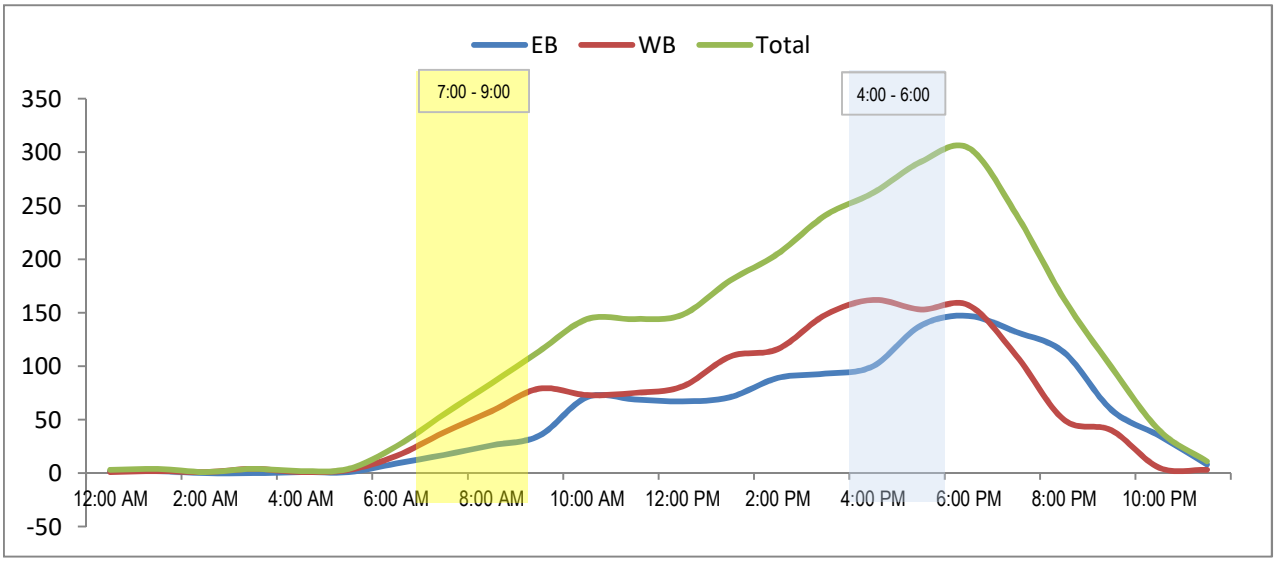
AVC Proj. No: *17-0768*

24 Hour Segment Volume			2,770

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	2	1	3
1:00 AM - 2:00 AM	2	2	4
2:00 AM - 3:00 AM	0	1	1
3:00 AM - 4:00 AM	0	4	4
4:00 AM - 5:00 AM	1	1	2
5:00 AM - 6:00 AM	1	3	4
6:00 AM - 7:00 AM	9	16	25
7:00 AM - 8:00 AM	17	38	55
8:00 AM - 9:00 AM	26	58	84
9:00 AM - 10:00 AM	35	79	114
10:00 AM - 11:00 AM	71	73	144
11:00 AM - 12:00 PM	69	75	144
Total	**233**	**351**	**584**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	67	81	148
1:00 PM - 2:00 PM	71	109	180
2:00 PM - 3:00 PM	89	116	205
3:00 PM - 4:00 PM	93	148	241
4:00 PM - 5:00 PM	100	162	262
5:00 PM - 6:00 PM	138	153	291
6:00 PM - 7:00 PM	147	157	304
7:00 PM - 8:00 PM	132	110	242
8:00 PM - 9:00 PM	113	50	163
9:00 PM - 10:00 PM	59	40	99
10:00 PM - 11:00 PM	35	5	40
11:00 PM - 12:00 AM	8	3	11
Total	**1,052**	**1,134**	**2,186**

24-Hour EB Volume	1,285	24-Hour WB Volume	1,485



CHEN RYAN

24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 1. Olympic Parkway east of Town Center Drive

Orientation: *East-West*

Date of Count: *Friday, October 13, 2017*

Analysts: *DASH*

Weather: *Sunny*

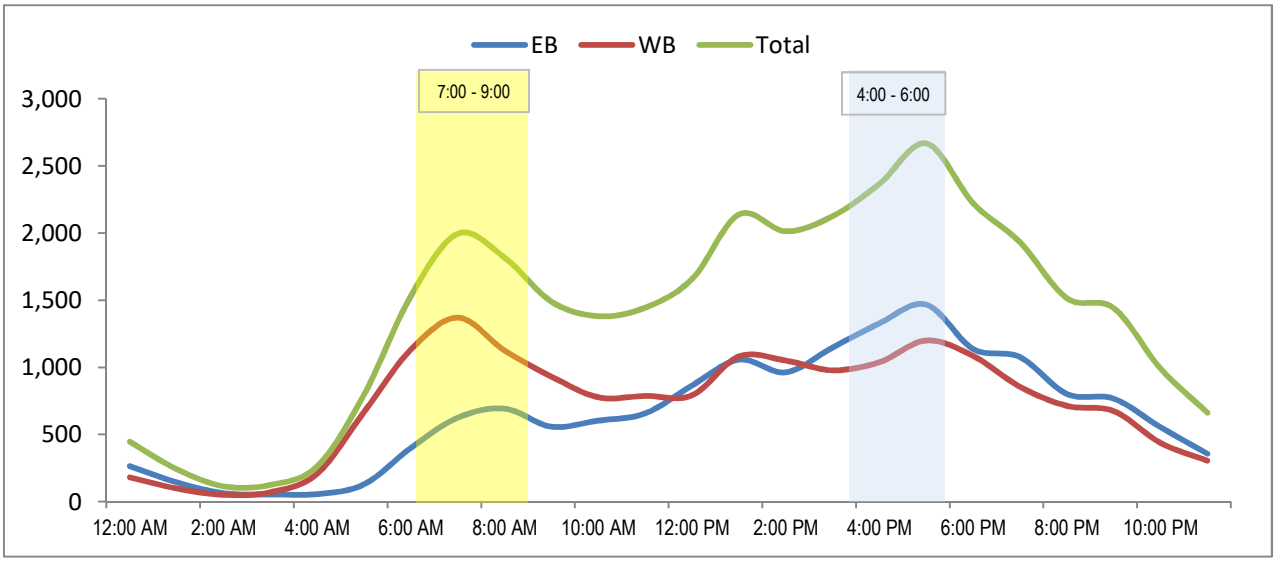
AVC Proj. No: *17-0768*

24 Hour Segment Volume			33,373

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	265	181	446
1:00 AM - 2:00 AM	144	98	242
2:00 AM - 3:00 AM	63	51	114
3:00 AM - 4:00 AM	54	70	124
4:00 AM - 5:00 AM	56	208	264
5:00 AM - 6:00 AM	129	668	797
6:00 AM - 7:00 AM	400	1,132	1,532
7:00 AM - 8:00 AM	625	1,370	1,995
8:00 AM - 9:00 AM	692	1,125	1,817
9:00 AM - 10:00 AM	558	931	1,489
10:00 AM - 11:00 AM	604	777	1,381
11:00 AM - 12:00 PM	657	787	1444
Total	**4,247**	**7,398**	**11,645**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	865	792	1,657
1:00 PM - 2:00 PM	1,057	1,081	2,138
2:00 PM - 3:00 PM	963	1,050	2,013
3:00 PM - 4:00 PM	1,147	978	2,125
4:00 PM - 5:00 PM	1,328	1,038	2,366
5:00 PM - 6:00 PM	1,467	1,200	2,667
6:00 PM - 7:00 PM	1,137	1,085	2,222
7:00 PM - 8:00 PM	1,076	855	1,931
8:00 PM - 9:00 PM	802	713	1,515
9:00 PM - 10:00 PM	767	674	1,441
10:00 PM - 11:00 PM	554	437	991
11:00 PM - 12:00 AM	357	305	662
Total	**11,520**	**10,208**	**21,728**

24-Hour EB Volume	15,767	24-Hour WB Volume	17,606



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 2. Olympic Parkway west of Town Center Drive

Orientation: *East-West*

Date of Count: *Friday, October 13, 2017*

Analysts: *DASH*

Weather: *Sunny*

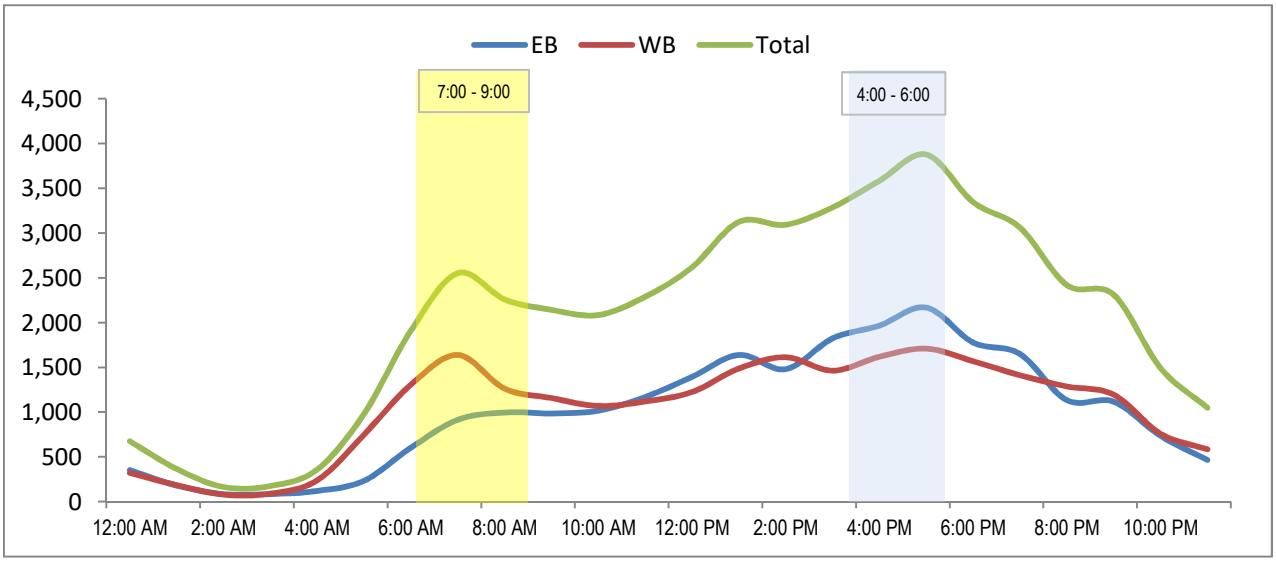
AVC Proj. No: *17-0768*

24 Hour Segment Volume			49,205

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	353	321	674
1:00 AM - 2:00 AM	180	185	365
2:00 AM - 3:00 AM	85	78	163
3:00 AM - 4:00 AM	84	90	174
4:00 AM - 5:00 AM	120	238	358
5:00 AM - 6:00 AM	233	748	981
6:00 AM - 7:00 AM	603	1,307	1,910
7:00 AM - 8:00 AM	914	1,638	2,552
8:00 AM - 9:00 AM	996	1,262	2,258
9:00 AM - 10:00 AM	984	1,157	2,141
10:00 AM - 11:00 AM	1,016	1,068	2,084
11:00 AM - 12:00 PM	1,169	1,119	2288
Total	**6,737**	**9,211**	**15,948**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	1,393	1,224	2,617
1:00 PM - 2:00 PM	1,639	1,486	3,125
2:00 PM - 3:00 PM	1,479	1,613	3,092
3:00 PM - 4:00 PM	1,823	1,463	3,286
4:00 PM - 5:00 PM	1,966	1,618	3,584
5:00 PM - 6:00 PM	2,168	1,709	3,877
6:00 PM - 7:00 PM	1,777	1,568	3,345
7:00 PM - 8:00 PM	1,649	1,411	3,060
8:00 PM - 9:00 PM	1,133	1,286	2,419
9:00 PM - 10:00 PM	1,116	1,195	2,311
10:00 PM - 11:00 PM	734	758	1,492
11:00 PM - 12:00 AM	465	584	1049
Total	**17,342**	**15,915**	**33,257**

24-Hour EB Volume	24,079	24-Hour WB Volume	25,126



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 3. Town Center Drive South of Olympic Parkway

Orientation: *North-South*

Date of Count: *Friday, October 13, 2017*

Analysts: *DASH*

Weather: *Sunny*

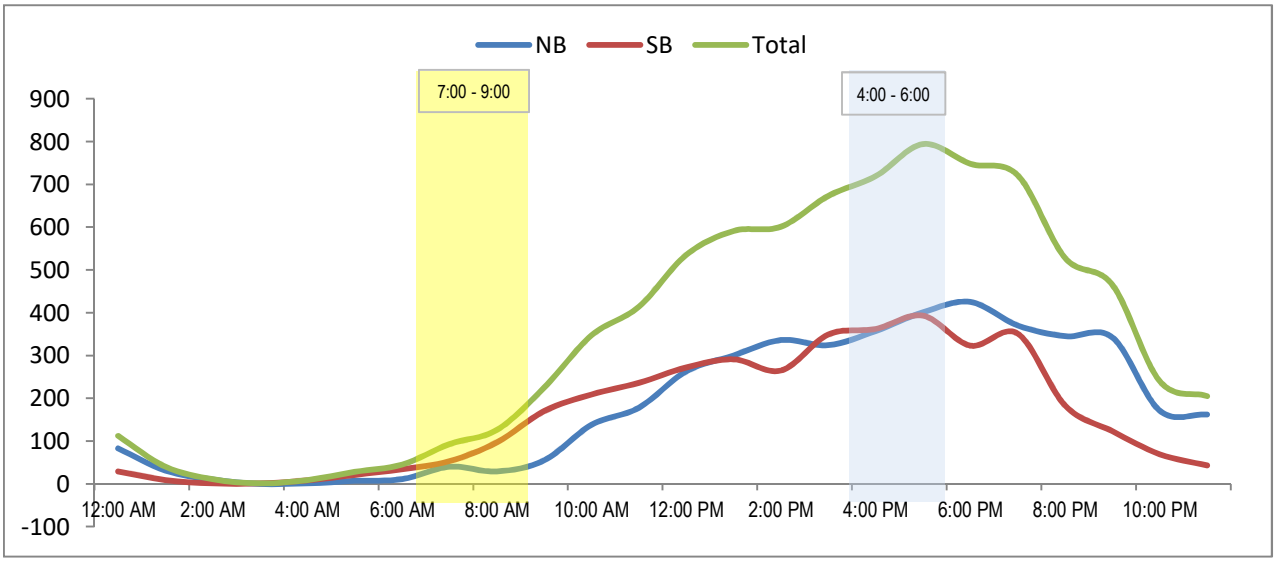
AVC Proj. No: *17-0768*

24 Hour Segment Volume			8,271

Time	Hourly Volume		
	NB	SB	Total
12:00 AM - 1:00 AM	83	29	112
1:00 AM - 2:00 AM	31	9	40
2:00 AM - 3:00 AM	10	1	11
3:00 AM - 4:00 AM	0	1	1
4:00 AM - 5:00 AM	1	8	9
5:00 AM - 6:00 AM	7	21	28
6:00 AM - 7:00 AM	11	34	45
7:00 AM - 8:00 AM	40	53	93
8:00 AM - 9:00 AM	29	97	126
9:00 AM - 10:00 AM	55	170	225
10:00 AM - 11:00 AM	138	209	347
11:00 AM - 12:00 PM	178	236	414
Total	**583**	**868**	**1,451**

Time	Hourly Volume		
	NB	SB	Total
12:00 PM - 1:00 PM	263	272	535
1:00 PM - 2:00 PM	300	291	591
2:00 PM - 3:00 PM	336	265	601
3:00 PM - 4:00 PM	324	349	673
4:00 PM - 5:00 PM	357	362	719
5:00 PM - 6:00 PM	401	393	794
6:00 PM - 7:00 PM	425	323	748
7:00 PM - 8:00 PM	370	351	721
8:00 PM - 9:00 PM	345	183	528
9:00 PM - 10:00 PM	342	123	465
10:00 PM - 11:00 PM	171	69	240
11:00 PM - 12:00 AM	162	43	205
Total	**3,796**	**3,024**	**6,820**

24-Hour NB Volume	4,379	24-Hour SB Volume	3,892



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 4. Driveway just east of Town Center Drive

Orientation: *East-West*

Date of Count: *Friday, October 13, 2017*

Analysts: *DASH*

Weather: *Sunny*

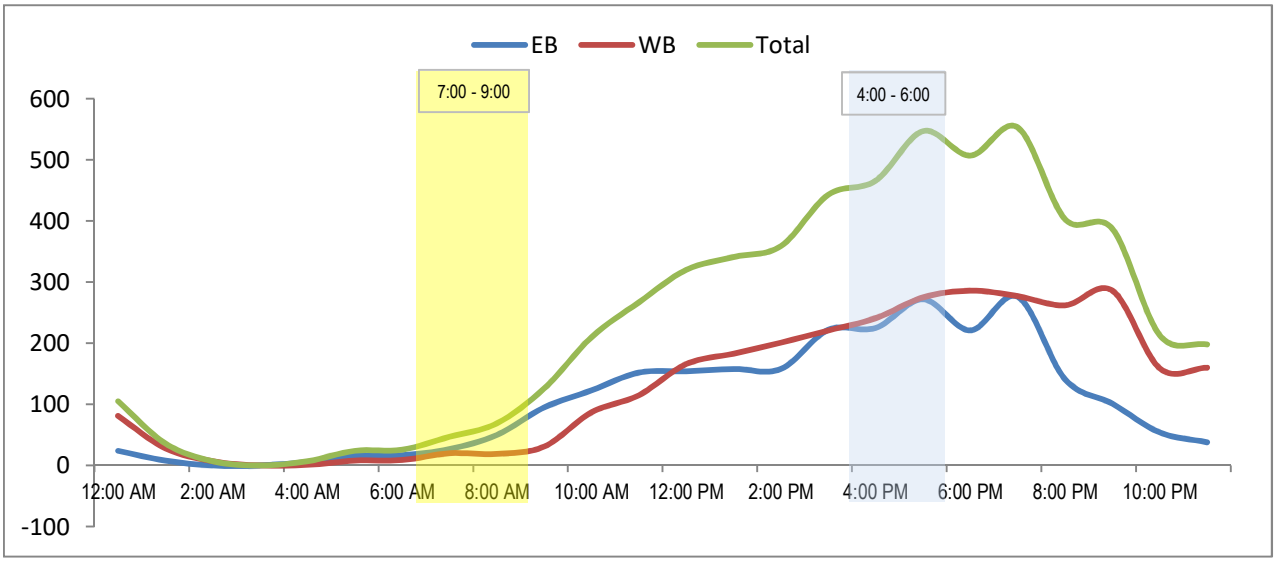
AVC Proj. No: *17-0768*

24 Hour Segment Volume			5,661

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	24	81	105
1:00 AM - 2:00 AM	8	28	36
2:00 AM - 3:00 AM	0	7	7
3:00 AM - 4:00 AM	0	0	0
4:00 AM - 5:00 AM	6	1	7
5:00 AM - 6:00 AM	16	8	24
6:00 AM - 7:00 AM	17	9	26
7:00 AM - 8:00 AM	27	20	47
8:00 AM - 9:00 AM	50	19	69
9:00 AM - 10:00 AM	95	31	126
10:00 AM - 11:00 AM	123	87	210
11:00 AM - 12:00 PM	152	115	267
Total	**518**	**406**	**924**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	154	166	320
1:00 PM - 2:00 PM	158	183	341
2:00 PM - 3:00 PM	158	201	359
3:00 PM - 4:00 PM	222	221	443
4:00 PM - 5:00 PM	225	241	466
5:00 PM - 6:00 PM	272	275	547
6:00 PM - 7:00 PM	221	286	507
7:00 PM - 8:00 PM	276	277	553
8:00 PM - 9:00 PM	141	262	403
9:00 PM - 10:00 PM	101	286	387
10:00 PM - 11:00 PM	54	159	213
11:00 PM - 12:00 AM	38	160	198
Total	**2,020**	**2,717**	**4,737**

24-Hour EB Volume	2,538	24-Hour WB Volume	3,123



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: 5. Driveway just west of Town Center Drive

Orientation: *East-West*

Date of Count: *Friday, October 13, 2017*

Analysts: *DASH*

Weather: *Sunny*

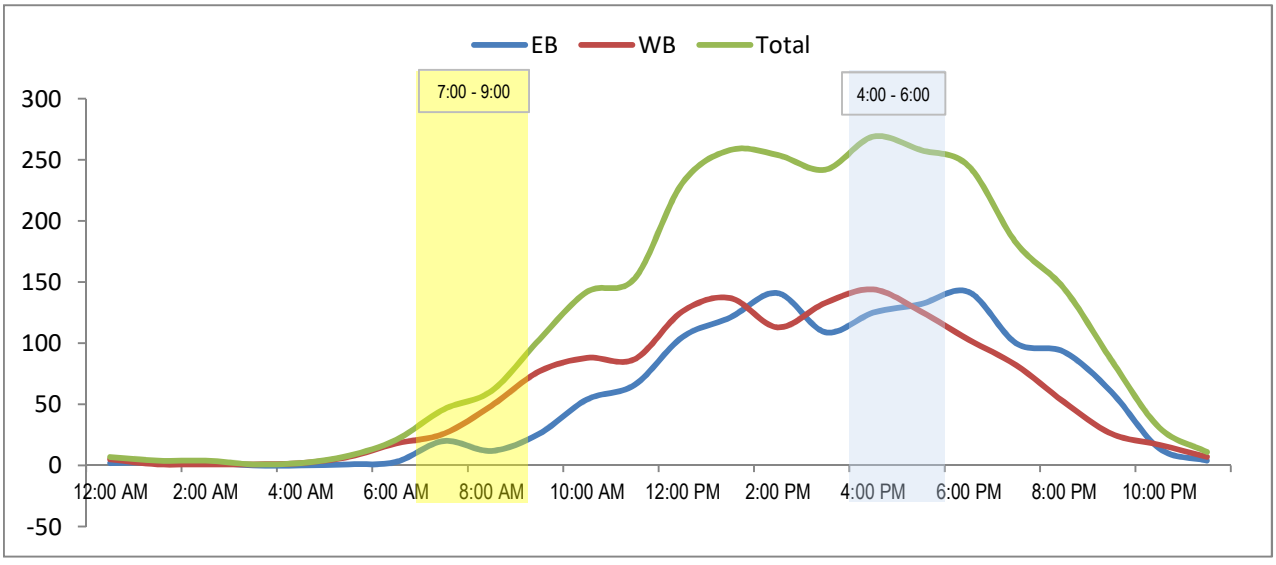
AVC Proj. No: *17-0768*

24 Hour Segment Volume			2,764

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	2	5	7
1:00 AM - 2:00 AM	3	1	4
2:00 AM - 3:00 AM	3	1	4
3:00 AM - 4:00 AM	0	1	1
4:00 AM - 5:00 AM	0	2	2
5:00 AM - 6:00 AM	1	7	8
6:00 AM - 7:00 AM	3	18	21
7:00 AM - 8:00 AM	20	26	46
8:00 AM - 9:00 AM	12	49	61
9:00 AM - 10:00 AM	26	77	103
10:00 AM - 11:00 AM	54	88	142
11:00 AM - 12:00 PM	66	87	153
Total	**190**	**362**	**552**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	105	126	231
1:00 PM - 2:00 PM	121	137	258
2:00 PM - 3:00 PM	141	113	254
3:00 PM - 4:00 PM	109	133	242
4:00 PM - 5:00 PM	125	144	269
5:00 PM - 6:00 PM	132	126	258
6:00 PM - 7:00 PM	142	103	245
7:00 PM - 8:00 PM	100	82	182
8:00 PM - 9:00 PM	93	52	145
9:00 PM - 10:00 PM	60	26	86
10:00 PM - 11:00 PM	14	17	31
11:00 PM - 12:00 AM	4	7	11
Total	**1,146**	**1,066**	**2,212**

24-Hour EB Volume	1,336	24-Hour WB Volume	1,428



#	Location	10/10/2017	10/13/2017		Friday vs. Tuesday	Average Growth %
1	Olympic Pkwy E. of Town Center Dr.	29802	33373	10/13/2017	3571	11.98%
2	Olympic Pkwy W. of Town Center Dr.	43563	49205	10/13/2017	5642	12.95%
3	Town Center Dr. S. of Olympic Pkwy	6963	8271	10/13/2017	1308	18.79%
4	Driveway E. of Town Center Dr.	4478	5661	10/13/2017	1183	26.42%
5	Driveway W. of Town Center Dr.	2770	2764	10/10/2017	-6	-0.22%

Average Growth to Int #1	14.57%
Average Growth to Int #2	15.00%

ATTACHMENT H - ACCESS & FRONTAGE OPERATIONAL ANALYSIS
LEVEL OF SERVICE CALCULATION WORKSHEETS
EXISTING CONDITIONS

Movement	EBU	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations													
Traffic Volume (veh/h)	4	261	877	67	12	1289	160	45	27	8	42	21	295
Future Volume (veh/h)	4	261	877	67	12	1289	160	45	27	8	42	21	295
Number		5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh		0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00		0.98	1.00		0.99	1.00		0.97	1.00		0.97
Parking Bus, Adj		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln		1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h		275	923	60	13	1357	126	47	28	8	44	0	326
Adj No. of Lanes		2	4	0	2	4	0	2	2	0	1	0	2
Peak Hour Factor		0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %		2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h		321	3947	255	39	3337	309	81	491	133	57	0	577
Arrive On Green		0.19	1.00	1.00	0.00	0.18	0.18	0.02	0.18	0.18	0.03	0.00	0.19
Sat Flow, veh/h		3442	6191	399	3442	6007	556	3442	2732	740	1774	0	3066
Grp Volume(v), veh/h		275	715	268	13	1085	398	47	18	18	44	0	326
Grp Sat Flow(s),veh/h/ln		1721	1602	1785	1721	1602	1757	1721	1770	1702	1774	0	1533
Q Serve(g_s), s		11.1	0.0	0.0	0.5	28.7	28.8	1.9	1.2	1.3	3.5	0.0	13.9
Cycle Q Clear(g_c), s		11.1	0.0	0.0	0.5	28.7	28.8	1.9	1.2	1.3	3.5	0.0	13.9
Prop In Lane		1.00		0.22	1.00		0.32	1.00		0.43	1.00		1.00
Lane Grp Cap(c), veh/h		321	3063	1138	39	2670	976	81	318	306	57	0	577
V/C Ratio(X)		0.86	0.23	0.24	0.34	0.41	0.41	0.58	0.06	0.06	0.78	0.00	0.57
Avail Cap(c_a), veh/h		473	3063	1138	98	2670	976	134	590	567	121	0	1101
HCM Platoon Ratio		2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)		0.96	0.96	0.96	0.89	0.89	0.89	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh		57.7	0.0	0.0	71.2	37.9	37.9	69.6	48.9	49.0	69.2	0.0	53.1
Incr Delay (d2), s/veh		6.7	0.2	0.5	1.7	0.4	1.1	2.4	0.1	0.1	8.2	0.0	0.7
Initial Q Delay(d3),s/veh		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln		5.6	0.0	0.1	0.3	12.9	14.3	1.0	0.6	0.6	1.9	0.0	5.9
LnGrp Delay(d),s/veh		64.4	0.2	0.5	72.9	38.3	39.0	72.0	49.0	49.0	77.4	0.0	53.8
LnGrp LOS		E	A	A	E	D	D	E	D	D	E		D
Approach Vol, veh/h			1258			1496			83			370	
Approach Delay, s/veh			14.3			38.8			62.0			56.6	
Approach LOS			B			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.8	98.4	7.6	32.2	17.6	86.6	8.8	31.0
Change Period (Y+Rc), s	* 4.2	* 6.6	* 4.2	5.1	* 4.2	6.6	* 4.2	* 5.1
Max Green Setting (Gmax), s	* 4	* 63	* 5.6	51.7	* 20	46.8	* 9.8	* 48
Max Q Clear Time (g_c+I1), s	2.5	2.0	3.9	15.9	13.1	30.8	5.5	3.3
Green Ext Time (p_c), s	0.0	18.3	0.0	1.2	0.3	12.8	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	31.8
HCM 2010 LOS	C

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	26	3	0	0	7	24	0	1	0	57	1	58
Future Volume (veh/h)	26	3	0	0	7	24	0	1	0	57	1	58
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.91		1.00	1.00		0.98	1.00		1.00	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	0	0	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	27	3	0	0	7	25	0	1	0	60	1	61
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	2	2	2
Cap, veh/h	284	5	0	0	19	69	0	129	0	141	2	144
Arrive On Green	0.06	0.06	0.00	0.00	0.06	0.06	0.00	0.07	0.00	0.18	0.18	0.18
Sat Flow, veh/h	759	84	0	0	351	1254	0	1863	0	798	13	811
Grp Volume(v), veh/h	30	0	0	0	0	32	0	1	0	122	0	0
Grp Sat Flow(s),veh/h/ln	843	0	0	0	0	1605	0	1863	0	1623	0	0
Q Serve(g_s), s	0.6	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.9	0.0	0.0
Cycle Q Clear(g_c), s	1.2	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.9	0.0	0.0
Prop In Lane	0.90		0.00	0.00		0.78	0.00		0.00	0.49		0.50
Lane Grp Cap(c), veh/h	289	0	0	0	0	88	0	129	0	288	0	0
V/C Ratio(X)	0.10	0.00	0.00	0.00	0.00	0.36	0.00	0.01	0.00	0.42	0.00	0.00
Avail Cap(c_a), veh/h	603	0	0	0	0	478	0	1651	0	397	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	13.4	0.0	0.0	0.0	0.0	12.9	0.0	12.2	0.0	10.3	0.0	0.0
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	1.0	0.0	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	0.2	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.9	0.0	0.0
LnGrp Delay(d),s/veh	13.6	0.0	0.0	0.0	0.0	15.3	0.0	12.2	0.0	11.3	0.0	0.0
LnGrp LOS	B					B		B		B		
Approach Vol, veh/h		30			32			1			122	
Approach Delay, s/veh		13.6			15.3			12.2			11.3	
Approach LOS		B			B			B			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		11.2		11.1		11.2		6.0
Change Period (Y+Rc), s		* 9.6		6.1		* 9.6		4.0
Max Green Setting (Gmax), s		* 8.4		6.9		* 8.4		25.0
Max Q Clear Time (g_c+I1), s		3.2		3.9		2.5		2.0
Green Ext Time (p_c), s		0.0		0.1		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	12.4
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	582	1558	269	13	946	207	302	105	70	116	78	582
Future Volume (veh/h)	582	1558	269	13	946	207	302	105	70	116	78	582
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	588	1574	262	13	956	169	305	106	71	117	0	641
Adj No. of Lanes	2	4	0	2	4	0	2	2	0	1	0	2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	498	2733	455	40	1980	344	259	566	349	126	0	826
Arrive On Green	0.14	0.49	0.49	0.02	0.72	0.72	0.08	0.27	0.27	0.07	0.00	0.27
Sat Flow, veh/h	3442	5558	925	3442	5520	960	3442	2086	1286	1774	0	3095
Grp Volume(v), veh/h	588	1361	475	13	830	295	305	89	88	117	0	641
Grp Sat Flow(s),veh/h/ln	1721	1602	1677	1721	1602	1674	1721	1770	1602	1774	0	1548
Q Serve(g_s), s	18.8	26.1	26.1	0.5	9.7	10.0	9.8	5.0	5.5	8.5	0.0	24.9
Cycle Q Clear(g_c), s	18.8	26.1	26.1	0.5	9.7	10.0	9.8	5.0	5.5	8.5	0.0	24.9
Prop In Lane	1.00		0.55	1.00		0.57	1.00		0.80	1.00		1.00
Lane Grp Cap(c), veh/h	498	2363	825	40	1724	600	259	480	435	126	0	826
V/C Ratio(X)	1.18	0.58	0.58	0.33	0.48	0.49	1.18	0.18	0.20	0.93	0.00	0.78
Avail Cap(c_a), veh/h	498	2363	825	106	1724	600	259	655	593	126	0	1119
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	55.6	23.4	23.4	63.0	13.2	13.2	60.1	36.3	36.5	60.1	0.0	44.1
Incr Delay (d2), s/veh	100.7	1.0	2.9	1.8	1.0	2.9	111.8	0.1	0.2	58.8	0.0	2.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.9	11.7	12.7	0.2	4.3	4.9	8.7	2.5	2.5	6.2	0.0	10.9
LnGrp Delay(d),s/veh	156.3	24.5	26.3	64.8	14.1	16.0	171.9	36.5	36.7	118.9	0.0	46.3
LnGrp LOS	F	C	C	E	B	B	F	D	D	F		D
Approach Vol, veh/h		2424			1138			482			758	
Approach Delay, s/veh		56.8			15.2			122.2			57.5	
Approach LOS		E			B			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	5.7	70.5	14.0	39.8	23.0	53.2	13.4	40.4
Change Period (Y+Rc), s	* 4.2	* 6.6	* 4.2	5.1	* 4.2	6.6	* 4.2	* 5.1
Max Green Setting (Gmax), s	* 4	* 49	* 9.8	47.0	* 19	34.3	* 9.2	* 48
Max Q Clear Time (g_c+I1), s	12.5	28.1	11.8	26.9	20.8	12.0	10.5	7.5
Green Ext Time (p_c), s	0.0	18.3	0.0	2.3	0.0	13.5	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	53.6
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	155	2	0	0	3	269	0	1	0	203	1	171
Future Volume (veh/h)	155	2	0	0	3	269	0	1	0	203	1	171
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.98	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	163	2	0	0	3	283	0	1	0	214	1	180
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	288	3	0	0	5	489	0	123	0	246	1	207
Arrive On Green	0.32	0.32	0.00	0.00	0.32	0.32	0.00	0.07	0.00	0.28	0.28	0.28
Sat Flow, veh/h	553	9	0	0	16	1540	0	1863	0	895	4	753
Grp Volume(v), veh/h	165	0	0	0	0	286	0	1	0	395	0	0
Grp Sat Flow(s),veh/h/ln	562	0	0	0	0	1556	0	1863	0	1652	0	0
Q Serve(g_s), s	9.5	0.0	0.0	0.0	0.0	9.8	0.0	0.0	0.0	14.5	0.0	0.0
Cycle Q Clear(g_c), s	19.3	0.0	0.0	0.0	0.0	9.8	0.0	0.0	0.0	14.5	0.0	0.0
Prop In Lane	0.99		0.00	0.00		0.99	0.00		0.00	0.54		0.46
Lane Grp Cap(c), veh/h	291	0	0	0	0	495	0	123	0	455	0	0
V/C Ratio(X)	0.57	0.00	0.00	0.00	0.00	0.58	0.00	0.01	0.00	0.87	0.00	0.00
Avail Cap(c_a), veh/h	328	0	0	0	0	548	0	732	0	542	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	26.1	0.0	0.0	0.0	0.0	18.1	0.0	27.8	0.0	22.0	0.0	0.0
Incr Delay (d2), s/veh	1.8	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	12.4	0.0	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	3.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	8.2	0.0	0.0
LnGrp Delay(d),s/veh	27.9	0.0	0.0	0.0	0.0	19.4	0.0	27.8	0.0	34.4	0.0	0.0
LnGrp LOS	C					B		C		C		
Approach Vol, veh/h		165			286			1			395	
Approach Delay, s/veh		27.9			19.4			27.8			34.4	
Approach LOS		C			B			C			C	

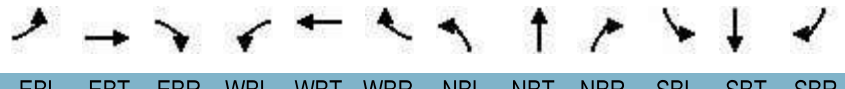
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		29.8		25.6		29.8		8.2
Change Period (Y+Rc), s		* 9.6		* 8.1		* 9.6		4.0
Max Green Setting (Gmax), s		* 22		* 21		* 22		25.0
Max Q Clear Time (g_c+I1), s		21.3		16.5		11.8		2.0
Green Ext Time (p_c), s		0.1		1.0		1.4		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	28.1
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

ATTACHMENT I - ACCESS & FRONTAGE OPERATIONAL ANALYSIS
LEVEL OF SERVICE CALCULATION WORKSHEETS
EXISTING PLUS PROJECT CONDITIONS



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	261	927	100	58	1289	160	257	51	55	47	25	295
Future Volume (veh/h)	261	927	100	58	1289	160	257	51	55	47	25	295
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		0.97	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1919	1919	1919
Adj Flow Rate, veh/h	275	976	0	61	1357	149	271	54	4	49	0	328
Adj No. of Lanes	2	3	1	2	4	0	2	1	0	1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	2733	996	98	2796	306	316	453	34	64	0	649
Arrive On Green	0.18	1.00	0.00	0.01	0.16	0.16	0.09	0.27	0.27	0.03	0.00	0.21
Sat Flow, veh/h	3442	5085	1583	3442	5895	645	3442	1709	127	1827	0	3121
Grp Volume(v), veh/h	275	976	0	61	1106	400	271	0	58	49	0	328
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1602	1734	1721	0	1835	1827	0	1560
Q Serve(g_s), s	11.6	0.0	0.0	2.6	31.5	31.6	11.6	0.0	3.6	4.0	0.0	14.0
Cycle Q Clear(g_c), s	11.6	0.0	0.0	2.6	31.5	31.6	11.6	0.0	3.6	4.0	0.0	14.0
Prop In Lane	1.00		1.00	1.00		0.37	1.00		0.07	1.00		1.00
Lane Grp Cap(c), veh/h	316	2733	996	98	2280	823	316	0	486	64	0	649
V/C Ratio(X)	0.87	0.36	0.00	0.62	0.48	0.49	0.86	0.00	0.12	0.77	0.00	0.51
Avail Cap(c_a), veh/h	363	2733	996	149	2280	823	363	0	707	116	0	1061
HCM Platoon Ratio	2.00	2.00	2.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	60.4	0.0	0.0	73.5	46.5	46.6	67.2	0.0	41.8	71.8	0.0	52.6
Incr Delay (d2), s/veh	16.0	0.3	0.0	2.4	0.7	2.1	14.9	0.0	0.1	7.1	0.0	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	6.2	0.1	0.0	1.3	14.2	15.7	6.2	0.0	1.8	2.1	0.0	6.0
LnGrp Delay(d),s/veh	76.4	0.3	0.0	75.8	47.3	48.6	82.1	0.0	41.9	78.9	0.0	53.0
LnGrp LOS	E	A		E	D	D	F		D	E		D
Approach Vol, veh/h		1251			1567			329			377	
Approach Delay, s/veh		17.1			48.7			75.0			56.4	
Approach LOS		B			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	8.5	87.2	18.0	36.3	18.0	77.8	9.4	44.9
Change Period (Y+Rc), s	* 4.2	* 6.6	* 4.2	5.1	* 4.2	6.6	* 4.2	* 5.1
Max Green Setting (Gmax), s	* 6.5	* 57	* 16	51.0	* 16	47.3	* 9.5	* 58
Max Q Clear Time (g_c+I1), s	13.6	2.0	13.6	16.0	13.6	33.6	6.0	5.6
Green Ext Time (p_c), s	0.0	18.5	0.1	1.2	0.1	11.3	0.0	0.3

Intersection Summary	
HCM 2010 Ctrl Delay	40.8
HCM 2010 LOS	D

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	730	55	0	1134	0	71
Future Vol, veh/h	730	55	0	1134	0	71
Conflicting Peds, #/hr	0	20	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	768	58	0	1194	0	75

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	433
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	488
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	479
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	13.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	479	-	-	-
HCM Lane V/C Ratio	0.156	-	-	-
HCM Control Delay (s)	13.9	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.5	-	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	71	8	0	262	165	33
Future Vol, veh/h	71	8	0	262	165	33
Conflicting Peds, #/hr	0	0	0	0	0	20
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	8	0	276	174	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	470	194	-	0	-	0
Stage 1	194	-	-	-	-	-
Stage 2	276	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	552	847	0	-	-	-
Stage 1	839	-	0	-	-	-
Stage 2	771	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	531	831	-	-	-	-
Mov Cap-2 Maneuver	531	-	-	-	-	-
Stage 1	823	-	-	-	-	-
Stage 2	756	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	551	-	-
HCM Lane V/C Ratio	-	0.151	-	-
HCM Control Delay (s)	-	12.7	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.5	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	5	8	23	5	141	6	50	9	17	123	33
Future Volume (veh/h)	71	5	8	23	5	141	6	50	9	17	123	33
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)	0.97		0.97	0.97		0.95	1.00		0.95	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	75	5	8	24	5	148	6	53	9	18	129	35
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	521	40	27	204	22	251	15	331	56	42	322	87
Arrive On Green	0.20	0.20	0.20	0.20	0.20	0.20	0.01	0.22	0.22	0.02	0.23	0.23
Sat Flow, veh/h	1172	202	137	136	113	1268	1774	1540	262	1774	1397	379
Grp Volume(v), veh/h	88	0	0	177	0	0	6	0	62	18	0	164
Grp Sat Flow(s),veh/h/ln	1512	0	0	1516	0	0	1774	0	1802	1774	0	1776
Q Serve(g_s), s	0.0	0.0	0.0	0.9	0.0	0.0	0.1	0.0	0.6	0.2	0.0	1.8
Cycle Q Clear(g_c), s	1.0	0.0	0.0	2.4	0.0	0.0	0.1	0.0	0.6	0.2	0.0	1.8
Prop In Lane	0.85		0.09	0.14		0.84	1.00		0.15	1.00		0.21
Lane Grp Cap(c), veh/h	588	0	0	478	0	0	15	0	388	42	0	409
V/C Ratio(X)	0.15	0.00	0.00	0.37	0.00	0.00	0.41	0.00	0.16	0.43	0.00	0.40
Avail Cap(c_a), veh/h	1607	0	0	1703	0	0	499	0	1639	576	0	1692
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.8	0.0	0.0	8.4	0.0	0.0	11.4	0.0	7.4	11.1	0.0	7.5
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.5	0.0	0.0	17.7	0.0	0.2	6.8	0.0	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	0.5	0.0	0.0	1.0	0.0	0.0	0.1	0.0	0.3	0.2	0.0	0.9
LnGrp Delay(d),s/veh	7.9	0.0	0.0	8.9	0.0	0.0	29.1	0.0	7.6	17.9	0.0	8.2
LnGrp LOS	A			A			C		A	B		A
Approach Vol, veh/h		88			177			68			182	
Approach Delay, s/veh		7.9			8.9			9.5			9.1	
Approach LOS		A			A			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.0	9.0		9.1	4.7	9.3		9.1
Change Period (Y+Rc), s	4.5	4.0		4.5	4.5	4.0		4.5
Max Green Setting (Gmax), s	7.5	21.0		23.5	6.5	22.0		23.5
Max Q Clear Time (g_c+I1), s	2.2	2.6		3.0	2.1	3.8		4.4
Green Ext Time (p_c), s	0.0	0.2		0.4	0.0	0.8		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	29	3	0	0	7	36	0	1	0	88	0	66
Future Volume (veh/h)	29	3	0	0	7	36	0	1	0	88	0	66
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		1.00	1.00		0.98	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	0	0	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	31	3	0	0	7	38	0	1	0	93	0	69
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.95	0.92	0.95
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	2	2	2
Cap, veh/h	314	5	0	0	18	100	0	7	0	332	0	280
Arrive On Green	0.07	0.07	0.00	0.00	0.07	0.07	0.00	0.00	0.00	0.19	0.00	0.19
Sat Flow, veh/h	760	74	0	0	247	1342	0	1863	0	1774	0	1499
Grp Volume(v), veh/h	34	0	0	0	0	45	0	1	0	93	0	69
Grp Sat Flow(s),veh/h/ln	834	0	0	0	0	1589	0	1863	0	1774	0	1499
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	1.2	0.0	1.0
Cycle Q Clear(g_c), s	1.4	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	1.2	0.0	1.0
Prop In Lane	0.91		0.00	0.00		0.84	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	320	0	0	0	0	118	0	7	0	332	0	280
V/C Ratio(X)	0.11	0.00	0.00	0.00	0.00	0.38	0.00	0.14	0.00	0.28	0.00	0.25
Avail Cap(c_a), veh/h	584	0	0	0	0	440	0	1743	0	524	0	443
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	0.0	0.0	11.8	0.0	13.3	0.0	9.3	0.0	9.3
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	2.0	0.0	3.4	0.0	0.5	0.0	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	0.2	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.6	0.0	0.5
LnGrp Delay(d),s/veh	12.6	0.0	0.0	0.0	0.0	13.8	0.0	16.7	0.0	9.8	0.0	9.7
LnGrp LOS	B					B		B		A		A
Approach Vol, veh/h		34			45			1			162	
Approach Delay, s/veh		12.6			13.8			16.7			9.7	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		11.6		11.1		11.6		4.0
Change Period (Y+Rc), s		* 9.6		6.1		* 9.6		4.0
Max Green Setting (Gmax), s		* 7.4		7.9		* 7.4		25.0
Max Q Clear Time (g_c+I1), s		3.4		3.2		2.7		2.0
Green Ext Time (p_c), s		0.0		0.2		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	10.9
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	582	1704	365	148	946	207	435	121	99	131	90	582
Future Volume (veh/h)	582	1704	365	148	946	207	435	121	99	131	90	582
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1937	1937	1937
Adj Flow Rate, veh/h	588	1721	70	149	956	118	439	122	73	132	0	649
Adj No. of Lanes	2	3	1	2	4	0	2	1	0	1	0	2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	592	2367	1044	172	2023	249	450	305	183	155	0	774
Arrive On Green	0.17	0.47	0.47	0.02	0.11	0.11	0.13	0.27	0.27	0.08	0.00	0.22
Sat Flow, veh/h	3442	5085	1745	3442	5892	724	3442	1132	677	1845	0	3563
Grp Volume(v), veh/h	588	1721	70	149	779	295	439	0	195	132	0	649
Grp Sat Flow(s),veh/h/ln	1721	1695	1745	1721	1602	1810	1721	0	1809	1845	0	1781
Q Serve(g_s), s	25.6	41.0	0.5	6.5	22.8	22.9	19.1	0.0	13.2	10.6	0.0	18.3
Cycle Q Clear(g_c), s	25.6	41.0	0.5	6.5	22.8	22.9	19.1	0.0	13.2	10.6	0.0	18.3
Prop In Lane	1.00		1.00	1.00		0.40	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	592	2367	1044	172	1650	621	450	0	488	155	0	774
V/C Ratio(X)	0.99	0.73	0.07	0.87	0.47	0.47	0.98	0.00	0.40	0.85	0.00	0.84
Avail Cap(c_a), veh/h	592	2367	1044	172	1650	621	450	0	621	241	0	1211
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.0	32.4	5.4	73.3	53.8	53.8	65.0	0.0	44.8	67.8	0.0	27.6
Incr Delay (d2), s/veh	35.2	2.0	0.1	32.9	1.0	2.6	36.0	0.0	0.4	9.6	0.0	2.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.1	19.6	0.8	3.9	10.3	12.0	11.3	0.0	6.7	5.8	0.0	10.7
LnGrp Delay(d),s/veh	97.2	34.4	5.5	106.2	54.7	56.4	101.0	0.0	45.2	77.4	0.0	30.3
LnGrp LOS	F	C	A	F	D	E	F		D	E		C
Approach Vol, veh/h		2379			1223			634			781	
Approach Delay, s/veh		49.1			61.4			83.8			38.3	
Approach LOS		D			E			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.7	76.4	24.2	37.7	30.0	58.1	16.8	45.1
Change Period (Y+Rc), s	* 4.2	* 6.6	4.6	* 5.1	* 4.2	6.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 27	* 52	19.6	* 51	* 26	33.5	* 20	51.5
Max Q Clear Time (g_c+I1), s	18.5	43.0	21.1	20.3	27.6	24.9	12.6	15.2
Green Ext Time (p_c), s	0.0	8.2	0.0	2.2	0.0	6.2	0.1	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	54.8
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1329	161	0	975	0	45
Future Vol, veh/h	1329	161	0	975	0	45
Conflicting Peds, #/hr	0	20	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1399	169	0	1026	0	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	804
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	280
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	275
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	275	-	-	-
HCM Lane V/C Ratio	0.172	-	-	-
HCM Control Delay (s)	20.8	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	5	0	610	506	97
Future Vol, veh/h	45	5	0	610	506	97
Conflicting Peds, #/hr	0	0	0	0	0	20
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	5	0	642	533	102

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1195	553	-	0	-	0
Stage 1	553	-	-	-	-	-
Stage 2	642	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	206	533	0	-	-	-
Stage 1	576	-	0	-	-	-
Stage 2	524	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	198	523	-	-	-	-
Mov Cap-2 Maneuver	198	-	-	-	-	-
Stage 1	565	-	-	-	-	-
Stage 2	514	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	27.6	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	211	-	-
HCM Lane V/C Ratio	-	0.249	-	-
HCM Control Delay (s)	-	27.6	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	5	5	14	5	88	18	477	26	50	365	96
Future Volume (veh/h)	45	5	5	14	5	88	18	477	26	50	365	96
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)	0.96		0.97	0.97		0.95	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	47	5	5	15	5	93	19	502	27	53	384	101
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	41	23	134	33	254	43	699	38	101	625	164
Arrive On Green	0.18	0.18	0.18	0.18	0.18	0.18	0.02	0.40	0.40	0.06	0.43	0.43
Sat Flow, veh/h	1098	224	127	115	180	1373	1774	1761	95	1774	1452	382
Grp Volume(v), veh/h	57	0	0	113	0	0	19	0	529	53	0	485
Grp Sat Flow(s),veh/h/ln	1449	0	0	1669	0	0	1774	0	1855	1774	0	1834
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	8.7	1.0	0.0	7.4
Cycle Q Clear(g_c), s	1.0	0.0	0.0	2.1	0.0	0.0	0.4	0.0	8.7	1.0	0.0	7.4
Prop In Lane	0.82		0.09	0.13		0.82	1.00		0.05	1.00		0.21
Lane Grp Cap(c), veh/h	450	0	0	422	0	0	43	0	737	101	0	789
V/C Ratio(X)	0.13	0.00	0.00	0.27	0.00	0.00	0.45	0.00	0.72	0.52	0.00	0.61
Avail Cap(c_a), veh/h	867	0	0	941	0	0	251	0	1463	271	0	1467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.4	0.0	0.0	12.8	0.0	0.0	17.3	0.0	9.2	16.5	0.0	7.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.3	0.0	0.0	7.1	0.0	1.3	4.1	0.0	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	0.5	0.0	0.0	1.0	0.0	0.0	0.3	0.0	4.7	0.6	0.0	3.8
LnGrp Delay(d),s/veh	12.5	0.0	0.0	13.2	0.0	0.0	24.5	0.0	10.5	20.6	0.0	8.7
LnGrp LOS	B			B			C		B	C		A
Approach Vol, veh/h		57			113			548			538	
Approach Delay, s/veh		12.5			13.2			11.0			9.9	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.6	18.3		11.2	5.4	19.5		11.2
Change Period (Y+Rc), s	4.5	4.0		4.5	4.5	4.0		4.5
Max Green Setting (Gmax), s	5.5	28.4		18.1	5.1	28.8		18.1
Max Q Clear Time (g_c+I1), s	3.0	10.7		3.0	2.4	9.4		4.1
Green Ext Time (p_c), s	0.0	3.3		0.2	0.0	3.0		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	10.8
HCM 2010 LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	164	2	0	0	3	304	0	1	0	222	0	176
Future Volume (veh/h)	164	2	0	0	3	304	0	1	0	222	0	176
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.98	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	0	0	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	173	2	0	0	3	320	0	1	0	234	0	185
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.95	0.92	0.95
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	2	2	2
Cap, veh/h	343	3	0	0	5	569	0	4	0	329	0	311
Arrive On Green	0.33	0.33	0.00	0.00	0.33	0.33	0.00	0.00	0.00	0.19	0.00	0.19
Sat Flow, veh/h	557	9	0	0	16	1727	0	1863	0	1774	0	1678
Grp Volume(v), veh/h	175	0	0	0	0	323	0	1	0	234	0	185
Grp Sat Flow(s),veh/h/ln	567	0	0	0	0	1743	0	1863	0	1774	0	1678
Q Serve(g_s), s	7.3	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	5.6	0.0	4.5
Cycle Q Clear(g_c), s	14.2	0.0	0.0	0.0	0.0	6.8	0.0	0.0	0.0	5.6	0.0	4.5
Prop In Lane	0.99		0.00	0.00		0.99	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	346	0	0	0	0	575	0	4	0	329	0	311
V/C Ratio(X)	0.51	0.00	0.00	0.00	0.00	0.56	0.00	0.24	0.00	0.71	0.00	0.59
Avail Cap(c_a), veh/h	501	0	0	0	0	831	0	1038	0	470	0	445
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.2	0.0	0.0	0.0	0.0	12.4	0.0	22.4	0.0	17.2	0.0	16.7
Incr Delay (d2), s/veh	1.1	0.0	0.0	0.0	0.0	0.9	0.0	27.5	0.0	2.9	0.0	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	3.0	0.0	2.3
LnGrp Delay(d),s/veh	19.3	0.0	0.0	0.0	0.0	13.2	0.0	49.9	0.0	20.0	0.0	18.6
LnGrp LOS	B					B		D		C		B
Approach Vol, veh/h		175			323			1			419	
Approach Delay, s/veh		19.3			13.2			49.9			19.4	
Approach LOS		B			B			D			B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		24.4		16.4		24.4		4.1
Change Period (Y+Rc), s		* 9.6		* 8.1		* 9.6		4.0
Max Green Setting (Gmax), s		* 21		* 12		* 21		25.0
Max Q Clear Time (g_c+I1), s		16.2		7.6		8.8		2.0
Green Ext Time (p_c), s		0.5		0.8		1.6		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	17.2
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

ATTACHMENT J - ACCESS & FRONTAGE OPERATIONAL ANALYSIS
LEVEL OF SERVICE CALCULATION WORKSHEETS
HORIZON YEAR 2030 BASE AND BASE PLUS PROJECT CONDITIONS

HORIZON YEAR 2030 BASE

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	1000	90	30	1530	160	30	20	10	50	20	380
Future Volume (veh/h)	340	1000	90	30	1530	160	30	20	10	50	20	380
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.98	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	358	1053	74	32	1611	126	32	21	11	53	0	414
Adj No. of Lanes	2	4	0	2	4	0	2	1	0	1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	404	3706	259	68	3076	240	68	233	122	68	0	683
Arrive On Green	0.16	0.80	0.80	0.04	1.00	1.00	0.02	0.21	0.21	0.04	0.00	0.22
Sat Flow, veh/h	3442	6155	430	3442	6098	477	3442	1133	593	1774	0	3040
Grp Volume(v), veh/h	358	821	306	32	1270	467	32	0	32	53	0	414
Grp Sat Flow(s),veh/h/ln	1721	1602	1779	1721	1602	1768	1721	0	1726	1774	0	1520
Q Serve(g_s), s	15.3	6.6	6.7	1.4	0.0	0.0	1.4	0.0	2.2	4.4	0.0	18.3
Cycle Q Clear(g_c), s	15.3	6.6	6.7	1.4	0.0	0.0	1.4	0.0	2.2	4.4	0.0	18.3
Prop In Lane	1.00		0.24	1.00		0.27	1.00		0.34	1.00		1.00
Lane Grp Cap(c), veh/h	404	2893	1071	68	2424	892	68	0	356	68	0	683
V/C Ratio(X)	0.89	0.28	0.29	0.47	0.52	0.52	0.47	0.00	0.09	0.78	0.00	0.61
Avail Cap(c_a), veh/h	500	2893	1071	96	2424	892	96	0	552	104	0	1056
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.3	6.6	6.6	71.3	0.0	0.0	72.8	0.0	48.2	71.5	0.0	52.2
Incr Delay (d2), s/veh	12.4	0.2	0.6	1.9	0.8	2.2	1.9	0.0	0.1	8.4	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	3.0	3.4	0.7	0.2	0.5	0.7	0.0	1.1	2.3	0.0	7.8
LnGrp Delay(d),s/veh	74.7	6.8	7.2	73.2	0.8	2.2	74.7	0.0	48.3	79.9	0.0	52.9
LnGrp LOS	E	A	A	E	A	A	E		D	E		D
Approach Vol, veh/h		1485			1769			64			467	
Approach Delay, s/veh		23.3			2.5			61.5			56.0	
Approach LOS		C			A			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	7.1	96.9	7.1	38.8	21.8	82.3	9.9	36.0
Change Period (Y+Rc), s	* 4.2	* 6.6	* 4.2	5.1	* 4.2	6.6	* 4.2	* 5.1
Max Green Setting (Gmax), s	* 4.8	* 70	* 4.2	52.1	* 22	51.8	* 8.8	* 48
Max Q Clear Time (g_c+I1), s	3.4	8.7	3.4	20.3	17.3	2.0	6.4	4.2
Green Ext Time (p_c), s	0.0	22.4	0.0	1.5	0.3	35.3	0.0	0.1

Intersection Summary	
HCM 2010 Ctrl Delay	18.2
HCM 2010 LOS	B

Notes

User approved volume balancing among the lanes for turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	30	10	0	0	10	20	0	0	0	40	0	40
Future Volume (veh/h)	30	10	0	0	10	20	0	0	0	40	0	40
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		1.00	1.00		0.98	1.00		1.00	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	0	0	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	32	11	0	0	11	21	0	0	0	42	0	42
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.95	0.92	0.95
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	2	2	2
Cap, veh/h	338	20	0	0	42	79	0	8	0	397	0	339
Arrive On Green	0.07	0.07	0.00	0.00	0.07	0.07	0.00	0.00	0.00	0.22	0.00	0.22
Sat Flow, veh/h	775	266	0	0	566	1081	0	1863	0	1774	0	1513
Grp Volume(v), veh/h	43	0	0	0	0	32	0	0	0	42	0	42
Grp Sat Flow(s),veh/h/ln	1042	0	0	0	0	1647	0	1863	0	1774	0	1513
Q Serve(g_s), s	0.7	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4	0.0	0.5
Cycle Q Clear(g_c), s	1.1	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.4	0.0	0.5
Prop In Lane	0.74		0.00	0.00		0.66	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	358	0	0	0	0	121	0	8	0	397	0	339
V/C Ratio(X)	0.12	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.11	0.00	0.12
Avail Cap(c_a), veh/h	778	0	0	0	0	619	0	2085	0	548	0	467
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	10.3	0.0	0.0	0.0	0.0	9.8	0.0	0.0	0.0	6.9	0.0	6.9
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.1	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	0.0	0.2
LnGrp Delay(d),s/veh	10.4	0.0	0.0	0.0	0.0	10.9	0.0	0.0	0.0	7.0	0.0	7.1
LnGrp LOS	B					B				A		A
Approach Vol, veh/h		43			32			0			84	
Approach Delay, s/veh		10.4			10.9			0.0			7.0	
Approach LOS		B			B						A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		11.2		11.1		11.2		0.0
Change Period (Y+Rc), s		* 9.6		6.1		* 9.6		4.0
Max Green Setting (Gmax), s		* 8.4		6.9		* 8.4		25.0
Max Q Clear Time (g_c+I1), s		3.1		2.5		2.4		0.0
Green Ext Time (p_c), s		0.0		0.1		0.0		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	590	1560	270	20	950	210	310	120	70	120	80	590
Future Volume (veh/h)	590	1560	270	20	950	210	310	120	70	120	80	590
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	596	1576	0	20	960	178	313	121	44	121	0	650
Adj No. of Lanes	2	4	0	2	4	0	2	1	0	1	0	2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	619	3273	0	51	1891	345	340	349	127	141	0	773
Arrive On Green	0.18	0.51	0.00	0.01	0.35	0.35	0.10	0.27	0.27	0.08	0.00	0.25
Sat Flow, veh/h	3442	6669	0	3442	5473	999	3442	1296	471	1774	0	3091
Grp Volume(v), veh/h	596	1576	0	20	841	297	313	0	165	121	0	650
Grp Sat Flow(s),veh/h/ln	1721	1602	0	1721	1602	1666	1721	0	1767	1774	0	1545
Q Serve(g_s), s	27.5	25.5	0.0	0.9	22.2	22.7	14.4	0.0	12.0	10.8	0.0	32.0
Cycle Q Clear(g_c), s	27.5	25.5	0.0	0.9	22.2	22.7	14.4	0.0	12.0	10.8	0.0	32.0
Prop In Lane	1.00		0.00	1.00		0.60	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	619	3273	0	51	1661	576	340	0	476	141	0	773
V/C Ratio(X)	0.96	0.48	0.00	0.39	0.51	0.52	0.92	0.00	0.35	0.86	0.00	0.84
Avail Cap(c_a), veh/h	619	3273	0	86	1661	576	340	0	538	162	0	908
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	65.1	25.4	0.0	78.1	41.5	41.7	71.5	0.0	47.1	72.7	0.0	57.0
Incr Delay (d2), s/veh	26.7	0.5	0.0	1.8	1.1	3.3	29.0	0.0	0.3	28.3	0.0	6.0
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	5.4	11.4	0.0	0.5	10.0	11.0	8.2	0.0	5.9	6.4	0.0	14.3
LnGrp Delay(d),s/veh	91.8	25.9	0.0	80.0	42.6	45.0	100.5	0.0	47.5	101.0	0.0	63.0
LnGrp LOS	F	C		E	D	D	F		D	F		E
Approach Vol, veh/h		2172			1158			478			771	
Approach Delay, s/veh		44.0			43.9			82.2			69.0	
Approach LOS		D			D			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	6.6	88.3	20.0	45.1	33.0	61.9	16.9	48.2
Change Period (Y+Rc), s	* 4.2	* 6.6	* 4.2	5.1	* 4.2	6.6	* 4.2	* 5.1
Max Green Setting (Gmax), s	* 4	* 73	* 16	47.0	* 29	48.3	* 15	* 49
Max Q Clear Time (g_c+I1), s	2.9	27.5	16.4	34.0	29.5	24.7	12.8	14.0
Green Ext Time (p_c), s	0.0	31.3	0.0	2.1	0.0	14.2	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	52.2
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	200	10	0	0	10	280	0	0	0	160	0	160
Future Volume (veh/h)	200	10	0	0	10	280	0	0	0	160	0	160
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.98	1.00		1.00	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	0	0	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	211	11	0	0	11	295	0	0	0	168	0	168
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	2	2	2
Cap, veh/h	417	18	0	0	22	583	0	5	0	316	0	267
Arrive On Green	0.39	0.39	0.00	0.00	0.39	0.39	0.00	0.00	0.00	0.18	0.00	0.18
Sat Flow, veh/h	632	45	0	0	56	1512	0	1863	0	1774	0	1495
Grp Volume(v), veh/h	222	0	0	0	0	306	0	0	0	168	0	168
Grp Sat Flow(s),veh/h/ln	678	0	0	0	0	1568	0	1863	0	1774	0	1495
Q Serve(g_s), s	7.8	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	3.5	0.0	4.2
Cycle Q Clear(g_c), s	13.8	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	3.5	0.0	4.2
Prop In Lane	0.95		0.00	0.00		0.96	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	434	0	0	0	0	605	0	5	0	316	0	267
V/C Ratio(X)	0.51	0.00	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.53	0.00	0.63
Avail Cap(c_a), veh/h	774	0	0	0	0	1096	0	1146	0	651	0	548
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.6	0.0	0.0	0.0	0.0	9.5	0.0	0.0	0.0	15.1	0.0	15.4
Incr Delay (d2), s/veh	0.9	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	1.4	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	0.0	0.0	0.0	0.0	2.7	0.0	0.0	0.0	1.8	0.0	1.9
LnGrp Delay(d),s/veh	15.5	0.0	0.0	0.0	0.0	10.2	0.0	0.0	0.0	16.5	0.0	17.9
LnGrp LOS	B					B				B		B
Approach Vol, veh/h		222			306			0			336	
Approach Delay, s/veh		15.5			10.2			0.0			17.2	
Approach LOS		B			B						B	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		25.3		15.3		25.3		0.0
Change Period (Y+Rc), s		* 9.6		* 8.1		* 9.6		4.0
Max Green Setting (Gmax), s		* 28		* 15		* 28		25.0
Max Q Clear Time (g_c+I1), s		15.8		6.2		8.0		0.0
Green Ext Time (p_c), s		1.3		1.0		2.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	14.3
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	340	1050	123	76	1530	160	242	44	57	55	24	380
Future Volume (veh/h)	340	1050	123	76	1530	160	242	44	57	55	24	380
Number	5	2	12	1	6	16	3	8	18	7	4	14
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		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	358	1105	0	80	1611	149	255	46	6	58	0	417
Adj No. of Lanes	2	3	1	2	4	0	2	1	0	1	0	2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	395	2694	974	121	2702	250	294	417	54	74	0	659
Arrive On Green	0.23	1.00	0.00	0.04	0.45	0.45	0.09	0.26	0.26	0.04	0.00	0.22
Sat Flow, veh/h	3442	5085	1583	3442	6004	555	3442	1609	210	1774	0	3057
Grp Volume(v), veh/h	358	1105	0	80	1289	471	255	0	52	58	0	417
Grp Sat Flow(s),veh/h/ln	1721	1695	1583	1721	1602	1754	1721	0	1818	1774	0	1528
Q Serve(g_s), s	15.2	0.0	0.0	3.4	30.2	30.3	11.0	0.0	3.3	4.9	0.0	18.6
Cycle Q Clear(g_c), s	15.2	0.0	0.0	3.4	30.2	30.3	11.0	0.0	3.3	4.9	0.0	18.6
Prop In Lane	1.00		1.00	1.00		0.32	1.00		0.12	1.00		1.00
Lane Grp Cap(c), veh/h	395	2694	974	121	2163	789	294	0	472	74	0	659
V/C Ratio(X)	0.91	0.41	0.00	0.66	0.60	0.60	0.87	0.00	0.11	0.78	0.00	0.63
Avail Cap(c_a), veh/h	408	2694	974	167	2163	789	294	0	652	124	0	1039
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.90	0.90	0.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	57.0	0.0	0.0	71.5	31.0	31.0	67.8	0.0	42.4	71.2	0.0	53.4
Incr Delay (d2), s/veh	20.5	0.4	0.0	2.3	1.2	3.3	22.3	0.0	0.1	6.6	0.0	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	8.3	0.1	0.0	1.7	13.6	15.4	6.1	0.0	1.7	2.5	0.0	7.9
LnGrp Delay(d),s/veh	77.5	0.4	0.0	73.8	32.2	34.3	90.0	0.0	42.4	77.8	0.0	54.2
LnGrp LOS	E	A		E	C	C	F		D	E		D
Approach Vol, veh/h		1463			1840			307			475	
Approach Delay, s/veh		19.3			34.6			82.0			57.1	
Approach LOS		B			C			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	9.5	86.1	17.0	37.5	21.4	74.1	10.5	44.0
Change Period (Y+Rc), s	* 4.2	* 6.6	* 4.2	5.1	* 4.2	6.6	* 4.2	* 5.1
Max Green Setting (Gmax), s	* 7.3	* 59	* 13	51.0	* 18	48.3	* 11	* 54
Max Q Clear Time (g_c+I1), s	5.4	2.0	13.0	20.6	17.2	32.3	6.9	5.3
Green Ext Time (p_c), s	0.0	22.3	0.0	1.5	0.1	14.0	0.0	0.2

Intersection Summary	
HCM 2010 Ctrl Delay	35.3
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	830	55	0	1493	0	71
Future Vol, veh/h	830	55	0	1493	0	71
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	874	58	0	1572	0	75

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	466
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	465
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	465
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	14.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	465	-	-	-
HCM Lane V/C Ratio	0.161	-	-	-
HCM Control Delay (s)	14.2	-	-	-
HCM Lane LOS	B	-	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	71	8	0	267	200	33
Future Vol, veh/h	71	8	0	267	200	33
Conflicting Peds, #/hr	0	20	0	0	0	20
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	75	8	0	281	211	35

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	512	251	-	0	-	0
Stage 1	231	-	-	-	-	-
Stage 2	281	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	522	788	0	-	-	-
Stage 1	807	-	0	-	-	-
Stage 2	767	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	502	758	-	-	-	-
Mov Cap-2 Maneuver	502	-	-	-	-	-
Stage 1	792	-	-	-	-	-
Stage 2	752	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	13.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	520	-	-
HCM Lane V/C Ratio	-	0.16	-	-
HCM Control Delay (s)	-	13.2	-	-
HCM Lane LOS	-	B	-	-
HCM 95th %tile Q(veh)	-	0.6	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	71	5	8	23	5	141	6	55	9	17	118	33
Future Volume (veh/h)	71	5	8	23	5	141	6	55	9	17	118	33
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)	0.97		0.98	0.98		0.96	1.00		0.96	1.00		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	75	5	8	24	5	148	6	58	9	18	124	35
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	543	41	33	186	34	320	14	353	55	42	333	94
Arrive On Green	0.25	0.25	0.25	0.25	0.25	0.25	0.01	0.23	0.23	0.02	0.24	0.24
Sat Flow, veh/h	1146	165	131	114	137	1281	1774	1564	243	1774	1383	390
Grp Volume(v), veh/h	88	0	0	177	0	0	6	0	67	18	0	159
Grp Sat Flow(s),veh/h/ln	1443	0	0	1532	0	0	1774	0	1807	1774	0	1774
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.8	0.3	0.0	1.9
Cycle Q Clear(g_c), s	1.0	0.0	0.0	2.5	0.0	0.0	0.1	0.0	0.8	0.3	0.0	1.9
Prop In Lane	0.85		0.09	0.14		0.84	1.00		0.13	1.00		0.22
Lane Grp Cap(c), veh/h	618	0	0	540	0	0	14	0	407	42	0	427
V/C Ratio(X)	0.14	0.00	0.00	0.33	0.00	0.00	0.41	0.00	0.16	0.43	0.00	0.37
Avail Cap(c_a), veh/h	1437	0	0	1528	0	0	445	0	1463	513	0	1505
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.7	0.0	0.0	8.2	0.0	0.0	12.8	0.0	8.1	12.5	0.0	8.2
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.4	0.0	0.0	17.8	0.0	0.2	6.9	0.0	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	0.5	0.0	0.0	1.1	0.0	0.0	0.1	0.0	0.4	0.2	0.0	1.0
LnGrp Delay(d),s/veh	7.8	0.0	0.0	8.6	0.0	0.0	30.6	0.0	8.3	19.4	0.0	8.7
LnGrp LOS	A			A			C		A	B		A
Approach Vol, veh/h		88			177			73			177	
Approach Delay, s/veh		7.8			8.6			10.1			9.8	
Approach LOS		A			A			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	5.1	9.8		11.0	4.7	10.2		11.0
Change Period (Y+Rc), s	4.5	4.0		4.5	4.5	4.0		4.5
Max Green Setting (Gmax), s	7.5	21.0		23.5	6.5	22.0		23.5
Max Q Clear Time (g_c+I1), s	2.3	2.8		3.0	2.1	3.9		4.5
Green Ext Time (p_c), s	0.0	0.2		0.4	0.0	0.8		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	9.1
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	33	10	0	0	10	32	0	1	0	71	0	48
Future Volume (veh/h)	33	10	0	0	10	32	0	1	0	71	0	48
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		1.00	1.00		0.98	1.00		1.00	1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	0	0	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	35	11	0	0	11	34	0	1	0	75	0	51
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	2	2	2
Cap, veh/h	288	16	0	0	30	92	0	7	0	331	0	280
Arrive On Green	0.08	0.08	0.00	0.00	0.08	0.08	0.00	0.00	0.00	0.19	0.00	0.19
Sat Flow, veh/h	681	214	0	0	395	1219	0	1863	0	1774	0	1499
Grp Volume(v), veh/h	46	0	0	0	0	45	0	1	0	75	0	51
Grp Sat Flow(s),veh/h/ln	895	0	0	0	0	1614	0	1863	0	1774	0	1499
Q Serve(g_s), s	0.9	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	1.0	0.0	0.8
Cycle Q Clear(g_c), s	1.6	0.0	0.0	0.0	0.0	0.7	0.0	0.0	0.0	1.0	0.0	0.8
Prop In Lane	0.76		0.00	0.00		0.76	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	305	0	0	0	0	122	0	7	0	331	0	280
V/C Ratio(X)	0.15	0.00	0.00	0.00	0.00	0.37	0.00	0.14	0.00	0.23	0.00	0.18
Avail Cap(c_a), veh/h	632	0	0	0	0	507	0	1740	0	457	0	386
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.5	0.0	0.0	0.0	0.0	11.8	0.0	13.3	0.0	9.2	0.0	9.2
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.0	0.0	1.8	0.0	3.4	0.0	0.3	0.0	0.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.5	0.0	0.3
LnGrp Delay(d),s/veh	12.7	0.0	0.0	0.0	0.0	13.6	0.0	16.8	0.0	9.6	0.0	9.5
LnGrp LOS	B					B		B		A		A
Approach Vol, veh/h		46			45			1			126	
Approach Delay, s/veh		12.7			13.6			16.8			9.5	
Approach LOS		B			B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		11.6		11.1		11.6		4.0
Change Period (Y+Rc), s		* 9.6		6.1		* 9.6		4.0
Max Green Setting (Gmax), s		* 8.4		6.9		* 8.4		25.0
Max Q Clear Time (g_c+I1), s		3.6		3.0		2.7		2.0
Green Ext Time (p_c), s		0.1		0.1		0.1		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	11.1
HCM 2010 LOS	B

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	590	1706	366	155	950	210	443	136	99	135	92	590
Future Volume (veh/h)	590	1706	366	155	950	210	443	136	99	135	92	590
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1937	1937	1937
Adj Flow Rate, veh/h	596	1723	71	157	960	178	447	137	73	136	0	658
Adj No. of Lanes	2	3	1	2	4	0	2	1	0	1	0	2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	592	2361	1042	172	1905	351	450	318	169	159	0	778
Arrive On Green	0.17	0.46	0.46	0.10	0.68	0.68	0.13	0.27	0.27	0.09	0.00	0.22
Sat Flow, veh/h	3442	5085	1745	3442	5567	1026	3442	1182	630	1845	0	3563
Grp Volume(v), veh/h	596	1723	71	157	828	310	447	0	210	136	0	658
Grp Sat Flow(s),veh/h/ln	1721	1695	1745	1721	1602	1787	1721	0	1812	1845	0	1782
Q Serve(g_s), s	25.8	41.2	0.5	6.8	12.4	12.6	19.5	0.0	14.4	10.9	0.0	18.6
Cycle Q Clear(g_c), s	25.8	41.2	0.5	6.8	12.4	12.6	19.5	0.0	14.4	10.9	0.0	18.6
Prop In Lane	1.00		1.00	1.00		0.57	1.00		0.35	1.00		1.00
Lane Grp Cap(c), veh/h	592	2361	1042	172	1645	612	450	0	487	159	0	778
V/C Ratio(X)	1.01	0.73	0.07	0.91	0.50	0.51	0.99	0.00	0.43	0.85	0.00	0.85
Avail Cap(c_a), veh/h	592	2361	1042	172	1645	612	450	0	622	241	0	1212
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	62.1	32.6	5.5	67.2	17.5	17.6	65.1	0.0	45.4	67.6	0.0	27.6
Incr Delay (d2), s/veh	38.7	2.0	0.1	43.5	1.1	3.0	40.7	0.0	0.5	11.2	0.0	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	15.4	19.7	0.8	4.3	5.5	6.5	11.8	0.0	7.2	6.0	0.0	10.9
LnGrp Delay(d),s/veh	100.8	34.6	5.6	110.6	18.6	20.5	105.9	0.0	45.8	78.8	0.0	30.5
LnGrp LOS	F	C	A	F	B	C	F		D	E		C
Approach Vol, veh/h		2390			1295			657			794	
Approach Delay, s/veh		50.2			30.2			86.7			38.8	
Approach LOS		D			C			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	31.7	76.2	24.2	37.9	30.0	57.9	17.2	44.9
Change Period (Y+Rc), s	* 4.2	* 6.6	4.6	* 5.1	* 4.2	6.6	* 4.2	4.6
Max Green Setting (Gmax), s	* 7.5	* 52	19.6	* 51	* 26	33.5	* 20	51.5
Max Q Clear Time (g_c+I1), s	18.8	43.2	21.5	20.6	27.8	14.6	12.9	16.4
Green Ext Time (p_c), s	0.0	8.1	0.0	2.2	0.0	12.1	0.1	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	48.1
HCM 2010 LOS	D

Notes

User approved pedestrian interval to be less than phase max green.
User approved volume balancing among the lanes for turning movement.
User approved ignoring U-Turning movement.
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1334	161	0	986	0	45
Future Vol, veh/h	1334	161	0	986	0	45
Conflicting Peds, #/hr	0	20	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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1404	169	0	1038	0	47

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	-	-	-	807
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	279
Stage 1	-	-	0	-	0	-
Stage 2	-	-	0	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	-	-	-	274
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	20.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBT
Capacity (veh/h)	274	-	-	-
HCM Lane V/C Ratio	0.173	-	-	-
HCM Control Delay (s)	20.9	-	-	-
HCM Lane LOS	C	-	-	-
HCM 95th %tile Q(veh)	0.6	-	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	45	5	0	633	516	97
Future Vol, veh/h	45	5	0	633	516	97
Conflicting Peds, #/hr	0	0	0	0	0	20
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	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	47	5	0	666	543	102

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1229	563	-	0	-	0
Stage 1	563	-	-	-	-	-
Stage 2	666	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	196	526	0	-	-	-
Stage 1	570	-	0	-	-	-
Stage 2	511	-	0	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	189	516	-	-	-	-
Mov Cap-2 Maneuver	189	-	-	-	-	-
Stage 1	559	-	-	-	-	-
Stage 2	501	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	29	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	-	202	-	-
HCM Lane V/C Ratio	-	0.261	-	-
HCM Control Delay (s)	-	29	-	-
HCM Lane LOS	-	D	-	-
HCM 95th %tile Q(veh)	-	1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	5	5	14	5	88	18	500	26	50	375	96
Future Volume (veh/h)	45	5	5	14	5	88	18	500	26	50	375	96
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)	0.95		0.96	0.96		0.93	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	47	5	5	15	5	93	19	526	27	53	395	101
Adj No. of Lanes	0	1	0	0	1	0	1	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	347	37	18	141	20	185	43	734	38	103	657	168
Arrive On Green	0.14	0.14	0.14	0.14	0.14	0.14	0.02	0.42	0.42	0.06	0.45	0.45
Sat Flow, veh/h	1099	271	132	141	149	1349	1774	1765	91	1774	1461	374
Grp Volume(v), veh/h	57	0	0	113	0	0	19	0	553	53	0	496
Grp Sat Flow(s),veh/h/ln	1501	0	0	1640	0	0	1774	0	1856	1774	0	1835
Q Serve(g_s), s	0.0	0.0	0.0	0.5	0.0	0.0	0.4	0.0	8.3	1.0	0.0	6.8
Cycle Q Clear(g_c), s	1.0	0.0	0.0	2.1	0.0	0.0	0.4	0.0	8.3	1.0	0.0	6.8
Prop In Lane	0.82		0.09	0.13		0.82	1.00		0.05	1.00		0.20
Lane Grp Cap(c), veh/h	402	0	0	347	0	0	43	0	772	103	0	825
V/C Ratio(X)	0.14	0.00	0.00	0.33	0.00	0.00	0.44	0.00	0.72	0.51	0.00	0.60
Avail Cap(c_a), veh/h	928	0	0	1000	0	0	271	0	1521	345	0	1581
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	12.9	0.0	0.0	13.3	0.0	0.0	16.1	0.0	8.1	15.3	0.0	6.9
Incr Delay (d2), s/veh	0.2	0.0	0.0	0.5	0.0	0.0	7.0	0.0	1.3	3.9	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.0	1.0	0.0	0.0	0.3	0.0	4.4	0.6	0.0	3.5
LnGrp Delay(d),s/veh	13.0	0.0	0.0	13.9	0.0	0.0	23.1	0.0	9.4	19.2	0.0	7.6
LnGrp LOS	B			B			C		A	B		A
Approach Vol, veh/h		57			113			572			549	
Approach Delay, s/veh		13.0			13.9			9.8			8.8	
Approach LOS		B			B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	17.9		9.1	5.3	19.0		9.1
Change Period (Y+Rc), s	4.5	4.0		4.5	4.5	4.0		4.5
Max Green Setting (Gmax), s	6.5	27.4		18.1	5.1	28.8		18.1
Max Q Clear Time (g_c+I1), s	3.0	10.3		3.0	2.4	8.8		4.1
Green Ext Time (p_c), s	0.0	3.4		0.2	0.0	3.2		0.4

Intersection Summary	
HCM 2010 Ctrl Delay	9.9
HCM 2010 LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	209	10	0	0	10	315	0	1	0	189	0	165
Future Volume (veh/h)	209	10	0	0	10	315	0	1	0	189	0	165
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		1.00	1.00		0.99	1.00		1.00	1.00		0.94
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	0	0	1863	1900	1900	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	220	11	0	0	11	332	0	1	0	199	0	174
Adj No. of Lanes	0	1	0	0	1	0	0	1	0	1	1	0
Peak Hour Factor	0.95	0.95	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2	2	2	2
Cap, veh/h	374	16	0	0	23	688	0	150	0	292	0	274
Arrive On Green	0.41	0.41	0.00	0.00	0.41	0.41	0.00	0.08	0.00	0.16	0.00	0.16
Sat Flow, veh/h	642	40	0	0	56	1695	0	1863	0	1774	0	1666
Grp Volume(v), veh/h	231	0	0	0	0	343	0	1	0	199	0	174
Grp Sat Flow(s),veh/h/ln	682	0	0	0	0	1751	0	1863	0	1774	0	1666
Q Serve(g_s), s	12.8	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	6.6	0.0	6.1
Cycle Q Clear(g_c), s	21.7	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	6.6	0.0	6.1
Prop In Lane	0.95		0.00	0.00		0.97	0.00		0.00	1.00		1.00
Lane Grp Cap(c), veh/h	390	0	0	0	0	711	0	150	0	292	0	274
V/C Ratio(X)	0.59	0.00	0.00	0.00	0.00	0.48	0.00	0.01	0.00	0.68	0.00	0.64
Avail Cap(c_a), veh/h	612	0	0	0	0	1082	0	749	0	996	0	935
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	21.5	0.0	0.0	0.0	0.0	13.6	0.0	26.3	0.0	24.4	0.0	24.2
Incr Delay (d2), s/veh	1.4	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	2.8	0.0	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	0.0	0.0	0.0	4.4	0.0	0.0	0.0	3.4	0.0	2.9
LnGrp Delay(d),s/veh	22.9	0.0	0.0	0.0	0.0	14.1	0.0	26.3	0.0	27.2	0.0	26.7
LnGrp LOS	C					B		C		C		C
Approach Vol, veh/h		231			343			1			373	
Approach Delay, s/veh		22.9			14.1			26.3			27.0	
Approach LOS		C			B			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4		6		8
Phs Duration (G+Y+Rc), s		34.8		18.3		34.8		9.0
Change Period (Y+Rc), s		* 9.6		* 8.1		* 9.6		4.0
Max Green Setting (Gmax), s		* 38		* 35		* 38		25.0
Max Q Clear Time (g_c+I1), s		23.7		8.6		11.0		2.0
Green Ext Time (p_c), s		1.5		1.7		2.4		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		21.3
HCM 2010 LOS		C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

QUEUING ANALYSIS

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	358	1105	129	80	1779	255	106	58	213	212
v/c Ratio	0.90	0.51	0.15	0.51	0.80	0.88	0.17	0.57	0.46	0.47
Control Delay	94.7	26.8	2.6	81.4	46.8	97.4	20.0	90.0	45.2	45.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.7	26.8	2.6	81.4	46.8	97.4	20.0	90.0	45.2	45.5
Queue Length 50th (ft)	158	295	7	40	454	129	38	56	176	175
Queue Length 95th (ft)	#257	283	18	70	502	#208	86	106	264	264
Internal Link Dist (ft)		830			338		281		248	
Turn Bay Length (ft)	230			240		150				
Base Capacity (vph)	407	2152	857	167	2226	292	652	123	505	493
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.88	0.51	0.15	0.48	0.80	0.87	0.16	0.47	0.42	0.43

Intersection Summary

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

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	88	177	6	67	18	159
v/c Ratio	0.22	0.33	0.02	0.08	0.05	0.19
Control Delay	9.9	5.2	15.3	8.8	14.5	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.9	5.2	15.3	8.8	14.5	8.7
Queue Length 50th (ft)	6	2	1	4	1	9
Queue Length 95th (ft)	45	41	10	37	20	70
Internal Link Dist (ft)	382	338		245		263
Turn Bay Length (ft)						
Base Capacity (vph)	1215	1299	429	1421	495	1464
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.14	0.01	0.05	0.04	0.11

Intersection Summary

Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	46	45	1	75	51
v/c Ratio	0.20	0.17	0.00	0.33	0.05
Control Delay	25.1	13.6	10.0	28.3	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	25.1	13.6	10.0	28.3	0.1
Queue Length 50th (ft)	15	4	0	25	0
Queue Length 95th (ft)	41	28	3	60	0
Internal Link Dist (ft)	326	659	121		245
Turn Bay Length (ft)					
Base Capacity (vph)	252	295	923	242	1047
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.18	0.15	0.00	0.31	0.05

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	596	1723	370	157	1172	447	237	136	349	340
v/c Ratio	1.01	0.92	0.40	0.92	0.76	1.00	0.38	0.74	0.69	0.71
Control Delay	100.2	54.5	4.1	119.7	55.0	106.1	34.7	88.0	52.5	54.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.2	54.5	4.1	119.7	55.0	106.1	34.7	88.0	52.5	54.1
Queue Length 50th (ft)	~308	584	24	80	301	228	155	131	316	311
Queue Length 95th (ft)	#438	#722	73	#153	358	#345	235	202	426	422
Internal Link Dist (ft)		830			338		281		457	
Turn Bay Length (ft)	230			240		200				
Base Capacity (vph)	590	1868	932	171	1536	448	628	240	542	513
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.92	0.40	0.92	0.76	1.00	0.38	0.57	0.64	0.66

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.

Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	57	113	19	553	53	496
v/c Ratio	0.18	0.30	0.08	0.49	0.19	0.42
Control Delay	17.1	8.9	24.4	11.4	23.4	8.2
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0
Total Delay	17.1	8.9	24.4	11.4	23.4	8.2
Queue Length 50th (ft)	9	3	3	53	9	43
Queue Length 95th (ft)	40	39	25	279	50	226
Internal Link Dist (ft)	382	338		245		263
Turn Bay Length (ft)						
Base Capacity (vph)	719	754	235	1301	300	1349
Starvation Cap Reductn	0	0	0	115	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.15	0.08	0.47	0.18	0.37

Intersection Summary

Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	231	343	1	199	174
v/c Ratio	0.58	0.39	0.00	0.64	0.16
Control Delay	30.5	4.6	32.0	45.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.3
Total Delay	30.5	4.6	32.0	45.5	0.6
Queue Length 50th (ft)	76	3	1	93	0
Queue Length 95th (ft)	#257	66	5	198	0
Internal Link Dist (ft)	326	659	186		245
Turn Bay Length (ft)					
Base Capacity (vph)	413	888	544	722	1184
Starvation Cap Reductn	0	0	0	26	577
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.56	0.39	0.00	0.29	0.29

Intersection Summary

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

DEXTER WILSON ENGINEERING, INC.

DEXTER S. WILSON, P.E.
ANDREW M. OVEN, P.E.
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MEMORANDUM **605-835**

TO: **Nick Lee, Baldwin & Sons**

FROM: **Stephen M. Nielsen,P.E., Dexter Wilson Engineering, Inc.**

DATE: **September 25, 2017**

SUBJECT: **Otay Ranch Planning Area 12 Freeway Commercial SPA Amendment Water System Evaluation**

Background

The proposed PA-12 project is located in the Otay Ranch Freeway Commercial core area. The northern portion of the PA-12 project is identified as FC-2 in the August 2004 approved SPA plan. The FC-2 site consisted of 34.5 acres of property zoned commercial and was entitled for 347,000 square feet of commercial. In 2015, a SPA amendment changed the entitlement to 600 multi-family residential units, 300 hotel rooms, a 2.0 acre park site, and 15,000 square feet of commercial. Another SPA Amendment is being proposed to increase the multi-family residential unit count to 900 units while leaving the other land uses unchanged.

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Purpose

The purpose of this technical memorandum is to provide an evaluation of the effect that this current SPA Amendment will have on the PA-12 water system. A short discussion of water conservation and recycled water will also be provided. This technical memorandum is a supporting document to the PA-12 SPA Plan Amendment being processed by Baldwin & Sons.

Land Use Summary

Table 1 summarizes the previously entitled development in the PA-12 SPA Amendment area, the land use evaluated in the Otay Water District February 2015 Water Supply Assessment and Verification (WSAV) report, and with the development currently being proposed by the PA-12 SPA Amendment.

TABLE 1
PA-12 FREEWAY COMMERCIAL SPA AMENDMENT

Land Use	Entitled	February 2015 WSAV	Current
MF Residential Units	600 units	650 units	900 units
Hotels	300 rooms	310 rooms	300 rooms
Park	2.0 acre	2.0 acre	2.0 acre
Commercial	15,000 SF	15,000 SF/4.0 gross ac	15,000 SF/4.0 gross ac

Projected Water Demands

The projected water demands for Freeway Commercial were included in the Otay Water District February 2015 WSAV report. Table 2 summarizes the projected water demands from the WSAV and projected demands based on the current proposed SPA Amendment. As shown, the projected water demand is reduced by 13,900 gpd, or 16 acre-feet per year (AFY), in the current scenario as compared to the assumptions in the 2015 WSAV. The reduction in demand is a result of updated water demand factors used in the OWD 2015 Water Facilities Master Plan. These updated water demand factors for residential development are based on actual usage data and reflect lower projected usage per unit as a result of water conservation efforts in recent years.

TABLE 2
PA-12 SPA AMENDMENT WATER DEMAND SUMMARY

Land Use	Net Acres	Building Units	Unit Demand Factor	Total Demand (gpd)
WSAV Water Demand (2015 WSAV)				
MF Residential Units	---	650	255 gpd/Unit[1]	165,750
Hotel Rooms	---	310	115 gpd/room	35,650
Commercial	3.6	---	1,785 gpd/ac	6,428
Subtotal				207,828
Proposed Potable Water Demand (current SPA Amendment)				
MF Residential Units	---	900	170 gpd/unit[1,2]	153,000
Hotels	---	300	115 gpd/unit	34,500
Commercial	3.6	---	1,785 gpd/ac[2]	6,428
Subtotal				193,928
Decreased Water Demand				**13,900**

[1] Assumes recycled water to be used for irrigation.
[2] Based on 2015 Water Facilities Master Plan (OWD).

Proposed Water System

The recommended water system for Freeway Commercial was outlined in the September 2001 SAMP for the project and included in the OWD 2015 Water Facilities Master Plan. As shown by Table 2, the projected water demand for the amended project is lower than what was estimated in the 2015 WSAV. The sizing of the existing 16-inch water line in Olympic Parkway, 20-inch line in Eastlake Parkway, and proposed 12-inch line in Town Center Drive is adequate to support the proposed development and, thus, no changes to the proposed Freeway Commercial water system are necessary as a result of the proposed development plan changes presented in this memorandum.

California Senate Bills 610/221 require a Water Supply Assessment and Verification report to be prepared for projects proposing 500 or more residential dwelling units, or projects that demand an amount of water equivalent to, or greater than, the amount of water required by a 500 dwelling unit project. The proposed PA-12 SPA amendment that was prepared in 2015 included preparation of a Water Supply Assessment and Verification Report that was prepared and approved by OWD. The current SPA Amendment proposes changes to the proposed land uses, but the projected water demand is lower than the amount that was previously evaluated in the project WSAV report. Therefore, a WSAV report update is not necessary as a result of the current proposed SPA Amendment.

Water Conservation

The proposed PA-12 SPA Amendment development will be required to comply with City of Chula Vista Guidelines for water conservation. In addition to using recycled water where feasible for landscape irrigation, the proposed apartment units will be required to implement additional water conservation measures such as hot water pipe insulation, pressure reducing valves, and water efficient dishwashers.

Recycled Water

The proposed PA-12 project will use recycled water for irrigation at the park site and for common areas of the commercial and multi-family residential sites. As shown by Table 3, the estimated average recycled water demand for the project is 31,560 gpd, or 35.4 AFY. The backbone recycled water system is unchanged as a result of the currently proposed SPA Amendment.

TABLE 3
PLANNING AREA 12 FREEWAY
COMMERCIAL PROJECTED RECYCLED
WATER DEMANDS

Location (Land Use)	Quantity	Recycled Water Factor	Net Recycled Acreage	Unit Rate	Average Demand, gpd
Multi-Family Residential	900 units	15%	---	30 gpd/unit[1]	27,000
Commercial	4.0 ac	10%	0.4	1,900 gpd/ac[1]	760
Park	2.0 ac	100%	2.0	1,900 gpd/ac[1]	3,800
TOTAL					31,560

[1] Based on OWD 2015 Water Facilities Master Plan.

SMN:pjs