APPENDIX E

TRAFFIC IMPACT ANALYSIS

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Submitted by:

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TESORO LOS ANGELES REFINERY INTEGRATION AND COMPLIANCE PROJECT

Traffic Impact Analysis

Draft Report

Submitted to:

South Coast Air Quality Management District

April 27, 2015

17J14-17B0

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1.0 INTRODUCTION

This report summarizes the methodology and results of a traffic impact analysis for the proposed Tesoro Refining & Marketing Company LLC (Tesoro) Los Angeles Refinery Integration and Compliance Project (proposed Project) located in the Cities of Los Angeles and Carson, California. This report follows guidelines provided by the South Coast Air Quality Management District, the California Department of Transportation, Los Angeles County and the Cities of Los Angeles and Carson.

The traffic study will look at several scenarios to describe baseline and future conditions without the project, during the construction of the project, and in the operational phase of the project. This includes analysis of baseline conditions, peak construction activities, and year 2021 traffic conditions which represent future traffic growth and operating conditions at study locations due to ambient growth, a cumulative interchange realignment project at I-405/Wilmington Avenue, and traffic generated by the proposed project. Therefore this analysis addresses the proposed project's contribution to cumulative traffic growth and congestion.

1.1 PROJECT DESCRIPTION

In June 2013, Tesoro purchased the BP West Coast Products LLC (BP) Carson Refinery, which will be further integrated with the adjacent Tesoro Los Angeles Refinery – Wilmington Operations to form the Tesoro Los Angeles Refinery (Refinery). The Refinery includes: (1) the Wilmington Operations located at 2101 East Pacific Coast Highway in the Wilmington District of the City of Los Angeles; and (2) the Carson Operations, which is the former BP Carson Refinery located at 2350 East 223rd Street in the City of Carson. The proposed project will be designed to better integrate the Tesoro Wilmington Operations and Tesoro Carson Operations.

The proposed project will occur at both the Wilmington and Carson Operations of the Tesoro Los Angeles Refinery. Tesoro will further integrate the recently purchased adjacent BP Carson Refinery (currently referred to as the Tesoro Los Angeles Refinery Carson Operations) with the existing Tesoro Los Angeles Refinery (currently referred to as the Tesoro Los Angeles Refinery Wilmington Operations). Together, the Wilmington and Carson Operations comprise the complete Tesoro Los Angeles Refinery (the Refinery).

The Tesoro Los Angeles Refinery is approximately 950 contiguous acres in size and operates within the Cities of Los Angeles and Carson. The Tesoro Wilmington Operations is located within Wilmington, a community under the jurisdiction of the City of Los Angeles, at 2101 East Pacific Coast Highway, Wilmington, Los Angeles County, California 90744. The Tesoro Carson Operations is located at 2350 East 223rd Street, Carson, California, 90745.

As part of the proposed project, both new and modified equipment, as well as connecting piping, will be located within portions of the Refinery under both the City of Carson jurisdiction and the City of Los Angeles jurisdiction.

The Wilmington Operations are bounded to the north by Sepulveda Boulevard, to the west by Alameda Street, to the south by railroad tracks, and to the east by the Dominguez Channel. The Wilmington Operations are bisected by Pacific Coast Highway, with the larger portion of the Wilmington Operations to the north of Pacific Coast Highway and the smaller portion to the south. The Refinery and all adjacent areas in the Cities of Carson and Los Angeles are zoned for heavy industrial use.

The Carson Operations are bounded by Wilmington Avenue to the west, 223rd Avenue to the north, Alameda Street to the east, and Sepulveda Boulevard to the south. The Dominguez Channel flows through the Carson Operations, dividing the property into two sections: Northeastern and Southern. Several industrial/commercial facilities and the 405 Freeway border the Carson Operations to the north. The Alameda Corridor and other industrial facilities, including the Tesoro Coke Barn, the Air Products Hydrogen Plant, and the Tesoro Sulfur Recovery Plant (SRP), are located to the east of the Carson Operations. Commercial and residential areas are located to the west of the Carson Operations. The Phillips 66 Refinery and tank farms occupy the area located to the south of the Tesoro Carson Operations. Additionally, the SRP (considered to be a portion of the Tesoro Wilmington Operations) is located at 23208 South Alameda Street in the City of Carson.

Construction activities for the proposed Project are expected to begin in third quarter of 2015 and are expected to be completed by first quarter of 2021, based on preliminary project engineering. The preliminary construction schedule for each component of the proposed project varies. The construction activities for most of the components are expected to overlap from about December 2015 to February 2017. Construction work shifts are expected to last about ten hours per day during most portions of the construction schedule. During normal construction periods, one work shift per day is expected.

Construction period employee trips will access the proposed Project site at three parking lots: parking for 550 workers will be provided from 223rd street at the northern portion of the proposed Project site, parking for 200 workers will be provided off of Alameda Street to the immediate north of Sepulveda Boulevard, and parking for 200 workers will be provided from Sepulveda Boulevard to the east of Alameda Street.

Completion of the proposed Project will result in the permanent addition of approximately ten daily truck roundtrips from the proposed Project site:

- There will be no increase in workers as compared to baseline conditions following completion of the construction phase
- Eight trucks per day will transport spent sulfuric acid from the Carson Plant to the new Sulfuric Acid Plant at Wilmington
- One truck per day will transport other materials and supplies to or from the Refinery

The project site location as well as the location of the construction worker parking lots is shown in **Figure 1**.

1.2 STUDY AREA

The following thirteen (13) intersections were identified for inclusion in the traffic impact analysis:

1. Wilmington Avenue/I-405 Northbound Ramps;
2. Wilmington Avenue/I-405 Southbound Ramps;
3. Wilmington Avenue/223rd Street;
4. Alameda Street/I-405 Northbound Ramps;
5. Alameda Street/223rd Street (along Alameda Street);
6. Alameda Street/223rd Street (along 223rd Street);
7. Alameda Street/Sepulveda Boulevard (along Alameda Street);
8. Alameda Street/Sepulveda Boulevard (along Sepulveda Boulevard);
9. I-405 Southbound Ramps/223rd Street;
10. Terminal Island Freeway (SR-103)/Sepulveda Boulevard;
11. Santa Fe Avenue/Sepulveda Boulevard;
12. SR-710 SB Ramps/Willow Street; and
13. SR-710 NB Ramps/Willow Street.

Figure 2 illustrates the study area including the locations of the study intersections analyzed in this report. The existing lane configurations of the study intersections are illustrated in **Figure 3**.

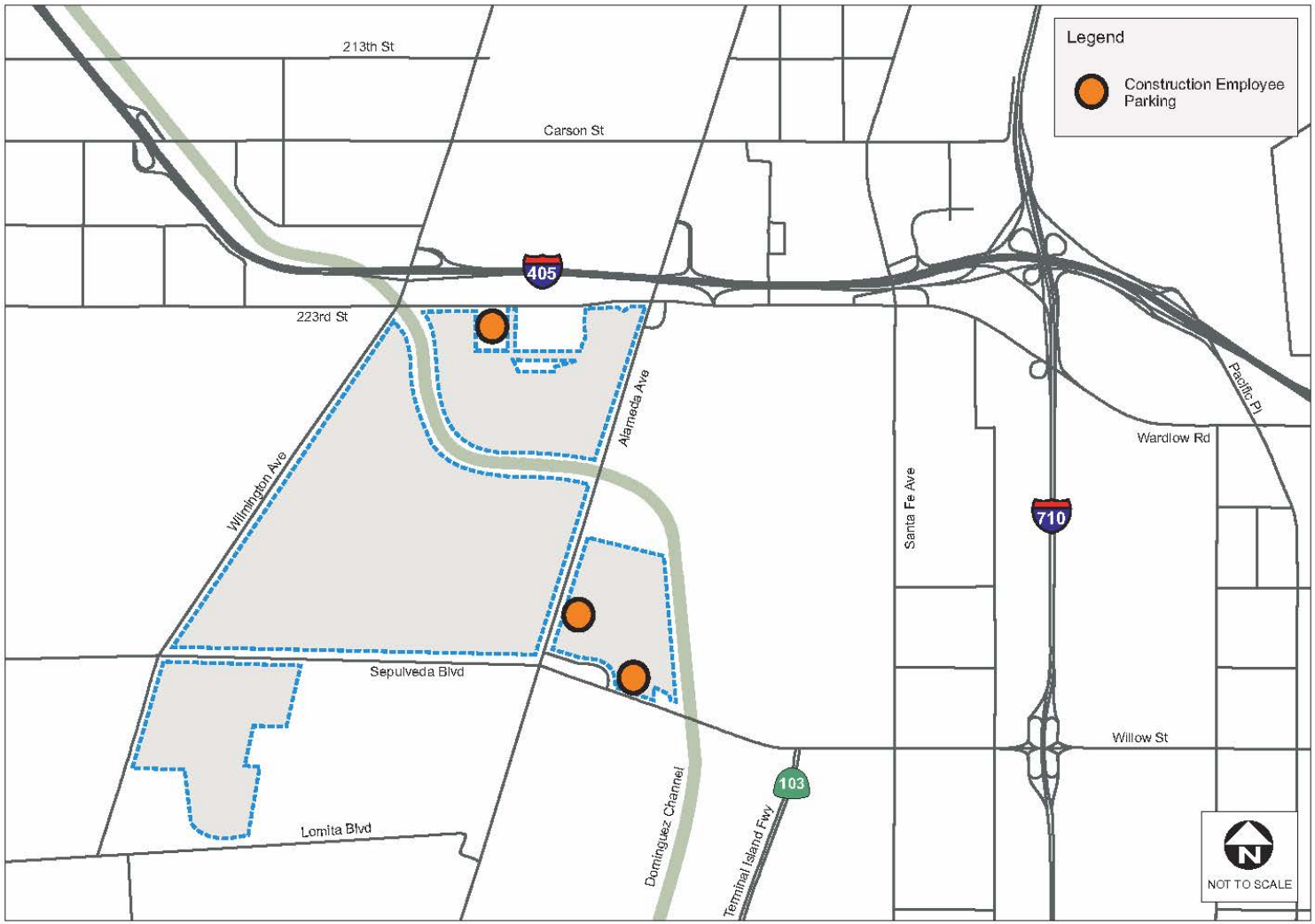

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FIGURE 1
Proposed Project Site Plan

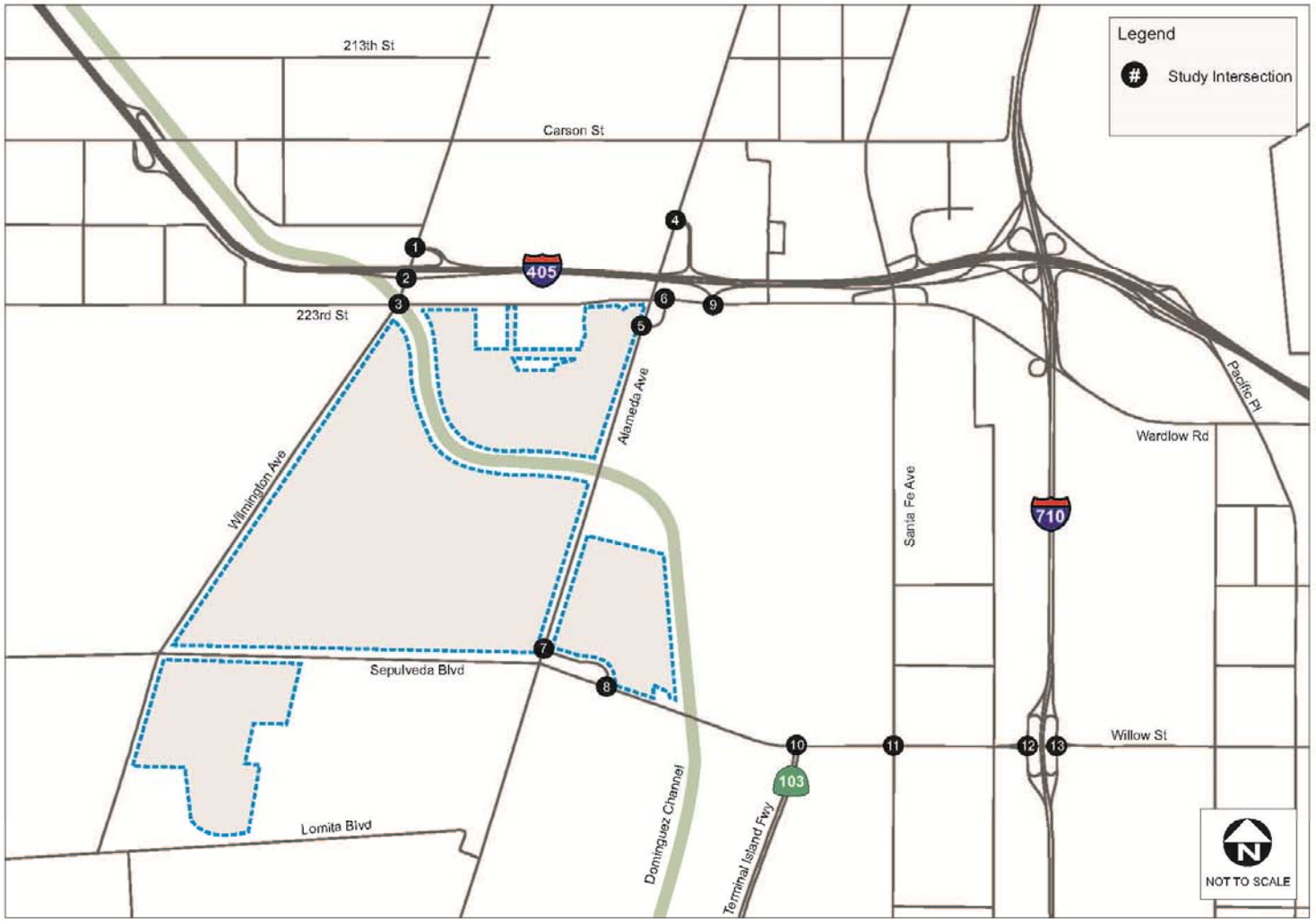

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FIGURE 2
Study Intersection Locations

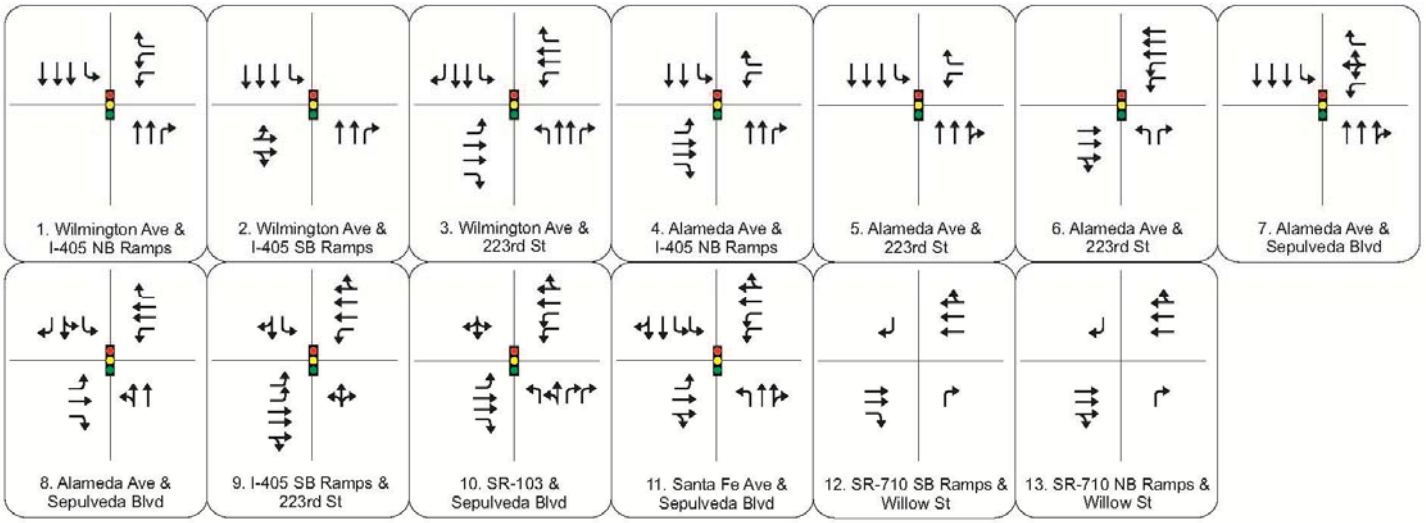

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FIGURE 3
Baseline Intersection Lane Configurations

1.3 STUDY ANALYSIS PERIODS

Traffic Operations are evaluated for each of the following scenarios during the weekday a.m. peak hour and the p.m. peak hour:

- Baseline (Existing) Conditions
- Baseline Conditions Plus Construction Conditions (2015)
- Year 2021 Without Project
- Year 2021 With Project Operations

Baseline (existing) conditions are obtained from turning movement traffic counts taken in August 2014 during the peak hours of operations (6:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m.) as well as existing roadway signal and geometric conditions. These conditions include the trips to and from the proposed Project site and the parking lots to be used for the construction trips associated with the proposed Project. Based on traffic counts of those driveways, there are a total of 1,312 daily trips generated by these parking areas in the baseline conditions: 135 daily trips from the 223rd Street parking lot, 912 daily trips from the Alameda Street parking lot, and 265 daily trips from the Sepulveda Boulevard parking lot.

The trips associated with the construction of the proposed Project were added to the baseline traffic counts to evaluate construction conditions. The proposed Project will have several phases requiring a variable number of construction-related trips. For this analysis, the peak number of trips to be generated over the two-year construction period was used to determine the potential for significant impacts at the study locations[1]. It was assumed the trips associated with current operations on the proposed Project site would occur at the same rate as in the baseline conditions.

The I-405/Wilmington Avenue Interchange began a major improvement project in November 2013 which is expected to be completed by late 2015 or early 2016. The geometrics at the study locations associated with the interchange are assumed to be the pre-construction configuration in the near-term construction period analysis—the construction activities prior to the traffic counts did not change the number of lanes or connections provided by the interchange. The I-405/Wilmington Avenue Interchange construction involves periodic closures and openings of geometric and operational improvements on a constant (daily, weekly, and monthly) but inconsistent basis over the course of its construction period, and while these many iterations of the I-405/Wilmington Avenue interchange construction period conditions were not specifically analyzed in this study, it is recommended that the construction schedule of the Interchange be integrated into the traffic management planning and scheduling for trips associated with the proposed Project for the duration of the overlapping construction periods.

Ambient (background traffic) Year 2021 Conditions were forecasted based on the annualized ambient growth as determined from the Southern California Association of Governments (SCAG) regional travel

[1] As explained in more detail in *Section 3.0 Construction Conditions*, below, during the majority of the construction period, only one work shift per day is expected. However, during peak construction activities, the project is expected to require two shifts per day, a day and night shift.

demand model. The proposed Project area annualized growth was calculated based on the growth between the two analysis years of the travel demand model (2012 to 2035) along Wilmington Avenue and Alameda Street from 223rd to Sepulveda Boulevard and along Sepulveda Boulevard and 223rd Street from Wilmington Avenue to Alameda Street. The annualized growth rate was calculated to be 0.4 percent per year. The completion of the I-405/Wilmington Avenue Interchange improvement project is assumed in the 2021 Project Operations scenario. The proposed Project operations are estimated to not increase the number of on-site workers after the opening of the proposed project, however approximately ten additional truck round-trips per work day would result from the proposed Project to support its operations.

2.0 BASELINE CONDITIONS

This section presents an overview of the existing roadway system and transit operations within the study area and the methodology used to determine existing traffic volumes.

2.1 ROADWAY CONFIGURATIONS

The existing configurations of the roadways within the study area are described as follows:

Wilmington Avenue, oriented in a north-south direction, is a four-lane roadway with a raised median. Wilmington Avenue provides access to the project site as well as regional access through its connection to the I-405 freeway. On-street parking is prohibited along Wilmington Avenue in the study area.

Alameda Street, oriented in a north-south direction, consists of two lanes in each direction. On-street parking is prohibited along Alameda Street in the study area. Alameda Street bisects and provides direct access to the project site.

Santa Fe Avenue, oriented in a north-south direction, consists of two lanes in each direction with a raised median and on-street parking permitted in the study area. Santa Fe Avenue runs parallel to the I-710 freeway and consists of multiple bus routes.

223rd Street, oriented in an east-west direction, consists of two lanes in each direction with on-street parking allowed in some sections of the study area. 223rd Street provides access to the project site. East of the project site, 223rd Street transitions to Wardlow Road.

Sepulveda Boulevard, oriented in an east-west direction, consists of two lanes in each direction. On-street parking is prohibited along Sepulveda Boulevard in the study area. East of the I-710 freeway, Sepulveda Boulevard transitions to Willow Street.

2.2 BASELINE TRANSIT OPERATIONS

The Los Angeles County Metropolitan Transportation Authority (Metro) and the Long Beach Transit (LBT) operate bus lines within the area of the project site. A description of the transit service follows:

Metro Line 202 – This line operates between Wilmington and Watts. Within the study area, this line travels north and south along Alameda Street Service is provided at 60 minute headways during weekday peak periods, late night, and owl service. Weekend and holiday service is not provided.

Long Beach Line 191/192 – These lines operate between Downtown Long Beach and Lakewood. Within the study area, the lines travel north and south along Santa Fe Avenue. Service is provided on weekdays, weekends, and holidays. They currently provide 20 minute headways during peak periods.

Long Beach Line 101/102/103/104 – These lines operate between Wilmington and Long Beach. Within the study area, the lines travel east and west along Sepulveda Boulevard beginning at Santa Fe Avenue. Service is provided at 20 minute headways during weekday peak periods. Weekend and holiday service is limited.

2.3 BASELINE TRAFFIC VOLUMES

Vehicle turning movement counts at the study intersections were collected in August 2014 during the a.m. (6:00a.m. to 9:00 a.m.) and p.m. (4:00p.m. and 6:00 p.m.) peak periods. The traffic counts are a reasonable estimate of conditions during the baseline period. Detailed traffic count sheets are provided in **Appendix A**. **Figure 4** shows the existing peak hour volumes at the study intersections.

2.4 TRAFFIC OPERATIONS ANALYSIS METHODOLOGY

The efficiency of traffic operations on a facility can be described in terms of Level of Service (LOS). The level of service concept is a measure of average operating conditions at an intersection during an hour. Levels range from 'A' to 'F', with 'A' representing excellent (free-flow) conditions and 'F' representing a roadway operating at its design capacity.

Traffic operating conditions in the vicinity of the project were evaluated using methodologies described in each project area agencies' traffic analysis guidelines. The non-freeway ramp study intersections are analyzed using the Intersection Capacity Utilization (ICU) methodology for intersection analysis. ICU methodology defines the LOS by the volume-to-capacity (V/C) ratio for the turning movements and intersection characteristics at the signalized intersections. The ICU value is determined by summing the V/C ratio of the critical movements, plus a factor for a yellow signal time. Intersections located in the City of Los Angeles are also analyzed with the Circular 212 methodology which calculates the delay of critical movements in the intersection—those results are similar to the ICU calculation and are included in the appendix. The Caltrans ramp intersections are under Caltrans' jurisdiction and are analyzed using the Highway Capacity Manual (HCM) methodology. HCM methodology defines the LOS by the average vehicle delay experienced by all vehicles traveling through the intersection. **Table 1** presents the both the V/C ratio and average delay associated with each LOS grade as well as a qualitative description of intersection operations at that grade.

TABLE 1: INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Signalized Intersection Volume-to-Capacity Ratio (V/C)	Signalized Intersection Delay (seconds)
A	Free flowing, virtually no delay. Minimal Traffic.	≤ 0.600	≤ 10
B	Free flow and choice of lanes. Delays are minimal. All cars clear intersection easily.	>0.600 to 0.699	>10 and ≤ 20
C	Good operation. Delays starting to become a factor but still within acceptable limits.	>0.700 to 0.799	>20 and ≤ 35
D	Approaching unstable flow. Queues at intersection are quite long but most cars clear intersection on their green signal. Occasionally, several vehicles must wait for a second green signal. Congestion is moderate.	>0.800 to 0.899	>35 and ≤ 55
E	Severe Congestion and delay. Most of the available capacity is used. Many cars must wait through a complete signal cycle to clear the intersection.	>0.900 to 0.999	>55 and ≤ 80
F	Excessive delay and congestion. Most cars must wait through more than one on one signal cycle. Queues are very long and drivers are obviously irritated.	> 1.000	> 80

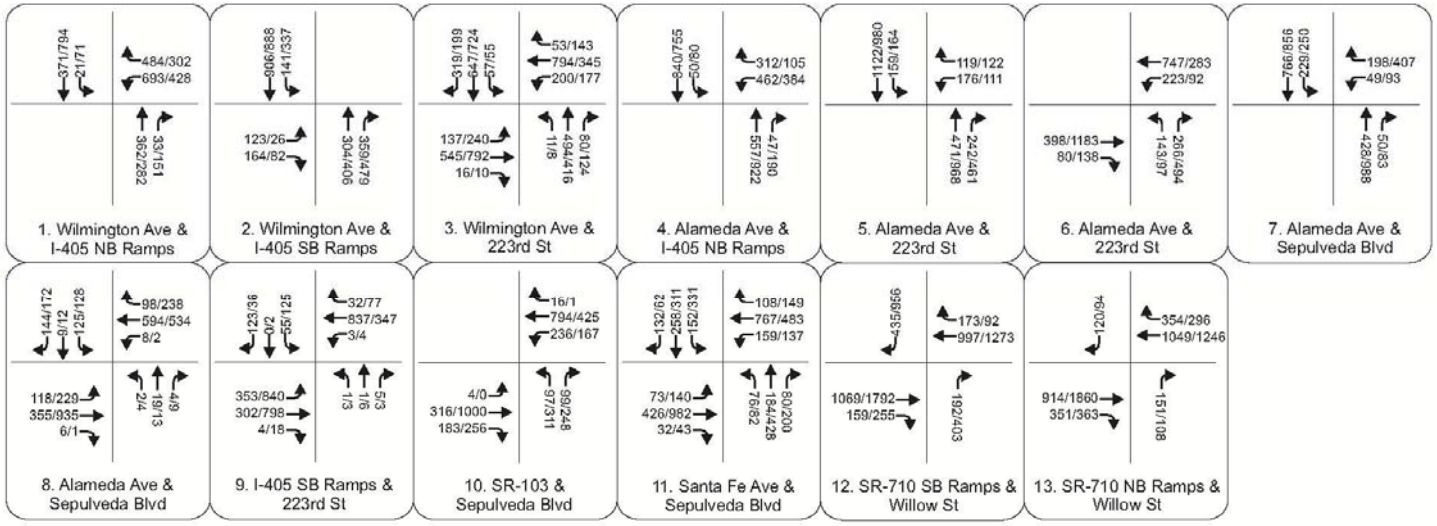
Study location significance criteria are based on the location of each analyzed facility. The Cities in the study area consider LOS D to be the minimum acceptable LOS. The threshold of significance is considered to be a Project-related change in V/C ratio of 0.02 or greater if the final LOS is 'E' or 'F'.[2]

The City of Los Angeles has a sliding scale of acceptable effects for service levels 'C', 'D', 'E' and 'F'[3]. For example, a greater effect is allowed under LOS 'C' than LOS 'D' before being considered significant. Thus, a project would have a significant impact on transportation/circulation during construction if it would increase an intersection's V/C ratio in accordance with the following guidelines:

- V/C ratio increase greater than or equal to 0.040 if final LOS is 'C',
- V/C ratio increase greater than or equal to 0.020 if final LOS is 'D', or
- V/C ratio increase greater than or equal to 0.010 if final LOS is 'E' or 'F'.

However since the analysis intersection located in the City of Los Angeles is forecasted to operate at no worse than LOS 'B' in any of the analysis scenarios, there is no impact determined at the intersection of Alameda Street Ramp at 223rd Street in the City of Los Angeles.

[2] City of Carson General Plan Update Transportation and Infrastructure Element, October 11, 2004, City of Long Beach General Plan Transportation Element, 1991 based on Los Angeles County Congestion Management Program Guidelines.
[3] City of Los Angeles Department of Transportation Traffic Study Policies and Procedures, August 2014



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(#) Study Intersection

XX/XX AM/PM Peak Hour Volumes

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FIGURE 4
Baseline Intersection Volumes

Caltrans has not adopted specific thresholds of significance for determining whether an impact is significant and relies on the local-defined County and City standards for significance thresholds. The transportation/traffic questions on the CEQA checklist XVI: Transportation/Traffic a) and b) state:

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

b) Conflict with an applicable congestion management program including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Therefore the Caltrans CEQA Checklist defers to locally defined thresholds. For the purposes of this analysis, intersection locations under the jurisdiction of Caltrans will use the significance threshold of the City in which it is located.

2.5 Baseline Intersection Levels of Service

LOS analysis was conducted to evaluate existing intersection operations during the a.m. and p.m. peak hours. **Table 2** summarizes the existing level of service at the study intersections. LOS calculation worksheets are included in **Appendix B**.

TABLE 2: BASELINE EXISTING CONDITIONS (2014) INTERSECTION LEVELS OF SERVICE

Intersection		Agency / LOS Methodology	AM Peak Hour			PM Peak Hour		
			V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
1	Wilmington Ave/I-405 NB Ramps	Caltrans / HCM	0.499	21.4	C	0.395	18.5	B
2	Wilmington Ave/I-405 SB Ramps	Caltrans / HCM	0.355	44.2	D	0.629	15.7	B
3	Wilmington Ave/223rd St	Carson / ICU	0.643	-	B	0.690	-	B
4	Alameda St/I-405 NB Ramps	Caltrans / HCM	0.690	21.2	C	0.665	23.2	C
5	Alameda St/223rd St (along Alameda St)	Carson / ICU	0.460	-	A	0.570	-	A
6	Alameda St/223rd St (along 223rd St)	LA / ICU	0.349	-	A	0.634	-	B
7	Alameda St/Sepulveda Blvd (along Alameda St)	Carson / ICU	0.374	-	A	0.537	-	A
8	Alameda St/Sepulveda Blvd (along Sepulveda Blvd)	Carson / ICU	0.415	-	A	0.742	-	C
9	I-405 SB Ramps/223rd St	Caltrans / HCM	0.472	23.4	C	0.327	24.3	C
10	Terminal Island Fwy (SR-103)/Sepulveda Blvd	Long Beach / ICU	0.390	-	A	0.579	-	A
11	Santa Fe Ave/Sepulveda Blvd	Long Beach / ICU	0.624	-	C	0.781	-	C
12	I-710 SB Ramps/Willow St	Uncontrolled Intersection						
13	I-710 NB Ramps/Willow St	Uncontrolled Intersection						

Notes:
V/C = Volume to Capacity Ratio, LOS = Level of Service, Delay = Average Vehicle Delay (Seconds)

As shown in **Table 2**, the study intersections are currently operating at LOS D or better.

3.0 CONSTRUCTION CONDITIONS

Construction activities for the proposed Project are expected to begin in fourth quarter of 2015 and are expected to be completed by fourth quarter, 2019, based on preliminary project engineering. The preliminary construction schedule for each component of the proposed project varies. The construction activities for most of the components are expected to overlap from about December 2015 to February 2017. Construction work shifts are expected to last about ten hours per day during most portions of the construction schedule. During normal construction periods, one work shift per day is expected. However, during peak construction activities, the proposed project is expected to require two work shifts – one day and one night shift.

Due to the temporary nature of construction trips, in general construction-related traffic is considered less than significant; however detailed analysis of construction period conditions were conducted due to several factors. First, the proposed Project is expected to involve a large number of workers and therefore generate a large number of worker trips as compared to typical development projects in

southern California. Second, a cumulative construction event at the I-405/Wilmington interchange will overlap with the first phases of the proposed Project construction. Since the I-405/Wilmington interchange is expected to be utilized by many of the proposed Project construction trips, construction period analysis of the proposed Project include analysis at the beginning of the construction of the I-405/Wilmington Interchange (baseline conditions) in its pre-construction geometry. For these reasons detailed analysis of construction period conditions for the peak construction period (2015) was conducted to identify potential significant impacts and recommend construction period traffic management strategies to mitigate those impacts.

3.1 Project Construction Trip Generation and Distribution

Construction conditions are analyzed for the construction phase with the maximum number of construction trips during the two-year construction period. The peak construction period trip generation is shown below in **Table 3**. In total 950 workers will travel to and from the proposed Project site during the highest trip-generation phase of construction of the proposed project. These include 875 day shift workers and 75 night shift workers. In addition to worker trips, 120 truck trips would be generated during the peak trip-generating construction phase throughout the work day.

Table 3: Construction Period Daily Trip Generation

Type	Work Shift	Total Round Trips	Total One-Way Trips
Supervisors	6 am – 5:30 pm	40	80
Dayshift Workers	7:00 am – 5:30 pm	835	1,670
Nightshift Workers	7:00 pm – 7:00 am	75	150
Trucks	Throughout the day	120	240
Total		1,070	2,140

In converting daily trip generation values into peak hour analysis periods, two adjustments were made. First, it was assumed that auto trips had a 10 percent carpool rate. Second, given the work shift hours for each type of worker, not all project trips are expected to occur within the peak hour for overall traffic volume in the study area and the following peak hour project trip generation assumptions were made:

- Supervisors would arrive before the a.m. peak hour and 50 percent would leave in the p.m. peak hour
- 50 percent of day shift workers would arrive during the a.m. peak hour and 50 percent would leave in the p.m. peak hour
- 50 percent of night shift workers would leave in the a.m. peak hour and 50 percent would arrive in the p.m. peak hour
- Truck trips are distributed evenly throughout the ten hour work day with 12 inbound and 12 outbound trips per peak hour. A passenger car equivalency (PCE) factor of 2.0 is applied to the truck trips to account for their larger size and slower turning speeds at intersections.

Of the 2,140 total daily construction-related trips shown in **Table 3**, PCE trips occurring in the peak hours are forecasted to be 454 PCE in the a.m. peak hour and 472 PCE trips in the p.m. peak hour as shown in **Table 4**.

TABLE 4: CONSTRUCTION PERIOD PEAK HOUR TRIP GENERATION

Type	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	376	34	410	34	394	428
Truck (PCE)	24	24	48	24	24	48
Total	400	58	458	58	418	476

Trip distribution assumptions were used to determine the origin and destination of new vehicle trips associated with the project. Trip distribution for the employee trips of the proposed Project was developed using the weighted distribution of workers, from the 2010 United States Census, in Los Angeles, Orange, Riverside, and San Bernardino Counties via the arterial network to Cities near the study area (e.g. Carson, Compton, Long Beach, portions of Los Angeles, and Torrance) and the regional freeway network for Cities more than two miles from the proposed Project site. As shown in **Figure 5**, distribution of employee trips was approximately 30 percent from I-405 north of the proposed Project site, 25 percent from I-405 south of the proposed Project site, 30 percent from I-710 north of the proposed Project site and 15 percent from local access along arterials. Truck trip distribution was assumed to occur to/from the north along I-710. The assignment of project-related trips shown in **Figure 6** is based on the trip distribution percentages.

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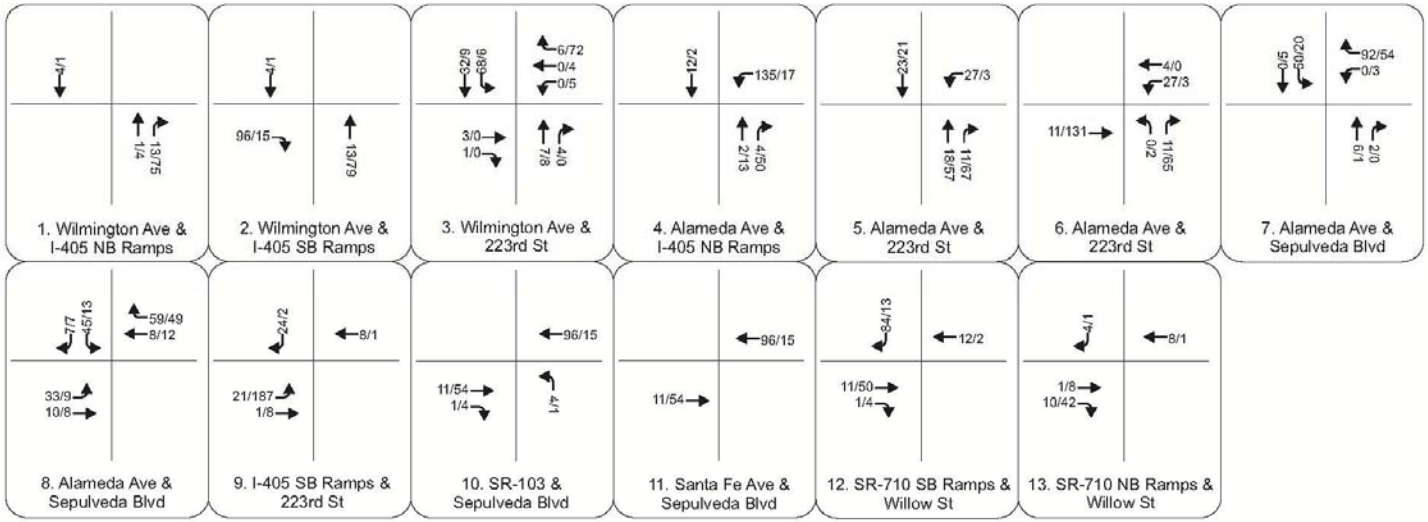
FIGURE 5
Proposed Project Construction Trip Distribution



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Study Intersection

XX/XX AM/PM Peak Hour Volumes

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FIGURE 6
Proposed Project Construction Trip Assignment

3.2 CONSTRUCTION PERIOD INTERSECTION LEVELS OF SERVICE

LOS analysis was conducted to evaluate existing plus construction intersection operations during the a.m. and p.m. peak hours. **Figure 7** shows the baseline plus construction peak hour volumes at the study intersections. **Table 5** summarizes the LOS at the study intersections as compared to baseline LOS to determine if a threshold of significance was exceeded. LOS calculation worksheets are included in **Appendix B**.

Caltrans has undertaken a major construction project to modify the I-405/Wilmington interchange starting November 2013. The interchange construction is expected to finish in late 2015 or early 2016—potentially overlapping with the construction period of the proposed Project. The project will reconfigure existing on- and off-ramps from northbound and southbound I-405, construct a new on-ramp to southbound I-405, reconstruct Wilmington Avenue and Lenardo Drive, and construct a new bridge over the Torrance Lateral Channel.

The construction of the I-405/Wilmington Interchange will have periodic lane and ramp closures that, while temporary, have the potential to effect the proposed Project–related construction trips' interaction with the roadway network and demand placed on study intersections. While the Year 2015 With Project Construction Conditions (Pre- I-405/Wilmington Interchange) does not account for each possible iteration of lane closures[4], it does include the construction period analysis of the proposed Project at the beginning of the construction of the I-405/Wilmington Interchange (baseline conditions) in its pre-construction geometry. These conditions are shown in **Table 5.** Further the Year 2021 scenarios assume the completion of the interchange in its post-construction configuration. .

[4] The I-405/Wilmington Avenue Interchange construction involves periodic closures and openings of geometric and operational improvements on a constant (daily, weekly, and monthly) but inconsistent basis over the course of its construction period

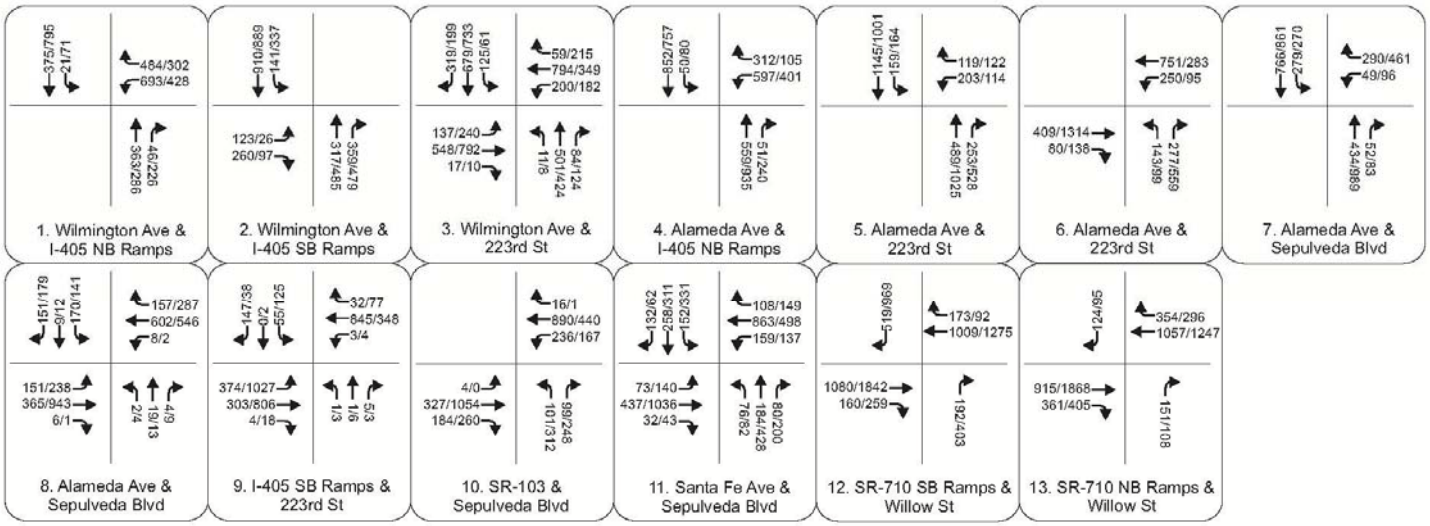

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FIGURE 7
Proposed Project Construction Period Intersection Volumes

TABLE 5: BASELINE EXISTING CONDITIONS PLUS PROJECT CONSTRUCTION CONDITIONS (PRE- I-405/WILMINGTON INTERCHANGE) INTERSECTION LOS

	Intersection	Existing Conditions						Existing Plus Construction Conditions						a.m. Change in V/C or Delay	p.m. Change in V/C or Delay	Significant Impact?
		a.m. Peak Hour			p.m. Peak Hour			a.m. Peak Hour			p.m. Peak Hour					
		V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS			
1	Wilmington Ave/I-405 NB Ramps	0.499	21.4	C	0.395	18.5	B	0.500	21.5	C	0.395	18.6	B	0.1 s	0.1 s	No
2	Wilmington Ave/I-405 SB Ramps	0.355	44.2	D	0.629	15.7	B	0.439	57.9	E	0.641	16.5	B	13.7 s	0.8 s	**Yes**[1]
3	Wilmington Ave/223rd St	0.643	-	B	0.690	-	B	0.653	-	B	0.696	-	B	0.010	0.006	No
4	Alameda St/I-405 NB Ramps	0.690	21.2	C	0.665	23.2	C	0.807	25.6	C	0.683	23.8	C	4.4 s	0.6 s	No
5	Alameda St/223rd St (along Alameda St)	0.460	-	A	0.570	-	A	0.484	-	A	0.604	-	B	0.024	0.034	No
6	Alameda St/223rd St (along 223rd St)	0.349	-	A	0.634	-	B	0.358	-	A	0.696	-	B	0.009	0.062	No
7	Alameda St/Sepulveda Blvd (along Alameda St)	0.374	-	A	0.537	-	A	0.406	-	A	0.552	-	A	0.032	0.015	No
8	Alameda St/Sepulveda Blvd (along Sepulveda Blvd)	0.415	-	A	0.742	-	C	0.452	-	A	0.751	-	C	0.037	0.009	No
9	I-405 SB Ramps/223rd St	0.472	23.4	C	0.327	24.3	C	0.502	24.6	C	0.395	23.7	C	1.2 s	-0.6 s	No
10	Terminal Island Fwy (SR-103)/Sepulveda Blvd	0.390	-	A	0.579	-	A	0.421	-	A	0.595	-	A	0.031	0.016	No
11	Santa Fe Ave/Sepulveda Blvd	0.624	-	C	0.781	-	C	0.654	-	C	0.798	-	C	0.030	0.017	No
12	I-710 SB Ramps/Willow St	Uncontrolled Intersection														No
13	I-710 NB Ramps/Willow St	Uncontrolled Intersection														No

1 = Significant temporary impact based on LOS E operation with the addition of construction-related trips.
Notes:
V/C = Volume to Capacity Ratio, LOS = Level of Service, Delay = Average Vehicle Delay (Seconds), s = seconds

As shown in **Table 5**, construction-related trips are forecast to result in a significant impact during construction conditions at the Wilmington Ave/I-405 Southbound Ramps under their pre-construction configuration. This is due to the large number of project-related trips utilizing the Southbound ramp to access the proposed Project site in the a.m. peak hour.

It should be emphasized that this exceedance of the threshold of significance is temporary in nature and does not represent a significant impact that would require permanent mitigation by the applicant. However, it does indicate that inbound trips to the proposed Project during the construction period should avoid the I-405/Wilmington interchange while it is under construction

In order to reduce the proposed Project's construction-related trips on the Wilmington Avenue/I-405 Southbound Ramps intersection prior to the completion of the I-405/Wilmington Avenue Interchange Modification Project, it is recommended that proposed Project workers be advised of the construction schedule and potential restrictions and closures associated with the Interchange Modification Project. It is recommended that the Project workers be encouraged to avoid the Wilmington Avenue/I-405 Southbound Ramps intersection during morning peak travel periods by traveling either outside of the morning peak travel time or along alternative routes. The operational conditions of all other study locations, operating at LOS C or better during peak hours, demonstrate the adequacy of several alternative routes for proposed Project construction period trips.

The I-405/Wilmington Avenue Interchange Modification Project maintains several sources of information about current construction conditions through a web site (http://i405wilmington.com), a bilingual, toll-free hotline (887) 481-0004 and an email notification system.

The protocols for the dissemination of information to proposed Project workers and potential alternative schedules or routing during construction activities for the proposed project should be provided in the form of a construction staging and/or traffic management plan, to be approved by the Cities of Carson and Los Angeles.

4.0 YEAR 2021 CONDITIONS

Year 2021 conditions were forecasted by applying ambient growth from year 2014 with the 0.4 percent per year growth as calculated from the SCAG travel demand model. The proposed Project operations are estimated to not increase the number of on-site workers after the construction phase, however approximately ten additional truck round-trips per work day would result from the proposed Project to support its operations. The peak hour estimates of these project-related trips were used to develop a year 2021 with proposed Project scenario that was compared against the year 2021 conditions without the proposed Project to determine if any significant impacts would occur due to the operation of the proposed Project.

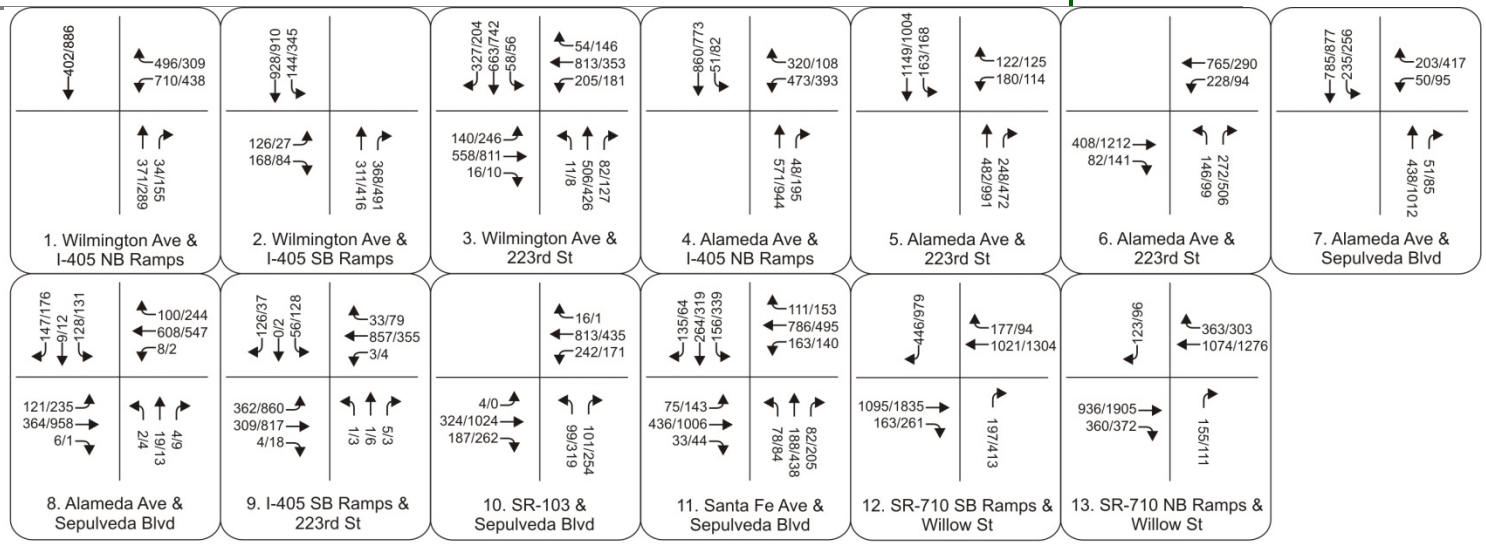
4.1 YEAR 2021 WITHOUT PROJECT INTERSECTION LEVELS OF SERVICE

Figure 8 shows the year 2021 without project peak hour volumes at the study intersections. A level of service analysis was conducted to evaluate year 2021 without project intersection operations during the a.m. and p.m. peak hours. **Table 6** summarizes the year 2021 without project LOS at the study intersections. LOS calculation worksheets are included in **Appendix B**.

TABLE 6: YEAR 2021 WITHOUT PROJECT CONDITIONS INTERSECTION LOS

Intersection		Agency / LOS Methodology	a.m. Peak Hour			p.m. Peak Hour		
			V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS
1	Wilmington Ave/I-405 NB Ramps	Caltrans / HCM	0.512	21.7	C	0.420	18.4	B
2	Wilmington Ave/I-405 SB Ramps	Caltrans / HCM	0.364	21.8	C	0.362	15.7	B
3	Wilmington Ave/223rd St	Carson / ICU	0.656	-	B	0.703	-	C
4	Alameda St/I-405 NB Ramps	Caltrans / HCM	0.687	23.4	C	0.681	23.5	C
5	Alameda St/223rd St (along Alameda St)	Carson / ICU	0.470	-	A	0.581	-	A
6	Alameda St/223rd St (along 223rd St)	LA / ICU	0.355	-	A	0.647	-	B
7	Alameda St/Sepulveda Blvd (along Alameda St)	Carson / ICU	0.380	-	A	0.548	-	A
8	Alameda St/Sepulveda Blvd (along Sepulveda Blvd)	Carson / ICU	0.422	-	A	0.758	-	C
9	I-405 SB Ramps/223rd St	Caltrans / HCM	0.484	23.5	C	0.514	19.1	B
10	Terminal Island Fwy (SR-103)/Sepulveda Blvd	Long Beach / ICU	0.396	-	A	0.590	-	A
11	Santa Fe Ave/Sepulveda Blvd	Long Beach / ICU	0.636	-	B	0.798	-	C
12	I-710 SB Ramps/Willow St	Uncontrolled Intersection						
13	I-710 NB Ramps/Willow St	Uncontrolled Intersection						

Notes:
V/C = Volume to Capacity Ratio, LOS = Level of Service, Delay = Average Vehicle Delay (Seconds)



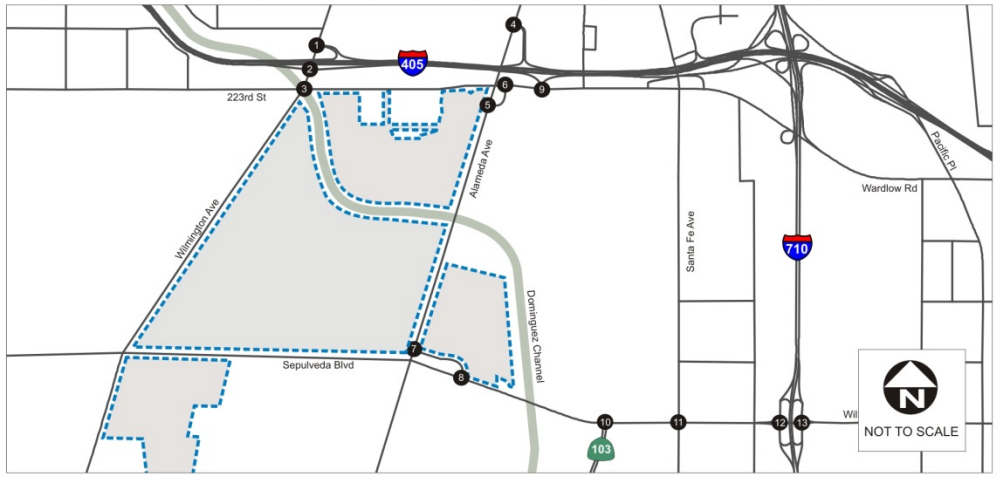


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FIGURE 8
Year 2021 Without Proposed Project Intersection Volumes

4.2 YEAR 2021 WITH PROJECT INTERSECTION LEVELS OF SERVICE

A level of service analysis was conducted to evaluate year 2021 with project conditions during the a.m. and p.m. peak hours. The following trip generation assumptions for the operation of the proposed Project were made:

- There will be no increase in workers as compared to baseline conditions following completion of the construction phase
- Eight trucks per day will transport spent sulfuric acid from the Carson Plant to the new Sulfuric Acid Plant at Wilmington
- One truck per day will transport other materials and supplies to or from the Refinery

Overall ten truck roundtrips over 10 daytime hours are estimated to occur with the completion of the proposed Project. Based on the above assumptions, the estimated worst-case a.m. and p.m. trips were estimated: two inbound and two outbound truck trips in each peak hour, resulting in four inbound and four outbound PCE trips per peak hour as shown in **Table 7**.

TABLE 7: PROPOSED PROJECT OPERATION PEAK HOUR TRIPS

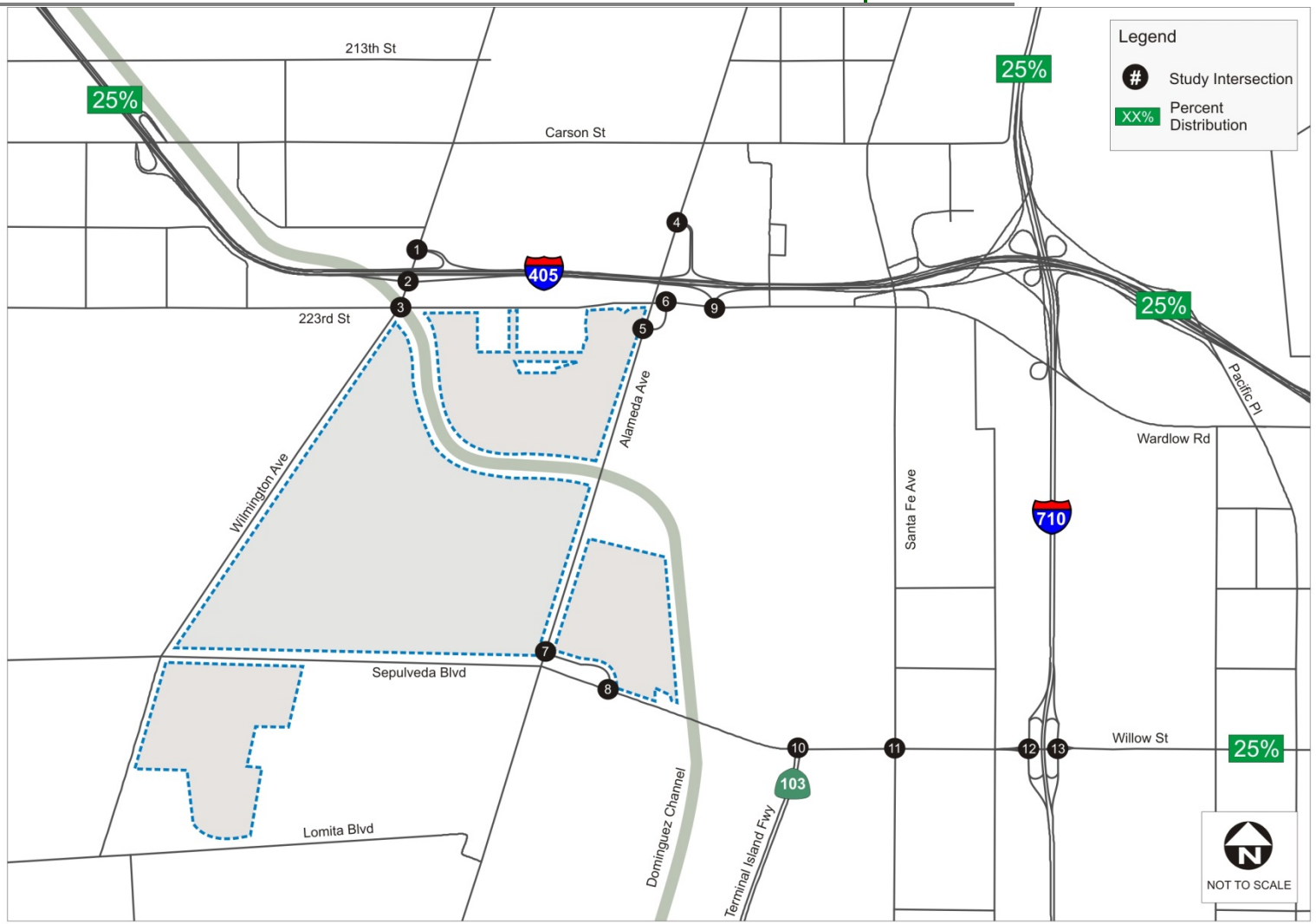
Type	a.m. Peak Hour		p.m. Peak Hour	
	In	Out	In	Out
Auto	0	0	0	0
Truck (PCE)	4	4	4	4
Total	4	4	4	4

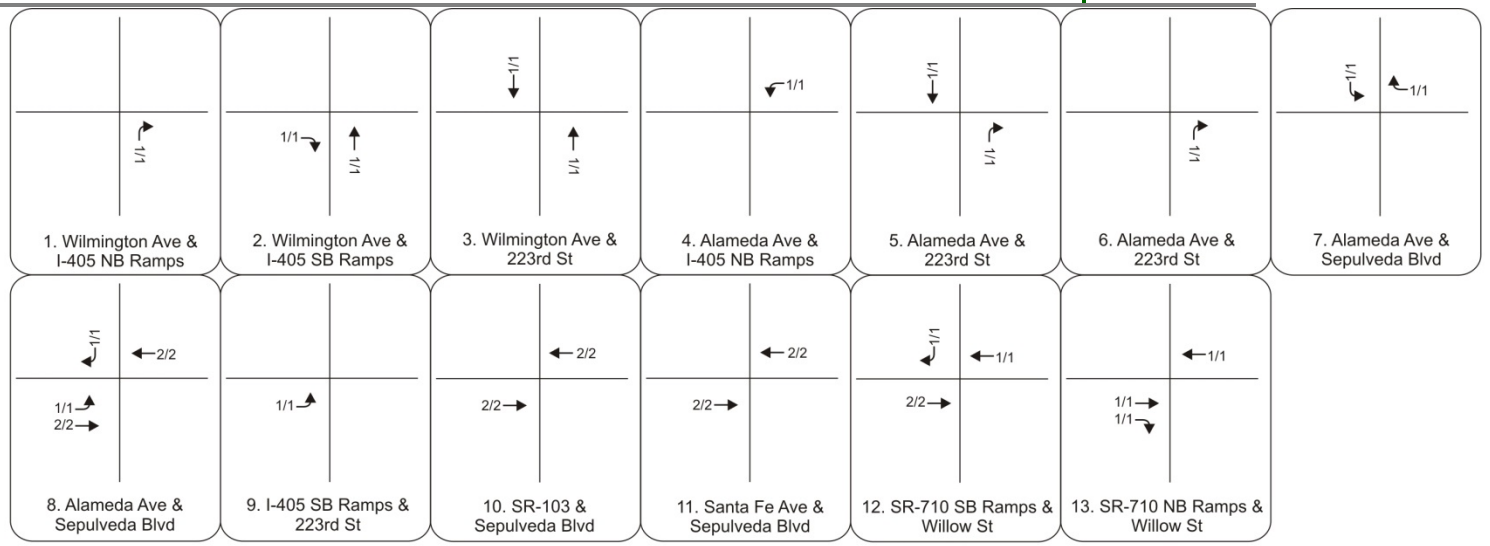
Trip distribution assumptions were used to determine the origin and destination of vehicle trips associated with the operation of the proposed Project. As shown in **Figure 9**, distribution of proposed Project trips was 25 percent from I-405 north of the proposed Project site, 25 percent from I-405 south of the proposed Project site, 25 percent from I-710 north of the proposed Project site and 25 percent from local access along Willow Street east of the proposed Project site based on the equitable distribution of trips to major destinations outside of the study area. The assignment of project-related trips shown in **Figure 10** is based on the trip distribution percentages.

The resulting year 2021 peak hour traffic volumes at the study intersections with the proposed project are shown in **Figure 11**. **Table 8** summarizes the year 2021 with project LOS compared to without project conditions at the study intersections. LOS calculation worksheets are included in **Appendix B**.

As shown in **Table 8**, the proposed Project is not forecasted to cause a study location to exceed a threshold of significance and therefore the project would have a less than significant impact on area roadway facilities.

It should be noted that an Existing Conditions plus Project Operations was not conducted in addition to the Year 2021 Plus Project Operations scenario since the Year 2021 Plus Project Operations scenario was developed in this study as an existing conditions plus ambient growth to Year 2021 plus Project Operations. If levels of significance are not exceeded under the Year 2021 levels of ambient traffic, they will not be under lower levels of existing traffic.


Legend
Study Intersection
XX% Percent Distribution
213th St
Carson St
223rd St
Sepulveda Blvd
Lomita Blvd
Wardlow Rd
Willow St
Wilmington Ave
Alameda Ave
Dominguez Channel
Terminal Island Fwy
Santa Fe Ave
Pacific Pl
405
710
103
25%
NOT TO SCALE


1. Wilmington Ave & I-405 NB Ramps
2. Wilmington Ave & I-405 SB Ramps
3. Wilmington Ave & 223rd St
4. Alameda Ave & I-405 NB Ramps
5. Alameda Ave & 223rd St
6. Alameda Ave & 223rd St
7. Alameda Ave & Sepulveda Blvd
8. Alameda Ave & Sepulveda Blvd
9. I-405 SB Ramps & 223rd St
10. SR-103 & Sepulveda Blvd
11. Santa Fe Ave & Sepulveda Blvd
12. SR-710 SB Ramps & Willow St
13. SR-710 NB Ramps & Willow St


405
710
103
223rd St
Wilmington Ave
Alameda Ave
Sepulveda Blvd
Dominguez Channel
Santa Fe Ave
Wardlow Rd
Pacific Pl
NOT TO SCALE
Legend
Study Intersection
XX/XX AM/PM Peak Hour Volumes

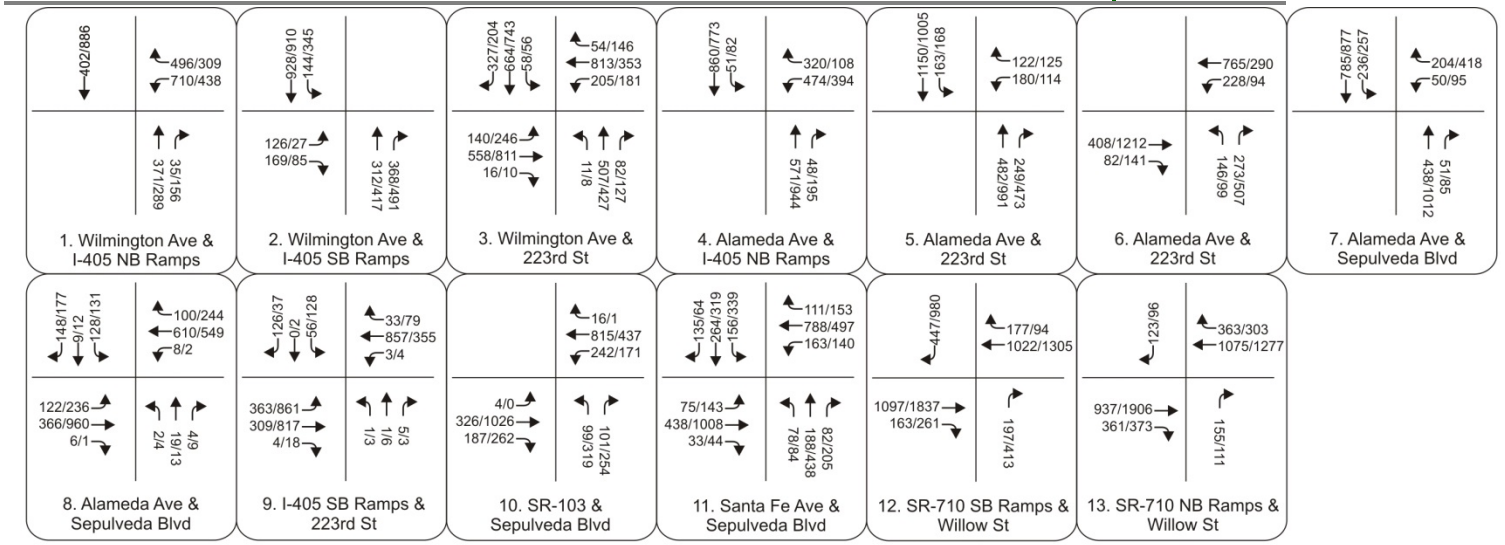


FIGURE 11
Year 2021 With Proposed Project Operations Intersection Volumes

TABLE 8: YEAR 2021 WITH PROJECT INTERSECTION LOS

Intersection		Year 2021 Without Project						Year 2021 With Project Operations						a.m. Change in V/C or Delay	p.m. Change in V/C or Delay	Significant Impact?
		a.m. Peak Hour			p.m. Peak Hour			a.m. Peak Hour			p.m. Peak Hour					
		V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS			
1	Wilmington Ave/I-405 NB Ramps	0.512	21.7	C	0.420	18.4	B	0.512	21.7	C	0.420	18.4	B	0 s	0 s	No
2	Wilmington Ave/I-405 SB Ramps	0.364	21.8	C	0.362	15.7	B	0.365	21.8	C	0.363	15.8	B	0 s	0.1 s	No
3	Wilmington Ave/223rd St	0.656	-	B	0.703	-	C	0.657	-	B	0.703	-	C	0.001	0	No
4	Alameda St/I-405 NB Ramps	0.687	23.4	C	0.681	23.5	C	0.687	23.4	C	0.682	23.6	C	0 s	0.1 s	No
5	Alameda St/223rd St (along Alameda St)	0.470	-	A	0.581	-	A	0.471	-	A	0.581	-	A	0.001	0	No
6	Alameda St/223rd St (along 223rd St)	0.355	-	A	0.647	-	B	0.355	-	A	0.647	-	B	0	0	No
7	Alameda St/Sepulveda Blvd (along Alameda St)	0.380	-	A	0.548	-	A	0.381	-	A	0.549	-	A	0.001	0.001	No
8	Alameda St/Sepulveda Blvd (along Sepulveda Blvd)	0.422	-	A	0.758	-	C	0.423	-	A	0.759	-	C	0.001	0.001	No
9	I-405 SB Ramps/223rd St	0.484	23.5	C	0.514	19.1	B	0.484	23.5	C	0.514	19.1	B	0 s	0s	No
10	Terminal Island Fwy (SR-103)/Sepulveda Blvd	0.396	-	A	0.590	-	A	0.397	-	A	0.591	-	A	0.001	0.001	No
11	Santa Fe Ave/Sepulveda Blvd	0.636	-	B	0.798	-	C	0.637	-	B	0.799	-	C	0.001	0.001	No
12	I-710 SB Ramps/Willow St	Uncontrolled Intersection														-
13	I-710 NB Ramps/Willow St	Uncontrolled Intersection														-

Notes:
V/C = Volume to Capacity Ratio, LOS = Level of Service, Delay = Average Vehicle Delay (Seconds)

5.0 CONCLUSIONS

As shown in **Table 5**, under the Baseline Existing Conditions (2014) Plus Project Construction Conditions scenario, temporary construction-related trips are forecast to result in a potentially significant impact at the Wilmington Ave/I-405 Southbound Ramps under the I-405/Wilmington Interchange pre-construction configuration. This is due to the large number of temporary project-related trips utilizing the southbound ramp to access the proposed Project site in the a.m. peak hour.

It should be emphasized that this exceedance of the threshold of significance is temporary in nature and does not represent a significant impact that would require permanent mitigation by the applicant. However, it does indicate that inbound trips to the proposed Project during the construction period should avoid the I-405/Wilmington interchange while it is under construction.

In order to reduce the proposed Project's construction-related trips on the Wilmington Avenue/I-405 Southbound Ramps intersection prior to the completion of the I-405/Wilmington Avenue Interchange Modification Project, it is recommended that proposed Project workers be advised of the construction schedule and potential restrictions and closures associated with the Interchange Modification Project. Workers should be encouraged to avoid the Wilmington Avenue/I-405 Southbound Ramps intersection during morning peak travel periods by traveling either outside of the morning peak travel time or along alternative routes. The operational conditions of all other study locations, operating at LOS C or better during peak hours, demonstrate the adequacy of several alternative routes for proposed Project construction period trips.

The protocols for the dissemination of information to proposed Project workers and potential alternative schedules or routing during construction activities for the proposed project should be provided in the form of a construction staging and/or traffic management plan, to be approved by the Cities of Carson and Los Angeles.

As shown in **Table 12**, the proposed Project is not forecasted to cause a study location to exceed a threshold of significance in year 2021 and therefore the project would have a less than significant impact on area roadway facilities.

It should be noted that an Existing Conditions plus Project Operations was not conducted in addition to the Year 2021 Plus Project Operations scenario since the Year 2021 Plus Project Operations scenario was developed in this study as an existing conditions plus ambient growth to Year 2021 plus Project Operations. If levels of significance are not exceeded under the Year 2021 levels of ambient traffic, they will not be under lower levels of existing traffic.

APPENDIX A: TRAFFIC COUNTS

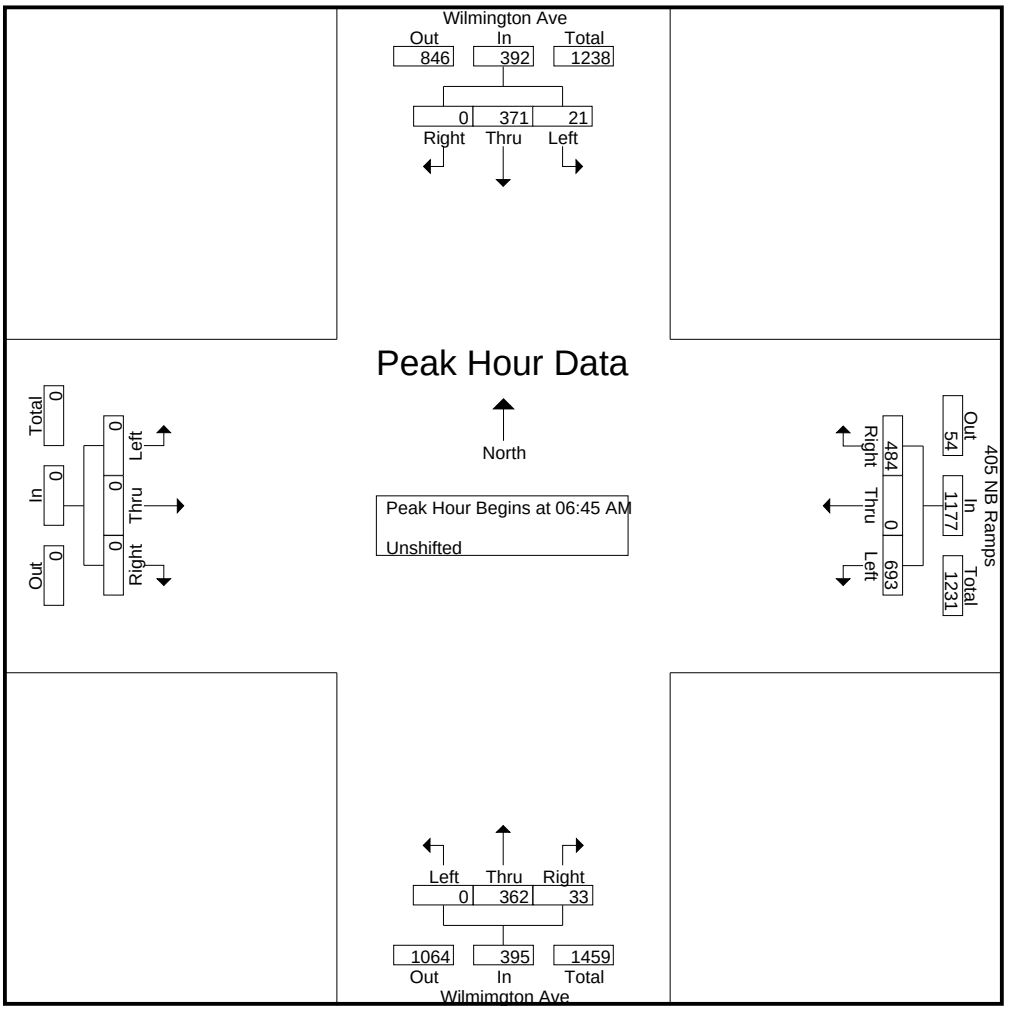
File Name : Wilmington_405NBRamps
Site Code : 00000000
Start Date : 8/20/2014
Page No : 1

Groups Printed- Unshifted

	Wilmington Ave Southbound			405 NB Ramps Westbound			Wilmimgton Ave Northbound			Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	10	78	0	159	0	78	0	46	24	0	0	0	395
06:15 AM	6	84	0	174	0	85	0	44	9	0	0	0	402
06:30 AM	1	80	0	172	0	94	0	96	14	0	0	0	457
06:45 AM	7	95	0	180	0	137	0	124	5	0	0	0	548
Total	24	337	0	685	0	394	0	310	52	0	0	0	1802
07:00 AM	4	75	0	187	0	111	0	71	10	0	0	0	458
07:15 AM	6	94	0	161	0	108	0	90	13	0	0	0	472
07:30 AM	4	107	0	165	0	128	0	77	5	0	0	0	486
07:45 AM	3	98	0	130	0	148	0	99	13	0	0	0	491
Total	17	374	0	643	0	495	0	337	41	0	0	0	1907
08:00 AM	3	105	0	161	0	109	0	95	18	0	0	0	491
08:15 AM	5	86	0	146	0	125	0	80	9	0	0	0	451
08:30 AM	7	105	0	118	0	110	0	80	14	0	0	0	434
08:45 AM	4	99	0	115	0	99	0	63	14	0	0	0	394
Total	19	395	0	540	0	443	0	318	55	0	0	0	1770
04:00 PM	18	195	0	99	0	71	0	59	24	0	0	0	466
04:15 PM	15	166	0	100	0	59	0	60	26	0	0	0	426
04:30 PM	16	190	0	105	0	78	0	67	39	0	0	0	495
04:45 PM	21	201	0	108	0	76	0	82	46	0	0	0	534
Total	70	752	0	412	0	284	0	268	135	0	0	0	1921
05:00 PM	20	190	0	111	0	76	0	61	32	0	0	0	490
05:15 PM	14	213	0	104	0	72	0	72	34	0	0	0	509
05:30 PM	9	174	0	102	0	66	0	74	33	0	0	0	458
05:45 PM	13	176	0	109	0	104	0	62	40	0	0	0	504
Total	56	753	0	426	0	318	0	269	139	0	0	0	1961
Grand Total	186	2611	0	2706	0	1934	0	1502	422	0	0	0	9361
Apprch %	6.6	93.4	0	58.3	0	41.7	0	78.1	21.9	0	0	0	
Total %	2	27.9	0	28.9	0	20.7	0	16	4.5	0	0	0	

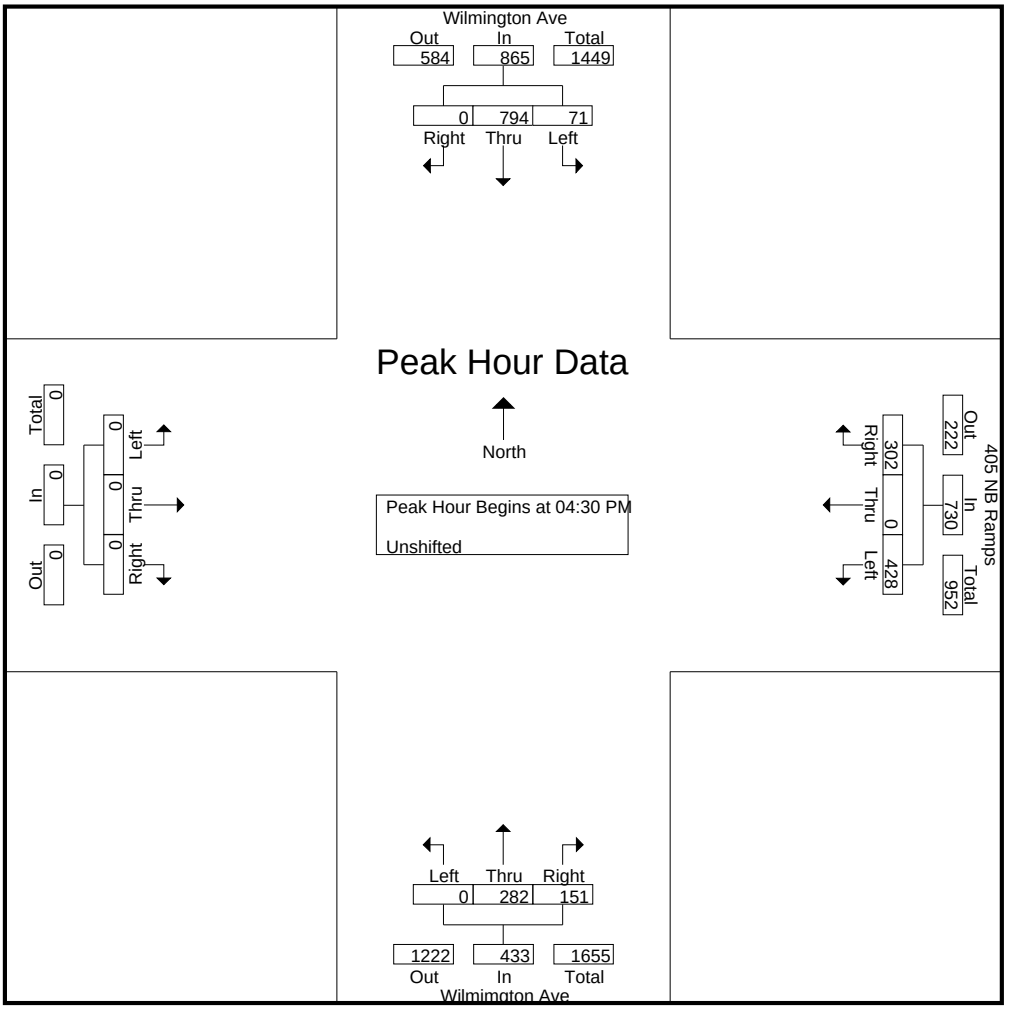
File Name : Wilmington_405NBRamps
Site Code : 00000000
Start Date : 8/20/2014
Page No : 2

	Wilmington Ave Southbound				405 NB Ramps Westbound				Wilmington Ave Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:45 AM																	
06:45 AM	**7**	95	0	102	180	0	**137**	**317**	0	**124**	5	**129**	0	0	0	0	**548**
07:00 AM	4	75	0	79	**187**	0	111	298	0	71	10	81	0	0	0	0	458
07:15 AM	6	94	0	100	161	0	108	269	0	90	**13**	103	0	0	0	0	472
07:30 AM	4	**107**	0	**111**	165	0	128	293	0	77	5	82	0	0	0	0	486
Total Volume	21	371	0	392	693	0	484	1177	0	362	33	395	0	0	0	0	1964
% App. Total	5.4	94.6	0		58.9	0	41.1		0	91.6	8.4		0	0	0		
PHF	.750	.867	.000	.883	.926	.000	.883	.928	.000	.730	.635	.766	.000	.000	.000	.000	.896



File Name : Wilmington_405NBRamps
Site Code : 00000000
Start Date : 8/20/2014
Page No : 3

	Wilmington Ave Southbound				405 NB Ramps Westbound				Wilmimgton Ave Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	16	190	0	206	105	0	**78**	183	0	67	39	106	0	0	0	0	495
04:45 PM	**21**	201	0	222	108	0	76	184	0	**82**	**46**	**128**	0	0	0	0	**534**
05:00 PM	20	190	0	210	**111**	0	76	**187**	0	61	32	93	0	0	0	0	490
05:15 PM	14	**213**	0	**227**	104	0	72	176	0	72	34	106	0	0	0	0	509
Total Volume	71	794	0	865	428	0	302	730	0	282	151	433	0	0	0	0	2028
% App. Total	8.2	91.8	0		58.6	0	41.4		0	65.1	34.9		0	0	0		
PHF	.845	.932	.000	.953	.964	.000	.968	.976	.000	.860	.821	.846	.000	.000	.000	.000	.949



File Name : Wilmington_405SBRamps
Site Code : 00000000
Start Date : 8/20/2014
Page No : 1

Groups Printed- Unshifted

	Wilmington Ave Southbound			405 SB Ramp Westbound			Wilmington Ave Northbound			405 SB Ramp Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	38	198	0	0	0	0	0	53	100	15	0	31	435
06:15 AM	40	211	0	0	0	0	0	41	107	12	0	34	445
06:30 AM	35	227	0	0	0	0	0	84	98	27	0	43	514
06:45 AM	43	222	0	0	0	0	0	78	89	50	0	46	528
Total	156	858	0	0	0	0	0	256	394	104	0	154	1922
07:00 AM	25	240	0	0	0	0	0	62	81	19	0	35	462
07:15 AM	38	217	0	0	0	0	0	80	91	27	0	40	493
07:30 AM	46	217	0	0	0	0	0	64	79	18	0	37	461
07:45 AM	24	212	0	0	0	0	0	85	94	27	0	63	505
Total	133	886	0	0	0	0	0	291	345	91	0	175	1921
08:00 AM	48	210	0	0	0	0	0	98	103	23	0	47	529
08:15 AM	43	187	1	0	0	0	0	92	83	24	0	47	477
08:30 AM	46	181	0	0	0	0	0	66	79	27	0	51	450
08:45 AM	26	191	0	0	0	0	0	70	90	24	0	42	443
Total	163	769	1	0	0	0	0	326	355	98	0	187	1899
04:00 PM	86	212	0	0	0	0	0	81	117	10	0	19	525
04:15 PM	77	190	0	0	0	0	0	81	125	6	0	25	504
04:30 PM	79	218	0	0	0	0	0	98	142	6	0	17	560
04:45 PM	88	220	0	0	0	0	0	119	110	11	0	15	563
Total	330	840	0	0	0	0	0	379	494	33	0	76	2152
05:00 PM	83	220	0	0	0	0	0	84	105	7	0	29	528
05:15 PM	87	230	0	0	0	0	0	105	122	2	0	21	567
05:30 PM	75	203	0	0	0	0	0	97	125	11	0	10	521
05:45 PM	78	203	0	0	0	0	0	93	126	6	0	12	518
Total	323	856	0	0	0	0	0	379	478	26	0	72	2134
Grand Total	1105	4209	1	0	0	0	0	1631	2066	352	0	664	10028
Apprch %	20.8	79.2	0	0	0	0	0	44.1	55.9	34.6	0	65.4	
Total %	11	42	0	0	0	0	0	16.3	20.6	3.5	0	6.6	

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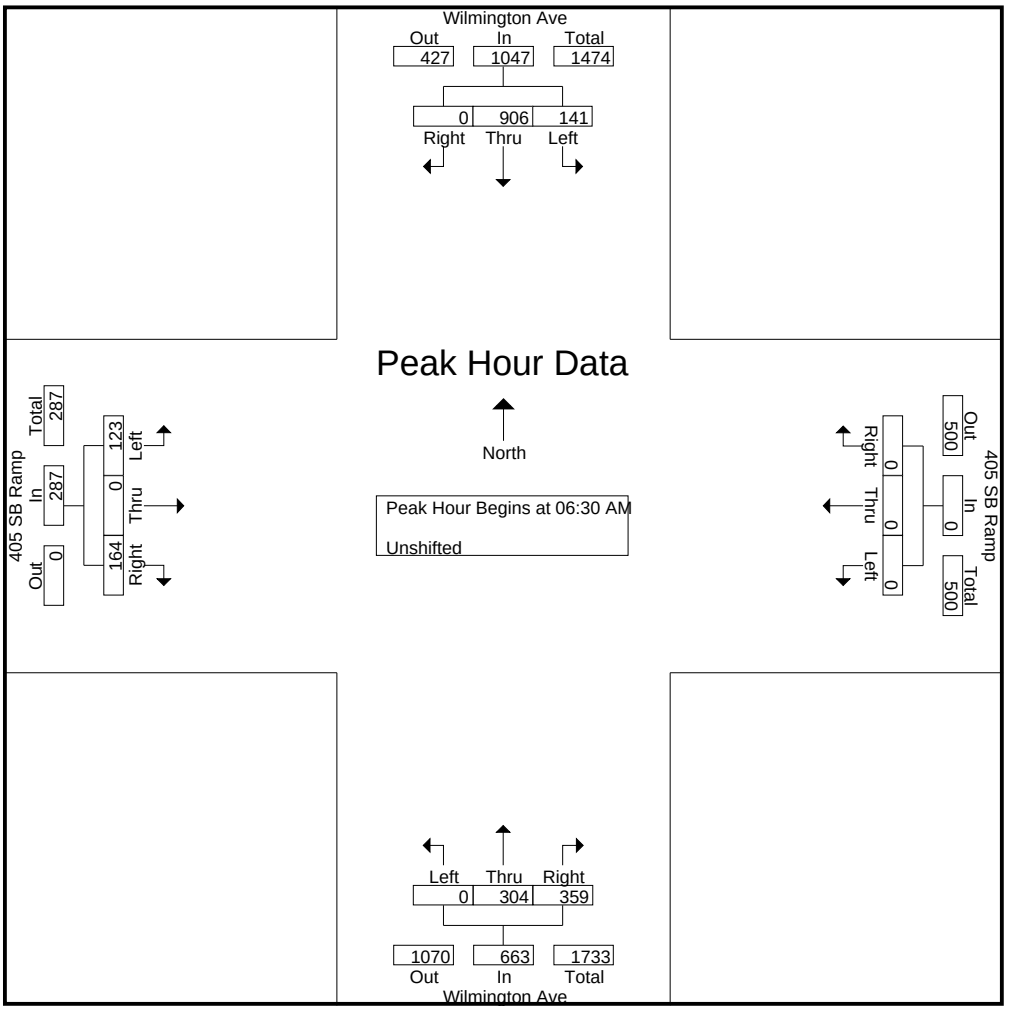
	Wilmington Ave Southbound				405 SB Ramp Westbound				Wilmington Ave Northbound				405 SB Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 06:30 AM																	
06:30 AM	35	227	0	262	0	0	0	0	0	**84**	**98**	**182**	27	0	43	70	514
06:45 AM	**43**	222	0	**265**	0	0	0	0	0	78	89	167	**50**	0	**46**	**96**	**528**
07:00 AM	25	**240**	0	265	0	0	0	0	0	62	81	143	19	0	35	54	462
07:15 AM	38	217	0	255	0	0	0	0	0	80	91	171	27	0	40	67	493
Total Volume	141	906	0	1047	0	0	0	0	0	304	359	663	123	0	164	287	1997
% App. Total	13.5	86.5	0		0	0	0		0	45.9	54.1		42.9	0	57.1		
PHF	.820	.944	.000	.988	.000	.000	.000	.000	.000	.905	.916	.911	.615	.000	.891	.747	.946



File Name : Wilmington_405SBRamps
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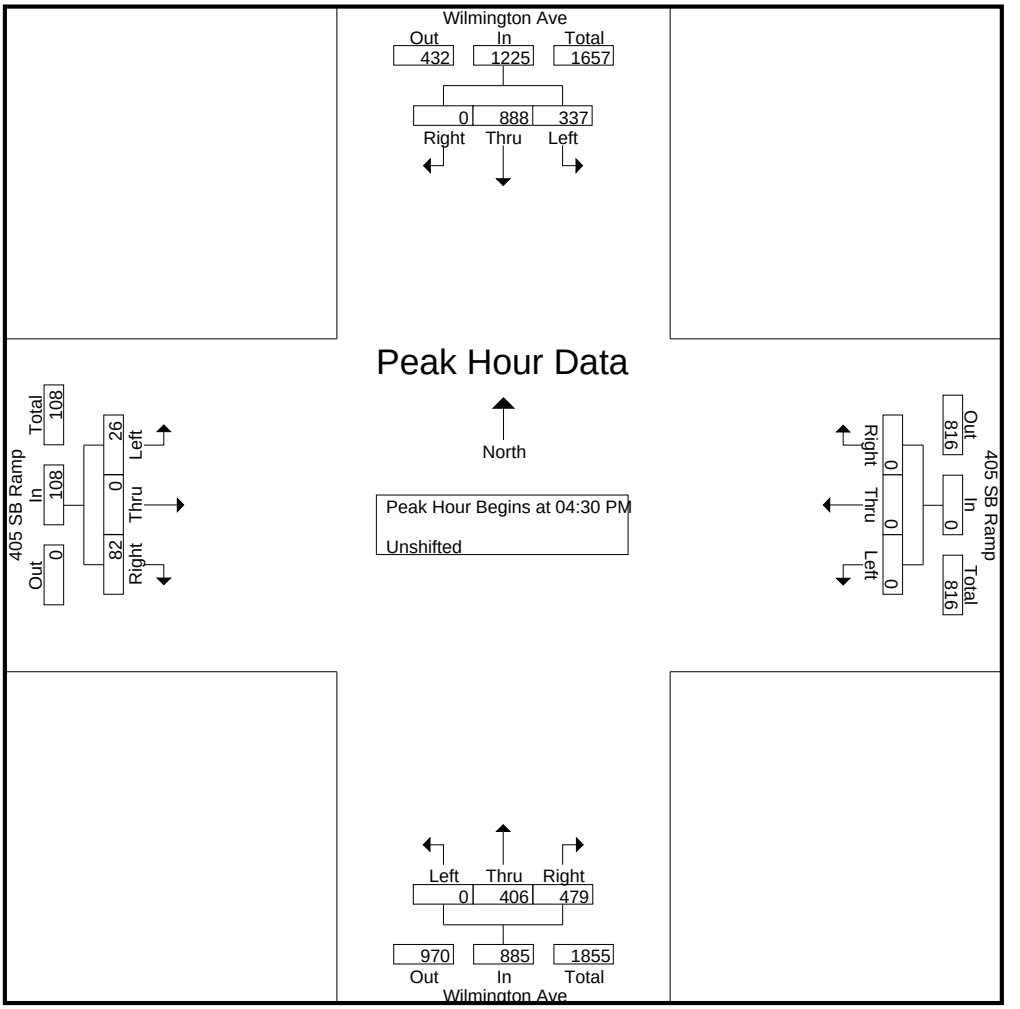
	Wilmington Ave Southbound				405 SB Ramp Westbound				Wilmington Ave Northbound				405 SB Ramp Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	79	218	0	297	0	0	0	0	0	98	**142**	**240**	6	0	17	23	560
04:45 PM	**88**	220	0	308	0	0	0	0	0	**119**	110	229	**11**	0	15	26	563
05:00 PM	83	220	0	303	0	0	0	0	0	84	105	189	7	0	**29**	**36**	528
05:15 PM	87	**230**	0	**317**	0	0	0	0	0	105	122	227	2	0	21	23	**567**
Total Volume	337	888	0	1225	0	0	0	0	0	406	479	885	26	0	82	108	2218
% App. Total	27.5	72.5	0		0	0	0		0	45.9	54.1		24.1	0	75.9		
PHF	.957	.965	.000	.966	.000	.000	.000	.000	.000	.853	.843	.922	.591	.000	.707	.750	.978



File Name : Wilmington_223rd
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	Wilmington Ave Southbound			223rd St Westbound			Wilmington Ave Northbound			223rd St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	11	152	49	35	33	15	3	125	7	28	36	0	494
06:15 AM	6	169	69	36	56	11	1	117	3	26	52	3	549
06:30 AM	6	185	74	42	148	12	3	138	4	33	64	0	709
06:45 AM	12	183	77	50	130	10	2	119	22	38	66	3	712
Total	35	689	269	163	367	48	9	499	36	125	218	6	2464
07:00 AM	13	169	82	51	132	12	7	109	8	27	99	7	716
07:15 AM	9	161	75	55	231	13	3	114	21	32	112	5	831
07:30 AM	22	148	90	54	235	12	3	117	14	33	140	5	873
07:45 AM	12	177	78	38	178	13	1	143	17	32	149	2	840
Total	56	655	325	198	776	50	14	483	60	124	500	19	3260
08:00 AM	14	161	76	53	150	15	4	120	28	40	144	4	809
08:15 AM	16	155	73	45	128	15	6	97	15	27	102	0	679
08:30 AM	14	149	58	34	102	12	3	108	23	42	78	5	628
08:45 AM	12	152	71	32	103	8	2	112	16	19	68	6	601
Total	56	617	278	164	483	50	15	437	82	128	392	15	2717
04:00 PM	18	166	47	25	62	21	1	109	23	69	213	5	759
04:15 PM	14	173	36	40	68	23	3	112	24	63	210	4	770
04:30 PM	8	167	58	43	87	64	4	86	20	70	184	4	795
04:45 PM	14	178	49	40	70	35	1	126	40	59	185	2	799
Total	54	684	190	148	287	143	9	433	107	261	792	15	3123
05:00 PM	20	190	42	50	101	28	1	83	38	48	191	1	793
05:15 PM	13	189	50	44	87	16	2	121	26	63	232	3	846
05:30 PM	16	148	51	22	56	26	2	126	35	63	226	5	776
05:45 PM	14	162	44	25	49	26	4	136	40	55	184	7	746
Total	63	689	187	141	293	96	9	466	139	229	833	16	3161
Grand Total	264	3334	1249	814	2206	387	56	2318	424	867	2735	71	14725
Apprch %	5.4	68.8	25.8	23.9	64.7	11.4	2	82.8	15.2	23.6	74.5	1.9	
Total %	1.8	22.6	8.5	5.5	15	2.6	0.4	15.7	2.9	5.9	18.6	0.5	

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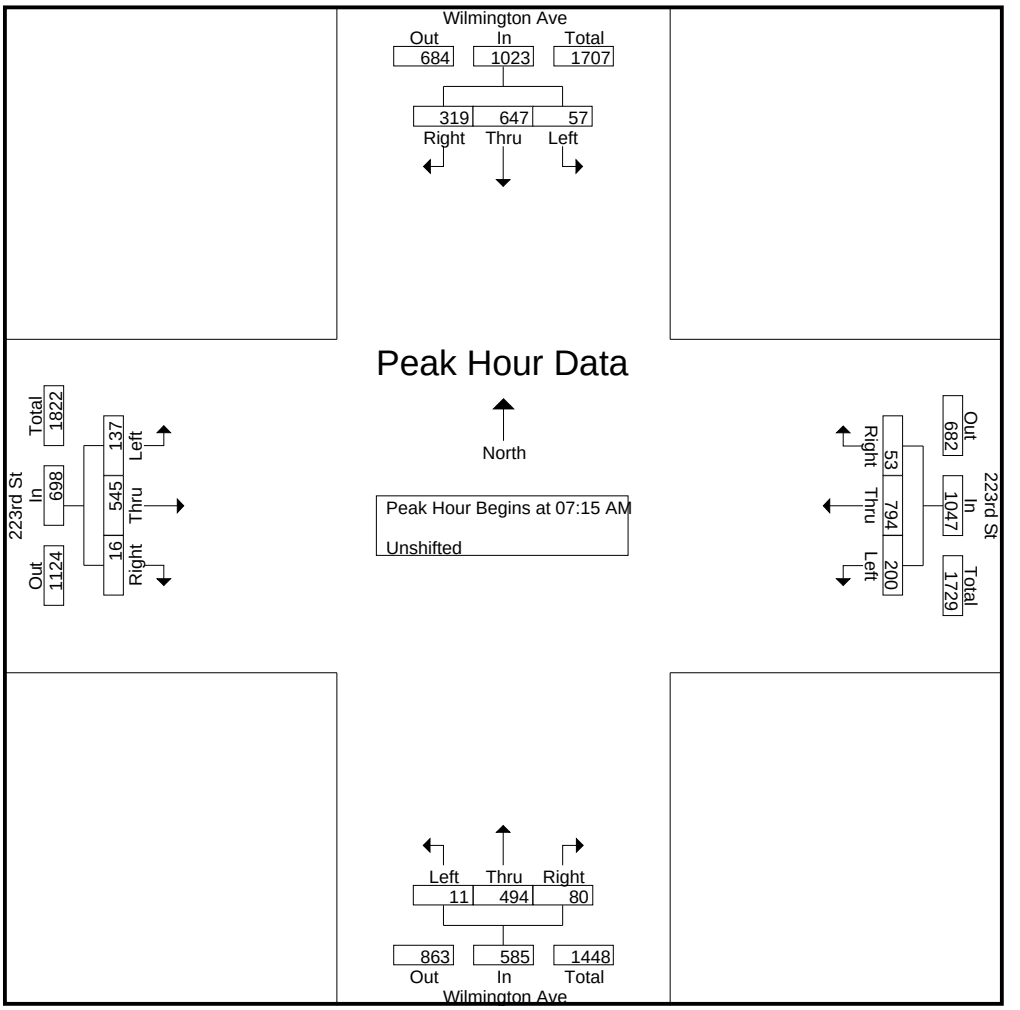
	Wilmington Ave Southbound				223rd St Westbound				Wilmington Ave Northbound				223rd St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	9	161	75	245	**55**	231	13	299	3	114	21	138	32	112	**5**	149	831
07:30 AM	**22**	148	**90**	260	54	**235**	12	**301**	3	117	14	134	33	140	5	178	**873**
07:45 AM	12	**177**	78	**267**	38	178	13	229	1	**143**	17	**161**	32	**149**	2	183	840
08:00 AM	14	161	76	251	53	150	**15**	218	**4**	120	**28**	152	**40**	144	4	**188**	809
Total Volume	57	647	319	1023	200	794	53	1047	11	494	80	585	137	545	16	698	3353
% App. Total	5.6	63.2	31.2		19.1	75.8	5.1		1.9	84.4	13.7		19.6	78.1	2.3		
PHF	.648	.914	.886	.958	.909	.845	.883	.870	.688	.864	.714	.908	.856	.914	.800	.928	.960



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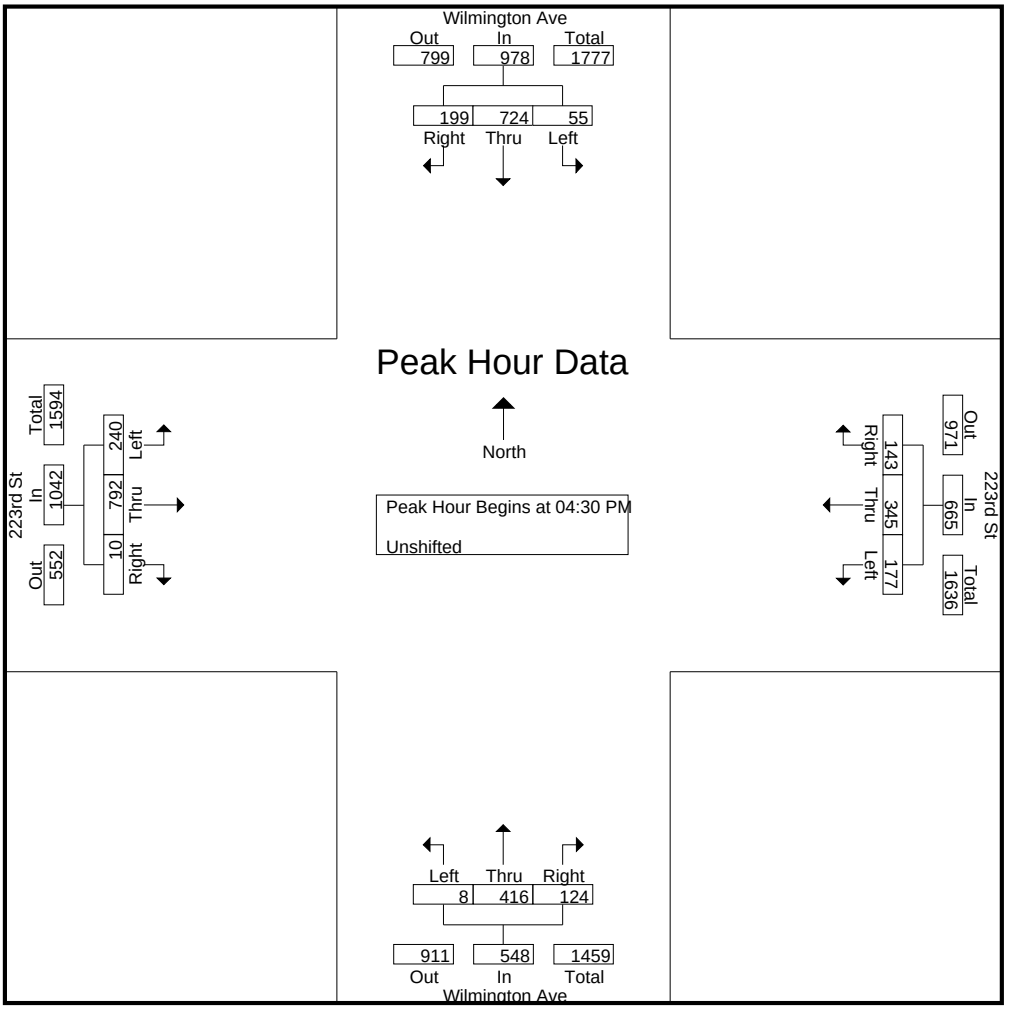
	Wilmington Ave Southbound				223rd St Westbound				Wilmington Ave Northbound				223rd St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	8	167	**58**	233	43	87	**64**	**194**	**4**	86	20	110	**70**	184	**4**	258	795
04:45 PM	14	178	49	241	40	70	35	145	1	**126**	**40**	**167**	59	185	2	246	799
05:00 PM	**20**	**190**	42	**252**	**50**	**101**	28	179	1	83	38	122	48	191	1	240	793
05:15 PM	13	189	50	252	44	87	16	147	2	121	26	149	63	**232**	3	**298**	**846**
Total Volume	55	724	199	978	177	345	143	665	8	416	124	548	240	792	10	1042	3233
% App. Total	5.6	74	20.3		26.6	51.9	21.5		1.5	75.9	22.6		23	76	1		
PHF	.688	.953	.858	.970	.885	.854	.559	.857	.500	.825	.775	.820	.857	.853	.625	.874	.955



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	Alameda Ave Southbound			405 NB Ramps Westbound			Alameda Ave Northbound			405 NB Ramps Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	18	93	0	138	0	30	0	69	20	0	0	0	368
06:15 AM	8	133	0	144	0	31	0	65	13	0	0	0	394
06:30 AM	11	164	0	153	0	64	0	105	14	0	0	0	511
06:45 AM	17	137	0	132	0	51	0	99	15	0	0	0	451
Total	54	527	0	567	0	176	0	338	62	0	0	0	1724
07:00 AM	19	200	0	123	0	63	0	120	13	0	0	0	538
07:15 AM	12	207	0	104	0	64	0	124	13	0	0	0	524
07:30 AM	7	219	0	117	0	88	0	165	14	0	0	0	610
07:45 AM	12	214	0	118	0	97	0	148	7	0	0	0	596
Total	50	840	0	462	0	312	0	557	47	0	0	0	2268
08:00 AM	12	185	0	95	0	59	0	123	16	0	0	0	490
08:15 AM	8	133	0	84	0	61	0	111	13	0	0	0	410
08:30 AM	7	155	0	83	0	41	0	79	10	0	0	0	375
08:45 AM	6	146	0	92	0	37	0	85	14	0	0	0	380
Total	33	619	0	354	0	198	0	398	53	0	0	0	1655
04:00 PM	19	156	0	111	0	40	0	189	39	0	0	0	554
04:15 PM	21	179	0	121	0	32	0	198	37	0	0	0	588
04:30 PM	19	188	0	110	0	29	0	224	58	0	0	0	628
04:45 PM	17	175	0	106	0	28	0	255	53	0	0	0	634
Total	76	698	0	448	0	129	0	866	187	0	0	0	2404
05:00 PM	26	188	0	84	0	13	0	221	49	0	0	0	581
05:15 PM	18	204	0	84	0	35	0	222	30	0	0	0	593
05:30 PM	19	212	0	89	0	26	0	196	29	0	0	0	571
05:45 PM	10	141	0	105	0	37	0	157	39	0	0	0	489
Total	73	745	0	362	0	111	0	796	147	0	0	0	2234
Grand Total	286	3429	0	2193	0	926	0	2955	496	0	0	0	10285
Apprch %	7.7	92.3	0	70.3	0	29.7	0	85.6	14.4	0	0	0	
Total %	2.8	33.3	0	21.3	0	9	0	28.7	4.8	0	0	0	

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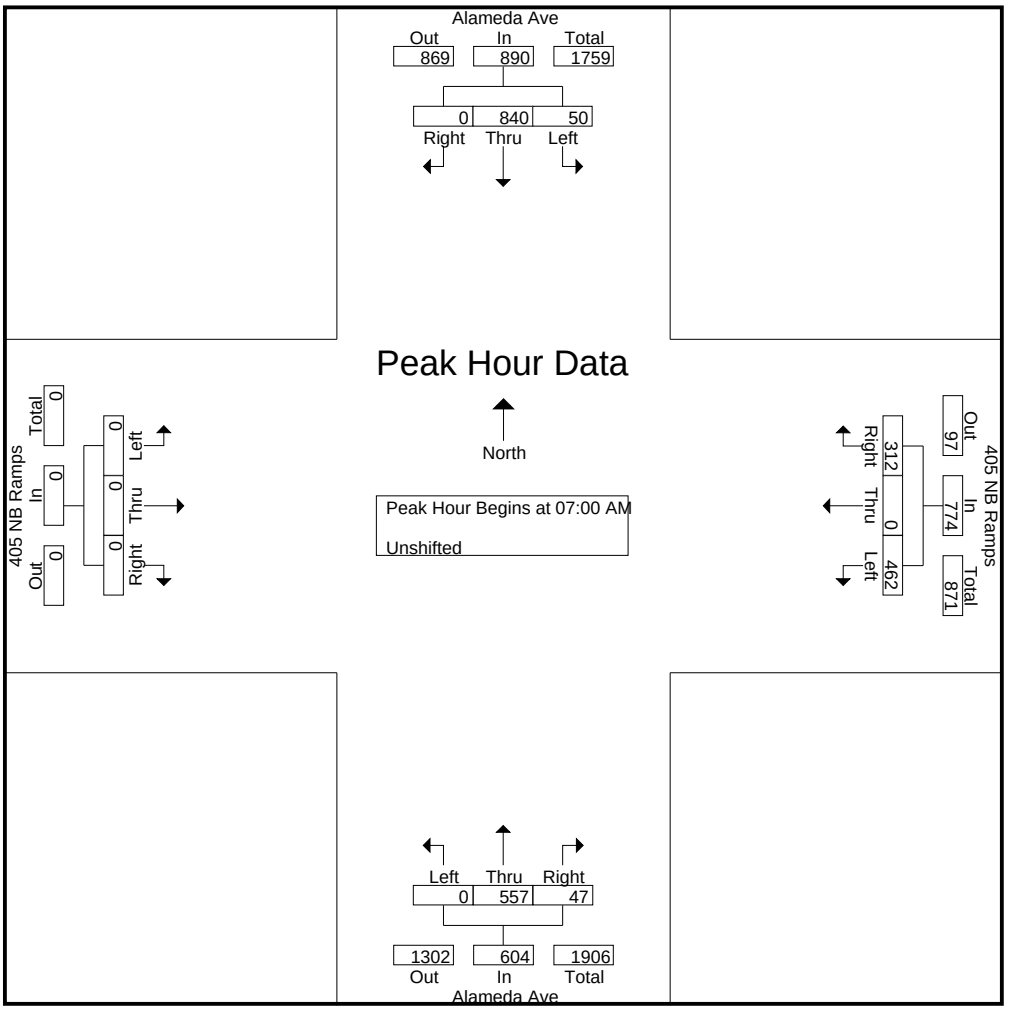
	Alameda Ave Southbound				405 NB Ramps Westbound				Alameda Ave Northbound				405 NB Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	**19**	200	0	219	**123**	0	63	186	0	120	13	133	0	0	0	0	538
07:15 AM	12	207	0	219	104	0	64	168	0	124	13	137	0	0	0	0	524
07:30 AM	7	**219**	0	**226**	117	0	88	205	0	**165**	**14**	**179**	0	0	0	0	**610**
07:45 AM	12	214	0	226	118	0	**97**	**215**	0	148	7	155	0	0	0	0	596
Total Volume	50	840	0	890	462	0	312	774	0	557	47	604	0	0	0	0	2268
% App. Total	5.6	94.4	0		59.7	0	40.3		0	92.2	7.8		0	0	0		
PHF	.658	.959	.000	.985	.939	.000	.804	.900	.000	.844	.839	.844	.000	.000	.000	.000	.930



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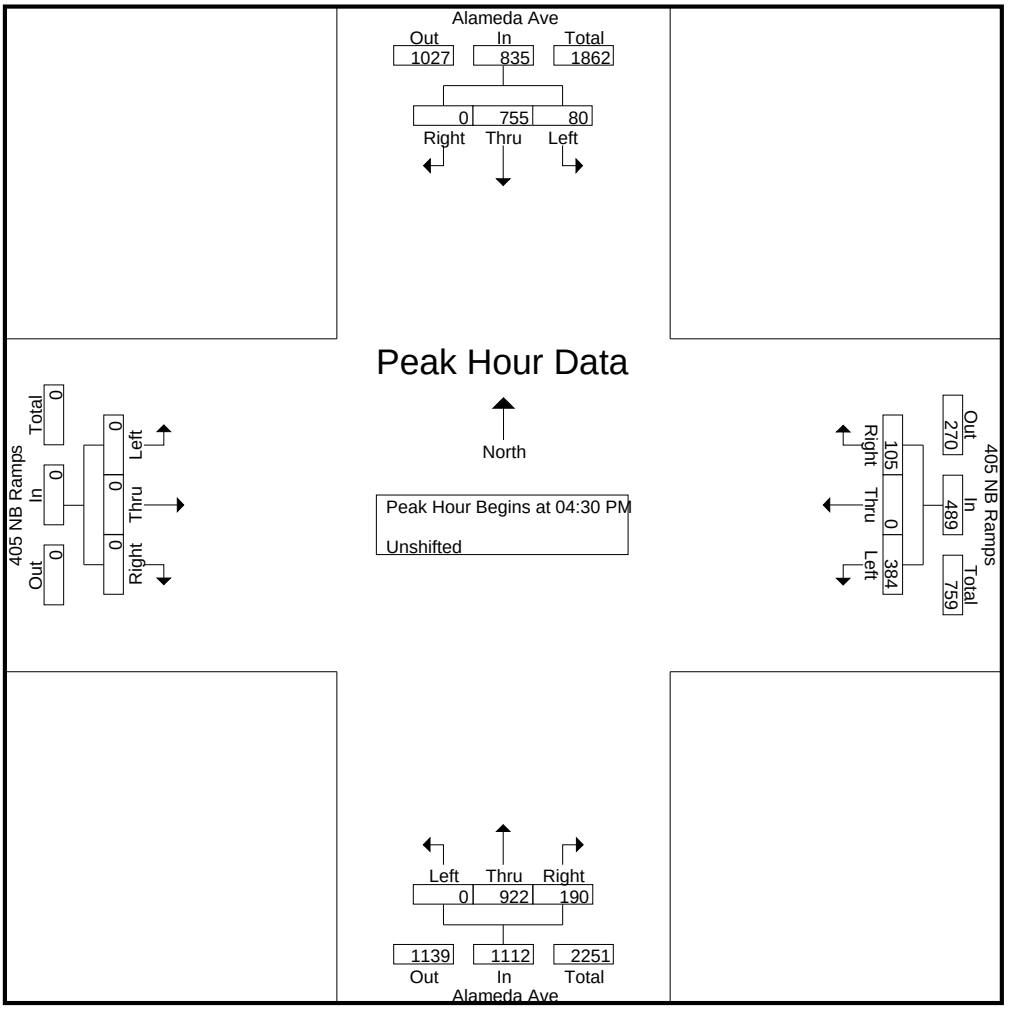
	Alameda Ave Southbound				405 NB Ramps Westbound				Alameda Ave Northbound				405 NB Ramps Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	19	188	0	207	**110**	0	29	**139**	0	224	**58**	282	0	0	0	0	628
04:45 PM	17	175	0	192	106	0	28	134	0	**255**	53	**308**	0	0	0	0	**634**
05:00 PM	**26**	188	0	214	84	0	13	97	0	221	49	270	0	0	0	0	581
05:15 PM	18	**204**	0	**222**	84	0	**35**	119	0	222	30	252	0	0	0	0	593
Total Volume	80	755	0	835	384	0	105	489	0	922	190	1112	0	0	0	0	2436
% App. Total	9.6	90.4	0		78.5	0	21.5		0	82.9	17.1		0	0	0		
PHF	.769	.925	.000	.940	.873	.000	.750	.879	.000	.904	.819	.903	.000	.000	.000	.000	.961



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	Alameda St Southbound			223rd St Westbound			Alameda St Northbound			Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	30	195	0	31	0	12	0	63	38	0	0	0	369
06:15 AM	34	239	0	50	0	11	0	68	33	0	0	0	435
06:30 AM	30	277	0	43	0	21	0	92	50	0	0	0	513
06:45 AM	32	243	0	39	0	20	0	95	55	0	0	0	484
Total	126	954	0	163	0	64	0	318	176	0	0	0	1801
07:00 AM	31	290	0	39	0	28	0	99	62	0	0	0	549
07:15 AM	35	273	0	41	0	27	0	102	65	0	0	0	543
07:30 AM	42	280	0	47	0	31	0	145	63	0	0	0	608
07:45 AM	51	279	0	49	0	33	0	125	52	0	0	0	589
Total	159	1122	0	176	0	119	0	471	242	0	0	0	2289
08:00 AM	40	251	0	42	0	28	0	120	26	0	0	0	507
08:15 AM	33	181	0	37	0	32	0	92	23	0	0	0	398
08:30 AM	32	203	0	40	0	26	0	81	12	0	0	0	394
08:45 AM	26	207	0	27	0	26	0	77	18	0	0	0	381
Total	131	842	0	146	0	112	0	370	79	0	0	0	1680
04:00 PM	47	212	0	25	0	24	0	198	108	0	0	0	614
04:15 PM	25	240	0	27	0	17	0	212	107	0	0	0	628
04:30 PM	39	259	0	35	0	38	0	237	108	0	0	0	716
04:45 PM	39	235	0	27	0	26	0	277	112	0	0	0	716
Total	150	946	0	114	0	105	0	924	435	0	0	0	2674
05:00 PM	41	239	0	21	0	34	0	229	118	0	0	0	682
05:15 PM	45	247	0	28	0	24	0	225	123	0	0	0	692
05:30 PM	41	251	0	17	0	18	0	205	98	0	0	0	630
05:45 PM	28	209	0	16	0	21	0	177	95	0	0	0	546
Total	155	946	0	82	0	97	0	836	434	0	0	0	2550
Grand Total	721	4810	0	681	0	497	0	2919	1366	0	0	0	10994
Apprch %	13	87	0	57.8	0	42.2	0	68.1	31.9	0	0	0	
Total %	6.6	43.8	0	6.2	0	4.5	0	26.6	12.4	0	0	0	

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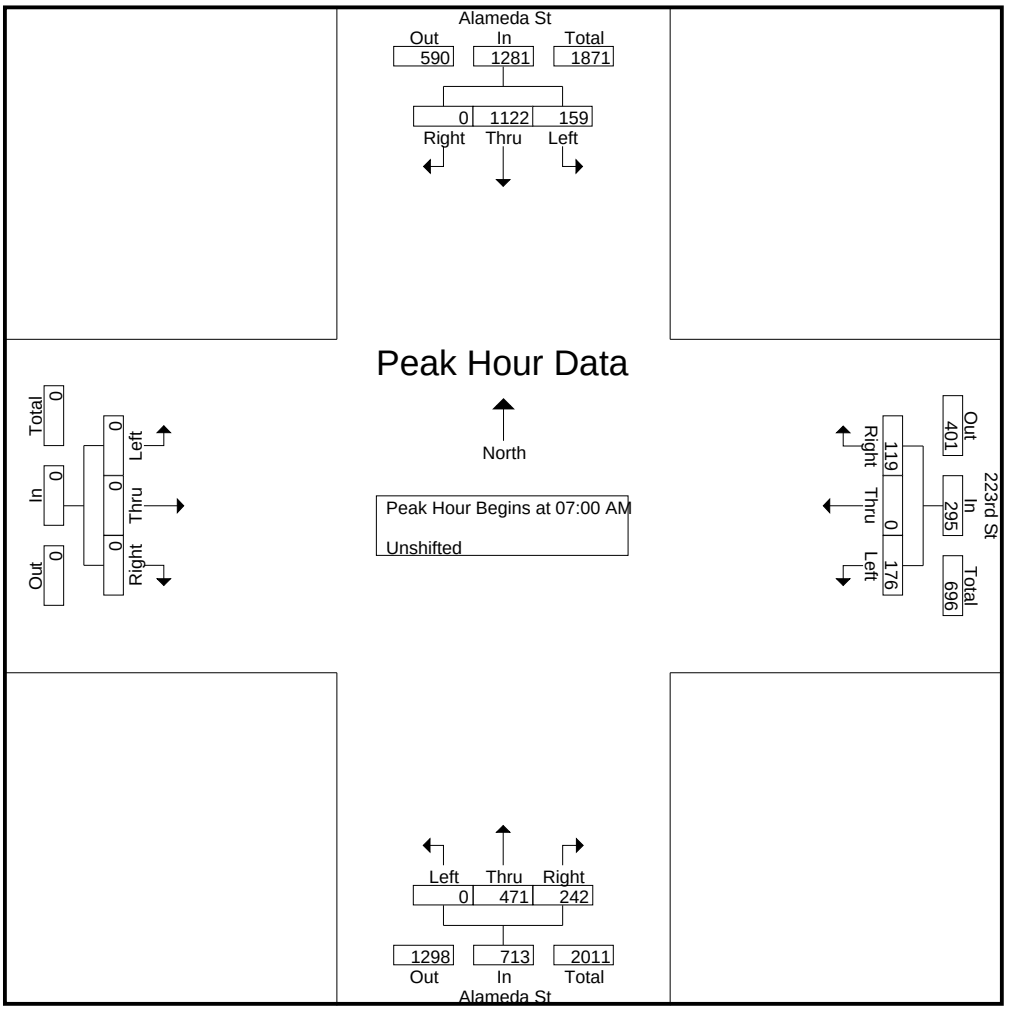
	Alameda St Southbound				223rd St Westbound				Alameda St Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	31	**290**	0	321	39	0	28	67	0	99	62	161	0	0	0	0	549
07:15 AM	35	273	0	308	41	0	27	68	0	102	**65**	167	0	0	0	0	543
07:30 AM	42	280	0	322	47	0	31	78	0	**145**	63	**208**	0	0	0	0	**608**
07:45 AM	**51**	279	0	**330**	**49**	0	**33**	**82**	0	125	52	177	0	0	0	0	589
Total Volume	159	1122	0	1281	176	0	119	295	0	471	242	713	0	0	0	0	2289
% App. Total	12.4	87.6	0		59.7	0	40.3		0	66.1	33.9		0	0	0		
PHF	.779	.967	.000	.970	.898	.000	.902	.899	.000	.812	.931	.857	.000	.000	.000	.000	.941



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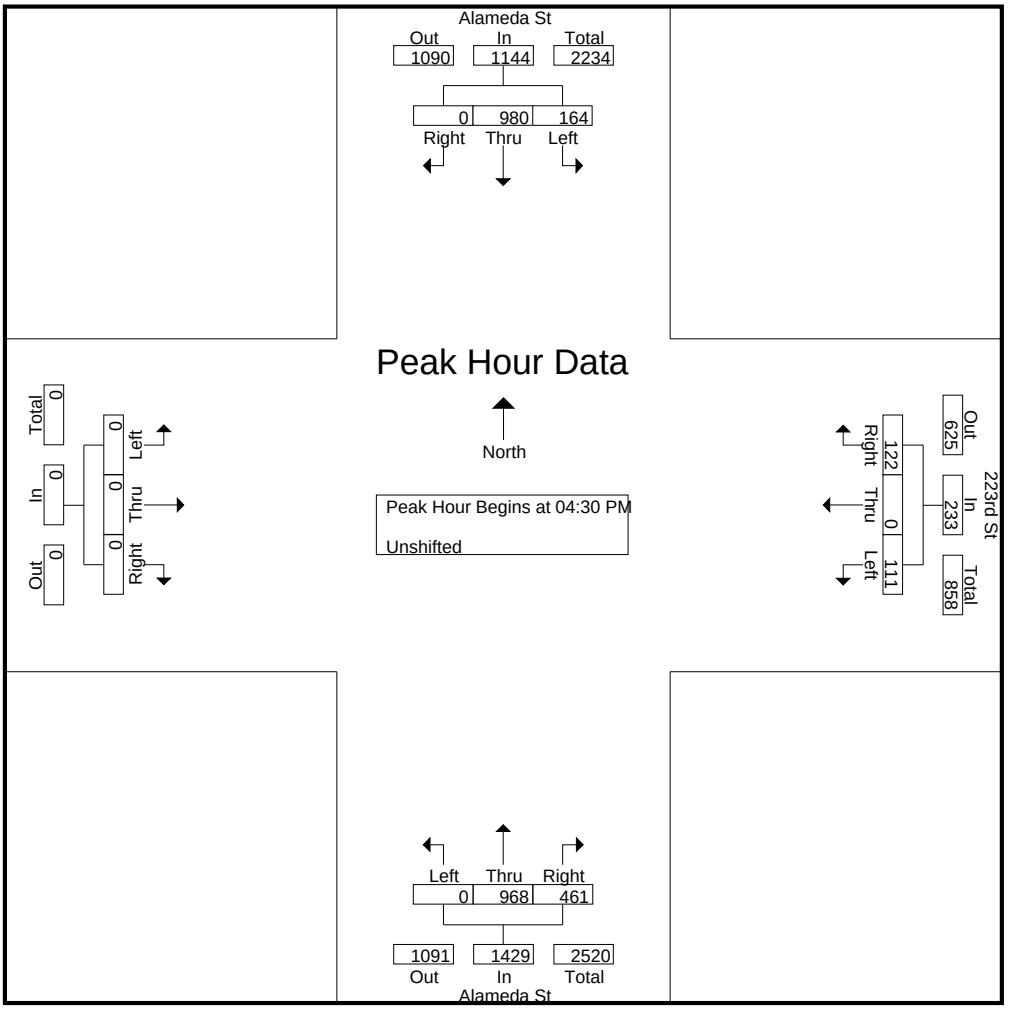
	Alameda St Southbound				223rd St Westbound				Alameda St Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	39	**259**	0	**298**	**35**	0	**38**	**73**	0	237	108	345	0	0	0	0	**716**
04:45 PM	39	235	0	274	27	0	26	53	0	**277**	112	**389**	0	0	0	0	716
05:00 PM	41	239	0	280	21	0	34	55	0	229	118	347	0	0	0	0	682
05:15 PM	**45**	247	0	292	28	0	24	52	0	225	**123**	348	0	0	0	0	692
Total Volume	164	980	0	1144	111	0	122	233	0	968	461	1429	0	0	0	0	2806
% App. Total	14.3	85.7	0		47.6	0	52.4		0	67.7	32.3		0	0	0		
PHF	.911	.946	.000	.960	.793	.000	.803	.798	.000	.874	.937	.918	.000	.000	.000	.000	.980



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Groups Printed- Unshifted

	Southbound			223rd St Westbound			Alameda St Northbound			223rd St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	0	0	0	34	78	0	18	0	49	0	53	10	242
06:15 AM	0	0	0	37	107	0	18	0	50	0	57	20	289
06:30 AM	0	0	0	40	158	0	29	0	50	0	57	19	353
06:45 AM	0	0	0	40	169	0	33	0	54	0	77	19	392
Total	0	0	0	151	512	0	98	0	203	0	244	68	1276
07:00 AM	0	0	0	53	179	0	35	0	59	0	79	16	421
07:15 AM	0	0	0	51	180	0	41	0	63	0	102	18	455
07:30 AM	0	0	0	63	207	0	40	0	67	0	110	19	506
07:45 AM	0	0	0	56	181	0	27	0	77	0	107	27	475
Total	0	0	0	223	747	0	143	0	266	0	398	80	1857
08:00 AM	0	0	0	48	148	0	28	0	39	0	120	26	409
08:15 AM	0	0	0	45	132	0	33	0	55	0	118	24	407
08:30 AM	0	0	0	41	106	0	28	0	28	0	105	24	332
08:45 AM	0	0	0	36	110	0	20	0	22	0	123	20	331
Total	0	0	0	170	496	0	109	0	144	0	466	94	1479
04:00 PM	0	0	0	22	62	0	32	0	124	0	268	20	528
04:15 PM	0	0	0	24	69	0	19	0	116	0	304	21	553
04:30 PM	0	0	0	27	45	0	30	0	112	0	307	48	569
04:45 PM	0	0	0	21	81	0	24	0	128	0	290	34	578
Total	0	0	0	94	257	0	105	0	480	0	1169	123	2228
05:00 PM	0	0	0	20	88	0	24	0	138	0	282	35	587
05:15 PM	0	0	0	26	74	0	24	0	144	0	248	27	543
05:30 PM	0	0	0	16	67	0	22	0	112	0	282	20	519
05:45 PM	0	0	0	19	65	0	15	0	111	0	274	20	504
Total	0	0	0	81	294	0	85	0	505	0	1086	102	2153
Grand Total	0	0	0	719	2306	0	540	0	1598	0	3363	467	8993
Apprch %	0	0	0	23.8	76.2	0	25.3	0	74.7	0	87.8	12.2	
Total %	0	0	0	8	25.6	0	6	0	17.8	0	37.4	5.2	

File Name : 223rd_Alameda_on223rd
Site Code : 00000000
Start Date : 8/20/2014
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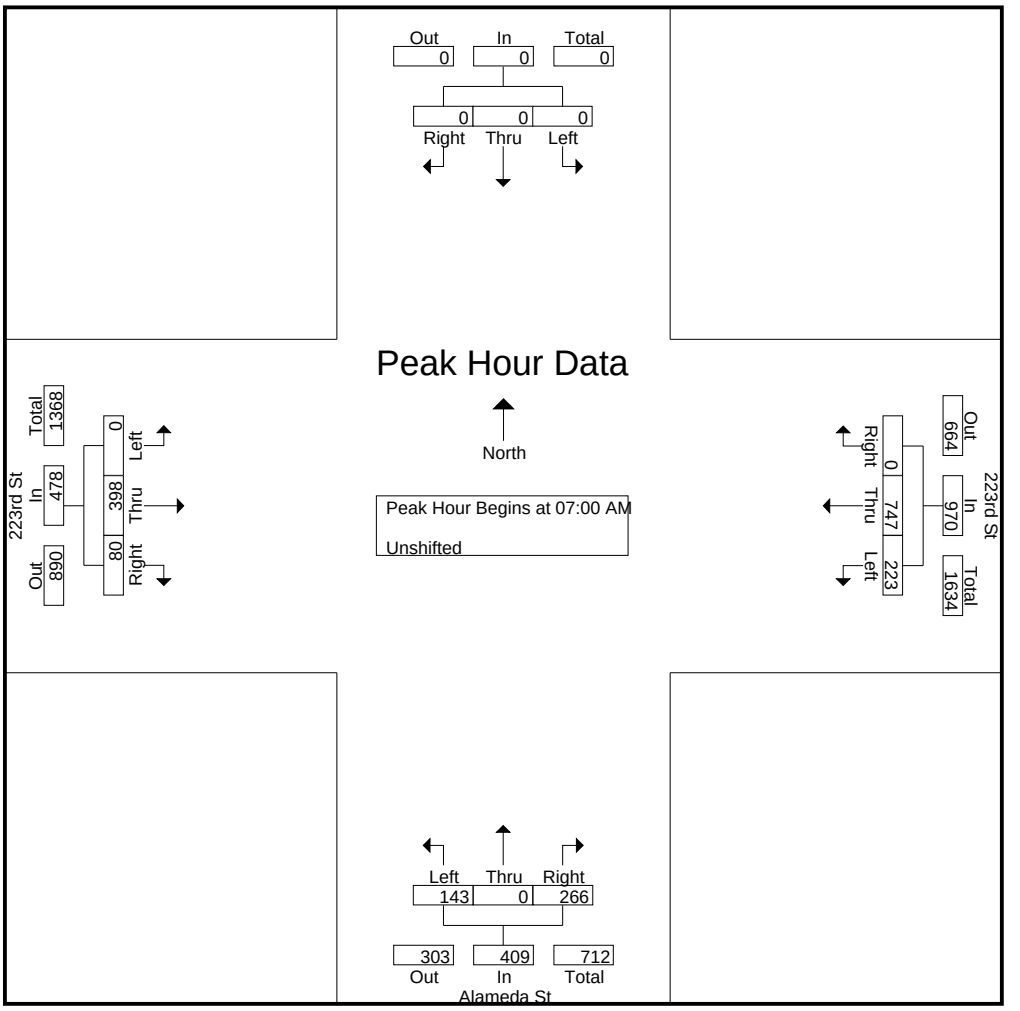
	Southbound				223rd St Westbound				Alameda St Northbound				223rd St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	0	0	0	0	53	179	0	232	35	0	59	94	0	79	16	95	421
07:15 AM	0	0	0	0	51	180	0	231	**41**	0	63	104	0	102	18	120	455
07:30 AM	0	0	0	0	**63**	**207**	0	**270**	40	0	67	**107**	0	**110**	19	129	**506**
07:45 AM	0	0	0	0	56	181	0	237	27	0	**77**	104	0	107	**27**	**134**	475
Total Volume	0	0	0	0	223	747	0	970	143	0	266	409	0	398	80	478	1857
% App. Total	0	0	0		23	77	0		35	0	65		0	83.3	16.7		
PHF	.000	.000	.000	.000	.885	.902	.000	.898	.872	.000	.864	.956	.000	.905	.741	.892	.917



File Name : 223rd_Alameda_on223rd
Site Code : 00000000
Start Date : 8/20/2014
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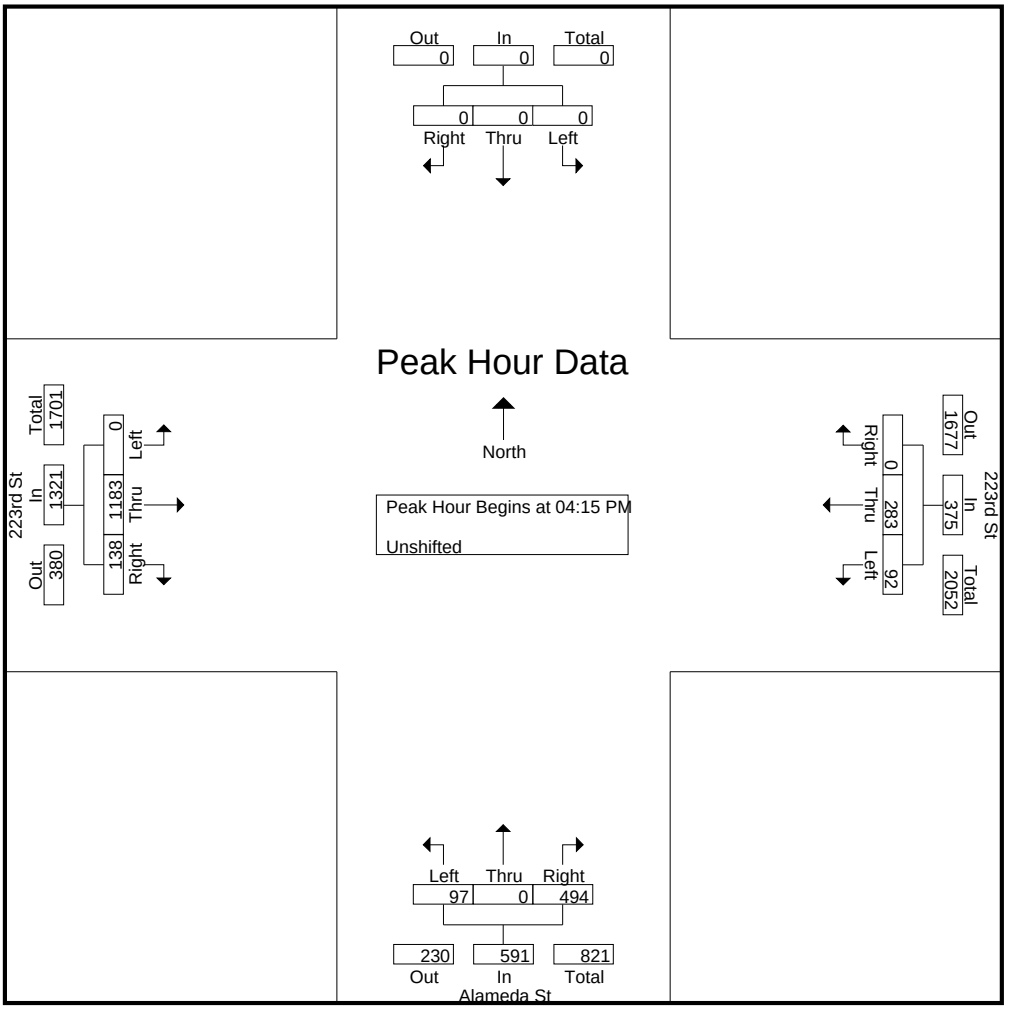
	Southbound				223rd St Westbound				Alameda St Northbound				223rd St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	0	0	0	0	24	69	0	93	19	0	116	135	0	304	21	325	553
04:30 PM	0	0	0	0	**27**	45	0	72	**30**	0	112	142	0	**307**	**48**	**355**	569
04:45 PM	0	0	0	0	21	81	0	102	24	0	128	152	0	290	34	324	578
05:00 PM	0	0	0	0	20	**88**	0	**108**	24	0	**138**	**162**	0	282	35	317	**587**
Total Volume	0	0	0	0	92	283	0	375	97	0	494	591	0	1183	138	1321	2287
% App. Total	0	0	0		24.5	75.5	0		16.4	0	83.6		0	89.6	10.4		
PHF	.000	.000	.000	.000	.852	.804	.000	.868	.808	.000	.895	.912	.000	.963	.719	.930	.974



File Name : Sepulveda_Alameda_onAlameda
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Groups Printed- Unshifted

	Alameda St Southbound			Sepulveda Blvd Westbound			Alameda St Northbound			Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	49	174	0	2	0	20	0	68	16	0	0	0	329
06:15 AM	52	181	0	6	0	31	0	80	10	0	0	0	360
06:30 AM	74	210	0	13	0	36	0	87	12	0	0	0	432
06:45 AM	60	212	0	15	0	53	0	103	7	0	0	0	450
Total	235	777	0	36	0	140	0	338	45	0	0	0	1571
07:00 AM	51	217	0	12	0	48	0	100	12	0	0	0	440
07:15 AM	50	184	0	11	0	46	0	86	15	0	0	0	392
07:30 AM	60	196	0	11	0	46	0	105	16	0	0	0	434
07:45 AM	62	196	0	14	0	49	0	117	11	0	0	0	449
Total	223	793	0	48	0	189	0	408	54	0	0	0	1715
08:00 AM	61	201	0	9	0	54	0	104	9	0	0	0	438
08:15 AM	46	173	0	15	0	49	0	102	14	0	0	0	399
08:30 AM	51	151	0	11	0	43	0	87	12	0	0	0	355
08:45 AM	50	142	0	13	0	39	0	92	13	0	0	0	349
Total	208	667	0	48	0	185	0	385	48	0	0	0	1541
04:00 PM	49	252	0	18	0	101	0	196	17	0	0	0	633
04:15 PM	59	218	0	27	0	98	0	144	14	0	0	0	560
04:30 PM	57	226	0	27	0	113	0	267	28	0	0	0	718
04:45 PM	54	211	0	26	0	112	0	240	21	0	0	0	664
Total	219	907	0	98	0	424	0	847	80	0	0	0	2575
05:00 PM	57	197	0	22	0	108	0	255	18	0	0	0	657
05:15 PM	82	222	0	18	0	74	0	226	16	0	0	0	638
05:30 PM	41	184	0	27	0	92	0	209	16	0	0	0	569
05:45 PM	59	177	0	18	0	58	0	147	20	0	0	0	479
Total	239	780	0	85	0	332	0	837	70	0	0	0	2343
Grand Total	1124	3924	0	315	0	1270	0	2815	297	0	0	0	9745
Apprch %	22.3	77.7	0	19.9	0	80.1	0	90.5	9.5	0	0	0	
Total %	11.5	40.3	0	3.2	0	13	0	28.9	3	0	0	0	

File Name : Sepulveda_Alameda_onAlameda
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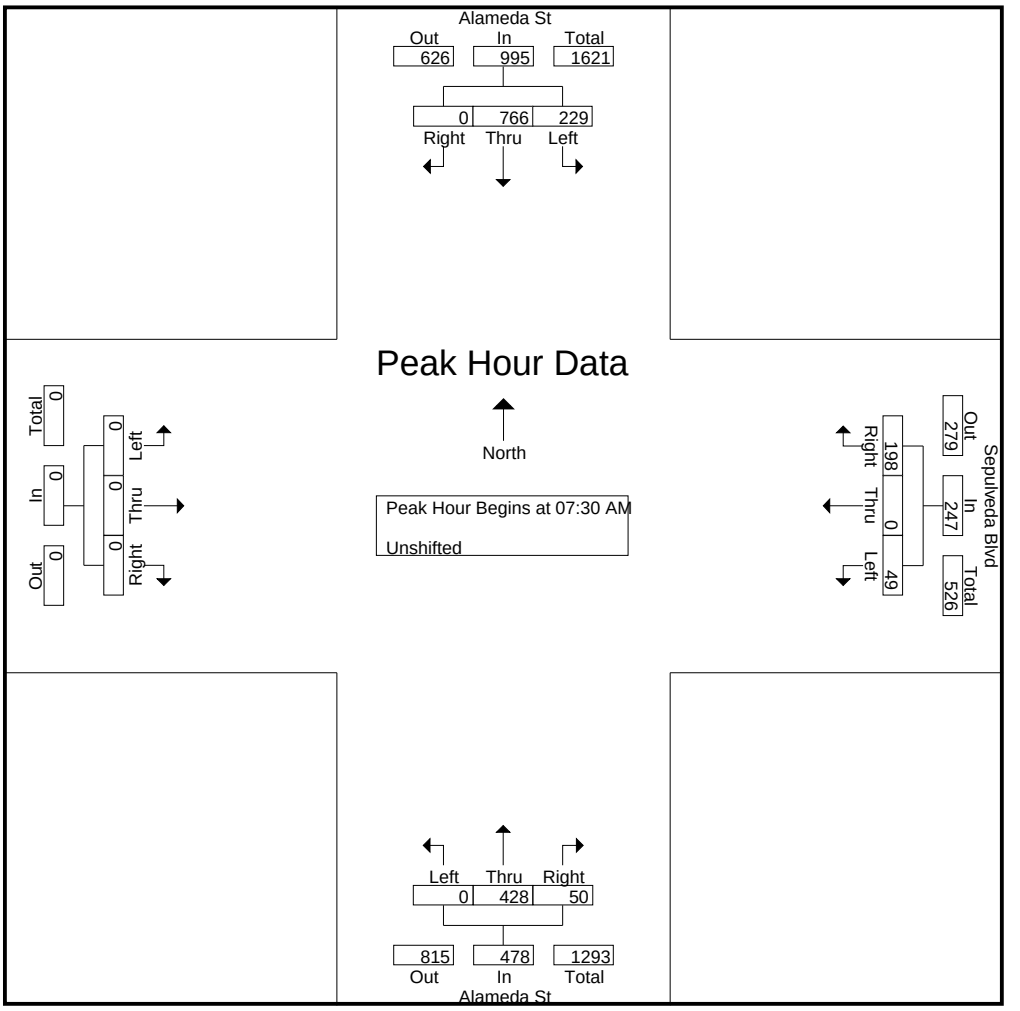
	Alameda St Southbound				Sepulveda Blvd Westbound				Alameda St Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	60	196	0	256	11	0	46	57	0	105	**16**	121	0	0	0	0	434
07:45 AM	**62**	196	0	258	14	0	49	63	0	**117**	11	**128**	0	0	0	0	**449**
08:00 AM	61	**201**	0	**262**	9	0	**54**	63	0	104	9	113	0	0	0	0	438
08:15 AM	46	173	0	219	**15**	0	49	**64**	0	102	14	116	0	0	0	0	399
Total Volume	229	766	0	995	49	0	198	247	0	428	50	478	0	0	0	0	1720
% App. Total	23	77	0		19.8	0	80.2		0	89.5	10.5		0	0	0		
PHF	.923	.953	.000	.949	.817	.000	.917	.965	.000	.915	.781	.934	.000	.000	.000	.000	.958



File Name : Sepulveda_Alameda_onAlameda
Site Code : 00000000
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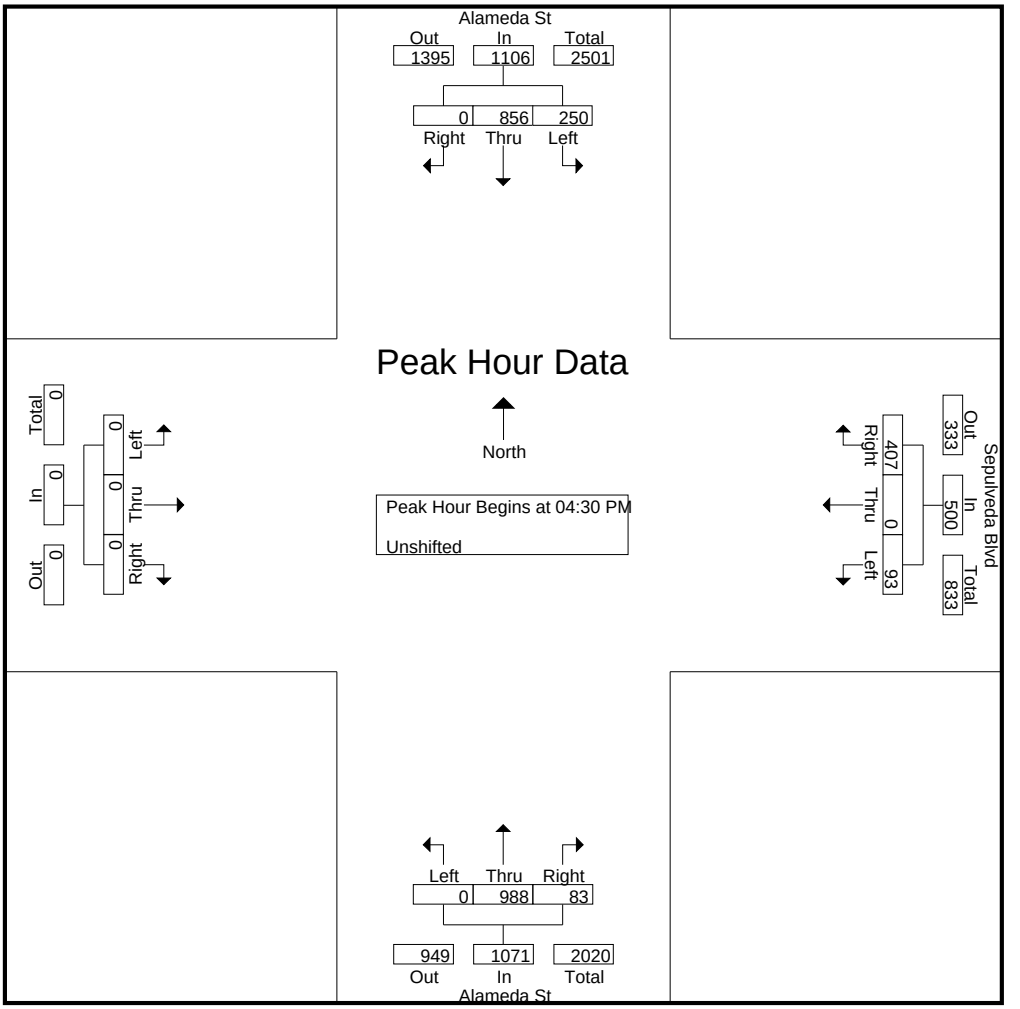
	Alameda St Southbound				Sepulveda Blvd Westbound				Alameda St Northbound				Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	57	**226**	0	283	**27**	0	**113**	**140**	0	**267**	**28**	**295**	0	0	0	0	**718**
04:45 PM	54	211	0	265	26	0	112	138	0	240	21	261	0	0	0	0	664
05:00 PM	57	197	0	254	22	0	108	130	0	255	18	273	0	0	0	0	657
05:15 PM	**82**	222	0	**304**	18	0	74	92	0	226	16	242	0	0	0	0	638
Total Volume	250	856	0	1106	93	0	407	500	0	988	83	1071	0	0	0	0	2677
% App. Total	22.6	77.4	0		18.6	0	81.4		0	92.3	7.7		0	0	0		
PHF	.762	.947	.000	.910	.861	.000	.900	.893	.000	.925	.741	.908	.000	.000	.000	.000	.932



File Name : Sepulveda_Alameda_onSepulveda
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Groups Printed- Unshifted

	Alameda St Southbound			Sepulveda Blvd Westbound			Alameda St Northbound			Sepulveda Blvd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	21	8	34	4	66	14	0	1	0	9	36	0	193
06:15 AM	20	6	34	3	108	15	1	5	0	15	45	0	252
06:30 AM	34	7	44	0	154	30	0	3	0	16	67	1	356
06:45 AM	29	4	33	0	158	30	0	6	0	33	77	0	370
Total	104	25	145	7	486	89	1	15	0	73	225	1	1171
07:00 AM	33	2	26	1	125	26	0	2	1	29	88	1	334
07:15 AM	26	4	36	1	164	27	1	5	1	24	85	2	376
07:30 AM	38	2	33	2	152	26	0	3	1	28	83	3	371
07:45 AM	32	1	39	3	148	25	0	5	2	31	89	1	376
Total	129	9	134	7	589	104	1	15	5	112	345	7	1457
08:00 AM	29	2	36	2	130	20	1	6	0	35	98	0	359
08:15 AM	29	3	28	2	119	22	2	6	4	30	83	0	328
08:30 AM	39	3	23	1	103	30	0	2	0	24	83	0	308
08:45 AM	25	4	37	0	107	30	1	1	0	18	75	1	299
Total	122	12	124	5	459	102	4	15	4	107	339	1	1294
04:00 PM	32	4	28	1	101	68	2	5	2	46	186	1	476
04:15 PM	46	4	23	0	112	71	1	4	4	52	213	0	530
04:30 PM	44	1	39	1	103	69	1	6	5	64	247	0	580
04:45 PM	34	5	33	1	120	70	1	6	3	62	219	0	554
Total	156	14	123	3	436	278	5	21	14	224	865	1	2140
05:00 PM	32	4	40	0	130	69	2	2	3	59	243	0	584
05:15 PM	35	2	60	1	151	51	0	2	2	42	210	0	556
05:30 PM	27	1	39	0	133	48	1	3	1	66	263	1	583
05:45 PM	40	5	32	0	103	30	0	2	3	44	224	0	483
Total	134	12	171	1	517	198	3	9	9	211	940	1	2206
Grand Total	645	72	697	23	2487	771	14	75	32	727	2714	11	8268
Apprch %	45.6	5.1	49.3	0.7	75.8	23.5	11.6	62	26.4	21.1	78.6	0.3	
Total %	7.8	0.9	8.4	0.3	30.1	9.3	0.2	0.9	0.4	8.8	32.8	0.1	

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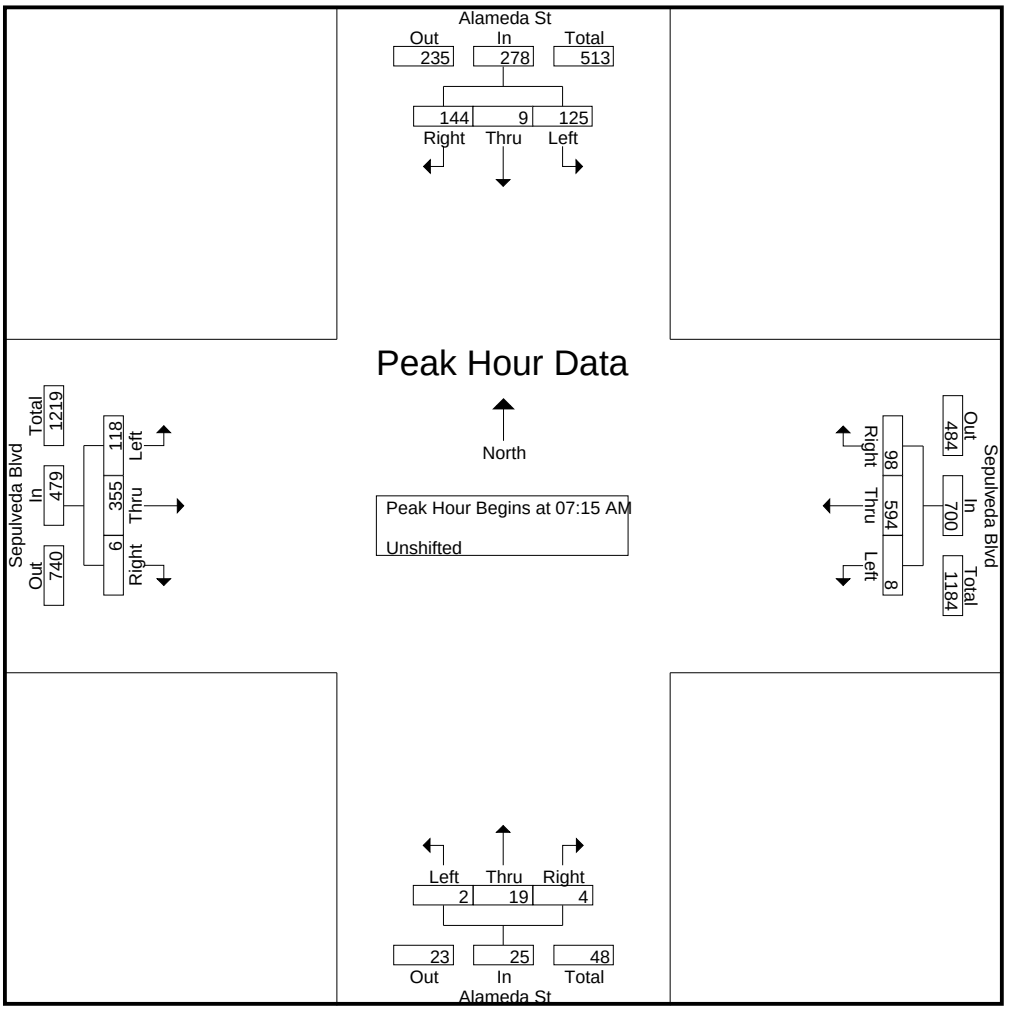
	Alameda St Southbound				Sepulveda Blvd Westbound				Alameda St Northbound				Sepulveda Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	26	**4**	36	66	1	**164**	**27**	**192**	**1**	5	1	**7**	24	85	2	111	**376**
07:30 AM	**38**	2	33	**73**	2	152	26	180	0	3	1	4	28	83	**3**	114	371
07:45 AM	32	1	**39**	72	**3**	148	25	176	0	5	**2**	7	31	89	1	121	376
08:00 AM	29	2	36	67	2	130	20	152	1	**6**	0	7	**35**	**98**	0	**133**	359
Total Volume	125	9	144	278	8	594	98	700	2	19	4	25	118	355	6	479	1482
% App. Total	45	3.2	51.8		1.1	84.9	14		8	76	16		24.6	74.1	1.3		
PHF	.822	.563	.923	.952	.667	.905	.907	.911	.500	.792	.500	.893	.843	.906	.500	.900	.985



File Name : Sepulveda_Alameda_onSepulveda
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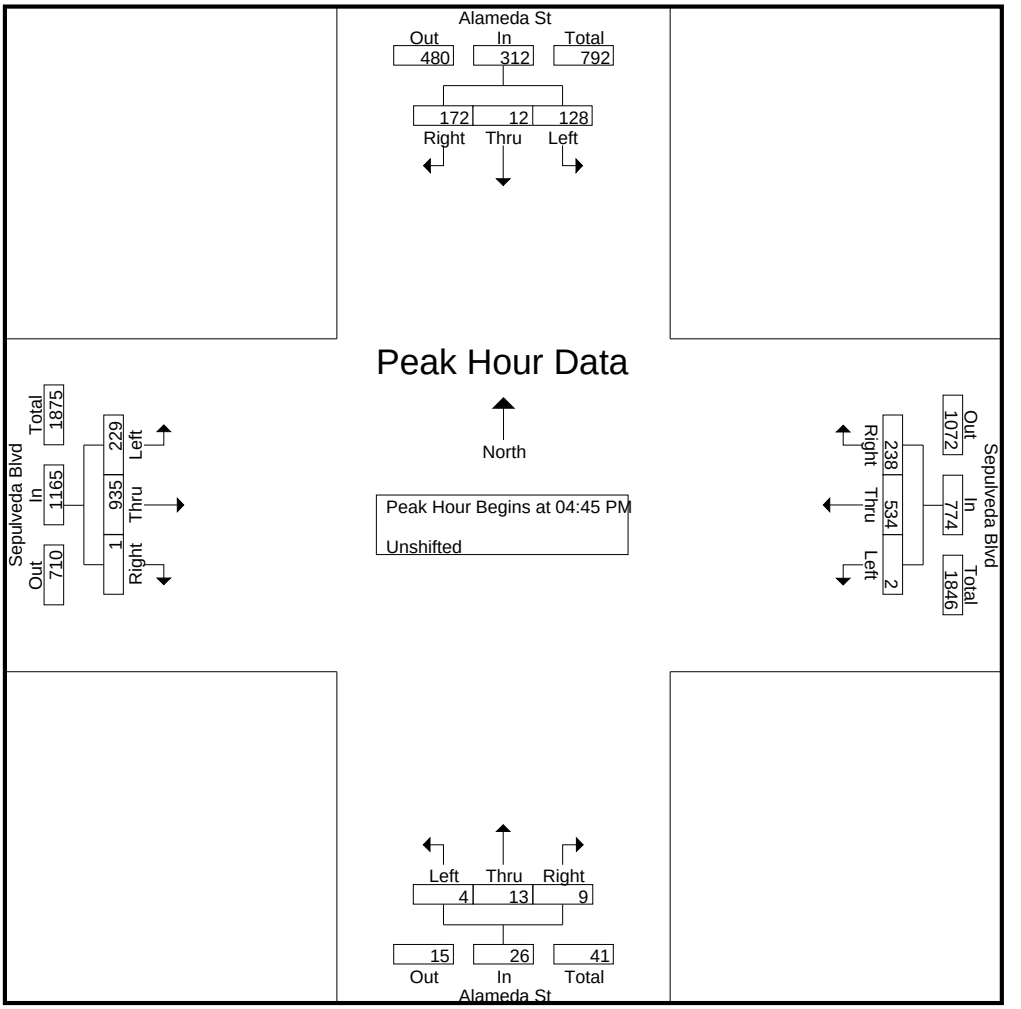
	Alameda St Southbound				Sepulveda Blvd Westbound				Alameda St Northbound				Sepulveda Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	34	**5**	33	72	**1**	120	**70**	191	1	**6**	**3**	**10**	62	219	0	281	554
05:00 PM	32	4	40	76	0	130	69	199	**2**	2	3	7	59	243	0	302	**584**
05:15 PM	**35**	2	**60**	**97**	1	**151**	51	**203**	0	2	2	4	42	210	0	252	556
05:30 PM	27	1	39	67	0	133	48	181	1	3	1	5	**66**	**263**	**1**	**330**	583
Total Volume	128	12	172	312	2	534	238	774	4	13	9	26	229	935	1	1165	2277
% App. Total	41	3.8	55.1		0.3	69	30.7		15.4	50	34.6		19.7	80.3	0.1		
PHF	.914	.600	.717	.804	.500	.884	.850	.953	.500	.542	.750	.650	.867	.889	.250	.883	.975



File Name : Alameda_405SBRamps
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Groups Printed- Unshifted

	405 SB Ramps Southbound			Alameda @ 223rd St Westbound			Driveway Northbound			Alameda @ 223rd St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	2	1	33	0	79	6	2	3	7	62	35	3	233
06:15 AM	8	0	35	6	101	6	4	4	4	67	37	1	273
06:30 AM	8	1	31	2	165	7	0	3	3	66	40	1	327
06:45 AM	3	2	35	0	173	4	1	0	1	71	57	1	348
Total	21	4	134	8	518	23	7	10	15	266	169	6	1181
07:00 AM	6	0	27	0	202	7	1	0	2	79	56	0	380
07:15 AM	12	0	25	0	204	7	0	1	2	84	75	0	410
07:30 AM	22	0	37	2	231	15	0	0	0	95	83	2	487
07:45 AM	15	0	34	1	200	3	0	0	1	95	88	2	439
Total	55	0	123	3	837	32	1	1	5	353	302	4	1716
08:00 AM	12	0	28	2	162	4	3	0	0	86	70	4	371
08:15 AM	12	0	41	1	137	10	0	0	0	98	77	1	377
08:30 AM	7	0	31	0	109	4	1	1	0	78	63	2	296
08:45 AM	9	0	35	1	105	5	0	0	0	79	64	0	298
Total	40	0	135	4	513	23	4	1	0	341	274	7	1342
04:00 PM	13	0	8	3	74	14	1	0	2	186	199	0	500
04:15 PM	21	0	13	2	78	5	0	2	0	198	217	1	537
04:30 PM	26	1	8	0	65	19	1	0	1	210	204	14	549
04:45 PM	31	0	11	1	93	12	0	2	0	213	202	1	566
Total	91	1	40	6	310	50	2	4	3	807	822	16	2152
05:00 PM	36	1	6	1	100	25	1	3	2	227	192	2	596
05:15 PM	32	0	11	2	89	21	1	1	0	190	200	1	548
05:30 PM	24	0	7	4	77	18	0	1	2	185	208	0	526
05:45 PM	32	1	10	3	71	12	1	1	0	180	200	0	511
Total	124	2	34	10	337	76	3	6	4	782	800	3	2181
Grand Total	331	7	466	31	2515	204	17	22	27	2549	2367	36	8572
Apprch %	41.2	0.9	58	1.1	91.5	7.4	25.8	33.3	40.9	51.5	47.8	0.7	
Total %	3.9	0.1	5.4	0.4	29.3	2.4	0.2	0.3	0.3	29.7	27.6	0.4	

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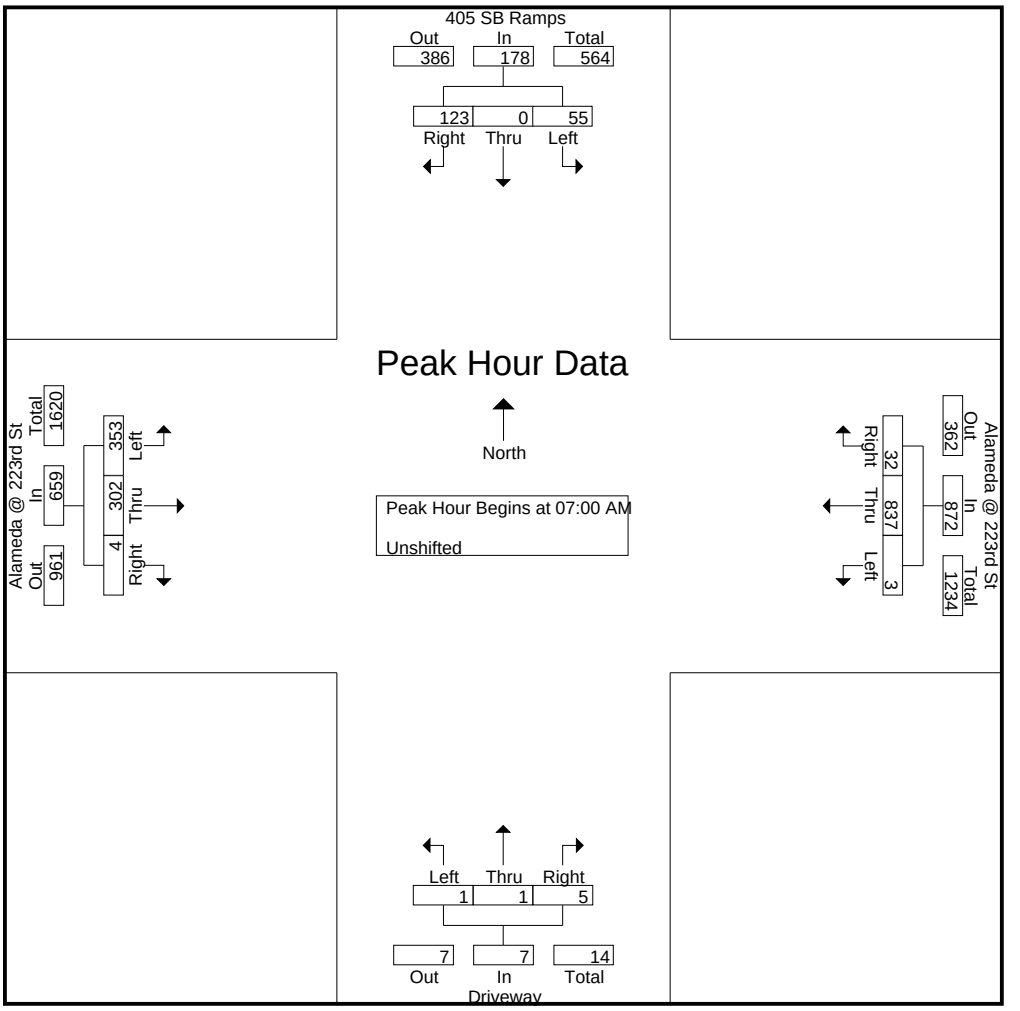
	405 SB Ramps Southbound				Alameda @ 223rd St Westbound				Driveway Northbound				Alameda @ 223rd St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:00 AM																	
07:00 AM	6	0	27	33	0	202	7	209	**1**	0	**2**	**3**	79	56	0	135	380
07:15 AM	12	0	25	37	0	204	7	211	0	**1**	2	3	84	75	0	159	410
07:30 AM	**22**	0	**37**	**59**	**2**	**231**	**15**	**248**	0	0	0	0	**95**	83	**2**	180	**487**
07:45 AM	15	0	34	49	1	200	3	204	0	0	1	1	95	**88**	2	**185**	439
Total Volume	55	0	123	178	3	837	32	872	1	1	5	7	353	302	4	659	1716
% App. Total	30.9	0	69.1		0.3	96	3.7		14.3	14.3	71.4		53.6	45.8	0.6		
PHF	.625	.000	.831	.754	.375	.906	.533	.879	.250	.250	.625	.583	.929	.858	.500	.891	.881



File Name : Alameda_405SBRamps
Site Code : 00000000
Start Date : 8/20/2014
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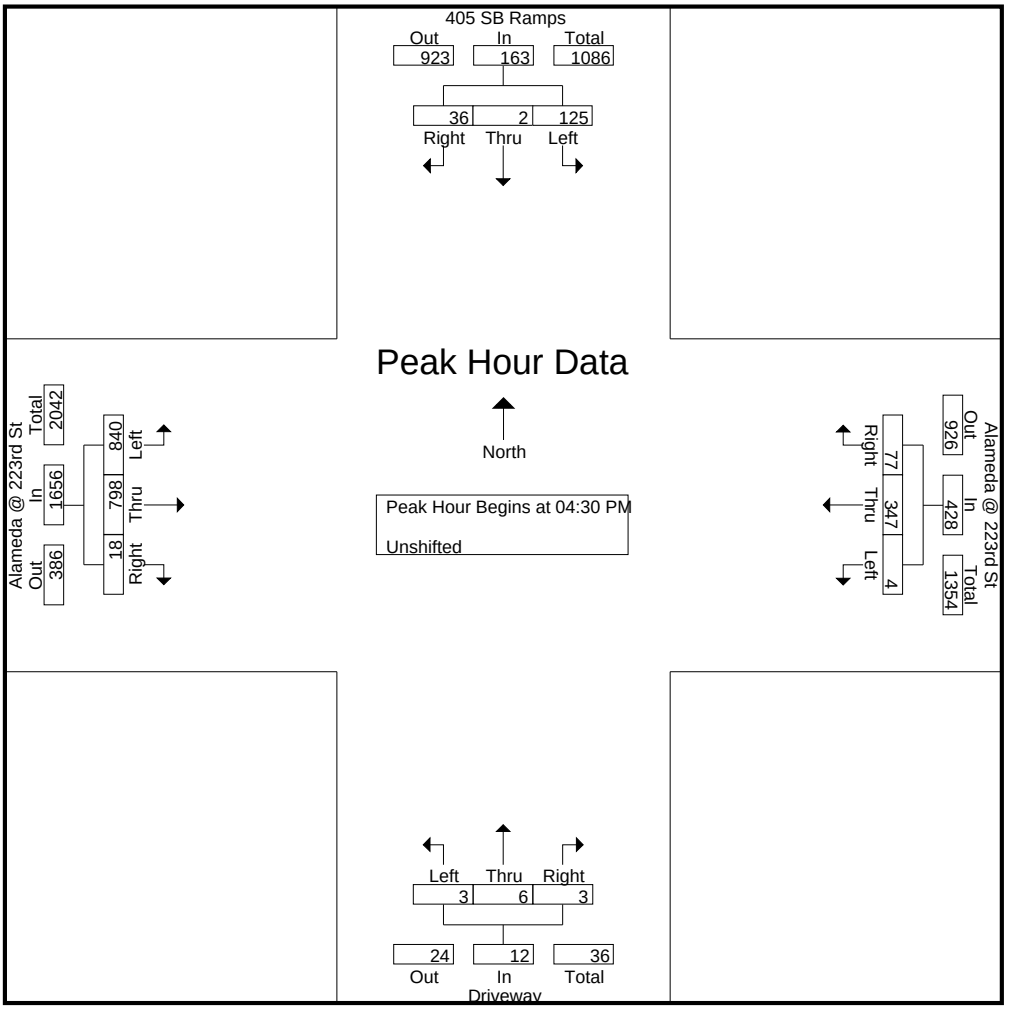
	405 SB Ramps Southbound				Alameda @ 223rd St Westbound				Driveway Northbound				Alameda @ 223rd St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	26	**1**	8	35	0	65	19	84	**1**	0	1	2	210	**204**	**14**	**428**	549
04:45 PM	31	0	**11**	42	1	93	12	106	0	2	0	2	213	202	1	416	566
05:00 PM	**36**	1	6	**43**	1	**100**	**25**	**126**	1	**3**	**2**	**6**	**227**	192	2	421	**596**
05:15 PM	32	0	11	43	**2**	89	21	112	1	1	0	2	190	200	1	391	548
Total Volume	125	2	36	163	4	347	77	428	3	6	3	12	840	798	18	1656	2259
% App. Total	76.7	1.2	22.1		0.9	81.1	18		25	50	25		50.7	48.2	1.1		
PHF	.868	.500	.818	.948	.500	.868	.770	.849	.750	.500	.375	.500	.925	.978	.321	.967	.948



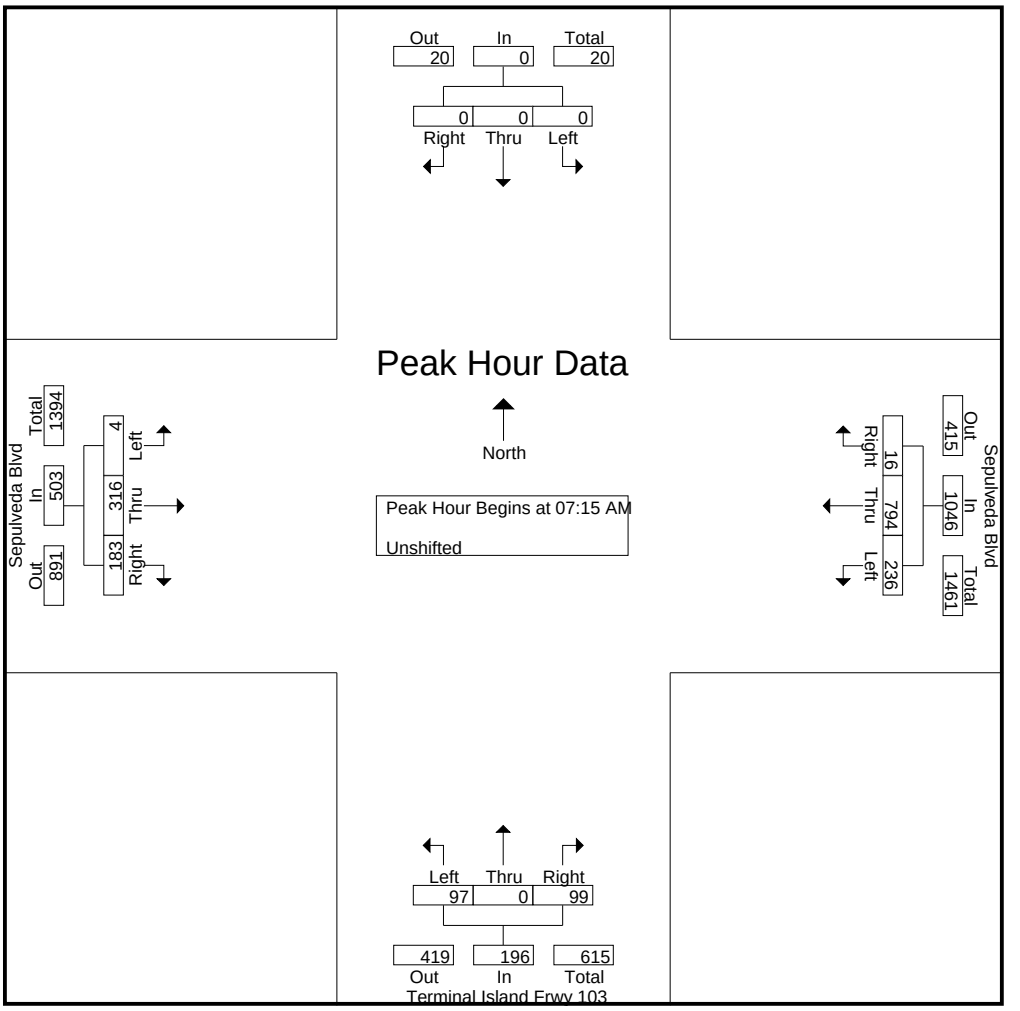
File Name : Sepulveda_TerminalIslandFrwy103
Site Code : 00000000
Start Date : 8/20/2014
Page No : 1

Groups Printed- Unshifted

	Southbound			Sepulveda Blvd Westbound			Terminal Island Frwy 103 Northbound			Sepulveda Blvd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	0	0	0	42	99	0	6	0	18	0	28	13	206
06:15 AM	0	0	0	50	143	0	17	0	10	0	34	11	265
06:30 AM	0	0	0	67	197	0	21	0	23	0	35	25	368
06:45 AM	0	0	0	55	186	4	20	0	21	0	66	27	379
Total	0	0	0	214	625	4	64	0	72	0	163	76	1218
07:00 AM	0	0	0	47	147	3	27	0	19	1	61	34	339
07:15 AM	0	0	0	73	194	0	23	0	22	2	67	44	425
07:30 AM	0	0	0	59	230	8	22	0	24	0	78	55	476
07:45 AM	0	0	0	66	206	5	34	0	28	2	93	39	473
Total	0	0	0	245	777	16	106	0	93	5	299	172	1713
08:00 AM	0	0	0	38	164	3	18	0	25	0	78	45	371
08:15 AM	0	0	0	29	128	1	20	0	24	0	75	32	309
08:30 AM	0	0	0	33	117	2	35	0	18	1	75	46	327
08:45 AM	0	0	0	19	109	1	39	0	27	1	70	33	299
Total	0	0	0	119	518	7	112	0	94	2	298	156	1306
04:00 PM	0	0	0	55	88	1	75	1	44	0	192	44	500
04:15 PM	0	0	0	45	96	1	88	1	59	0	232	56	578
04:30 PM	0	0	0	53	94	1	55	0	55	1	266	67	592
04:45 PM	0	0	0	55	103	1	102	0	55	0	248	63	627
Total	0	0	0	208	381	4	320	2	213	1	938	230	2297
05:00 PM	0	0	0	38	105	0	60	0	67	0	245	80	595
05:15 PM	0	0	0	37	111	0	82	0	78	0	226	58	592
05:30 PM	0	0	0	37	106	0	67	0	48	0	281	55	594
05:45 PM	0	0	0	35	96	0	37	0	30	0	229	63	490
Total	0	0	0	147	418	0	246	0	223	0	981	256	2271
Grand Total	0	0	0	933	2719	31	848	2	695	8	2679	890	8805
Apprch %	0	0	0	25.3	73.8	0.8	54.9	0.1	45	0.2	74.9	24.9	
Total %	0	0	0	10.6	30.9	0.4	9.6	0	7.9	0.1	30.4	10.1	

File Name : Sepulveda_TerminalIslandFrwy103
Site Code : 00000000
Start Date : 8/20/2014
Page No : 2

	Southbound				Sepulveda Blvd Westbound				Terminal Island Frwy 103 Northbound				Sepulveda Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	0	0	**73**	194	0	267	23	0	22	45	**2**	67	44	113	425
07:30 AM	0	0	0	0	59	**230**	**8**	**297**	22	0	24	46	0	78	**55**	133	**476**
07:45 AM	0	0	0	0	66	206	5	277	**34**	0	**28**	**62**	2	**93**	39	**134**	473
08:00 AM	0	0	0	0	38	164	3	205	18	0	25	43	0	78	45	123	371
Total Volume	0	0	0	0	236	794	16	1046	97	0	99	196	4	316	183	503	1745
% App. Total	0	0	0		22.6	75.9	1.5		49.5	0	50.5		0.8	62.8	36.4		
PHF	.000	.000	.000	.000	.808	.863	.500	.880	.713	.000	.884	.790	.500	.849	.832	.938	.916



File Name : Sepulveda_TerminalIslandFrwy103
Site Code : 00000000
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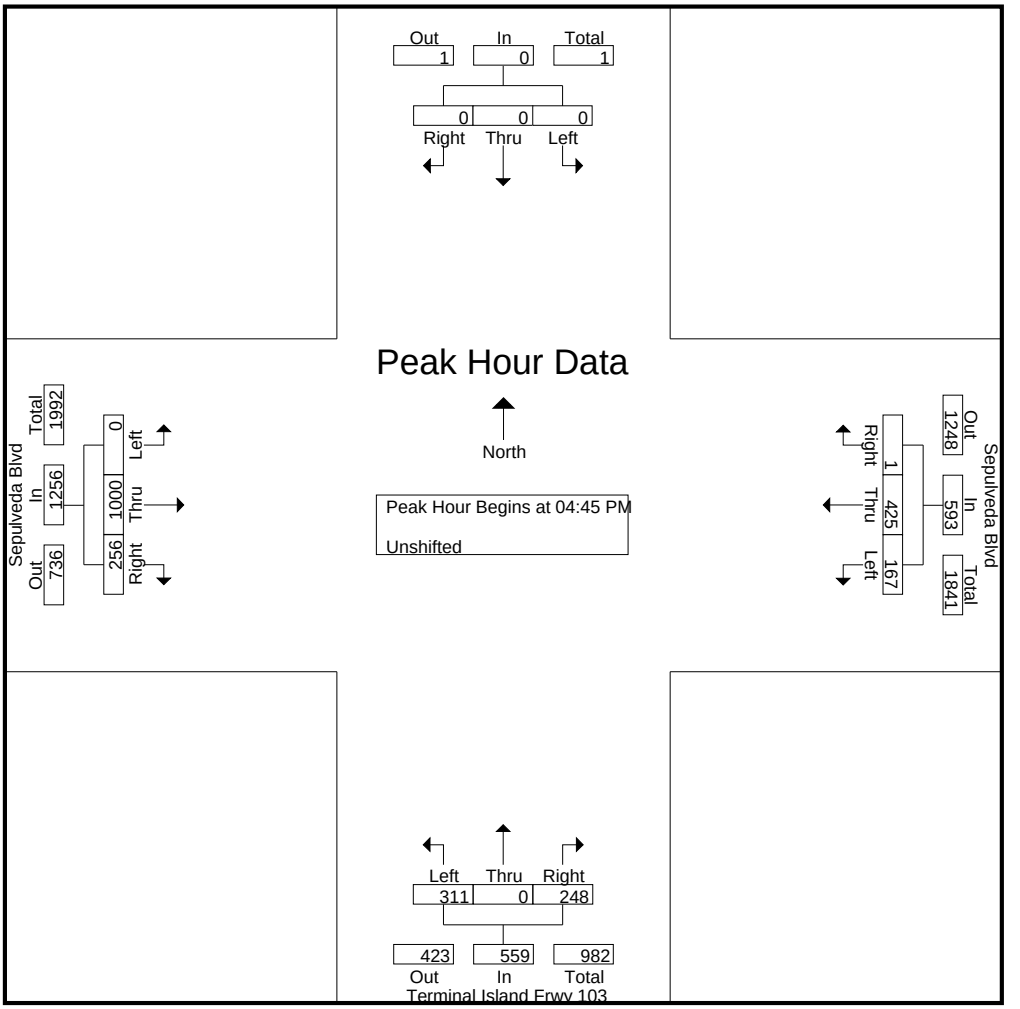
	Southbound				Sepulveda Blvd Westbound				Terminal Island Frwy 103 Northbound				Sepulveda Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	0	0	**55**	103	**1**	**159**	**102**	0	55	157	0	248	63	311	**627**
05:00 PM	0	0	0	0	38	105	0	143	60	0	67	127	0	245	**80**	325	595
05:15 PM	0	0	0	0	37	**111**	0	148	82	0	**78**	**160**	0	226	58	284	592
05:30 PM	0	0	0	0	37	106	0	143	67	0	48	115	0	**281**	55	**336**	594
Total Volume	0	0	0	0	167	425	1	593	311	0	248	559	0	1000	256	1256	2408
% App. Total	0	0	0		28.2	71.7	0.2		55.6	0	44.4		0	79.6	20.4		
PHF	.000	.000	.000	.000	.759	.957	.250	.932	.762	.000	.795	.873	.000	.890	.800	.935	.960



File Name : Sepulveda_SantaFe
Site Code : 00000000
Start Date : 8/20/2014
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Groups Printed- Unshifted

	Santa Fe Ave Southbound			Sepulveda Blvd Westbound			Santa Fe Ave Northbound			Sepulveda Blvd Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	14	24	14	9	114	15	11	22	10	6	55	4	298
06:15 AM	20	27	15	14	130	22	18	23	11	2	51	5	338
06:30 AM	28	37	27	9	194	17	18	35	15	4	68	6	458
06:45 AM	29	42	25	19	201	23	15	31	7	18	100	6	516
Total	91	130	81	51	639	77	62	111	43	30	274	21	1610
07:00 AM	24	38	26	15	184	24	23	36	8	12	84	2	476
07:15 AM	38	62	42	31	200	27	16	42	17	16	98	6	595
07:30 AM	30	56	38	45	201	21	22	40	23	27	106	4	613
07:45 AM	51	72	35	50	200	34	19	55	23	15	126	15	695
Total	143	228	141	141	785	106	80	173	71	70	414	27	2379
08:00 AM	33	68	17	33	166	26	19	47	17	15	96	7	544
08:15 AM	34	55	20	22	115	19	16	40	15	19	94	13	462
08:30 AM	34	47	16	19	120	36	20	37	31	10	97	8	475
08:45 AM	51	50	10	33	108	25	12	32	20	10	84	7	442
Total	152	220	63	107	509	106	67	156	83	54	371	35	1923
04:00 PM	70	76	23	41	111	43	24	72	40	33	202	10	745
04:15 PM	59	81	21	39	118	38	15	77	47	34	242	7	778
04:30 PM	70	69	16	31	129	42	17	112	45	31	270	13	845
04:45 PM	85	91	17	29	133	34	18	122	61	40	247	8	885
Total	284	317	77	140	491	157	74	383	193	138	961	38	3253
05:00 PM	82	71	21	30	90	34	21	98	49	40	228	9	773
05:15 PM	94	80	8	47	131	39	26	96	45	29	237	13	845
05:30 PM	81	71	15	45	116	31	21	85	41	29	238	6	779
05:45 PM	75	86	9	52	104	47	21	63	43	33	233	16	782
Total	332	308	53	174	441	151	89	342	178	131	936	44	3179
Grand Total	1002	1203	415	613	2865	597	372	1165	568	423	2956	165	12344
Apprch %	38.2	45.9	15.8	15	70.3	14.7	17.7	55.3	27	11.9	83.4	4.7	
Total %	8.1	9.7	3.4	5	23.2	4.8	3	9.4	4.6	3.4	23.9	1.3	

File Name : Sepulveda_SantaFe
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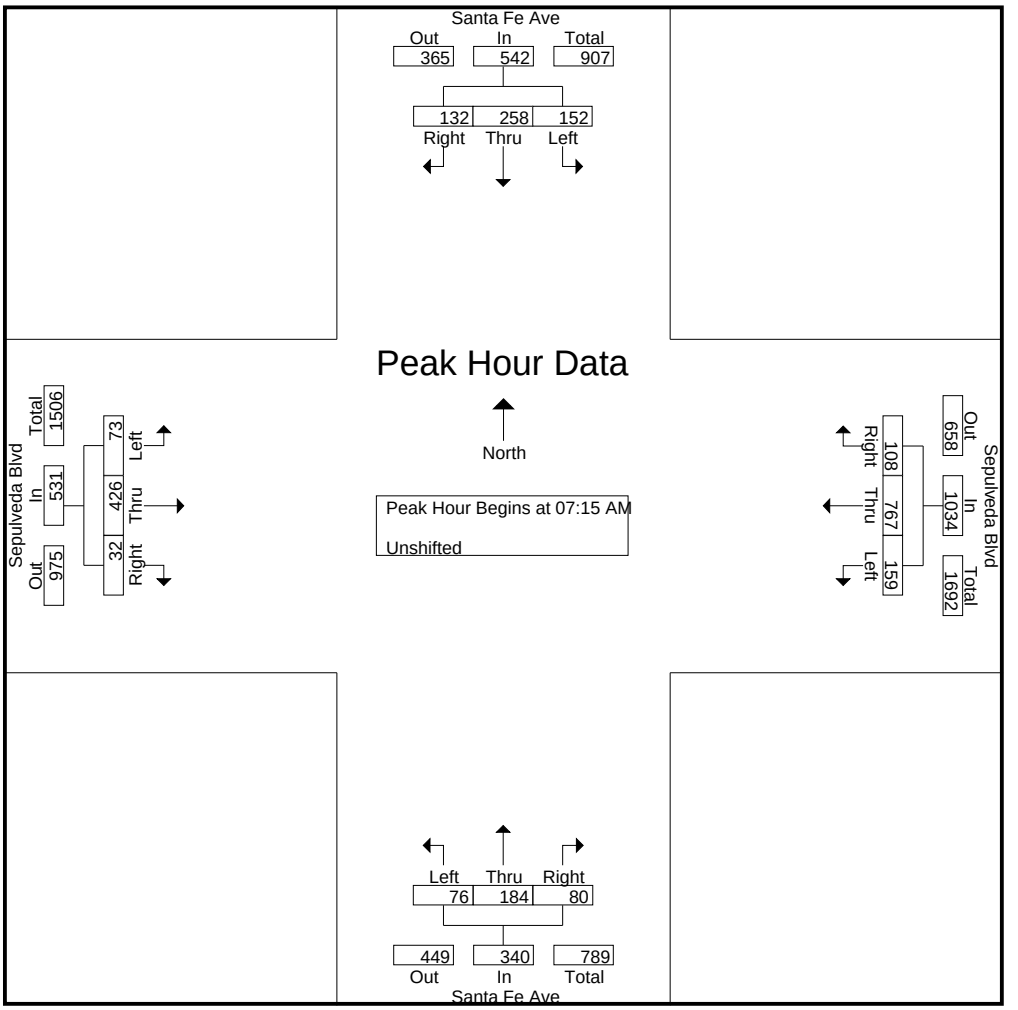
	Santa Fe Ave Southbound				Sepulveda Blvd Westbound				Santa Fe Ave Northbound				Sepulveda Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	38	62	**42**	142	31	200	27	258	16	42	17	75	16	98	6	120	595
07:30 AM	30	56	38	124	45	**201**	21	267	**22**	40	**23**	85	**27**	106	4	137	613
07:45 AM	**51**	**72**	35	**158**	**50**	200	**34**	**284**	19	**55**	23	**97**	15	**126**	**15**	**156**	**695**
08:00 AM	33	68	17	118	33	166	26	225	19	47	17	83	15	96	7	118	544
Total Volume	152	258	132	542	159	767	108	1034	76	184	80	340	73	426	32	531	2447
% App. Total	28	47.6	24.4		15.4	74.2	10.4		22.4	54.1	23.5		13.7	80.2	6		
PHF	.745	.896	.786	.858	.795	.954	.794	.910	.864	.836	.870	.876	.676	.845	.533	.851	.880



File Name : Sepulveda_SantaFe
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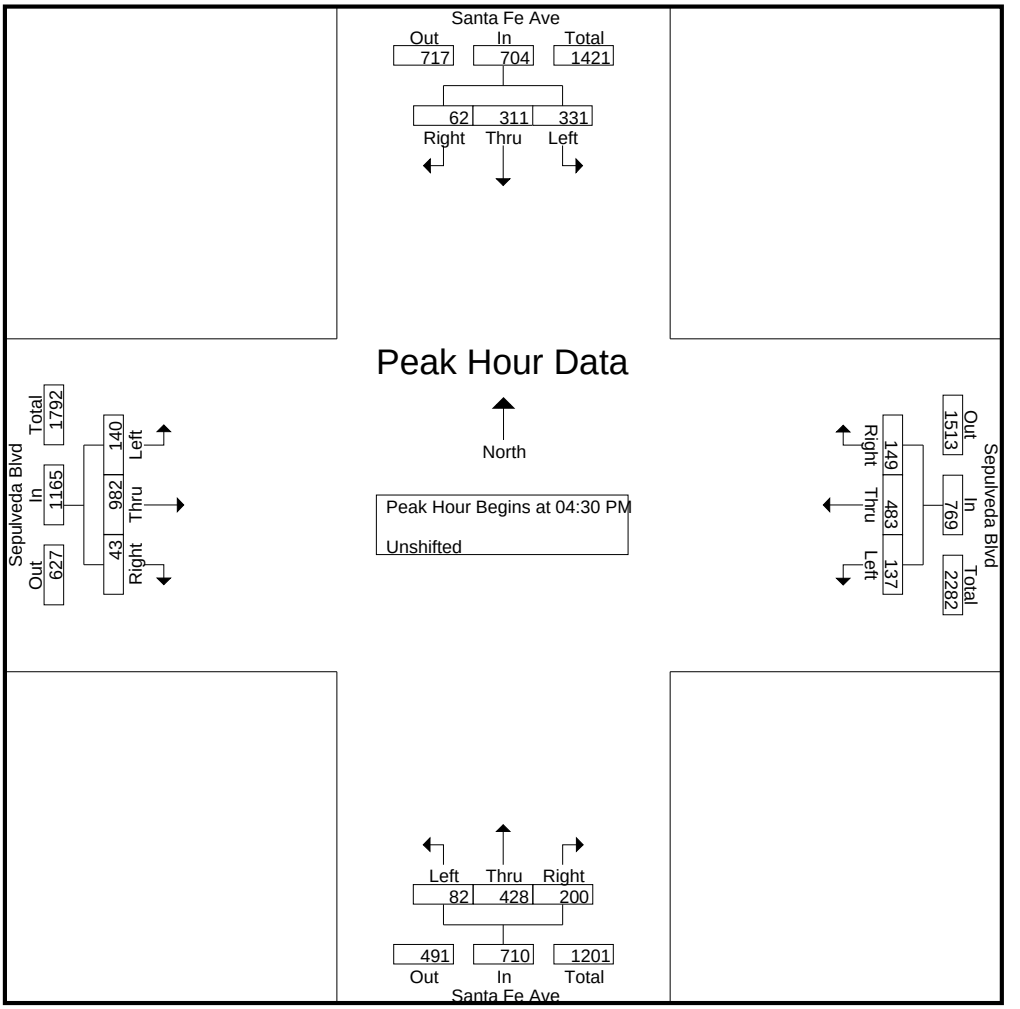
	Santa Fe Ave Southbound				Sepulveda Blvd Westbound				Santa Fe Ave Northbound				Sepulveda Blvd Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	70	69	16	155	31	129	**42**	202	17	112	45	174	31	**270**	**13**	**314**	845
04:45 PM	85	**91**	17	**193**	29	**133**	34	196	18	**122**	**61**	**201**	**40**	247	8	295	**885**
05:00 PM	82	71	**21**	174	30	90	34	154	21	98	49	168	40	228	9	277	773
05:15 PM	**94**	80	8	182	**47**	131	39	**217**	**26**	96	45	167	29	237	13	279	845
Total Volume	331	311	62	704	137	483	149	769	82	428	200	710	140	982	43	1165	3348
% App. Total	47	44.2	8.8		17.8	62.8	19.4		11.5	60.3	28.2		12	84.3	3.7		
PHF	.880	.854	.738	.912	.729	.908	.887	.886	.788	.877	.820	.883	.875	.909	.827	.928	.946



File Name : Willow_710SBRamps
Site Code : 00000000
Start Date : 8/20/2014
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Groups Printed- Unshifted

	710 SB Ramps Southbound			Willow St Westbound			710 SB Ramps Northbound			Willow St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	0	0	74	0	90	22	0	0	15	0	131	21	353
06:15 AM	0	0	81	0	134	18	0	0	30	0	184	28	475
06:30 AM	0	0	135	0	174	28	0	0	30	0	200	26	593
06:45 AM	0	0	112	0	193	23	0	0	34	0	221	39	622
Total	0	0	402	0	591	91	0	0	109	0	736	114	2043
07:00 AM	0	0	80	0	196	19	0	0	34	0	227	16	572
07:15 AM	0	0	137	0	215	42	0	0	50	0	242	39	725
07:30 AM	0	0	98	0	291	51	0	0	43	0	259	37	779
07:45 AM	0	0	111	0	261	48	0	0	47	0	323	42	832
Total	0	0	426	0	963	160	0	0	174	0	1051	134	2908
08:00 AM	0	0	89	0	230	32	0	0	52	0	245	41	689
08:15 AM	0	0	90	0	200	30	0	0	44	0	272	33	669
08:30 AM	0	0	68	0	179	29	0	0	54	0	269	51	650
08:45 AM	0	0	71	0	192	24	0	0	58	0	281	38	664
Total	0	0	318	0	801	115	0	0	208	0	1067	163	2672
04:00 PM	0	0	131	0	262	18	0	0	95	0	409	53	968
04:15 PM	0	0	161	0	261	21	0	0	93	0	426	55	1017
04:30 PM	0	0	139	0	288	30	0	0	129	0	462	55	1103
04:45 PM	0	0	118	0	290	26	0	0	99	0	441	48	1022
Total	0	0	549	0	1101	95	0	0	416	0	1738	211	4110
05:00 PM	0	0	211	0	317	31	0	0	109	0	475	70	1213
05:15 PM	0	0	254	0	299	22	0	0	103	0	451	57	1186
05:30 PM	0	0	196	0	340	16	0	0	104	0	446	73	1175
05:45 PM	0	0	295	0	317	23	0	0	87	0	420	55	1197
Total	0	0	956	0	1273	92	0	0	403	0	1792	255	4771
Grand Total	0	0	2651	0	4729	553	0	0	1310	0	6384	877	16504
Apprch %	0	0	100	0	89.5	10.5	0	0	100	0	87.9	12.1	
Total %	0	0	16.1	0	28.7	3.4	0	0	7.9	0	38.7	5.3	

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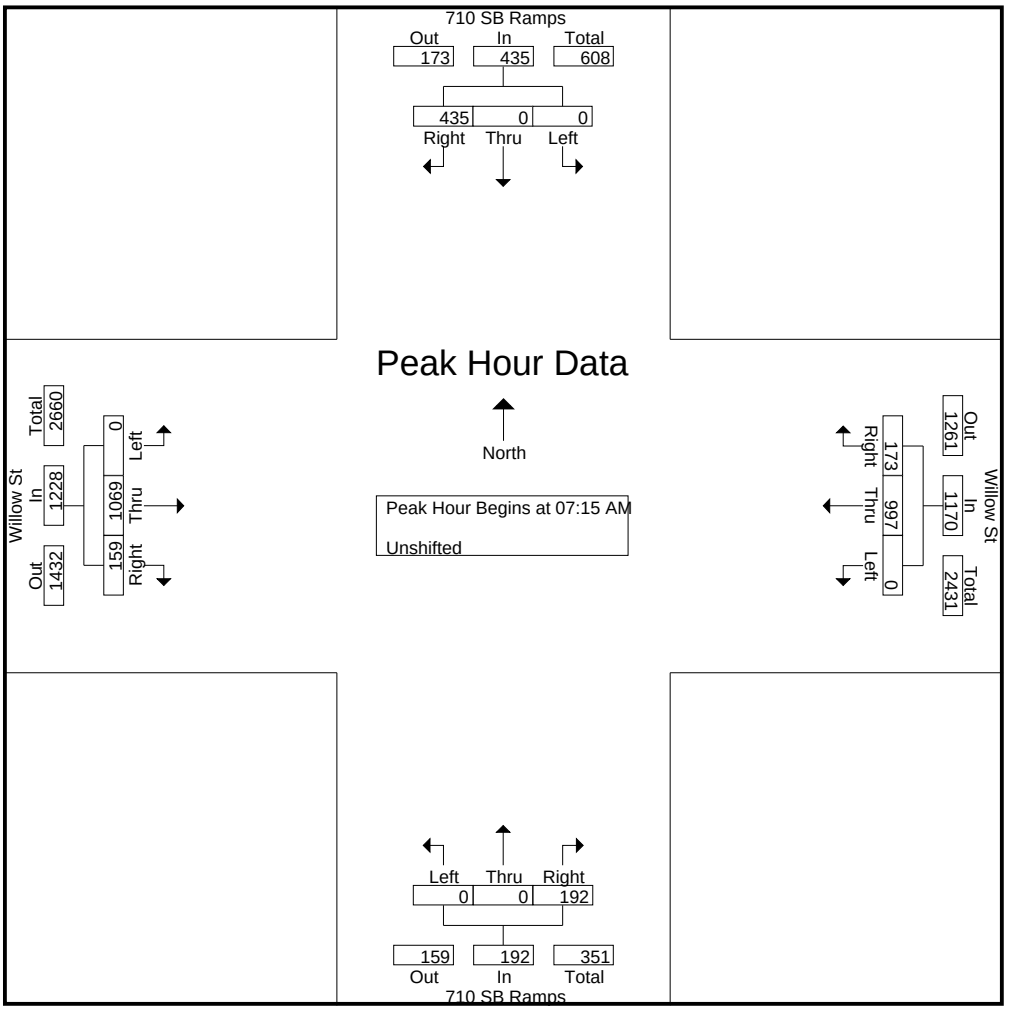
	710 SB Ramps Southbound				Willow St Westbound				710 SB Ramps Northbound				Willow St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	**137**	**137**	0	215	42	257	0	0	50	50	0	242	39	281	725
07:30 AM	0	0	98	98	0	**291**	**51**	**342**	0	0	43	43	0	259	37	296	779
07:45 AM	0	0	111	111	0	261	48	309	0	0	47	47	0	**323**	**42**	**365**	**832**
08:00 AM	0	0	89	89	0	230	32	262	0	0	**52**	**52**	0	245	41	286	689
Total Volume	0	0	435	435	0	997	173	1170	0	0	192	192	0	1069	159	1228	3025
% App. Total	0	0	100		0	85.2	14.8		0	0	100		0	87.1	12.9		
PHF	.000	.000	.794	.794	.000	.857	.848	.855	.000	.000	.923	.923	.000	.827	.946	.841	.909



File Name : Willow_710SBRamps
Site Code : 00000000
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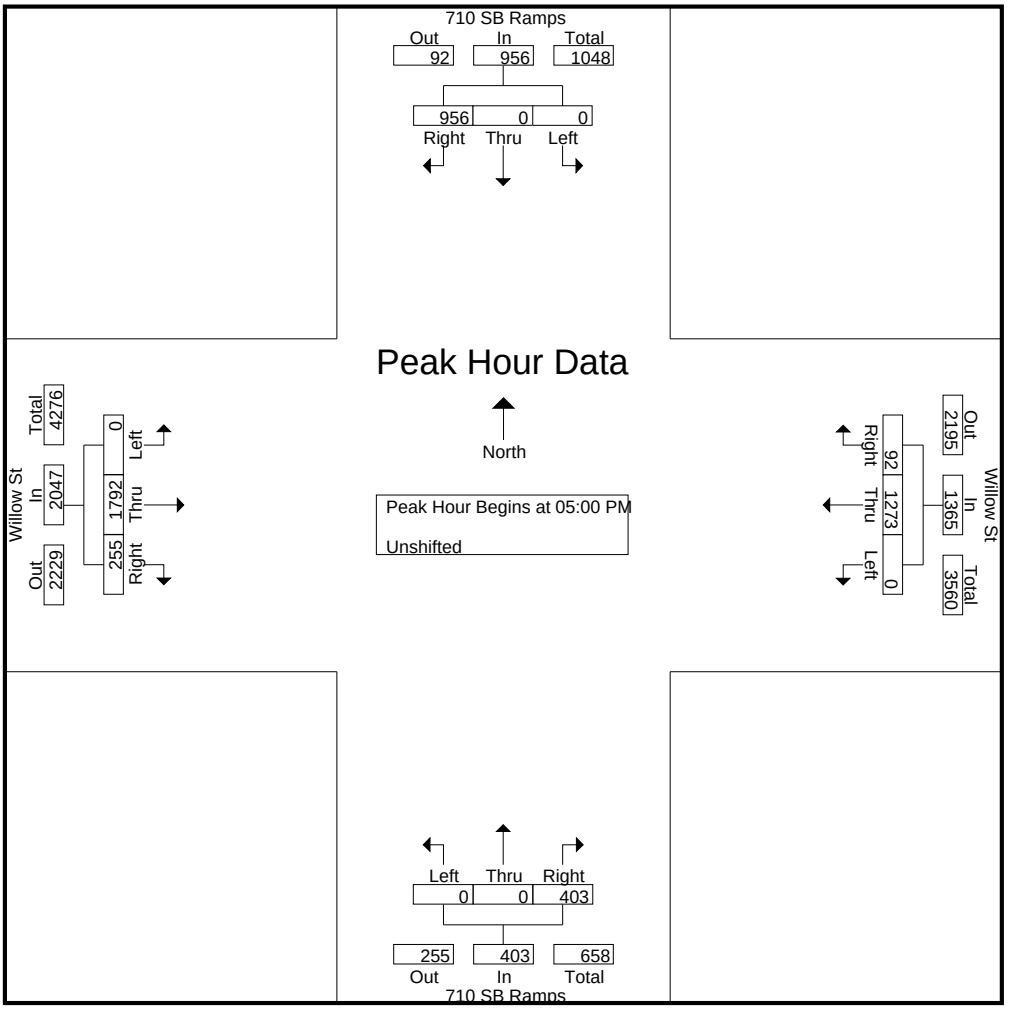
	710 SB Ramps Southbound				Willow St Westbound				710 SB Ramps Northbound				Willow St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	0	211	211	0	317	**31**	348	0	0	**109**	**109**	0	**475**	70	**545**	**1213**
05:15 PM	0	0	254	254	0	299	22	321	0	0	103	103	0	451	57	508	1186
05:30 PM	0	0	196	196	0	**340**	16	**356**	0	0	104	104	0	446	**73**	519	1175
05:45 PM	0	0	**295**	**295**	0	317	23	340	0	0	87	87	0	420	55	475	1197
Total Volume	0	0	956	956	0	1273	92	1365	0	0	403	403	0	1792	255	2047	4771
% App. Total	0	0	100		0	93.3	6.7		0	0	100		0	87.5	12.5		
PHF	.000	.000	.810	.810	.000	.936	.742	.959	.000	.000	.924	.924	.000	.943	.873	.939	.983



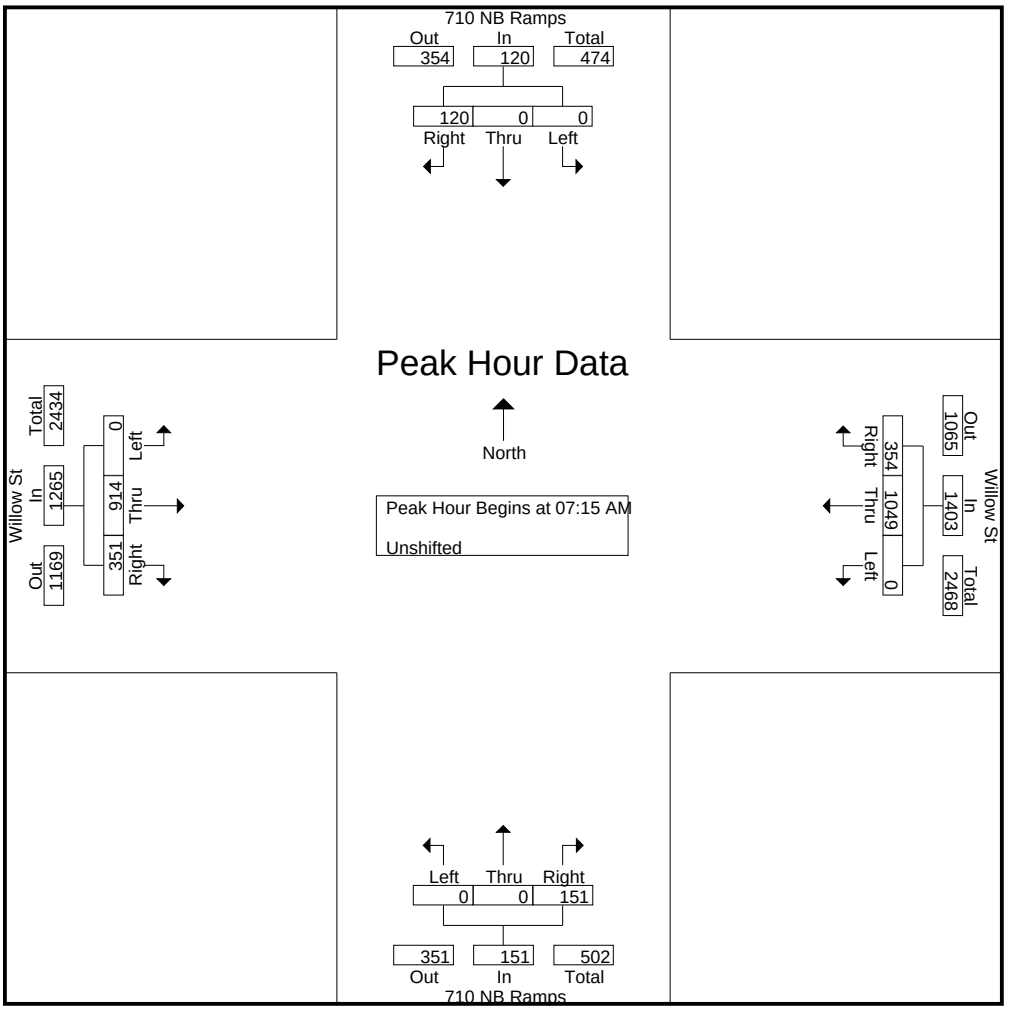
File Name : Willow_710NBRamps
Site Code : 00000000
Start Date : 8/20/2014
Page No : 1

Groups Printed- Unshifted

	710 NB Ramps Southbound			Willow St Westbound			710 NB Ramps Northbound			Willow St Eastbound			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
06:00 AM	0	0	15	0	97	73	0	0	18	0	91	52	346
06:15 AM	0	0	22	0	127	78	0	0	18	0	129	88	462
06:30 AM	0	0	21	0	185	117	0	0	20	0	150	95	588
06:45 AM	0	0	21	0	191	110	0	0	31	0	172	81	606
Total	0	0	79	0	600	378	0	0	87	0	542	316	2002
07:00 AM	0	0	22	0	196	105	0	0	25	0	172	89	609
07:15 AM	0	0	29	0	229	93	0	0	22	0	203	92	668
07:30 AM	0	0	35	0	304	92	0	0	44	0	215	87	777
07:45 AM	0	0	34	0	276	88	0	0	40	0	267	100	805
Total	0	0	120	0	1005	378	0	0	131	0	857	368	2859
08:00 AM	0	0	22	0	240	81	0	0	45	0	229	72	689
08:15 AM	0	0	21	0	210	66	0	0	28	0	225	90	640
08:30 AM	0	0	23	0	186	50	0	0	31	0	221	97	608
08:45 AM	0	0	27	0	188	75	0	0	26	0	258	79	653
Total	0	0	93	0	824	272	0	0	130	0	933	338	2590
04:00 PM	0	0	19	0	257	66	0	0	33	0	400	103	878
04:15 PM	0	0	24	0	260	54	0	0	29	0	409	112	888
04:30 PM	0	0	26	0	294	62	0	0	24	0	447	136	989
04:45 PM	0	0	21	0	297	63	0	0	26	0	460	81	948
Total	0	0	90	0	1108	245	0	0	112	0	1716	432	3703
05:00 PM	0	0	16	0	330	93	0	0	23	0	492	89	1043
05:15 PM	0	0	19	0	304	71	0	0	21	0	454	99	968
05:30 PM	0	0	38	0	315	69	0	0	38	0	454	94	1008
05:45 PM	0	0	32	0	307	73	0	0	19	0	416	94	941
Total	0	0	105	0	1256	306	0	0	101	0	1816	376	3960
Grand Total	0	0	487	0	4793	1579	0	0	561	0	5864	1830	15114
Apprch %	0	0	100	0	75.2	24.8	0	0	100	0	76.2	23.8	
Total %	0	0	3.2	0	31.7	10.4	0	0	3.7	0	38.8	12.1	

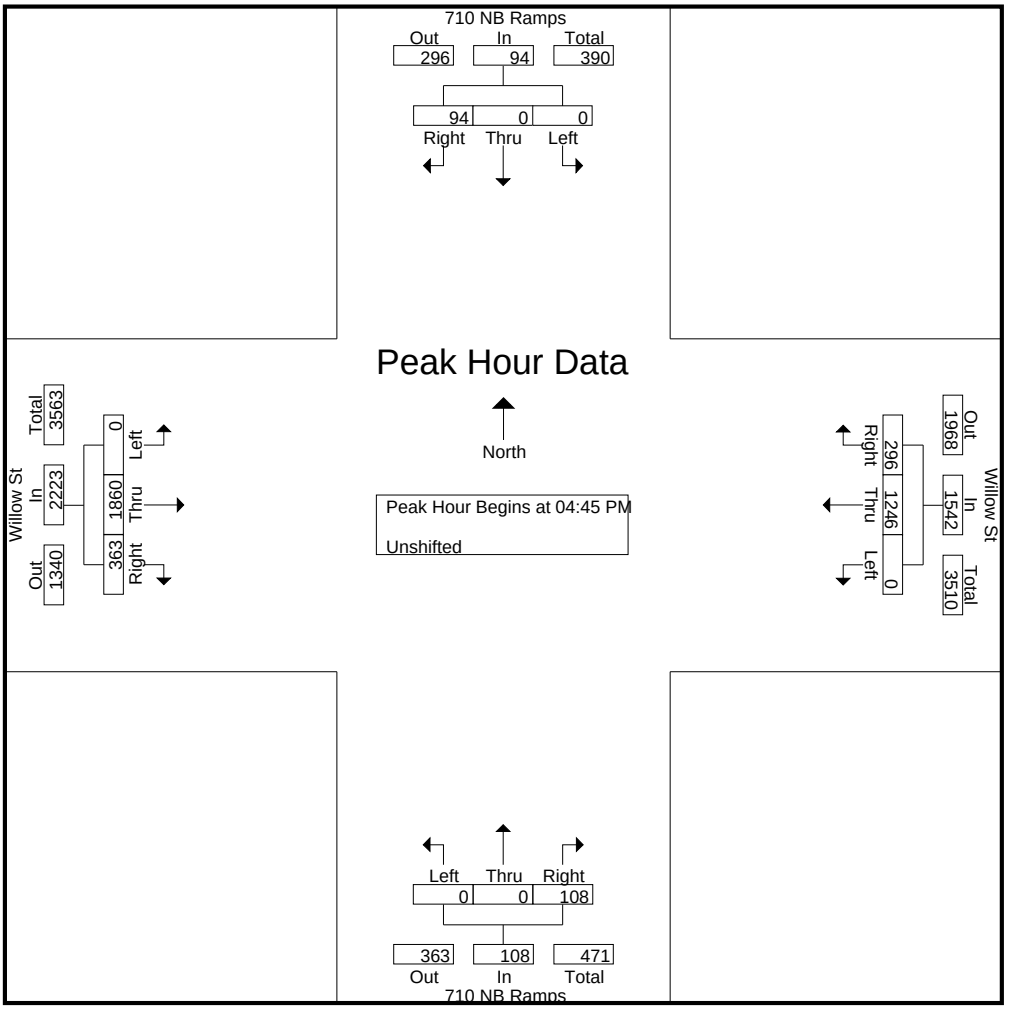
File Name : Willow_710NBRamps
Site Code : 00000000
Start Date : 8/20/2014
Page No : 2

	710 NB Ramps Southbound				Willow St Westbound				710 NB Ramps Northbound				Willow St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	0	0	29	29	0	229	**93**	322	0	0	22	22	0	203	92	295	668
07:30 AM	0	0	**35**	**35**	0	**304**	92	**396**	0	0	44	44	0	215	87	302	777
07:45 AM	0	0	34	34	0	276	88	364	0	0	40	40	0	**267**	**100**	**367**	**805**
08:00 AM	0	0	22	22	0	240	81	321	0	0	**45**	**45**	0	229	72	301	689
Total Volume	0	0	120	120	0	1049	354	1403	0	0	151	151	0	914	351	1265	2939
% App. Total	0	0	100		0	74.8	25.2		0	0	100		0	72.3	27.7		
PHF	.000	.000	.857	.857	.000	.863	.952	.886	.000	.000	.839	.839	.000	.856	.878	.862	.913



File Name : Willow_710NBRamps
Site Code : 00000000
Start Date : 8/20/2014
Page No : 3

	710 NB Ramps Southbound				Willow St Westbound				710 NB Ramps Northbound				Willow St Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	0	0	21	21	0	297	63	360	0	0	26	26	0	460	81	541	948
05:00 PM	0	0	16	16	0	**330**	**93**	**423**	0	0	23	23	0	**492**	89	**581**	**1043**
05:15 PM	0	0	19	19	0	304	71	375	0	0	21	21	0	454	**99**	553	968
05:30 PM	0	0	**38**	**38**	0	315	69	384	0	0	**38**	**38**	0	454	94	548	1008
Total Volume	0	0	94	94	0	1246	296	1542	0	0	108	108	0	1860	363	2223	3967
% App. Total	0	0	100		0	80.8	19.2		0	0	100		0	83.7	16.3		
PHF	.000	.000	.618	.618	.000	.944	.796	.911	.000	.000	.711	.711	.000	.945	.917	.957	.951



APPENDIX B: LOS CALCULATION SHEETS

EXISTING CONDITIONS (BASELINE)

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **3**
North/South Street: **WILMINGTON AVENUE**
East/West Street: **223RD STREET**

Scenario: **Existing Conditions**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	319	1,600	0.114	N-S(1):	0.160
	TH	2.00	647	3,200	0.202 *	N-S(2):	0.209 *
	LT	1.00	57	1,600	0.036	E-W(1):	0.295
Westbound	RT	1.00	53	1,600	0.000	E-W(2):	0.334 *
	TH	2.00	794	3,200	0.248 *		
	LT	1.00	200	1,600	0.125	V/C:	0.543
Northbound	RT	0.50	80	800	0.000	Lost Time:	0.100
	TH	2.50	494	4,000	0.124		
	LT	1.00	11	1,600	0.007 *		
Eastbound	RT	1.00	16	1,600	0.003	ICU:	0.643
	TH	2.00	545	3,200	0.170		
	LT	1.00	137	1,600	0.086 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	199	1,600	0.000	N-S(1):	0.138
	TH	2.00	724	3,200	0.226 *	N-S(2):	0.231 *
	LT	1.00	55	1,600	0.034	E-W(1):	0.359 *
Westbound	RT	1.00	143	1,600	0.055	E-W(2):	0.258
	TH	2.00	345	3,200	0.108		
	LT	1.00	177	1,600	0.111 *	V/C:	0.590
Northbound	RT	0.50	124	800	0.000	Lost Time:	0.100
	TH	2.50	416	4,000	0.104		
	LT	1.00	8	1,600	0.005 *		
Eastbound	RT	1.00	10	1,600	0.001	ICU:	0.690
	TH	2.00	792	3,200	0.248 *		
	LT	1.00	240	1,600	0.150	LOS:	B

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **5**
North/South Street: **223rd Street Ramp (on Alameda Street)**
East/West Street: **Alameda Street**

Scenario: **Existing Conditions**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.250 *
	TH	3.00	1,122	4,800	0.234	N-S(2):	0.234
	LT	1.00	159	1,600	0.099 *	E-W(1):	0.110 *
Westbound	RT	1.00	119	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	1.00	176	1,600	0.110 *	V/C:	0.360
Northbound	RT	0.00	242	1,600	0.151 *	Lost Time:	0.100
	TH	3.00	471	3,200	0.147		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.460
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.401 *
	TH	3.00	980	4,800	0.204	N-S(2):	0.204
	LT	1.00	164	1,600	0.103 *	E-W(1):	0.069 *
Westbound	RT	1.00	122	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	1.00	111	1,600	0.069 *	V/C:	0.470
Northbound	RT	0.00	461	0	0.000	Lost Time:	0.100
	TH	3.00	968	4,800	0.298 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.570
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **6**
North/South Street: **223rd Street**
East/West Street: **Alameda Street Ramp**

Scenario: **Existing Conditions**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.088 *
	TH	0.00	0	0	0.000	N-S(2):	0.081
	LT	0.00	0	0	0.000 *	E-W(1):	0.161 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.141
	TH	3.00	747	5,280	0.141		
	LT	2.00	223	3,168	0.070 *	V/C:	0.249
Northbound	RT	1.00	266	1,760	0.088 *	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	1.00	143	1,760	0.081		
Eastbound	RT	0.00	80	0	0.000	ICU:	0.349
	TH	3.00	398	5,280	0.091 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.255 *
	TH	0.00	0	0	0.000	N-S(2):	0.055
	LT	0.00	0	0	0.000 *	E-W(1):	0.279 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.054
	TH	3.00	283	5,280	0.054		
	LT	2.00	92	3,168	0.029 *	V/C:	0.534
Northbound	RT	1.00	494	1,760	0.255 *	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	1.00	97	1,760	0.055		
Eastbound	RT	0.00	138	0	0.000	ICU:	0.634
	TH	3.00	1,183	5,280	0.250 *		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **7**
North/South Street: **ALAMEDA STREET**
East/West Street: **SEPULVEDA BOULEVARD-ALAMEDA RAMP**

Scenario: **Existing Conditions**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.243 *
	TH	3.00	766	4,800	0.160	N-S(2):	0.160
	LT	1.00	229	1,600	0.143 *	E-W(1):	0.031 *
Westbound	RT	2.00	198	3,200	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	1.00	49	1,600	0.031 *	V/C:	0.274
Northbound	RT	0.00	50	0	0.000	Lost Time:	0.100
	TH	3.00	428	4,800	0.100 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.374
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.379 *
	TH	3.00	856	4,800	0.178	N-S(2):	0.178
	LT	1.00	250	1,600	0.156 *	E-W(1):	0.058 *
Westbound	RT	2.00	407	3,200	0.049	E-W(2):	0.049
	TH	0.00	0	0	0.000		
	LT	1.00	93	1,600	0.058 *	V/C:	0.437
Northbound	RT	0.00	83	0	0.000	Lost Time:	0.100
	TH	3.00	988	4,800	0.223 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.537
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **8**
North/South Street: **SEPULVEDA BOULEVARD-ALAMEDA RAMF**
East/West Street: **SEPULVEDA BOULEVARD**

Scenario: **Existing Conditions**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	144	1,600	0.016	N-S(1):	0.055 *
	TH	0.13	9	215	0.042	N-S(2):	0.000
	LT	1.87	125	2,687	0.047 *	E-W(1):	0.227
Westbound	RT	1.00	98	1,600	0.019	E-W(2):	0.260 *
	TH	2.00	594	3,200	0.186 *		
	LT	1.00	8	1,600	0.005	V/C:	0.315
Northbound	RT	0.00	4	0	0.000	Lost Time:	0.100
	TH	2.00	19	3,200	0.008 *		
	LT	0.00	2	1,600	0.001		
Eastbound	RT	1.00	6	1,600	0.003	ICU:	0.415
	TH	1.00	355	1,600	0.222		
	LT	1.00	118	1,600	0.074 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	172	1,600	0.000	N-S(1):	0.057 *
	TH	0.17	12	274	0.044	N-S(2):	0.000
	LT	1.83	128	2,633	0.049 *	E-W(1):	0.585 *
Westbound	RT	1.00	238	1,600	0.105	E-W(2):	0.310
	TH	2.00	534	3,200	0.167		
	LT	1.00	2	1,600	0.001 *	V/C:	0.642
Northbound	RT	0.00	9	0	0.000	Lost Time:	0.100
	TH	2.00	13	3,200	0.008 *		
	LT	0.00	4	1,600	0.003		
Eastbound	RT	1.00	1	1,600	0.000	ICU:	0.742
	TH	1.00	935	1,600	0.584 *		
	LT	1.00	229	1,600	0.143	LOS:	C

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **10**
North/South Street: **TERMINAL ISLAND FREEWAY (SR-103)**
East/West Street: **WILLOW STREET**

Scenario: **Existing Conditions**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.034 *
	TH	1.00	0	1,600	0.000	N-S(2):	0.000
	LT	0.00	0	0	0.000 *	E-W(1):	0.181
Westbound	RT	0.00	16	0	0.000	E-W(2):	0.256 *
	TH	2.00	794	3,200	0.253 *		
	LT	2.00	236	2,880	0.082	V/C:	0.290
Northbound	RT	2.00	97	3,200	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	2.00	99	2,880	0.034 *		
Eastbound	RT	1.00	183	1,600	0.083	ICU:	0.390
	TH	2.00	316	3,200	0.099		
	LT	1.00	4	1,600	0.003 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.108 *
	TH	1.00	0	1,600	0.000	N-S(2):	0.000
	LT	0.00	0	0	0.000 *	E-W(1):	0.371 *
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.133
	TH	2.00	425	3,200	0.133		
	LT	2.00	167	2,880	0.058 *	V/C:	0.479
Northbound	RT	2.00	248	3,200	0.051	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	2.00	311	2,880	0.108 *		
Eastbound	RT	1.00	256	1,600	0.063	ICU:	0.579
	TH	2.00	1,000	3,200	0.313 *		
	LT	1.00	0	1,600	0.000	LOS:	A

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **11**
North/South Street: **SANTA FE AVE**
East/West Street: **SEPULVEDA BOULEVARD**

Scenario: **Existing Conditions**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	132	0	0.000	N-S(1):	0.205 *
	TH	2.00	258	3,200	0.122 *	N-S(2):	0.000
	LT	2.00	152	2,880	0.053	E-W(1):	0.198
Westbound	RT	0.00	108	0	0.000	E-W(2):	0.319 *
	TH	2.00	767	3,200	0.273 *		
	LT	2.00	159	2,880	0.055	V/C:	0.524
Northbound	RT	0.00	80	0	0.000	Lost Time:	0.100
	TH	2.00	184	3,200	0.083 *		
	LT	1.00	76	1,600	0.048		
Eastbound	RT	0.00	32	0	0.000	ICU:	0.624
	TH	2.00	426	3,200	0.143		
	LT	1.00	73	1,600	0.046 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	62	0	0.000	N-S(1):	0.313 *
	TH	2.00	311	3,200	0.117 *	N-S(2):	0.000
	LT	2.00	331	2,880	0.115	E-W(1):	0.368 *
Westbound	RT	0.00	149	0	0.000	E-W(2):	0.286
	TH	2.00	483	3,200	0.198		
	LT	2.00	137	2,880	0.048 *	V/C:	0.681
Northbound	RT	0.00	200	0	0.000	Lost Time:	0.100
	TH	2.00	428	3,200	0.196 *		
	LT	1.00	82	1,600	0.051		
Eastbound	RT	0.00	43	0	0.000	ICU:	0.781
	TH	2.00	982	3,200	0.320 *		
	LT	1.00	140	1,600	0.088	LOS:	C

* = Critical Movement

Appendix E

Level of Service Workheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	ICTF Modification and Expansion Project EIR		
31	North-South Street:	223rd Street (on 223rd	East-West Street:	Alameda Street Ramp
	Scenario:	CEQA Baseline		
	Count Date:		Analyst: Iteris, Inc.	Date: 7/22/2014

		AM PEAK HOUR			MD PEAK HOUR			PM PEAK HOUR		
	No. of Phases			3			3			3
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB -- 3	SB --	0	NB -- 3	SB --	0	NB -- 0	SB --	0
		EB -- 0	WB --	0	EB -- 0	WB --	0	EB -- 3	WB --	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2			2
	Override Capacity			1500			1500			1500
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	143	1	**143**	0	1	**60**	97	1	97
	Left-Through		0			0			0	
	Through	0	0	**0**	0	0	0	0	0	**0**
	Through-Right		0			0			0	
	Right	266	1	143	0	1	403	494	1	443
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
SOUTHBOUND	Left	0	0	0	0	0	0	0	0	**0**
	Left-Through		0			0			0	
	Through	0	0	**0**	0	0	**0**	0	0	0
	Through-Right		0			0			0	
	Right	0	0	0	0	0	0	0	0	0
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
EASTBOUND	Left	0	0	**0**	0	0	0	0	0	0
	Left-Through		0			0			0	
	Through	398	2	159	0	2	**380**	1,183	2	**440**
	Through-Right		1			1			1	
	Right	80	0	80	0	0	45	138	0	138
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
WESTBOUND	Left	223	2	123	0	2	**77**	92	2	**51**
	Left-Through		0			0			0	
	Through	747	3	**249**	0	3	82	283	3	94
	Through-Right		0			0			0	
	Right	0	0	0	0	0	0	0	0	0
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
	CRITICAL VOLUMES		North-South:	143		North-South:	403		North-South:	443
			East-West:	408		East-West:	462		East-West:	534
			SUM:	551		SUM:	865		SUM:	977
	VOLUME/CAPACITY (V/C) RATIO:			0.387			0.577			0.686
	V/C LESS ATSAC/ATCS ADJUSTMENT:			0.287			0.477			**0.586**
	LEVEL OF SERVICE (LOS):			A			A			A

Version: 1i Beta; 8/4/2011

EX_AM.out

EX AM Fri Nov 14, 2014 09:29:31 Page 1-1

Tesoro Los Angeles Refinery
Integration & Compliance Project Traffic Study
Existing AM Peak Hour

Scenario Report

Scenario:	EX AM
Command:	Default Command
Volume:	AM
Geometry:	Default Geometry
Impact Fee:	Default Impact Fee
Trip Generation:	Default Trip Generation
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	Default Configuration

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Tesoro Los Angeles Refinery
Page 1

EX_AM.out
Integration & Compliance Project Traffic Study
Existing AM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Wilmington Ave / I-405 NB Ramp	C	20.0	0.478	C	20.0	0.478	+ 0.000 D/V
# 2 Wilmington Ave / I-405 SB Ramp	B	12.4	0.463	B	12.4	0.463	+ 0.000 D/V
# 4 Alameda Ave / I-405 NB Ramps	B	18.3	0.633	B	18.3	0.633	+ 0.000 D/V
# 9 I-405 SB Ramps / 223rd St	C	20.4	0.422	C	20.4	0.422	+ 0.000 D/V

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EX AM Fri Nov 14, 2014 09:29:31 Page 3-1

Tesoro Los Angeles Refinery
Integration & Compliance Project Traffic Study
Existing AM Peak Hour

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EX_AM.out

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

```
********************************************************************************
Intersection #1 Wilmington Ave / I-405 NB Ramps
********************************************************************************
Cycle (sec):         100                 Critical Vol./Cap.(X):         0.478
Loss Time (sec):       4 (Y+R=4.0 sec)   Average Delay (sec/veh):        20.0
Optimal Cycle:        25                 Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    1  0  3  0  0    0  0  0  0  0    2  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  362    33    21  371     0     0    0     0   693    0   484
Growth 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
Initial Bse:    0  362    33    21  371     0     0    0     0   693    0   484
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  362    33    21  371     0     0    0     0   693    0   484
User 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
PHF Adj:     0.90 0.90  0.90  0.90 0.90  0.90  0.90 0.90  0.90  0.90 0.90  0.90
PHF Volume:     0  404    37    23  414     0     0    0     0   773    0   540
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  404    37    23  414     0     0    0     0   773    0   540
PCE 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
MLF 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
FinalVolume:    0  404    37    23  414     0     0    0     0   773    0   540
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  0.28 0.91  1.00  1.00 1.00  1.00  0.59 1.00  0.85
Lanes:       0.00 2.00  1.00  1.00 3.00  0.00  0.00 0.00  0.00  2.00 0.00  1.00
Final Sat.:     0 3610  1615   536 5187     0     0    0     0  2226    0  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.11  0.02  0.04 0.08  0.00  0.00 0.00  0.00  0.35 0.00  0.33
Crit Moves:       ****                                        ****
Green/Cycle: 0.00 0.34  0.34  0.14 0.14  0.00  0.00 0.00  0.00  0.62 0.00  0.62
Volume/Cap:  0.00 0.33  0.07  0.31 0.56  0.00  0.00 0.00  0.00  0.56 0.00  0.54
Delay/Veh:    0.0 24.7  22.3  40.8 41.0   0.0   0.0  0.0   0.0  11.6  0.0  11.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 24.7  22.3  40.8 41.0   0.0   0.0  0.0   0.0  11.6  0.0  11.5
LOS by Move:    A    C     C     D    D     A     A    A     A     B    A     B
HCM2kAvgQ:      0    5     1     1    5     0     0    0     0     8    0    10
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************

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--------------------------------------------------------------------------------
                          Tesoro Los Angeles Refinery
                  Integration & Compliance Project Traffic Study
                               Existing AM Peak Hour
--------------------------------------------------------------------------------
                          Level Of Service Computation Report
                  2000 HCM Operations Method (Future Volume Alternative)
********************************************************************************
```

EX_AM.out

Intersection #2 Wilmington Ave / I-405 SB Ramps

Cycle (sec):	100		Critical Vol./Cap.(X):		0.463
Loss Time (sec):	4 (Y+R=4.0 sec)		Average Delay (sec/veh):		12.4
Optimal Cycle:	21		Level Of Service:		B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Prot+Permit			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	1 0	3	0 0	0 1	0	1 0	0 0	0	0 0 0
Volume Module:												
Base Vol:	0	304	359	141	906	0	123	0	164	0	0	0
Growth 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
Initial Bse:	0	304	359	141	906	0	123	0	164	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	304	359	141	906	0	123	0	164	0	0	0
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	321	379	149	958	0	130	0	173	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	321	379	149	958	0	130	0	173	0	0	0
PCE 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
MLF 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
FinalVolume:	0	321	379	149	958	0	130	0	173	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.95	0.91	1.00	0.72	0.95	0.72	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	1.00	3.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	0	3610	1615	1805	5187	0	1366	0	1366	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.09	0.23	0.08	0.18	0.00	0.10	0.00	0.13	0.00	0.00	0.00
Crit Moves:			****	****					****			
Green/Cycle:	0.00	0.51	0.51	0.69	0.69	0.00	0.27	0.00	0.27	0.00	0.00	0.00
Volume/Cap:	0.00	0.18	0.46	0.19	0.27	0.00	0.35	0.00	0.46	0.00	0.00	0.00
Delay/Veh:	0.0	13.4	16.3	5.7	6.1	0.0	29.4	0.0	30.7	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	13.4	16.3	5.7	6.1	0.0	29.4	0.0	30.7	0.0	0.0	0.0
LOS by Move:	A	B	B	A	A	A	C	A	C	A	A	A
HCM2kAvgQ:	0	3	8	2	4	0	4	0	5	0	0	0

Note: Queue reported is the number of cars per lane.

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Tesoro Los Angeles Refinery
Integration & Compliance Project Traffic Study
Existing AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Alameda Ave / I-405 NB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.633

EX_AM.out

```
Loss Time (sec):       4 (Y+R=4.0 sec)  Average Delay (sec/veh):        18.3
Optimal Cycle:        30                Level Of Service:                    B
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected         Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    1  0  1  1  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  557    47     0  840    50     0    0     0   462    0   312
Growth 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
Initial Bse:    0  557    47     0  840    50     0    0     0   462    0   312
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  557    47     0  840    50     0    0     0   462    0   312
User 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
PHF Adj:     0.93 0.93  0.93  0.93 0.93  0.93  0.93 0.93  0.93  0.93 0.93  0.93
PHF Volume:     0  599    51     0  903    54     0    0     0   497    0   335
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  599    51     0  903    54     0    0     0   497    0   335
PCE 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
MLF 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
FinalVolume:    0  599    51     0  903    54     0    0     0   497    0   335
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  1.00 0.94  0.94  1.00 1.00  1.00  0.77 1.00  0.85
Lanes:       0.00 2.00  1.00  1.00 1.89  0.11  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 3610  1615  1900 3380   201     0    0     0  1461    0  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.17  0.03  0.00 0.27  0.27  0.00 0.00  0.00  0.34 0.00  0.21
Crit Moves:  ****                 ****                          ****
Green/Cycle: 0.00 0.42  0.42  0.00 0.42  0.42  0.00 0.00  0.00  0.54 0.00  1.08
Volume/Cap:  0.00 0.39  0.07  0.00 0.63  0.63  0.00 0.00  0.00  0.63 0.00  0.19
Delay/Veh:    0.0 20.2  17.3   0.0 23.6  23.6   0.0  0.0   0.0  17.9  0.0   0.4
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 20.2  17.3   0.0 23.6  23.6   0.0  0.0   0.0  17.9  0.0   0.4
LOS by Move:    A    C     B     A    C     C     A    A     A     B    A     A
HCM2kAvgQ:      0    7     1     0   13    13     0    0     0    11    0     0
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************

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------------------------------------------------------------------------------
                        Tesoro Los Angeles Refinery
                Integration & Compliance Project Traffic Study
                             Existing AM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM Operations Method (Future Volume Alternative)
******************************************************************************
Intersection #9 I-405 SB Ramps / 223rd St
******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):          0.422
Loss Time (sec):       6 (Y+R=4.0 sec)  Average Delay (sec/veh):        20.4
Optimal Cycle:        24                Level Of Service:                    C
******************************************************************************
```

EX_AM.out

Approach:	North Bound						South Bound						East Bound						West Bound					
Movement:	L	-	T	-	R		L	-	T	-	R		L	-	T	-	R		L	-	T	-	R	
Control:	Permitted						Protected						Protected						Protected					
Rights:	Include						Include						Include						Include					
Min. Green:	0	0	0				0	0	0				0	0	0				0	0	0			
Lanes:	0	0	1!	0	0		1	0	0	1	0		2	0	2	1	0		1	0	2	1	0	
Volume Module:																								
Base Vol:	1	1	5				55	0	123				353	302	4				3	837	32			
Growth 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			
Initial Bse:	1	1	5				55	0	123				353	302	4				3	837	32			
Added Vol:	0	0	0				0	0	0				0	0	0				0	0	0			
PasserByVol:	0	0	0				0	0	0				0	0	0				0	0	0			
Initial Fut:	1	1	5				55	0	123				353	302	4				3	837	32			
User 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			
PHF Adj:	0.88	0.88	0.88				0.88	0.88	0.88				0.88	0.88	0.88				0.88	0.88	0.88			
PHF Volume:	1	1	6				62	0	140				401	343	5				3	950	36			
Reduct Vol:	0	0	0				0	0	0				0	0	0				0	0	0			
Reduced Vol:	1	1	6				62	0	140				401	343	5				3	950	36			
PCE 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			
MLF 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			
FinalVolume:	1	1	6				62	0	140				401	343	5				3	950	36			
Saturation Flow Module:																								
Sat/Lane:	1900	1900	1900				1900	1900	1900				1900	1900	1900				1900	1900	1900			
Adjustment:	0.90	0.90	0.90				0.95	1.00	0.85				0.92	0.91	0.91				0.95	0.90	0.90			
Lanes:	0.14	0.14	0.72				1.00	0.00	1.00				2.00	2.96	0.04				1.00	2.89	0.11			
Final Sat.:	245	245	1227				1805	0	1615				3502	5109	68				1805	4966	190			
Capacity Analysis Module:																								
Vol/Sat:	0.00	0.00	0.00				0.03	0.00	0.09				0.11	0.07	0.07				0.00	0.19	0.19			
Crit Moves:		****							****				****							****				
Green/Cycle:	0.01	0.01	0.01				0.20	0.00	0.22				0.27	0.70	0.70				0.02	0.45	0.45			
Volume/Cap:	0.41	0.41	0.41				0.17	0.00	0.40				0.42	0.10	0.10				0.10	0.42	0.42			
Delay/Veh:	62.9	62.9	62.9				33.0	0.0	34.4				30.3	4.7	4.7				49.3	18.6	18.6			
User DelAdj:	1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00				1.00	1.00	1.00			
AdjDel/Veh:	62.9	62.9	62.9				33.0	0.0	34.4				30.3	4.7	4.7				49.3	18.6	18.6			
LOS by Move:	E		E		E		C		A		C		C		A		A		D		B		B	
HCM2kAvgQ:	1		1		1		2		0		4		5		1		1		0		8		8	

****

Note: Queue reported is the number of cars per lane.

****

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EX PM Wed Nov 26, 2014 17:31:44 Page 1-1

Tesoro Los Angeles Refinery
Existing Conditionsq
PM Peak Hour

Scenario Report

Scenario:	EX PM
Command:	EX-PM
Volume:	PM
Geometry:	Existing
Impact Fee:	Default Impact Fee
Trip Generation:	Const-PM
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	EX-PM

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Tesoro Los Angeles Refinery
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EX_PM.out
Existing Conditionsq
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Wilmington Ave / I-405 NB Ramp	B	18.5	0.395	B	18.5	0.395	+ 0.000 D/V
# 2 Wilmington Ave / I-405 SB Ramp	B	15.7	0.629	B	15.7	0.629	+ 0.000 D/V
# 4 Alameda Ave / I-405 NB Ramps	C	23.2	0.665	C	23.2	0.665	+ 0.000 D/V
# 9 I-405 SB Ramps / 223rd St	B	19.0	0.502	B	19.0	0.502	+ 0.000 D/V

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EX PM Wed Nov 26, 2014 17:31:44 Page 3-1

Tesoro Los Angeles Refinery
Existing Conditionsq
PM Peak Hour

EX_PM.out
Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Wilmington Ave / I-405 NB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.395
Loss Time (sec):	8 (Y+R=4.0 sec)	Average Delay (sec/veh):	18.5
Optimal Cycle:	27	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	1 0	3	0 0	0 0	0	0 0	2	0 0	0 1
Volume Module:												
Base Vol:	0	282	151	71	794	0	0	0	0	428	0	302
Growth 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
Initial Bse:	0	282	151	71	794	0	0	0	0	428	0	302
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	282	151	71	794	0	0	0	0	428	0	302
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	297	159	75	837	0	0	0	0	451	0	318
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	297	159	75	837	0	0	0	0	451	0	318
PCE 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
MLF 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
FinalVolume:	0	297	159	75	837	0	0	0	0	451	0	318
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.52	0.91	1.00	1.00	1.00	1.00	0.59	1.00	0.85
Lanes:	0.00	2.00	1.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	1615	979	5187	0	0	0	0	2234	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.08	0.10	0.08	0.16	0.00	0.00	0.00	0.00	0.20	0.00	0.20
Crit Moves:	****				****					****		
Green/Cycle:	0.00	0.41	0.41	0.41	0.41	0.00	0.00	0.00	0.00	0.51	0.00	0.51
Volume/Cap:	0.00	0.20	0.24	0.19	0.39	0.00	0.00	0.00	0.00	0.39	0.00	0.39
Delay/Veh:	0.0	19.1	19.6	19.2	21.0	0.0	0.0	0.0	0.0	15.2	0.0	15.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	19.1	19.6	19.2	21.0	0.0	0.0	0.0	0.0	15.2	0.0	15.2
LOS by Move:	A	B	B	B	C	A	A	A	A	B	A	B
HCM2kAvgQ:	0	3	3	2	7	0	0	0	0	5	0	6

Note: Queue reported is the number of cars per lane.

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Tesoro Los Angeles Refinery
Existing Conditionsq
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

EX_PM.out

Intersection #2 Wilmington Ave / I-405 SB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.629	
Loss Time (sec):	12 (Y+R=4.0 sec)	Average Delay (sec/veh):	15.7	
Optimal Cycle:	51	Level Of Service:	B	

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	1 0	3	0 0	0 1	0	1 0	0 0	0	0 0
Volume Module:												
Base Vol:	0	406	479	337	888	0	26	0	82	0	0	0
Growth 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
Initial Bse:	0	406	479	337	888	0	26	0	82	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	406	479	337	888	0	26	0	82	0	0	0
User 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
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	415	490	345	908	0	27	0	84	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	415	490	345	908	0	27	0	84	0	0	0
PCE 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
MLF 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
FinalVolume:	0	415	490	345	908	0	27	0	84	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.95	0.91	1.00	0.74	0.95	0.74	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	1.00	3.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	0	3610	1615	1805	5187	0	1415	0	1415	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.11	0.30	0.19	0.18	0.00	0.02	0.00	0.06	0.00	0.00	0.00
Crit Moves:			****	****					****			
Green/Cycle:	0.00	0.48	0.48	0.30	0.79	0.00	0.09	0.00	0.09	0.00	0.00	0.00
Volume/Cap:	0.00	0.24	0.63	0.63	0.22	0.00	0.20	0.00	0.63	0.00	0.00	0.00
Delay/Veh:	0.0	15.2	20.9	32.3	2.8	0.0	42.0	0.0	51.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	15.2	20.9	32.3	2.8	0.0	42.0	0.0	51.0	0.0	0.0	0.0
LOS by Move:	A	B	C	C	A	A	D	A	D	A	A	A
HCM2kAvgQ:	0	4	12	10	3	0	1	0	4	0	0	0

Note: Queue reported is the number of cars per lane.

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Tesoro Los Angeles Refinery
Existing Conditionsq
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Alameda Ave / I-405 NB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.665

EX_PM.out

```
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        23.2
Optimal Cycle:        55                Level Of Service:                 C
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected         Permitted
Rights:           Include          Include          Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    1  0  2  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  922   190    80  755     0     0    0     0   384    0   105
Growth 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
Initial Bse:    0  922   190    80  755     0     0    0     0   384    0   105
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  922   190    80  755     0     0    0     0   384    0   105
User 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
PHF Adj:     0.96 0.96  0.96  0.96 0.96  0.96  0.96 0.96  0.96  0.96 0.96  0.96
PHF Volume:     0  959   198    83  786     0     0    0     0   400    0   109
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  959   198    83  786     0     0    0     0   400    0   109
PCE 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
MLF 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
FinalVolume:    0  959   198    83  786     0     0    0     0   400    0   109
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  0.95 0.95  1.00  1.00 1.00  1.00  0.77 1.00  0.85
Lanes:       0.00 2.00  1.00  1.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 3610  1615  1805 3610     0     0    0     0  1461    0  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.27  0.12  0.05 0.22  0.00  0.00 0.00  0.00  0.27 0.00  0.07
Crit Moves:       ****        ****                              ****
Green/Cycle: 0.00 0.40  0.40  0.07 0.47  0.00  0.00 0.00  0.00  0.41 0.00  0.82
Volume/Cap:  0.00 0.67  0.31  0.67 0.46  0.00  0.00 0.00  0.00  0.67 0.00  0.08
Delay/Veh:    0.0 25.7  20.8  58.2 18.2   0.0   0.0  0.0   0.0  26.7  0.0   1.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 25.7  20.8  58.2 18.2   0.0   0.0  0.0   0.0  26.7  0.0   1.7
LOS by Move:    A    C     C     E    B     A     A    A     A     C    A     A
HCM2kAvgQ:      0   13     4     4    9     0     0    0     0    11    0     1
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************

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------------------------------------------------------------------------------
                        Tesoro Los Angeles Refinery
                           Existing Conditionsq
                               PM Peak Hour
------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM Operations Method (Future Volume Alternative)
******************************************************************************
Intersection #9 I-405 SB Ramps / 223rd St
******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):          0.502
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):         19.0
Optimal Cycle:        49                Level Of Service:                  B
******************************************************************************
```

EX_PM.out

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	0 1	0	2 0	2 1	0	1 0	2 1	0
Volume Module:												
Base Vol:	3	6	3	125	2	36	840	798	18	4	347	77
Growth 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
Initial Bse:	3	6	3	125	2	36	840	798	18	4	347	77
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	6	3	125	2	36	840	798	18	4	347	77
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	3	6	3	132	2	38	886	842	19	4	366	81
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	3	6	3	132	2	38	886	842	19	4	366	81
PCE 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
MLF 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
FinalVolume:	3	6	3	132	2	38	886	842	19	4	366	81
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.95	0.86	0.86	0.92	0.91	0.91	0.95	0.89	0.89
Lanes:	0.25	0.50	0.25	1.00	0.05	0.95	2.00	2.93	0.07	1.00	2.46	0.54
Final Sat.:	453	907	453	1805	86	1544	3502	5057	114	1805	4130	917
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.07	0.02	0.02	0.25	0.17	0.17	0.00	0.09	0.09
Crit Moves:		****		****			****				****	
Green/Cycle:	0.01	0.01	0.01	0.15	0.15	0.15	0.50	0.67	0.67	0.01	0.18	0.18
Volume/Cap:	0.50	0.50	0.50	0.50	0.17	0.17	0.50	0.25	0.25	0.25	0.50	0.50
Delay/Veh:	64.0	64.0	64.0	40.9	37.8	37.8	16.7	6.5	6.5	56.7	37.7	37.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	64.0	64.0	64.0	40.9	37.8	37.8	16.7	6.5	6.5	56.7	37.7	37.7
LOS by Move:	E	E	E	D	D	D	B	A	A	E	D	D
HCM2kAvgQ:	1	1	1	4	1	1	9	4	4	0	5	5

****

Note: Queue reported is the number of cars per lane.

****

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BASELINE PLUS PROJECT CONSTRUCTION

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **3**
North/South Street: **WILMINGTON AVENUE**
East/West Street: **223RD STREET**

Scenario: **Existing Plus Construction**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	319	1,600	0.114	N-S(1):	0.203
	TH	2.00	679	3,200	0.212 *	N-S(2):	0.219 *
	LT	1.00	125	1,600	0.078	E-W(1):	0.296
Westbound	RT	1.00	59	1,600	0.000	E-W(2):	0.334 *
	TH	2.00	794	3,200	0.248 *		
	LT	1.00	200	1,600	0.125	V/C:	0.553
Northbound	RT	0.50	84	800	0.000	Lost Time:	0.100
	TH	2.50	501	4,000	0.125		
	LT	1.00	11	1,600	0.007 *		
Eastbound	RT	1.00	17	1,600	0.004	ICU:	0.653
	TH	2.00	548	3,200	0.171		
	LT	1.00	137	1,600	0.086 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	199	1,600	0.000	N-S(1):	0.144
	TH	2.00	733	3,200	0.229 *	N-S(2):	0.234 *
	LT	1.00	61	1,600	0.038	E-W(1):	0.362 *
Westbound	RT	1.00	215	1,600	0.096	E-W(2):	0.259
	TH	2.00	349	3,200	0.109		
	LT	1.00	182	1,600	0.114 *	V/C:	0.596
Northbound	RT	0.50	124	800	0.000	Lost Time:	0.100
	TH	2.50	424	4,000	0.106		
	LT	1.00	8	1,600	0.005 *		
Eastbound	RT	1.00	10	1,600	0.001	ICU:	0.696
	TH	2.00	792	3,200	0.248 *		
	LT	1.00	240	1,600	0.150	LOS:	B

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **5**
North/South Street: **223rd Street Ramp (on Alameda Street)**
East/West Street: **Alameda Street**

Scenario: **Existing Plus Construction**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.257 *
	TH	3.00	1,145	4,800	0.239	N-S(2):	0.239
	LT	1.00	159	1,600	0.099 *	E-W(1):	0.127 *
Westbound	RT	1.00	119	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	1.00	203	1,600	0.127 *	V/C:	0.384
Northbound	RT	0.00	253	1,600	0.158 *	Lost Time:	0.100
	TH	3.00	489	3,200	0.153		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.484
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.433 *
	TH	3.00	1,001	4,800	0.209	N-S(2):	0.209
	LT	1.00	164	1,600	0.103 *	E-W(1):	0.071 *
Westbound	RT	1.00	122	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	1.00	114	1,600	0.071 *	V/C:	0.504
Northbound	RT	0.00	528	1,600	0.330 *	Lost Time:	0.100
	TH	3.00	1,025	3,200	0.320		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.604
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **6**
North/South Street: **223rd Street**
East/West Street: **Alameda Street Ramp**

Scenario: **Existing Plus Construction**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.086 *
	TH	0.00	0	0	0.000	N-S(2):	0.081
	LT	0.00	0	0	0.000 *	E-W(1):	0.172 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.142
	TH	3.00	751	5,280	0.142		
	LT	2.00	250	3,168	0.079 *	V/C:	0.258
Northbound	RT	1.00	277	1,760	0.086 *	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	1.00	143	1,760	0.081		
Eastbound	RT	0.00	80	0	0.000	ICU:	0.358
	TH	3.00	409	5,280	0.093 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.291 *
	TH	0.00	0	0	0.000	N-S(2):	0.056
	LT	0.00	0	0	0.000 *	E-W(1):	0.305 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.054
	TH	3.00	283	5,280	0.054		
	LT	2.00	95	3,168	0.030 *	V/C:	0.596
Northbound	RT	1.00	559	1,760	0.291 *	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	1.00	99	1,760	0.056		
Eastbound	RT	0.00	138	0	0.000	ICU:	0.696
	TH	3.00	1,314	5,280	0.275 *		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **7**
North/South Street: **ALAMEDA STREET**
East/West Street: **SEPULVEDA BOULEVARD-ALAMEDA RAMP**

Scenario: **Existing Plus Construction**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.275 *
	TH	3.00	766	4,800	0.160	N-S(2):	0.160
	LT	1.00	279	1,600	0.174 *	E-W(1):	0.031 *
Westbound	RT	2.00	290	3,200	0.003	E-W(2):	0.003
	TH	0.00	0	0	0.000		
	LT	1.00	49	1,600	0.031 *	V/C:	0.306
Northbound	RT	0.00	52	0	0.000	Lost Time:	0.100
	TH	3.00	434	4,800	0.101 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.406
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.392 *
	TH	3.00	861	4,800	0.179	N-S(2):	0.179
	LT	1.00	270	1,600	0.169 *	E-W(1):	0.060 *
Westbound	RT	2.00	461	3,200	0.060 *	E-W(2):	0.060 *
	TH	0.00	0	0	0.000		
	LT	1.00	96	1,600	0.060 *	V/C:	0.452
Northbound	RT	0.00	83	0	0.000	Lost Time:	0.100
	TH	3.00	989	4,800	0.223 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.552
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000 *	LOS:	A

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **8**
North/South Street: **SEPULVEDA BOULEVARD-ALAMEDA RAMF**
East/West Street: **SEPULVEDA BOULEVARD**

Scenario: **Existing Plus Construction**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	151	1,600	0.000	N-S(1):	0.070 *
	TH	0.10	9	161	0.056	N-S(2):	0.000
	LT	1.90	170	2,735	0.062 *	E-W(1):	0.233
Westbound	RT	1.00	157	1,600	0.042	E-W(2):	0.282 *
	TH	2.00	602	3,200	0.188 *		
	LT	1.00	8	1,600	0.005	V/C:	0.352
Northbound	RT	0.00	4	0	0.000	Lost Time:	0.100
	TH	2.00	19	3,200	0.008 *		
	LT	0.00	2	1,600	0.001		
Eastbound	RT	1.00	6	1,600	0.003	ICU:	0.452
	TH	1.00	365	1,600	0.228		
	LT	1.00	151	1,600	0.094 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	179	1,600	0.000	N-S(1):	0.061 *
	TH	0.16	12	251	0.048	N-S(2):	0.000
	LT	1.84	141	2,654	0.053 *	E-W(1):	0.590 *
Westbound	RT	1.00	287	1,600	0.132	E-W(2):	0.320
	TH	2.00	546	3,200	0.171		
	LT	1.00	2	1,600	0.001 *	V/C:	0.651
Northbound	RT	0.00	9	0	0.000	Lost Time:	0.100
	TH	2.00	13	3,200	0.008 *		
	LT	0.00	4	1,600	0.003		
Eastbound	RT	1.00	1	1,600	0.000	ICU:	0.751
	TH	1.00	943	1,600	0.589 *		
	LT	1.00	238	1,600	0.149	LOS:	C

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **10**
North/South Street: **TERMINAL ISLAND FREEWAY (SR-103)**
East/West Street: **WILLOW STREET**

Scenario: **Existing Plus Construction**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.035 *
	TH	1.00	0	1,600	0.000	N-S(2):	0.000
	LT	0.00	0	0	0.000 *	E-W(1):	0.184
Westbound	RT	0.00	16	0	0.000	E-W(2):	0.286 *
	TH	2.00	890	3,200	0.283 *		
	LT	2.00	236	2,880	0.082	V/C:	0.321
Northbound	RT	2.00	99	3,200	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	2.00	101	2,880	0.035 *		
Eastbound	RT	1.00	184	1,600	0.083	ICU:	0.421
	TH	2.00	327	3,200	0.102		
	LT	1.00	4	1,600	0.003 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.108 *
	TH	1.00	0	1,600	0.000	N-S(2):	0.000
	LT	0.00	0	0	0.000 *	E-W(1):	0.387 *
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.138
	TH	2.00	440	3,200	0.138		
	LT	2.00	167	2,880	0.058 *	V/C:	0.495
Northbound	RT	2.00	248	3,200	0.051	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	2.00	312	2,880	0.108 *		
Eastbound	RT	1.00	260	1,600	0.065	ICU:	0.595
	TH	2.00	1,054	3,200	0.329 *		
	LT	1.00	0	1,600	0.000	LOS:	A

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **11**
North/South Street: **SANTA FE AVE**
East/West Street: **SEPULVEDA BOULEVARD**

Scenario: **Existing Plus Construction**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	132	0	0.000	N-S(1):	0.205 *
	TH	2.00	258	3,200	0.122 *	N-S(2):	0.000
	LT	2.00	152	2,880	0.053	E-W(1):	0.202
Westbound	RT	0.00	108	0	0.000	E-W(2):	0.349 *
	TH	2.00	863	3,200	0.303 *		
	LT	2.00	159	2,880	0.055	V/C:	0.554
Northbound	RT	0.00	80	0	0.000	Lost Time:	0.100
	TH	2.00	184	3,200	0.083 *		
	LT	1.00	76	1,600	0.048		
Eastbound	RT	0.00	32	0	0.000	ICU:	0.654
	TH	2.00	437	3,200	0.147		
	LT	1.00	73	1,600	0.046 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	62	0	0.000	N-S(1):	0.313 *
	TH	2.00	311	3,200	0.117 *	N-S(2):	0.000
	LT	2.00	331	2,880	0.115	E-W(1):	0.385 *
Westbound	RT	0.00	149	0	0.000	E-W(2):	0.290
	TH	2.00	498	3,200	0.202		
	LT	2.00	137	2,880	0.048 *	V/C:	0.698
Northbound	RT	0.00	200	0	0.000	Lost Time:	0.100
	TH	2.00	428	3,200	0.196 *		
	LT	1.00	82	1,600	0.051		
Eastbound	RT	0.00	43	0	0.000	ICU:	0.798
	TH	2.00	1,036	3,200	0.337 *		
	LT	1.00	140	1,600	0.088	LOS:	C

* = Critical Movement

Appendix E

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	ICTF Modification and Expansion Project EIR		
31	North-South Street:	223rd Street (on 223rd	East-West Street:	Alameda Street Ramp
	Scenario:	CEQA Baseline		
	Count Date:		Analyst: Iteris, Inc.	Date: 7/22/2014

		AM PEAK HOUR			MD PEAK HOUR			PM PEAK HOUR		
	No. of Phases			3			3			3
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB -- 3	SB --	0	NB -- 3	SB --	0	NB -- 0	SB --	0
		EB -- 0	WB --	0	EB -- 0	WB --	0	EB -- 3	WB --	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2			2
	Override Capacity			1500			1500			1500
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	143	1	**143**	0	1	**60**	97	1	97
	Left-Through		0			0			0	
	Through	0	0	**0**	0	0	0	0	0	**0**
	Through-Right		0			0			0	
	Right	266	1	143	0	1	403	494	1	443
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
SOUTHBOUND	Left	0	0	0	0	0	0	0	0	**0**
	Left-Through		0			0			0	
	Through	0	0	**0**	0	0	**0**	0	0	0
	Through-Right		0			0			0	
	Right	0	0	0	0	0	0	0	0	0
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
EASTBOUND	Left	0	0	**0**	0	0	0	0	0	0
	Left-Through		0			0			0	
	Through	398	2	159	0	2	**380**	1,183	2	**440**
	Through-Right		1			1			1	
	Right	80	0	80	0	0	45	138	0	138
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
WESTBOUND	Left	223	2	123	0	2	**77**	92	2	**51**
	Left-Through		0			0			0	
	Through	747	3	**249**	0	3	82	283	3	94
	Through-Right		0			0			0	
	Right	0	0	0	0	0	0	0	0	0
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
	CRITICAL VOLUMES		North-South:	143		North-South:	403		North-South:	443
			East-West:	408		East-West:	462		East-West:	534
			SUM:	551		SUM:	865		SUM:	977
	VOLUME/CAPACITY (V/C) RATIO:			0.387			0.577			0.686
	V/C LESS ATSAC/ATCS ADJUSTMENT:			0.287			0.477			**0.586**
	LEVEL OF SERVICE (LOS):			A			A			A

Version: 1i Beta; 8/4/2011

EX+Const-AM.out

EX + Const AM Mon Nov 24, 2014 13:57:52 Page 1-1

Tesoro Los Angeles Refinery
Existing Plus Construction Conditions
AM Peak Hour

Scenario Report

Scenario:	EX + Const AM
Command:	EX+Const-AM
Volume:	AM
Geometry:	Existing
Impact Fee:	Default Impact Fee
Trip Generation:	Const-AM
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	EX+Const-AM

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Tesoro Los Angeles Refinery
Page 1

EX+Const-AM.out
Existing Plus Construction Conditions
AM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Wilmington Ave / I-405 NB Ramp	C	21.4	0.499	C	21.5	0.500	+ 0.080 D/V
# 2 Wilmington Ave / I-405 SB Ramp	D	44.2	0.355	E	57.9	0.439	+13.706 D/V
# 4 Alameda Ave / I-405 NB Ramps	C	21.2	0.690	C	25.6	0.807	+ 4.446 D/V
# 9 I-405 SB Ramps / 223rd St	C	23.4	0.472	C	24.6	0.502	+ 1.194 D/V

Tesoro Los Angeles Refinery
Existing Plus Construction Conditions
AM Peak Hour

EX+Const-AM.out
Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Wilmington Ave / I-405 NB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.500
Loss Time (sec):	8 (Y+R=4.0 sec)	Average Delay (sec/veh):	21.5
Optimal Cycle:	37	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	1 0	3	0 0	0 0	0	0 0	2 0	0	0 1
Volume Module:												
Base Vol:	0	362	33	21	371	0	0	0	0	693	0	484
Growth 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
Initial Bse:	0	362	33	21	371	0	0	0	0	693	0	484
Added Vol:	0	1	13	0	4	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	363	46	21	375	0	0	0	0	693	0	484
User 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
PHF Adj:	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
PHF Volume:	0	405	51	23	419	0	0	0	0	773	0	540
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	405	51	23	419	0	0	0	0	773	0	540
PCE 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
MLF 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
FinalVolume:	0	405	51	23	419	0	0	0	0	773	0	540
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.30	0.91	1.00	1.00	1.00	1.00	0.59	1.00	0.85
Lanes:	0.00	2.00	1.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	1615	574	5187	0	0	0	0	2226	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.11	0.03	0.04	0.08	0.00	0.00	0.00	0.00	0.35	0.00	0.33
Crit Moves:		****								****		
Green/Cycle:	0.00	0.33	0.33	0.14	0.14	0.00	0.00	0.00	0.00	0.59	0.00	0.59
Volume/Cap:	0.00	0.34	0.10	0.30	0.59	0.00	0.00	0.00	0.00	0.59	0.00	0.56
Delay/Veh:	0.0	25.6	23.4	40.9	41.8	0.0	0.0	0.0	0.0	13.4	0.0	13.3
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	25.6	23.4	40.9	41.8	0.0	0.0	0.0	0.0	13.4	0.0	13.3
LOS by Move:	A	C	C	D	D	A	A	A	A	B	A	B
HCM2kAvgQ:	0	5	1	1	5	0	0	0	0	8	0	10

Note: Queue reported is the number of cars per lane.

Tesoro Los Angeles Refinery
Existing Plus Construction Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

EX+Const-AM.out

Intersection #2 Wilmington Ave / I-405 SB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.439
Loss Time (sec):	12 (Y+R=4.0 sec)	Average Delay (sec/veh):	57.9
Optimal Cycle:	44	Level Of Service:	E

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2 0	1	1 0	3 0	0	0 1	0 1	0	0 0	0 0	0
Volume Module:												
Base Vol:	0	304	359	141	906	0	123	0	164	0	0	0
Growth 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
Initial Bse:	0	304	359	141	906	0	123	0	164	0	0	0
Added Vol:	0	13	0	0	4	0	0	0	96	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	317	359	141	910	0	123	0	260	0	0	0
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	335	379	149	962	0	130	0	275	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	335	379	149	962	0	130	0	275	0	0	0
PCE 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
MLF 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
FinalVolume:	0	335	379	149	962	0	130	0	275	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.95	0.91	1.00	0.72	0.95	0.72	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	1.00	3.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	0	3610	1615	1805	5187	0	1368	0	1368	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.09	0.23	0.08	0.19	0.00	0.10	0.00	0.20	0.00	0.00	0.00
Crit Moves:					****				****			
Green/Cycle:	0.00	0.17	0.17	0.34	0.51	0.00	0.37	0.00	0.37	0.00	0.00	0.00
Volume/Cap:	0.00	0.54	1.38	0.24	0.36	0.00	0.26	0.00	0.54	0.00	0.00	0.00
Delay/Veh:	0.0	38.9	232.8	23.9	14.8	0.0	22.1	0.0	25.8	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	38.9	232.8	23.9	14.8	0.0	22.1	0.0	25.8	0.0	0.0	0.0
LOS by Move:	A	D	F	C	B	A	C	A	C	A	A	A
HCM2kAvgQ:	0	6	27	3	6	0	3	0	7	0	0	0

Note: Queue reported is the number of cars per lane.

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Tesoro Los Angeles Refinery
Existing Plus Construction Conditions
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Alameda Ave / I-405 NB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.807

EX+Const-AM.out

```
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        25.6
Optimal Cycle:        79                Level Of Service:                 C
*************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected         Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    1  0  1  1  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  557    47     0  840    50     0    0     0   462    0   312
Growth 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
Initial Bse:    0  557    47     0  840    50     0    0     0   462    0   312
Added Vol:      0    2     4     0   12     0     0    0     0   135    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  559    51     0  852    50     0    0     0   597    0   312
User 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
PHF Adj:     0.93 0.93  0.93  0.93 0.93  0.93  0.93 0.93  0.93  0.93 0.93  0.93
PHF Volume:     0  601    55     0  916    54     0    0     0   642    0   335
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  601    55     0  916    54     0    0     0   642    0   335
PCE 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
MLF 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
FinalVolume:    0  601    55     0  916    54     0    0     0   642    0   335
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  1.00 0.94  0.94  1.00 1.00  1.00  0.77 1.00  0.85
Lanes:       0.00 2.00  1.00  1.00 1.89  0.11  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 3610  1615  1900 3383   199     0    0     0  1461    0  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.17  0.03  0.00 0.27  0.27  0.00 0.00  0.00  0.44 0.00  0.21
Crit Moves:  ****                 ****                          ****
Green/Cycle: 0.00 0.34  0.34  0.00 0.34  0.34  0.00 0.00  0.00  0.54 0.00  1.09
Volume/Cap:  0.00 0.50  0.10  0.00 0.81  0.81  0.00 0.00  0.00  0.81 0.00  0.19
Delay/Veh:    0.0 26.8  22.9   0.0 34.4  34.4   0.0  0.0   0.0  24.6  0.0   0.6
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 26.8  22.9   0.0 34.4  34.4   0.0  0.0   0.0  24.6  0.0   0.6
LOS by Move:    A    C     C     A    C     C     A    A     A     C    A     A
HCM2kAvgQ:      0    8     1     0   16    16     0    0     0    18    0     0
*************************************************************************
Note: Queue reported is the number of cars per lane.
*************************************************************************

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-------------------------------------------------------------------------------
                        Tesoro Los Angeles Refinery
                   Existing Plus Construction Conditions
                              AM Peak Hour
-------------------------------------------------------------------------------
                     Level Of Service Computation Report
           2000 HCM Operations Method (Future Volume Alternative)
*************************************************************************
Intersection #9 I-405 SB Ramps / 223rd St
*************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.502
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):        24.6
Optimal Cycle:        49                Level Of Service:                 C
*************************************************************************
```

EX+Const-AM.out

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	0 1	0	2 0	2 1	0	1 0	2 1	0
Volume Module:												
Base Vol:	1	1	5	55	0	123	353	302	4	3	837	32
Growth 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
Initial Bse:	1	1	5	55	0	123	353	302	4	3	837	32
Added Vol:	0	0	0	0	0	24	21	1	0	0	8	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	1	5	55	0	147	374	303	4	3	845	32
User 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
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	1	1	6	62	0	167	425	344	5	3	959	36
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	1	6	62	0	167	425	344	5	3	959	36
PCE 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
MLF 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
FinalVolume:	1	1	6	62	0	167	425	344	5	3	959	36
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.90	0.95	1.00	0.85	0.92	0.91	0.91	0.95	0.91	0.91
Lanes:	0.14	0.14	0.72	1.00	0.00	1.00	2.00	2.96	0.04	1.00	2.89	0.11
Final Sat.:	244	244	1218	1805	0	1615	3502	5109	67	1805	4973	188
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.03	0.00	0.10	0.12	0.07	0.07	0.00	0.19	0.19
Crit Moves:			****			****	****				****	
Green/Cycle:	0.01	0.01	0.01	0.21	0.00	0.21	0.24	0.61	0.61	0.02	0.38	0.38
Volume/Cap:	0.50	0.50	0.50	0.17	0.00	0.50	0.50	0.11	0.11	0.11	0.50	0.50
Delay/Veh:	72.6	72.6	72.6	32.9	0.0	36.4	33.2	8.3	8.3	50.0	23.7	23.7
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	72.6	72.6	72.6	32.9	0.0	36.4	33.2	8.3	8.3	50.0	23.7	23.7
LOS by Move:	E	E	E	C	A	D	C	A	A	D	C	C
HCM2kAvgQ:	1	1	1	2	0	5	6	2	2	0	9	9

****

Note: Queue reported is the number of cars per lane.

****

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EX+Const-PM.out
EX + Const PM Mon Nov 24, 2014 13:58:17 Page 1-1

Tesoro Los Angeles Refinery
Existing Plus Construction Conditions
PM Peak Hour

Scenario Report

Scenario:	EX + Const PM
Command:	EX+Const-PM
Volume:	PM
Geometry:	Existing
Impact Fee:	Default Impact Fee
Trip Generation:	Const-PM
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	EX+Const-PM

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Tesoro Los Angeles Refinery
Page 1

EX+Const-PM.out
Existing Plus Construction Conditions
PM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Wilmington Ave / I-405 NB Ramp	B	18.5	0.395	B	18.6	0.395	+ 0.176 D/V
# 2 Wilmington Ave / I-405 SB Ramp	B	15.7	0.629	B	16.5	0.641	+ 0.786 D/V
# 4 Alameda Ave / I-405 NB Ramps	C	23.2	0.665	C	23.8	0.683	+ 0.617 D/V
# 9 I-405 SB Ramps / 223rd St	C	24.3	0.327	C	23.7	0.395	-0.516 D/V

Tesoro Los Angeles Refinery
Existing Plus Construction Conditions
PM Peak Hour

EX+Const-PM.out
Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Wilmington Ave / I-405 NB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.395
Loss Time (sec):	8 (Y+R=4.0 sec)	Average Delay (sec/veh):	18.6
Optimal Cycle:	27	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	1 0	3	0 0	0 0	0	0 0	2 0	0	0 1
Volume Module:												
Base Vol:	0	282	151	71	794	0	0	0	0	428	0	302
Growth 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
Initial Bse:	0	282	151	71	794	0	0	0	0	428	0	302
Added Vol:	0	4	75	0	1	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	286	226	71	795	0	0	0	0	428	0	302
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	301	238	75	838	0	0	0	0	451	0	318
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	301	238	75	838	0	0	0	0	451	0	318
PCE 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
MLF 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
FinalVolume:	0	301	238	75	838	0	0	0	0	451	0	318
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.51	0.91	1.00	1.00	1.00	1.00	0.59	1.00	0.85
Lanes:	0.00	2.00	1.00	1.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	1615	973	5187	0	0	0	0	2234	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.08	0.15	0.08	0.16	0.00	0.00	0.00	0.00	0.20	0.00	0.20
Crit Moves:	****				****					****		
Green/Cycle:	0.00	0.41	0.41	0.41	0.41	0.00	0.00	0.00	0.00	0.51	0.00	0.51
Volume/Cap:	0.00	0.20	0.36	0.19	0.39	0.00	0.00	0.00	0.00	0.40	0.00	0.39
Delay/Veh:	0.0	19.1	20.8	19.2	21.0	0.0	0.0	0.0	0.0	15.2	0.0	15.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	19.1	20.8	19.2	21.0	0.0	0.0	0.0	0.0	15.2	0.0	15.2
LOS by Move:	A	B	C	B	C	A	A	A	A	B	A	B
HCM2kAvgQ:	0	3	5	2	7	0	0	0	0	5	0	6

Note: Queue reported is the number of cars per lane.

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Tesoro Los Angeles Refinery
Existing Plus Construction Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

EX+Const-PM.out

Intersection #2 Wilmington Ave / I-405 SB Ramps

Cycle (sec):	100		Critical Vol./Cap.(X):		0.641
Loss Time (sec):	12 (Y+R=4.0 sec)		Average Delay (sec/veh):		16.5
Optimal Cycle:	52		Level Of Service:		B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	1 0	3	0 0	0 1	0	1 0	0 0	0	0 0
Volume Module:												
Base Vol:	0	406	479	337	888	0	26	0	82	0	0	0
Growth 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
Initial Bse:	0	406	479	337	888	0	26	0	82	0	0	0
Added Vol:	0	79	0	0	1	0	0	0	15	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	485	479	337	889	0	26	0	97	0	0	0
User 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
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	496	490	345	909	0	27	0	99	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	496	490	345	909	0	27	0	99	0	0	0
PCE 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
MLF 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
FinalVolume:	0	496	490	345	909	0	27	0	99	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	0.95	0.91	1.00	0.75	0.95	0.75	1.00	1.00	1.00
Lanes:	0.00	2.00	1.00	1.00	3.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	0	3610	1615	1805	5187	0	1423	0	1423	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.14	0.30	0.19	0.18	0.00	0.02	0.00	0.07	0.00	0.00	0.00
Crit Moves:			****	****					****			
Green/Cycle:	0.00	0.47	0.47	0.30	0.77	0.00	0.11	0.00	0.11	0.00	0.00	0.00
Volume/Cap:	0.00	0.29	0.64	0.64	0.23	0.00	0.17	0.00	0.64	0.00	0.00	0.00
Delay/Veh:	0.0	16.2	21.7	33.1	3.2	0.0	40.6	0.0	49.9	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	16.2	21.7	33.1	3.2	0.0	40.6	0.0	49.9	0.0	0.0	0.0
LOS by Move:	A	B	C	C	A	A	D	A	D	A	A	A
HCM2kAvgQ:	0	5	12	10	3	0	1	0	4	0	0	0

Note: Queue reported is the number of cars per lane.

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Tesoro Los Angeles Refinery
Existing Plus Construction Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Alameda Ave / I-405 NB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.683

EX+Const-PM.out

```
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        23.8
Optimal Cycle:        57                Level Of Service:                 C
*************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected         Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    1  0  2  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  922   190    80  755     0     0    0     0   384    0   105
Growth 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
Initial Bse:    0  922   190    80  755     0     0    0     0   384    0   105
Added Vol:      0   13    50     0    2     0     0    0     0    17    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  935   240    80  757     0     0    0     0   401    0   105
User 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
PHF Adj:     0.96 0.96  0.96  0.96 0.96  0.96  0.96 0.96  0.96  0.96 0.96  0.96
PHF Volume:     0  973   250    83  788     0     0    0     0   417    0   109
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  973   250    83  788     0     0    0     0   417    0   109
PCE 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
MLF 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
FinalVolume:    0  973   250    83  788     0     0    0     0   417    0   109
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  0.95 0.95  1.00  1.00 1.00  1.00  0.77 1.00  0.85
Lanes:       0.00 2.00  1.00  1.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 3610  1615  1805 3610     0     0    0     0  1461    0  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.27  0.15  0.05 0.22  0.00  0.00 0.00  0.00  0.29 0.00  0.07
Crit Moves:       ****        ****                              ****
Green/Cycle: 0.00 0.39  0.39  0.07 0.46  0.00  0.00 0.00  0.00  0.42 0.00  0.84
Volume/Cap:  0.00 0.68  0.39  0.68 0.47  0.00  0.00 0.00  0.00  0.68 0.00  0.08
Delay/Veh:    0.0 26.5  22.1  60.4 18.7   0.0   0.0  0.0   0.0  26.9  0.0   1.5
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 26.5  22.1  60.4 18.7   0.0   0.0  0.0   0.0  26.9  0.0   1.5
LOS by Move:    A    C     C     E    B     A     A    A     A     C    A     A
HCM2kAvgQ:      0   14     6     4    9     0     0    0     0    11    0     1
*************************************************************************
Note: Queue reported is the number of cars per lane.
*************************************************************************
```


Tesoro Los Angeles Refinery
Existing Plus Construction Conditions
PM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

```
*************************************************************************
Intersection #9 I-405 SB Ramps / 223rd St
*************************************************************************
Cycle (sec):         100               Critical Vol./Cap.(X):         0.395
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):        23.7
Optimal Cycle:        42                Level Of Service:                 C
*************************************************************************
```

EX+Const-PM.out

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	0 1	0	2 0	2 1	0	1 0	2 1	0
Volume Module:												
Base Vol:	3	6	3	125	2	36	353	302	4	4	347	77
Growth 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
Initial Bse:	3	6	3	125	2	36	353	302	4	4	347	77
Added Vol:	0	0	0	0	0	2	187	8	0	0	1	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	6	3	125	2	38	540	310	4	4	348	77
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	3	6	3	132	2	40	570	327	4	4	367	81
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	3	6	3	132	2	40	570	327	4	4	367	81
PCE 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
MLF 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
FinalVolume:	3	6	3	132	2	40	570	327	4	4	367	81
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.95	0.86	0.86	0.92	0.91	0.91	0.95	0.89	0.89
Lanes:	0.25	0.50	0.25	1.00	0.05	0.95	2.00	2.96	0.04	1.00	2.46	0.54
Final Sat.:	453	907	453	1805	82	1549	3502	5111	66	1805	4133	914
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.07	0.03	0.03	0.16	0.06	0.06	0.00	0.09	0.09
Crit Moves:		****		****			****				****	
Green/Cycle:	0.02	0.02	0.02	0.19	0.19	0.19	0.41	0.61	0.61	0.02	0.23	0.23
Volume/Cap:	0.39	0.39	0.39	0.39	0.14	0.14	0.39	0.10	0.10	0.10	0.39	0.39
Delay/Veh:	56.4	56.4	56.4	36.6	34.3	34.3	20.8	7.9	7.9	49.0	33.2	33.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	56.4	56.4	56.4	36.6	34.3	34.3	20.8	7.9	7.9	49.0	33.2	33.2
LOS by Move:	E	E	E	D	C	C	C	A	A	D	C	C
HCM2kAvgQ:	1	1	1	4	1	1	6	2	2	0	5	5

****

Note: Queue reported is the number of cars per lane.

****

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YEAR 2021
WITHOUT PROJECT

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **3**
North/South Street: **WILMINGTON AVENUE**
East/West Street: **223RD STREET**

Scenario: **2021 Base**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	327	1,600	0.117	N-S(1):	0.163
	TH	2.00	663	3,200	0.207 *	N-S(2):	0.214 *
	LT	1.00	58	1,600	0.036	E-W(1):	0.302
Westbound	RT	1.00	54	1,600	0.000	E-W(2):	0.342 *
	TH	2.00	813	3,200	0.254 *		
	LT	1.00	205	1,600	0.128	V/C:	0.556
Northbound	RT	0.50	82	800	0.000	Lost Time:	0.100
	TH	2.50	506	4,000	0.127		
	LT	1.00	11	1,600	0.007 *		
Eastbound	RT	1.00	16	1,600	0.003	ICU:	0.656
	TH	2.00	558	3,200	0.174		
	LT	1.00	140	1,600	0.088 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	204	1,600	0.000	N-S(1):	0.142
	TH	2.00	742	3,200	0.232 *	N-S(2):	0.237 *
	LT	1.00	56	1,600	0.035	E-W(1):	0.366 *
Westbound	RT	1.00	146	1,600	0.056	E-W(2):	0.264
	TH	2.00	353	3,200	0.110		
	LT	1.00	181	1,600	0.113 *	V/C:	0.603
Northbound	RT	0.50	127	800	0.000	Lost Time:	0.100
	TH	2.50	426	4,000	0.107		
	LT	1.00	8	1,600	0.005 *		
Eastbound	RT	1.00	10	1,600	0.001	ICU:	0.703
	TH	2.00	811	3,200	0.253 *		
	LT	1.00	246	1,600	0.154	LOS:	C

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **5**
North/South Street: **223rd Street Ramp (on Alameda Street)**
East/West Street: **Alameda Street**

Scenario: **2021 Base**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.257 *
	TH	3.00	1,149	4,800	0.239	N-S(2):	0.239
	LT	1.00	163	1,600	0.102 *	E-W(1):	0.113 *
Westbound	RT	1.00	122	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	1.00	180	1,600	0.113 *	V/C:	0.370
Northbound	RT	0.00	248	1,600	0.155 *	Lost Time:	0.100
	TH	3.00	482	3,200	0.151		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.470
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.410 *
	TH	3.00	1,004	4,800	0.209	N-S(2):	0.209
	LT	1.00	168	1,600	0.105 *	E-W(1):	0.071 *
Westbound	RT	1.00	125	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	1.00	114	1,600	0.071 *	V/C:	0.481
Northbound	RT	0.00	472	0	0.000	Lost Time:	0.100
	TH	3.00	991	4,800	0.305 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.581
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **6**
North/South Street: **223rd Street**
East/West Street: **Alameda Street Ramp**

Scenario: **2021 Base**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.090 *
	TH	0.00	0	0	0.000	N-S(2):	0.083
	LT	0.00	0	0	0.000 *	E-W(1):	0.165 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.145
	TH	3.00	765	5,280	0.145		
	LT	2.00	228	3,168	0.072 *	V/C:	0.255
Northbound	RT	1.00	272	1,760	0.090 *	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	1.00	146	1,760	0.083		
Eastbound	RT	0.00	82	0	0.000	ICU:	0.355
	TH	3.00	408	5,280	0.093 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.261 *
	TH	0.00	0	0	0.000	N-S(2):	0.056
	LT	0.00	0	0	0.000 *	E-W(1):	0.286 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.055
	TH	3.00	290	5,280	0.055		
	LT	2.00	94	3,168	0.030 *	V/C:	0.547
Northbound	RT	1.00	506	1,760	0.261 *	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	1.00	99	1,760	0.056		
Eastbound	RT	0.00	141	0	0.000	ICU:	0.647
	TH	3.00	1,212	5,280	0.256 *		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **7**
North/South Street: **ALAMEDA STREET**
East/West Street: **SEPULVEDA BOULEVARD-ALAMEDA RAMP**

Scenario: **2021 Base**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.249 *
	TH	3.00	785	4,800	0.164	N-S(2):	0.164
	LT	1.00	235	1,600	0.147 *	E-W(1):	0.031 *
Westbound	RT	2.00	203	3,200	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	1.00	50	1,600	0.031 *	V/C:	0.280
Northbound	RT	0.00	51	0	0.000	Lost Time:	0.100
	TH	3.00	438	4,800	0.102 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.380
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.389 *
	TH	3.00	877	4,800	0.183	N-S(2):	0.183
	LT	1.00	256	1,600	0.160 *	E-W(1):	0.059 *
Westbound	RT	2.00	417	3,200	0.050	E-W(2):	0.050
	TH	0.00	0	0	0.000		
	LT	1.00	95	1,600	0.059 *	V/C:	0.448
Northbound	RT	0.00	85	0	0.000	Lost Time:	0.100
	TH	3.00	1,012	4,800	0.229 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.548
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **8**
North/South Street: **SEPULVEDA BOULEVARD-ALAMEDA RAMF**
East/West Street: **SEPULVEDA BOULEVARD**

Scenario: **2021 Base**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	147	1,600	0.016	N-S(1):	0.056 *
	TH	0.13	9	210	0.043	N-S(2):	0.000
	LT	1.87	128	2,691	0.048 *	E-W(1):	0.233
Westbound	RT	1.00	100	1,600	0.020	E-W(2):	0.266 *
	TH	2.00	608	3,200	0.190 *		
	LT	1.00	8	1,600	0.005	V/C:	0.322
Northbound	RT	0.00	4	0	0.000	Lost Time:	0.100
	TH	2.00	19	3,200	0.008 *		
	LT	0.00	2	1,600	0.001		
Eastbound	RT	1.00	6	1,600	0.003	ICU:	0.422
	TH	1.00	364	1,600	0.228		
	LT	1.00	121	1,600	0.076 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	176	1,600	0.000	N-S(1):	0.058 *
	TH	0.17	12	269	0.045	N-S(2):	0.000
	LT	1.83	131	2,638	0.050 *	E-W(1):	0.600 *
Westbound	RT	1.00	244	1,600	0.108	E-W(2):	0.318
	TH	2.00	547	3,200	0.171		
	LT	1.00	2	1,600	0.001 *	V/C:	0.658
Northbound	RT	0.00	9	0	0.000	Lost Time:	0.100
	TH	2.00	13	3,200	0.008 *		
	LT	0.00	4	1,600	0.003		
Eastbound	RT	1.00	1	1,600	0.000	ICU:	0.758
	TH	1.00	958	1,600	0.599 *		
	LT	1.00	235	1,600	0.147	LOS:	C

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **10**
North/South Street: **TERMINAL ISLAND FREEWAY (SR-103)**
East/West Street: **WILLOW STREET**

Scenario: **2021 Base**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.034 *
	TH	1.00	0	1,600	0.000	N-S(2):	0.000
	LT	0.00	0	0	0.000 *	E-W(1):	0.185
Westbound	RT	0.00	16	0	0.000	E-W(2):	0.262 *
	TH	2.00	813	3,200	0.259 *		
	LT	2.00	242	2,880	0.084	V/C:	0.296
Northbound	RT	2.00	101	3,200	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	2.00	99	2,880	0.034 *		
Eastbound	RT	1.00	187	1,600	0.086	ICU:	0.396
	TH	2.00	324	3,200	0.101		
	LT	1.00	4	1,600	0.003 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.111 *
	TH	1.00	0	1,600	0.000	N-S(2):	0.000
	LT	0.00	0	0	0.000 *	E-W(1):	0.379 *
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.136
	TH	2.00	435	3,200	0.136		
	LT	2.00	171	2,880	0.059 *	V/C:	0.490
Northbound	RT	2.00	254	3,200	0.053	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	2.00	319	2,880	0.111 *		
Eastbound	RT	1.00	262	1,600	0.064	ICU:	0.590
	TH	2.00	1,024	3,200	0.320 *		
	LT	1.00	0	1,600	0.000	LOS:	A

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **11**
North/South Street: **SANTA FE AVE**
East/West Street: **SEPULVEDA BOULEVARD**

Scenario: **2021 Base**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	135	0	0.000	N-S(1):	0.209 *
	TH	2.00	264	3,200	0.125 *	N-S(2):	0.000
	LT	2.00	156	2,880	0.054	E-W(1):	0.204
Westbound	RT	0.00	111	0	0.000	E-W(2):	0.327 *
	TH	2.00	786	3,200	0.280 *		
	LT	2.00	163	2,880	0.057	V/C:	0.536
Northbound	RT	0.00	82	0	0.000	Lost Time:	0.100
	TH	2.00	188	3,200	0.084 *		
	LT	1.00	78	1,600	0.049		
Eastbound	RT	0.00	33	0	0.000	ICU:	0.636
	TH	2.00	436	3,200	0.147		
	LT	1.00	75	1,600	0.047 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	64	0	0.000	N-S(1):	0.321 *
	TH	2.00	319	3,200	0.120 *	N-S(2):	0.000
	LT	2.00	339	2,880	0.118	E-W(1):	0.377 *
Westbound	RT	0.00	153	0	0.000	E-W(2):	0.292
	TH	2.00	495	3,200	0.203		
	LT	2.00	140	2,880	0.049 *	V/C:	0.698
Northbound	RT	0.00	205	0	0.000	Lost Time:	0.100
	TH	2.00	438	3,200	0.201 *		
	LT	1.00	84	1,600	0.053		
Eastbound	RT	0.00	44	0	0.000	ICU:	0.798
	TH	2.00	1,006	3,200	0.328 *		
	LT	1.00	143	1,600	0.089	LOS:	C

* = Critical Movement

Appendix E

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	ICTF Modification and Expansion Project EIR		
31	North-South Street:	223rd Street (on 223rd	East-West Street:	Alameda Street Ramp
	Scenario:	CEQA Baseline		
	Count Date:		Analyst: Iteris, Inc.	Date: 7/22/2014

		AM PEAK HOUR			MD PEAK HOUR			PM PEAK HOUR		
	No. of Phases			3			3			3
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB -- 3	SB --	0	NB -- 3	SB --	0	NB -- 0	SB --	0
		EB -- 0	WB --	0	EB -- 0	WB --	0	EB -- 3	WB --	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2			2
	Override Capacity			1500			1500			1500
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	146	1	**146**	0	1	**60**	99	1	99
	Left-Through		0			0			0	
	Through	0	0	**0**	0	0	0	0	0	**0**
	Through-Right		0			0			0	
	Right	272	1	147	0	1	403	506	1	454
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
SOUTHBOUND	Left	0	0	0	0	0	0	0	0	**0**
	Left-Through		0			0			0	
	Through	0	0	**0**	0	0	**0**	0	0	0
	Through-Right		0			0			0	
	Right	0	0	0	0	0	0	0	0	0
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
EASTBOUND	Left	0	0	**0**	0	0	0	0	0	0
	Left-Through		0			0			0	
	Through	408	2	163	0	2	**380**	1,212	2	**451**
	Through-Right		1			1			1	
	Right	82	0	82	0	0	45	141	0	141
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
WESTBOUND	Left	228	2	125	0	2	**77**	94	2	**52**
	Left-Through		0			0			0	
	Through	765	3	**255**	0	3	82	290	3	97
	Through-Right		0			0			0	
	Right	0	0	0	0	0	0	0	0	0
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
	CRITICAL VOLUMES		North-South:	147		North-South:	403		North-South:	454
			East-West:	418		East-West:	462		East-West:	548
			SUM:	565		SUM:	865		SUM:	1002
	VOLUME/CAPACITY (V/C) RATIO:			0.396			0.577			0.703
	V/C LESS ATSAC/ATCS ADJUSTMENT:			0.296			0.477			**0.603**
	LEVEL OF SERVICE (LOS):			A			A			B

Version: 1i Beta; 8/4/2011

2020NP-AM.out
2020 NP AM Tue Dec 2, 2014 11:59:34 Page 1-1

Tesoro Los Angeles Refinery
Year 2020 No Project
AM Peak Hour

Scenario Report

Scenario:	2020 NP AM
Command:	2020-AM
Volume:	2020 AM
Geometry:	2017
Impact Fee:	Default Impact Fee
Trip Generation:	Const-AM
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	2020-AM

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2020 NP AM Tue Dec 2, 2014 11:59:34 Page 2-1

Tesoro Los Angeles Refinery
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Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Wilmington Ave / I-405 NB Ramp	C	21.7	0.512	C	21.7	0.512	+ 0.000 D/V
# 2 Wilmington Ave / I-405 SB Ramp	C	21.8	0.364	C	21.8	0.364	+ 0.000 D/V
# 4 Alameda Ave / I-405 NB Ramps	C	23.4	0.687	C	23.4	0.687	+ 0.000 D/V
# 9 I-405 SB Ramps / 223rd St	C	23.5	0.484	C	23.5	0.484	+ 0.000 D/V

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

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********************************************************************************
Intersection #1 Wilmington Ave / I-405 NB Ramps
********************************************************************************
Cycle (sec):         100                 Critical Vol./Cap.(X):         0.512
Loss Time (sec):       8 (Y+R=4.0 sec)   Average Delay (sec/veh):        21.7
Optimal Cycle:        39                 Level Of Service:                 C
********************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected         Permitted         Permitted         Permitted
Rights:           Include           Include           Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    0  0  3  0  0    0  0  0  0  0    2  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  371    34     0  402     0     0    0     0   710    0   496
Growth 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
Initial Bse:    0  371    34     0  402     0     0    0     0   710    0   496
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  371    34     0  402     0     0    0     0   710    0   496
User 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
PHF Adj:     0.90 0.90  0.90  0.90 0.90  0.90  0.90 0.90  0.90  0.90 0.90  0.90
PHF Volume:     0  414    38     0  449     0     0    0     0   792    0   554
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  414    38     0  449     0     0    0     0   792    0   554
PCE 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
MLF 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
FinalVolume:    0  414    38     0  449     0     0    0     0   792    0   554
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  1.00 0.91  1.00  1.00 1.00  1.00  0.59 1.00  0.85
Lanes:       0.00 2.00  1.00  0.00 3.00  0.00  0.00 0.00  0.00  2.00 0.00  1.00
Final Sat.:     0 3610  1615     0 5187     0     0    0     0  2226    0  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.11  0.02  0.00 0.09  0.00  0.00 0.00  0.00  0.36 0.00  0.34
Crit Moves:       ****                                        ****
Green/Cycle: 0.00 0.33  0.33  0.00 0.14  0.00  0.00 0.00  0.00  0.59 0.00  0.59
Volume/Cap:  0.00 0.35  0.07  0.00 0.61  0.00  0.00 0.00  0.00  0.60 0.00  0.58
Delay/Veh:    0.0 25.4  22.9   0.0 41.7   0.0   0.0  0.0   0.0  14.0  0.0  13.8
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 25.4  22.9   0.0 41.7   0.0   0.0  0.0   0.0  14.0  0.0  13.8
LOS by Move:    A    C     C     A    D     A     A    A     A     B    A     B
HCM2kAvgQ:      0    5     1     0    6     0     0    0     0     9    0    11
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************
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2020NP-AM.out

Intersection #2 Wilmington Ave / I-405 SB Ramps

Cycle (sec):	100		Critical Vol./Cap.(X):		0.364
Loss Time (sec):	12 (Y+R=4.0 sec)		Average Delay (sec/veh):		21.8
Optimal Cycle:	40		Level Of Service:		C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	1 1	2	0 3	0 0	0	1 0	1 0	0 0	0	0 0
Volume Module:												
Base Vol:	0	311	368	144	928	0	126	0	168	0	0	0
Growth 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
Initial Bse:	0	311	368	144	928	0	126	0	168	0	0	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	311	368	144	928	0	126	0	168	0	0	0
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	329	389	152	981	0	133	0	178	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	329	389	152	981	0	133	0	178	0	0	0
PCE 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
MLF 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
FinalVolume:	0	329	389	152	981	0	133	0	178	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.84	0.84	0.92	0.91	1.00	0.71	0.95	0.71	1.00	1.00	1.00
Lanes:	0.00	2.00	2.00	2.00	3.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	0	3178	3178	3502	5187	0	1353	0	1353	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.10	0.12	0.04	0.19	0.00	0.10	0.00	0.13	0.00	0.00	0.00
Crit Moves:					****				****			
Green/Cycle:	0.00	0.21	0.21	0.39	0.61	0.00	0.27	0.00	0.27	0.00	0.00	0.00
Volume/Cap:	0.00	0.48	0.57	0.11	0.31	0.00	0.36	0.00	0.48	0.00	0.00	0.00
Delay/Veh:	0.0	34.6	35.8	19.3	9.6	0.0	29.6	0.0	31.0	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	34.6	35.8	19.3	9.6	0.0	29.6	0.0	31.0	0.0	0.0	0.0
LOS by Move:	A	C	D	B	A	A	C	A	C	A	A	A
HCM2kAvgQ:	0	5	7	2	5	0	4	0	5	0	0	0

Note: Queue reported is the number of cars per lane.

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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Alameda Ave / I-405 NB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.687

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```
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        23.4
Optimal Cycle:        58                Level Of Service:                 C
******************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected         Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    1  0  2  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  571    48    51  860     0     0    0     0   473    0   320
Growth 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
Initial Bse:    0  571    48    51  860     0     0    0     0   473    0   320
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  571    48    51  860     0     0    0     0   473    0   320
User 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
PHF Adj:     0.93 0.93  0.93  0.93 0.93  0.93  0.93 0.93  0.93  0.93 0.93  0.93
PHF Volume:     0  614    52    55  925     0     0    0     0   509    0   344
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  614    52    55  925     0     0    0     0   509    0   344
PCE 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
MLF 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
FinalVolume:    0  614    52    55  925     0     0    0     0   509    0   344
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  0.95 0.95  1.00  1.00 1.00  1.00  0.77 1.00  0.85
Lanes:       0.00 2.00  1.00  1.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 3610  1615  1805 3610     0     0    0     0  1461    0  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.17  0.03  0.03 0.26  0.00  0.00 0.00  0.00  0.35 0.00  0.21
Crit Moves:  ****                 ****                          ****
Green/Cycle: 0.00 0.32  0.32  0.06 0.37  0.00  0.00 0.00  0.00  0.51 0.00  1.01
Volume/Cap:  0.00 0.54  0.10  0.54 0.69  0.00  0.00 0.00  0.00  0.69 0.00  0.21
Delay/Veh:    0.0 28.7  24.2  51.5 27.9   0.0   0.0  0.0   0.0  21.4  0.0   0.1
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 28.7  24.2  51.5 27.9   0.0   0.0  0.0   0.0  21.4  0.0   0.1
LOS by Move:    A    C     C     D    C     A     A    A     A     C    A     A
HCM2kAvgQ:      0    9     1     2   13     0     0    0     0    13    0     0
******************************************************************************
Note: Queue reported is the number of cars per lane.
******************************************************************************

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                      Level Of Service Computation Report
              2000 HCM Operations Method (Future Volume Alternative)
******************************************************************************
Intersection #9 I-405 SB Ramps / 223rd St
******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):          0.484
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):        23.5
Optimal Cycle:        48                Level Of Service:                 C
******************************************************************************
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Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	0 1	0	2 0	2 1	0	1 0	2 1	0
Volume Module:												
Base Vol:	1	1	5	56	0	126	362	309	4	3	857	33
Growth 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
Initial Bse:	1	1	5	56	0	126	362	309	4	3	857	33
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	1	5	56	0	126	362	309	4	3	857	33
User 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
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	1	1	6	64	0	143	411	351	5	3	973	37
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	1	6	64	0	143	411	351	5	3	973	37
PCE 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
MLF 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
FinalVolume:	1	1	6	64	0	143	411	351	5	3	973	37
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.90	0.95	1.00	0.85	0.92	0.91	0.91	0.95	0.90	0.90
Lanes:	0.14	0.14	0.72	1.00	0.00	1.00	2.00	2.96	0.04	1.00	2.89	0.11
Final Sat.:	244	244	1218	1805	0	1615	3502	5110	66	1805	4965	191
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.04	0.00	0.09	0.12	0.07	0.07	0.00	0.20	0.20
Crit Moves:			****			****	****				****	
Green/Cycle:	0.01	0.01	0.01	0.18	0.00	0.18	0.24	0.63	0.63	0.02	0.40	0.40
Volume/Cap:	0.48	0.48	0.48	0.19	0.00	0.48	0.48	0.11	0.11	0.11	0.48	0.48
Delay/Veh:	70.0	70.0	70.0	34.9	0.0	37.9	32.9	7.4	7.4	49.9	22.2	22.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	70.0	70.0	70.0	34.9	0.0	37.9	32.9	7.4	7.4	49.9	22.2	22.2
LOS by Move:	E	E	E	C	A	D	C	A	A	D	C	C
HCM2kAvgQ:	1	1	1	2	0	4	6	2	2	0	9	9

****

Note: Queue reported is the number of cars per lane.

****

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Tesoro Los Angeles Refinery
Year 2020 No Project
PM Peak Hour

Scenario Report

Scenario:	2020 NP PM
Command:	2020-PM
Volume:	2020 PM
Geometry:	2017
Impact Fee:	Default Impact Fee
Trip Generation:	Const-PM
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	2020-PM

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Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Wilmington Ave / I-405 NB Ramp	B	18.4	0.420	B	18.4	0.420	+ 0.000 D/V
# 2 Wilmington Ave / I-405 SB Ramp	B	15.7	0.362	B	15.7	0.362	+ 0.000 D/V
# 4 Alameda Ave / I-405 NB Ramps	C	23.5	0.681	C	23.5	0.681	+ 0.000 D/V
# 9 I-405 SB Ramps / 223rd St	B	19.1	0.514	B	19.1	0.514	+ 0.000 D/V

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2000 HCM Operations Method (Future Volume Alternative)

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********************************************************************************
Intersection #1 Wilmington Ave / I-405 NB Ramps
********************************************************************************
Cycle (sec):         100                 Critical Vol./Cap.(X):         0.420
Loss Time (sec):       8 (Y+R=4.0 sec)   Average Delay (sec/veh):        18.4
Optimal Cycle:        28                 Level Of Service:                 B
********************************************************************************
```

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	0 0	3	0 0	0 0	0	0 0	2	0 0	0 1
Volume Module:												
Base Vol:	0	289	155	0	886	0	0	0	0	438	0	309
Growth 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	
Initial Bse:	0	289	155	0	886	0	0	0	0	438	0	309
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	289	155	0	886	0	0	0	0	438	0	309
User 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	
PHF Adj:	0.95 0.95	0.95		0.95 0.95	0.95		0.95 0.95	0.95		0.95 0.95	0.95	
PHF Volume:	0	305	163	0	934	0	0	0	0	462	0	326
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	305	163	0	934	0	0	0	0	462	0	326
PCE 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	
MLF 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	
FinalVolume:	0	305	163	0	934	0	0	0	0	462	0	326
Saturation Flow Module:												
Sat/Lane:	1900 1900	1900		1900 1900	1900		1900 1900	1900		1900 1900	1900	
Adjustment:	1.00 0.95	0.85		1.00 0.91	1.00		1.00 1.00	1.00		0.59 1.00	0.85	
Lanes:	0.00 2.00	1.00		0.00 3.00	0.00		0.00 0.00	0.00		2.00 0.00	1.00	
Final Sat.:	0 3610	1615		0 5187	0		0 0	0		2234 0	1615	
Capacity Analysis Module:												
Vol/Sat:	0.00 0.08	0.10		0.00 0.18	0.00		0.00 0.00	0.00		0.21 0.00	0.20	
Crit Moves:	****			****						****		
Green/Cycle:	0.00 0.43	0.43		0.00 0.43	0.00		0.00 0.00	0.00		0.49 0.00	0.49	
Volume/Cap:	0.00 0.20	0.24		0.00 0.42	0.00		0.00 0.00	0.00		0.42 0.00	0.41	
Delay/Veh:	0.0 17.9	18.4		0.0 20.1	0.0		0.0 0.0	0.0		16.5 0.0	16.5	
User DelAdj:	1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00		1.00 1.00	1.00	
AdjDel/Veh:	0.0 17.9	18.4		0.0 20.1	0.0		0.0 0.0	0.0		16.5 0.0	16.5	
LOS by Move:	A	B	B	A	C	A	A	A	A	B	A	B
HCM2kAvgQ:	0	3	3	0	7	0	0	0	0	5	0	6

```
********************************************************************************
Note: Queue reported is the number of cars per lane.
********************************************************************************

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2020NP-PM.out

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Intersection #2 Wilmington Ave / I-405 SB Ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.362
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        15.7
Optimal Cycle:        33                Level Of Service:                 B
*******************************************************************************
Approach:      North Bound      South Bound      East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:         Permitted        Protected        Permitted        Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  1  1    2  0  3  0  0    0  1  0  1  0    0  0  0  0  0
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  416   491   345  910     0    27    0    84     0    0     0
Growth 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
Initial Bse:    0  416   491   345  910     0    27    0    84     0    0     0
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  416   491   345  910     0    27    0    84     0    0     0
User 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
PHF Adj:     0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98  0.98 0.98  0.98
PHF Volume:     0  425   502   353  930     0    28    0    86     0    0     0
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  425   502   353  930     0    28    0    86     0    0     0
PCE 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
MLF 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
FinalVolume:    0  425   502   353  930     0    28    0    86     0    0     0
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.84  0.84  0.92 0.91  1.00  0.75 0.95  0.75  1.00 1.00  1.00
Lanes:       0.00 2.00  2.00  2.00 3.00  0.00  1.00 0.00  1.00  0.00 0.00  0.00
Final Sat.:     0 3178  3178  3502 5187     0  1430    0  1430     0    0     0
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.13  0.16  0.10 0.18  0.00  0.02 0.00  0.06  0.00 0.00  0.00
Crit Moves:             ****  ****                     ****
Green/Cycle: 0.00 0.44  0.44  0.28 0.71  0.00  0.17 0.00  0.17  0.00 0.00  0.00
Volume/Cap:  0.00 0.31  0.36  0.36 0.25  0.00  0.12 0.00  0.36  0.00 0.00  0.00
Delay/Veh:    0.0 18.4  19.0  29.2  5.0   0.0  35.5  0.0  37.7   0.0  0.0   0.0
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 18.4  19.0  29.2  5.0   0.0  35.5  0.0  37.7   0.0  0.0   0.0
LOS by Move:    A    B     B     C    A     A     D    A     D     A    A     A
HCM2kAvgQ:      0    5     6     5    4     0     1    0     3     0    0     0
*******************************************************************************
Note: Queue reported is the number of cars per lane.
*******************************************************************************

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2020 NP PM                  Tue Dec 2, 2014 12:05:07                  Page 5-1
-------------------------------------------------------------------------------
                          Tesoro Los Angeles Refinery
                             Year 2020 No Project
                                PM Peak Hour
-------------------------------------------------------------------------------
                       Level Of Service Computation Report
                  2000 HCM Operations Method (Future Volume Alternative)
*******************************************************************************
Intersection #4 Alameda Ave / I-405 NB Ramps
*******************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):         0.681
```

2020NP-PM.out

```
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        23.5
Optimal Cycle:        57                Level Of Service:                 C
*****************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected         Permitted
Rights:           Include          Include          Include          Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    1  0  2  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  944   195    82  773     0     0    0     0   393    0   108
Growth 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
Initial Bse:    0  944   195    82  773     0     0    0     0   393    0   108
Added Vol:      0    0     0     0    0     0     0    0     0     0    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  944   195    82  773     0     0    0     0   393    0   108
User 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
PHF Adj:     0.96 0.96  0.96  0.96 0.96  0.96  0.96 0.96  0.96  0.96 0.96  0.96
PHF Volume:     0  982   203    85  804     0     0    0     0   409    0   112
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  982   203    85  804     0     0    0     0   409    0   112
PCE 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
MLF 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
FinalVolume:    0  982   203    85  804     0     0    0     0   409    0   112
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  0.95 0.95  1.00  1.00 1.00  1.00  0.77 1.00  0.85
Lanes:       0.00 2.00  1.00  1.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 3610  1615  1805 3610     0     0    0     0  1461    0  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.27  0.13  0.05 0.22  0.00  0.00 0.00  0.00  0.28 0.00  0.07
Crit Moves:       ****        ****                              ****
Green/Cycle: 0.00 0.40  0.40  0.07 0.47  0.00  0.00 0.00  0.00  0.41 0.00  0.82
Volume/Cap:  0.00 0.68  0.31  0.68 0.48  0.00  0.00 0.00  0.00  0.68 0.00  0.08
Delay/Veh:    0.0 26.1  20.9  59.7 18.4   0.0   0.0  0.0   0.0  27.3  0.0   1.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 26.1  20.9  59.7 18.4   0.0   0.0  0.0   0.0  27.3  0.0   1.7
LOS by Move:    A    C     C     E    B     A     A    A     A     C    A     A
HCM2kAvgQ:      0   14     4     4    9     0     0    0     0    11    0     1
*****************************************************************************
Note: Queue reported is the number of cars per lane.
*****************************************************************************

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2020 NP PM                  Tue Dec 2, 2014 12:05:07                  Page 6-1
-----------------------------------------------------------------------------
                          Tesoro Los Angeles Refinery
                             Year 2020 No Project
                                PM Peak Hour
-----------------------------------------------------------------------------
                       Level Of Service Computation Report
                 2000 HCM Operations Method (Future Volume Alternative)
*****************************************************************************
Intersection #9 I-405 SB Ramps / 223rd St
*****************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):          0.514
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):         19.1
Optimal Cycle:        50                Level Of Service:                 B
*****************************************************************************
```

2020NP-PM.out

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	0 1	0	2 0	2 1	0	1 0	2 1	0
Volume Module:												
Base Vol:	3	6	3	128	2	37	860	817	18	4	355	79
Growth 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
Initial Bse:	3	6	3	128	2	37	860	817	18	4	355	79
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	6	3	128	2	37	860	817	18	4	355	79
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	3	6	3	135	2	39	907	862	19	4	374	83
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	3	6	3	135	2	39	907	862	19	4	374	83
PCE 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
MLF 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
FinalVolume:	3	6	3	135	2	39	907	862	19	4	374	83
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.95	0.86	0.86	0.92	0.91	0.91	0.95	0.89	0.89
Lanes:	0.25	0.50	0.25	1.00	0.05	0.95	2.00	2.94	0.06	1.00	2.45	0.55
Final Sat.:	453	907	453	1805	84	1547	3502	5060	111	1805	4128	919
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.07	0.03	0.03	0.26	0.17	0.17	0.00	0.09	0.09
Crit Moves:		****		****			****				****	
Green/Cycle:	0.01	0.01	0.01	0.15	0.15	0.15	0.50	0.67	0.67	0.01	0.18	0.18
Volume/Cap:	0.51	0.51	0.51	0.51	0.17	0.17	0.51	0.25	0.25	0.25	0.51	0.51
Delay/Veh:	66.3	66.3	66.3	41.2	37.8	37.8	16.8	6.5	6.5	57.1	37.8	37.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	66.3	66.3	66.3	41.2	37.8	37.8	16.8	6.5	6.5	57.1	37.8	37.8
LOS by Move:	E	E	E	D	D	D	B	A	A	E	D	D
HCM2kAvgQ:	1	1	1	4	1	1	10	4	4	0	5	5

****

Note: Queue reported is the number of cars per lane.

****

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YEAR 2021
WITH PROJECT

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **3**
North/South Street: **WILMINGTON AVENUE**
East/West Street: **223RD STREET**

Scenario: **2021 Plus Operations**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	327	1,600	0.117	N-S(1):	0.163
	TH	2.00	664	3,200	0.208 *	N-S(2):	0.215 *
	LT	1.00	58	1,600	0.036	E-W(1):	0.302
Westbound	RT	1.00	54	1,600	0.000	E-W(2):	0.342 *
	TH	2.00	813	3,200	0.254 *		
	LT	1.00	205	1,600	0.128	V/C:	0.557
Northbound	RT	0.50	82	800	0.000	Lost Time:	0.100
	TH	2.50	507	4,000	0.127		
	LT	1.00	11	1,600	0.007 *		
Eastbound	RT	1.00	16	1,600	0.003	ICU:	0.657
	TH	2.00	558	3,200	0.174		
	LT	1.00	140	1,600	0.088 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	204	1,600	0.000	N-S(1):	0.142
	TH	2.00	743	3,200	0.232 *	N-S(2):	0.237 *
	LT	1.00	56	1,600	0.035	E-W(1):	0.366 *
Westbound	RT	1.00	146	1,600	0.056	E-W(2):	0.264
	TH	2.00	353	3,200	0.110		
	LT	1.00	181	1,600	0.113 *	V/C:	0.603
Northbound	RT	0.50	127	800	0.000	Lost Time:	0.100
	TH	2.50	427	4,000	0.107		
	LT	1.00	8	1,600	0.005 *		
Eastbound	RT	1.00	10	1,600	0.001	ICU:	0.703
	TH	2.00	811	3,200	0.253 *		
	LT	1.00	246	1,600	0.154	LOS:	C

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **5**
North/South Street: **223rd Street Ramp (on Alameda Street)**
East/West Street: **Alameda Street**

Scenario: **2021 Plus Operations**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.258 *
	TH	3.00	1,150	4,800	0.240	N-S(2):	0.240
	LT	1.00	163	1,600	0.102 *	E-W(1):	0.113 *
Westbound	RT	1.00	122	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	1.00	180	1,600	0.113 *	V/C:	0.371
Northbound	RT	0.00	249	1,600	0.156 *	Lost Time:	0.100
	TH	3.00	482	3,200	0.151		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.471
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.410 *
	TH	3.00	1,005	4,800	0.209	N-S(2):	0.209
	LT	1.00	168	1,600	0.105 *	E-W(1):	0.071 *
Westbound	RT	1.00	125	1,600	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	1.00	114	1,600	0.071 *	V/C:	0.481
Northbound	RT	0.00	473	0	0.000	Lost Time:	0.100
	TH	3.00	991	4,800	0.305 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.581
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **6**
North/South Street: **Alameda Street Ramp**
East/West Street: **223rd Street**

Scenario: **2021 Plus Operations**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.090 *
	TH	0.00	0	0	0.000	N-S(2):	0.083
	LT	0.00	0	0	0.000 *	E-W(1):	0.165 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.145
	TH	3.00	765	5,280	0.145		
	LT	2.00	228	3,168	0.072 *	V/C:	0.255
Northbound	RT	1.00	273	1,760	0.090 *	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	1.00	146	1,760	0.083		
Eastbound	RT	0.00	82	0	0.000	ICU:	0.355
	TH	3.00	408	5,280	0.093 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.261 *
	TH	0.00	0	0	0.000	N-S(2):	0.056
	LT	0.00	0	0	0.000 *	E-W(1):	0.286 *
Westbound	RT	0.00	0	0	0.000	E-W(2):	0.055
	TH	3.00	290	5,280	0.055		
	LT	2.00	94	3,168	0.030 *	V/C:	0.547
Northbound	RT	1.00	507	1,760	0.261 *	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	1.00	99	1,760	0.056		
Eastbound	RT	0.00	141	0	0.000	ICU:	0.647
	TH	3.00	1,212	5,280	0.256 *		
	LT	0.00	0	0	0.000	LOS:	B

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **7**
North/South Street: **ALAMEDA STREET**
East/West Street: **SEPULVEDA BOULEVARD-ALAMEDA RAMP**

Scenario: **2021 Plus Operations**

Thru Lane:	1600 vph	N-S Split Phase :	N
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.250 *
	TH	3.00	785	4,800	0.164	N-S(2):	0.164
	LT	1.00	236	1,600	0.148 *	E-W(1):	0.031 *
Westbound	RT	2.00	204	3,200	0.000	E-W(2):	0.000
	TH	0.00	0	0	0.000		
	LT	1.00	50	1,600	0.031 *	V/C:	0.281
Northbound	RT	0.00	51	0	0.000	Lost Time:	0.100
	TH	3.00	438	4,800	0.102 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.381
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.390 *
	TH	3.00	877	4,800	0.183	N-S(2):	0.183
	LT	1.00	257	1,600	0.161 *	E-W(1):	0.059 *
Westbound	RT	2.00	418	3,200	0.050	E-W(2):	0.050
	TH	0.00	0	0	0.000		
	LT	1.00	95	1,600	0.059 *	V/C:	0.449
Northbound	RT	0.00	85	0	0.000	Lost Time:	0.100
	TH	3.00	1,012	4,800	0.229 *		
	LT	0.00	0	0	0.000		
Eastbound	RT	0.00	0	0	0.000	ICU:	0.549
	TH	0.00	0	0	0.000 *		
	LT	0.00	0	0	0.000	LOS:	A

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **8**
North/South Street: **SEPULVEDA BOULEVARD-ALAMEDA RAMF**
East/West Street: **SEPULVEDA BOULEVARD**

Scenario: **2021 Plus Operations**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	148	1,600	0.016	N-S(1):	0.056 *
	TH	0.13	9	210	0.043	N-S(2):	0.000
	LT	1.87	128	2,691	0.048 *	E-W(1):	0.234
Westbound	RT	1.00	100	1,600	0.020	E-W(2):	0.267 *
	TH	2.00	610	3,200	0.191 *		
	LT	1.00	8	1,600	0.005	V/C:	0.323
Northbound	RT	0.00	4	0	0.000	Lost Time:	0.100
	TH	2.00	19	3,200	0.008 *		
	LT	0.00	2	1,600	0.001		
Eastbound	RT	1.00	6	1,600	0.003	ICU:	0.423
	TH	1.00	366	1,600	0.229		
	LT	1.00	122	1,600	0.076 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	1.00	177	1,600	0.000	N-S(1):	0.058 *
	TH	0.17	12	269	0.045	N-S(2):	0.000
	LT	1.83	131	2,638	0.050 *	E-W(1):	0.601 *
Westbound	RT	1.00	244	1,600	0.108	E-W(2):	0.320
	TH	2.00	549	3,200	0.172		
	LT	1.00	2	1,600	0.001 *	V/C:	0.659
Northbound	RT	0.00	9	0	0.000	Lost Time:	0.100
	TH	2.00	13	3,200	0.008 *		
	LT	0.00	4	1,600	0.003		
Eastbound	RT	1.00	1	1,600	0.000	ICU:	0.759
	TH	1.00	960	1,600	0.600 *		
	LT	1.00	236	1,600	0.148	LOS:	C

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **10**
North/South Street: **TERMINAL ISLAND FREEWAY (SR-103)**
East/West Street: **WILLOW STREET**

Scenario: **2021 Plus Operations**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.034 *
	TH	1.00	0	1,600	0.000	N-S(2):	0.000
	LT	0.00	0	0	0.000 *	E-W(1):	0.186
Westbound	RT	0.00	16	0	0.000	E-W(2):	0.263 *
	TH	2.00	815	3,200	0.260 *		
	LT	2.00	242	2,880	0.084	V/C:	0.297
Northbound	RT	2.00	101	3,200	0.000	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	2.00	99	2,880	0.034 *		
Eastbound	RT	1.00	187	1,600	0.086	ICU:	0.397
	TH	2.00	326	3,200	0.102		
	LT	1.00	4	1,600	0.003 *	LOS:	A

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	0	0	0.000	N-S(1):	0.111 *
	TH	1.00	0	1,600	0.000	N-S(2):	0.000
	LT	0.00	0	0	0.000 *	E-W(1):	0.380 *
Westbound	RT	0.00	1	0	0.000	E-W(2):	0.137
	TH	2.00	437	3,200	0.137		
	LT	2.00	171	2,880	0.059 *	V/C:	0.491
Northbound	RT	2.00	254	3,200	0.053	Lost Time:	0.100
	TH	0.00	0	0	0.000		
	LT	2.00	319	2,880	0.111 *		
Eastbound	RT	1.00	262	1,600	0.064	ICU:	0.591
	TH	2.00	1,026	3,200	0.321 *		
	LT	1.00	0	1,600	0.000	LOS:	A

* = Critical Movement

Project: **Tesoro Los Angeles Refinery Traffic Study**
Int #: **11**
North/South Street: **SANTA FE AVE**
East/West Street: **SEPULVEDA BOULEVARD**

Scenario: **2021 Plus Operations**

Thru Lane:	1600 vph	N-S Split Phase :	Y
Left-Turn Lane:	1600 vph	E-W Split Phase :	N
Dual LT Penalty:	10 %	Lost Time (% of cycle) :	10

Peak Period: **AM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	135	0	0.000	N-S(1):	0.209 *
	TH	2.00	264	3,200	0.125 *	N-S(2):	0.000
	LT	2.00	156	2,880	0.054	E-W(1):	0.204
Westbound	RT	0.00	111	0	0.000	E-W(2):	0.328 *
	TH	2.00	788	3,200	0.281 *		
	LT	2.00	163	2,880	0.057	V/C:	0.537
Northbound	RT	0.00	82	0	0.000	Lost Time:	0.100
	TH	2.00	188	3,200	0.084 *		
	LT	1.00	78	1,600	0.049		
Eastbound	RT	0.00	33	0	0.000	ICU:	0.637
	TH	2.00	438	3,200	0.147		
	LT	1.00	75	1,600	0.047 *	LOS:	B

Peak Period: **PM PEAK HOUR**

Approach	Movement	Lanes	Volume	Capacity	V/C	ICU ANALYSIS	
Southbound	RT	0.00	64	0	0.000	N-S(1):	0.321 *
	TH	2.00	319	3,200	0.120 *	N-S(2):	0.000
	LT	2.00	339	2,880	0.118	E-W(1):	0.378 *
Westbound	RT	0.00	153	0	0.000	E-W(2):	0.292
	TH	2.00	497	3,200	0.203		
	LT	2.00	140	2,880	0.049 *	V/C:	0.699
Northbound	RT	0.00	205	0	0.000	Lost Time:	0.100
	TH	2.00	438	3,200	0.201 *		
	LT	1.00	84	1,600	0.053		
Eastbound	RT	0.00	44	0	0.000	ICU:	0.799
	TH	2.00	1,008	3,200	0.329 *		
	LT	1.00	143	1,600	0.089	LOS:	C

* = Critical Movement

Appendix E

Level of Service Worksheet
(Circular 212 Method)

I/S #:	PROJECT TITLE:	ICTF Modification and Expansion Project EIR		
31	North-South Street:	223rd Street (on 223rd	East-West Street:	Alameda Street Ramp
	Scenario:	CEQA Baseline		
	Count Date:		Analyst: Iteris, Inc.	Date: 7/22/2014

		AM PEAK HOUR			MD PEAK HOUR			PM PEAK HOUR		
	No. of Phases			3			3			3
	Opposed Ø'ing: N/S-1, E/W-2 or Both-3?			2			2			2
	Right Turns: FREE-1, NRTOR-2 or OLA-3?	NB -- 3	SB --	0	NB -- 3	SB --	0	NB -- 0	SB --	0
		EB -- 0	WB --	0	EB -- 0	WB --	0	EB -- 3	WB --	0
	ATSAC-1 or ATSAC+ATCS-2?			2			2			2
	Override Capacity			1500			1500			1500
	MOVEMENT	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume	Volume	No. of Lanes	Lane Volume
NORTHBOUND	Left	146	1	**146**	0	1	**60**	99	1	99
	Left-Through		0			0			0	
	Through	0	0	**0**	0	0	0	0	0	**0**
	Through-Right		0			0			0	
	Right	273	1	148	0	1	403	507	1	455
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
SOUTHBOUND	Left	0	0	0	0	0	0	0	0	**0**
	Left-Through		0			0			0	
	Through	0	0	**0**	0	0	**0**	0	0	0
	Through-Right		0			0			0	
	Right	0	0	0	0	0	0	0	0	0
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
EASTBOUND	Left	0	0	**0**	0	0	0	0	0	0
	Left-Through		0			0			0	
	Through	408	2	163	0	2	**380**	1,212	2	**451**
	Through-Right		1			1			1	
	Right	82	0	82	0	0	45	141	0	141
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
WESTBOUND	Left	228	2	125	0	2	**77**	94	2	**52**
	Left-Through		0			0			0	
	Through	765	3	**255**	0	3	82	290	3	97
	Through-Right		0			0			0	
	Right	0	0	0	0	0	0	0	0	0
	Left-Through-Right		0			0			0	
	Left-Right		0			0			0	
	CRITICAL VOLUMES		North-South:	148		North-South:	403		North-South:	455
			East-West:	418		East-West:	462		East-West:	548
			SUM:	566		SUM:	865		SUM:	1003
	VOLUME/CAPACITY (V/C) RATIO:			0.397			0.577			0.704
	V/C LESS ATSAC/ATCS ADJUSTMENT:			0.297			0.477			**0.604**
	LEVEL OF SERVICE (LOS):			**A**			**A**			**B**

Version: 1i Beta; 8/4/2011

Tesoro Los Angeles Refinery
Year 2020 With Project Operations
AM Peak Hour

Scenario Report

Scenario:	2020 Ops AM
Command:	2020+Ops-AM
Volume:	2020 AM
Geometry:	2017
Impact Fee:	Default Impact Fee
Trip Generation:	Const-AM
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	2020+Ops-AM

Tesoro Los Angeles Refinery
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2020+Ops_AM.out
Year 2020 With Project Operations
AM Peak Hour

Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Wilmington Ave / I-405 NB Ramp	C	21.7	0.512	C	21.7	0.512	+ 0.001 D/V
# 2 Wilmington Ave / I-405 SB Ramp	C	21.8	0.364	C	21.8	0.365	+ 0.026 D/V
# 4 Alameda Ave / I-405 NB Ramps	C	23.4	0.687	C	23.4	0.687	+ 0.029 D/V
# 9 I-405 SB Ramps / 223rd St	C	23.5	0.484	C	23.5	0.484	+ 0.012 D/V

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Tesoro Los Angeles Refinery
Year 2020 With Project Operations
AM Peak Hour

2020+Ops_AM.out
Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

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Intersection #1 Wilmington Ave / I-405 NB Ramps

****

Cycle (sec):	100	Critical Vol./Cap.(X):	0.512
Loss Time (sec):	8 (Y+R=4.0 sec)	Average Delay (sec/veh):	21.7
Optimal Cycle:	39	Level Of Service:	C

****

Approach:	North Bound				South Bound				East Bound				West Bound			
Movement:	L	- T	- R		L	- T	- R		L	- T	- R		L	- T	- R	
Control:	Protected				Permitted				Permitted				Permitted			
Rights:	Include				Include				Include				Include			
Min. Green:	0	0	0		0	0	0		0	0	0		0	0	0	
Lanes:	0 0	2	0	1	0 0	3	0	0	0 0	0	0	0	2 0	0	0	1
Volume Module:																
Base Vol:	0	371	34		0	402	0		0	0	0		710	0	496	
Growth 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		
Initial Bse:	0	371	34		0	402	0		0	0	0		710	0	496	
Added Vol:	0	0	1		0	0	0		0	0	0		0	0	0	
PasserByVol:	0	0	0		0	0	0		0	0	0		0	0	0	
Initial Fut:	0	371	35		0	402	0		0	0	0		710	0	496	
User 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		
PHF Adj:	0.90 0.90	0.90			0.90 0.90	0.90			0.90 0.90	0.90			0.90 0.90	0.90		
PHF Volume:	0	414	39		0	449	0		0	0	0		792	0	554	
Reduct Vol:	0	0	0		0	0	0		0	0	0		0	0	0	
Reduced Vol:	0	414	39		0	449	0		0	0	0		792	0	554	
PCE 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		
MLF 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		
FinalVolume:	0	414	39		0	449	0		0	0	0		792	0	554	
Saturation Flow Module:																
Sat/Lane:	1900 1900	1900			1900 1900	1900			1900 1900	1900			1900 1900	1900		
Adjustment:	1.00 0.95	0.85			1.00 0.91	1.00			1.00 1.00	1.00			0.59 1.00	0.85		
Lanes:	0.00 2.00	1.00			0.00 3.00	0.00			0.00 0.00	0.00			2.00 0.00	1.00		
Final Sat.:	0 3610	1615			0 5187	0			0 0	0			2226 0	1615		
Capacity Analysis Module:																
Vol/Sat:	0.00 0.11	0.02			0.00 0.09	0.00			0.00 0.00	0.00			0.36 0.00	0.34		
Crit Moves:	****												****			
Green/Cycle:	0.00 0.33	0.33			0.00 0.14	0.00			0.00 0.00	0.00			0.59 0.00	0.59		
Volume/Cap:	0.00 0.35	0.07			0.00 0.61	0.00			0.00 0.00	0.00			0.60 0.00	0.58		
Delay/Veh:	0.0 25.4	23.0			0.0 41.7	0.0			0.0 0.0	0.0			14.0 0.0	13.8		
User DelAdj:	1.00 1.00	1.00			1.00 1.00	1.00			1.00 1.00	1.00			1.00 1.00	1.00		
AdjDel/Veh:	0.0 25.4	23.0			0.0 41.7	0.0			0.0 0.0	0.0			14.0 0.0	13.8		
LOS by Move:	A	C	C		A	D	A		A	A	A		B	A	B	
HCM2kAvgQ:	0	5	1		0	6	0		0	0	0		9	0	11	

****

Note: Queue reported is the number of cars per lane.

****

Tesoro Los Angeles Refinery
Year 2020 With Project Operations
AM Peak Hour

Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

****

2020+Ops_AM.out

Intersection #2 Wilmington Ave / I-405 SB Ramps

Cycle (sec):	100		Critical Vol./Cap.(X):		0.365
Loss Time (sec):	12 (Y+R=4.0 sec)		Average Delay (sec/veh):		21.8
Optimal Cycle:	40		Level Of Service:		C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	1 1	2 0	3	0 0	0 1	0	1 0	0 0	0	0 0
Volume Module:												
Base Vol:	0	311	368	144	928	0	126	0	168	0	0	0
Growth 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
Initial Bse:	0	311	368	144	928	0	126	0	168	0	0	0
Added Vol:	0	1	0	0	0	0	0	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	312	368	144	928	0	126	0	169	0	0	0
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	330	389	152	981	0	133	0	179	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	330	389	152	981	0	133	0	179	0	0	0
PCE 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
MLF 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
FinalVolume:	0	330	389	152	981	0	133	0	179	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.84	0.84	0.92	0.91	1.00	0.71	0.95	0.71	1.00	1.00	1.00
Lanes:	0.00	2.00	2.00	2.00	3.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	0	3178	3178	3502	5187	0	1353	0	1353	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.10	0.12	0.04	0.19	0.00	0.10	0.00	0.13	0.00	0.00	0.00
Crit Moves:					****				****			
Green/Cycle:	0.00	0.21	0.21	0.39	0.61	0.00	0.27	0.00	0.27	0.00	0.00	0.00
Volume/Cap:	0.00	0.48	0.57	0.11	0.31	0.00	0.36	0.00	0.48	0.00	0.00	0.00
Delay/Veh:	0.0	34.7	35.8	19.4	9.6	0.0	29.5	0.0	30.9	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	34.7	35.8	19.4	9.6	0.0	29.5	0.0	30.9	0.0	0.0	0.0
LOS by Move:	A	C	D	B	A	A	C	A	C	A	A	A
HCM2kAvgQ:	0	5	7	2	5	0	4	0	5	0	0	0

Note: Queue reported is the number of cars per lane.

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Tesoro Los Angeles Refinery
Year 2020 With Project Operations
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Alameda Ave / I-405 NB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.687

2020+Ops_AM.out

```
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        23.4
Optimal Cycle:        58                Level Of Service:                 C
*****************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected         Permitted
Rights:           Include          Include          Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    1  0  2  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  571    48    51  860     0     0    0     0   473    0   320
Growth 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
Initial Bse:    0  571    48    51  860     0     0    0     0   473    0   320
Added Vol:      0    0     0     0    0     0     0    0     0     1    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  571    48    51  860     0     0    0     0   474    0   320
User 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
PHF Adj:     0.93 0.93  0.93  0.93 0.93  0.93  0.93 0.93  0.93  0.93 0.93  0.93
PHF Volume:     0  614    52    55  925     0     0    0     0   510    0   344
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  614    52    55  925     0     0    0     0   510    0   344
PCE 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
MLF 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
FinalVolume:    0  614    52    55  925     0     0    0     0   510    0   344
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  0.95 0.95  1.00  1.00 1.00  1.00  0.77 1.00  0.85
Lanes:       0.00 2.00  1.00  1.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 3610  1615  1805 3610     0     0    0     0  1461    0  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.17  0.03  0.03 0.26  0.00  0.00 0.00  0.00  0.35 0.00  0.21
Crit Moves:  ****                 ****                          ****
Green/Cycle: 0.00 0.32  0.32  0.06 0.37  0.00  0.00 0.00  0.00  0.51 0.00  1.01
Volume/Cap:  0.00 0.54  0.10  0.54 0.69  0.00  0.00 0.00  0.00  0.69 0.00  0.21
Delay/Veh:    0.0 28.7  24.2  51.5 28.0   0.0   0.0  0.0   0.0  21.4  0.0   0.1
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 28.7  24.2  51.5 28.0   0.0   0.0  0.0   0.0  21.4  0.0   0.1
LOS by Move:    A    C     C     D    C     A     A    A     A     C    A     A
HCM2kAvgQ:      0    9     1     2   13     0     0    0     0    13    0     0
*****************************************************************************
Note: Queue reported is the number of cars per lane.
*****************************************************************************

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-----------------------------------------------------------------------------
                          Tesoro Los Angeles Refinery
                       Year 2020 With Project Operations
                                AM Peak Hour
-----------------------------------------------------------------------------
                      Level Of Service Computation Report
              2000 HCM Operations Method (Future Volume Alternative)
*****************************************************************************
Intersection #9 I-405 SB Ramps / 223rd St
*****************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):          0.484
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):        23.5
Optimal Cycle:        48                Level Of Service:                 C
*****************************************************************************
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2020+Ops_AM.out

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	0 1	0	2 0	2 1	0	1 0	2 1	0
Volume Module:												
Base Vol:	1	1	5	56	0	126	362	309	4	3	857	33
Growth 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
Initial Bse:	1	1	5	56	0	126	362	309	4	3	857	33
Added Vol:	0	0	0	0	0	0	1	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	1	1	5	56	0	126	363	309	4	3	857	33
User 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
PHF Adj:	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
PHF Volume:	1	1	6	64	0	143	412	351	5	3	973	37
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	1	1	6	64	0	143	412	351	5	3	973	37
PCE 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
MLF 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
FinalVolume:	1	1	6	64	0	143	412	351	5	3	973	37
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.90	0.90	0.90	0.95	1.00	0.85	0.92	0.91	0.91	0.95	0.90	0.90
Lanes:	0.14	0.14	0.72	1.00	0.00	1.00	2.00	2.96	0.04	1.00	2.89	0.11
Final Sat.:	244	244	1218	1805	0	1615	3502	5110	66	1805	4965	191
Capacity Analysis Module:												
Vol/Sat:	0.00	0.00	0.00	0.04	0.00	0.09	0.12	0.07	0.07	0.00	0.20	0.20
Crit Moves:			****			****	****				****	
Green/Cycle:	0.01	0.01	0.01	0.18	0.00	0.18	0.24	0.63	0.63	0.02	0.40	0.40
Volume/Cap:	0.48	0.48	0.48	0.19	0.00	0.48	0.48	0.11	0.11	0.11	0.48	0.48
Delay/Veh:	70.1	70.1	70.1	34.9	0.0	37.9	32.9	7.4	7.4	49.9	22.2	22.2
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	70.1	70.1	70.1	34.9	0.0	37.9	32.9	7.4	7.4	49.9	22.2	22.2
LOS by Move:	E	E	E	C	A	D	C	A	A	D	C	C
HCM2kAvgQ:	1	1	1	2	0	4	6	2	2	0	9	9

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Note: Queue reported is the number of cars per lane.

****

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Tesoro Los Angeles Refinery
Year 2020 With Project Operations
PM Peak Hour

Scenario Report

Scenario:	2020 Ops PM
Command:	2020+Ops-PM
Volume:	2020 PM
Geometry:	2017
Impact Fee:	Default Impact Fee
Trip Generation:	Const-PM
Trip Distribution:	Default Trip Distribution
Paths:	Default Path
Routes:	Default Route
Configuration:	2020+Ops-PM

Tesoro Los Angeles Refinery
Page 1

2020+Ops_PM.out
Year 2020 With Project Operations
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Impact Analysis Report
Level Of Service

Intersection	Base LOS	Base Del/ Veh	Base V/ C	Future LOS	Future Del/ Veh	Future V/ C	Change in
# 1 Wilmington Ave / I-405 NB Ramp	B	18.4	0.420	B	18.4	0.420	+ 0.001 D/V
# 2 Wilmington Ave / I-405 SB Ramp	B	15.7	0.362	B	15.8	0.363	+ 0.063 D/V
# 4 Alameda Ave / I-405 NB Ramps	C	23.5	0.681	C	23.6	0.682	+ 0.038 D/V
# 9 I-405 SB Ramps / 223rd St	B	19.1	0.514	B	19.1	0.514	-0.002 D/V

Tesoro Los Angeles Refinery
Year 2020 With Project Operations
PM Peak Hour

2020+Ops_PM.out
Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #1 Wilmington Ave / I-405 NB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.420
Loss Time (sec):	8 (Y+R=4.0 sec)	Average Delay (sec/veh):	18.4
Optimal Cycle:	28	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Permitted			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	0 1	0 0	3	0 0	0 0	0	0 0	2	0 0	0 1
Volume Module:												
Base Vol:	0	289	155	0	886	0	0	0	0	438	0	309
Growth 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
Initial Bse:	0	289	155	0	886	0	0	0	0	438	0	309
Added Vol:	0	0	1	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	289	156	0	886	0	0	0	0	438	0	309
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	0	305	164	0	934	0	0	0	0	462	0	326
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	305	164	0	934	0	0	0	0	462	0	326
PCE 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
MLF 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
FinalVolume:	0	305	164	0	934	0	0	0	0	462	0	326
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.95	0.85	1.00	0.91	1.00	1.00	1.00	1.00	0.59	1.00	0.85
Lanes:	0.00	2.00	1.00	0.00	3.00	0.00	0.00	0.00	0.00	2.00	0.00	1.00
Final Sat.:	0	3610	1615	0	5187	0	0	0	0	2234	0	1615
Capacity Analysis Module:												
Vol/Sat:	0.00	0.08	0.10	0.00	0.18	0.00	0.00	0.00	0.00	0.21	0.00	0.20
Crit Moves:	****				****					****		
Green/Cycle:	0.00	0.43	0.43	0.00	0.43	0.00	0.00	0.00	0.00	0.49	0.00	0.49
Volume/Cap:	0.00	0.20	0.24	0.00	0.42	0.00	0.00	0.00	0.00	0.42	0.00	0.41
Delay/Veh:	0.0	17.9	18.4	0.0	20.1	0.0	0.0	0.0	0.0	16.5	0.0	16.5
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	17.9	18.4	0.0	20.1	0.0	0.0	0.0	0.0	16.5	0.0	16.5
LOS by Move:	A	B	B	A	C	A	A	A	A	B	A	B
HCM2kAvgQ:	0	3	3	0	7	0	0	0	0	5	0	6

Note: Queue reported is the number of cars per lane.

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Tesoro Los Angeles Refinery
Year 2020 With Project Operations
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

2020+Ops_PM.out

Intersection #2 Wilmington Ave / I-405 SB Ramps

Cycle (sec):	100		Critical Vol./Cap.(X):		0.363
Loss Time (sec):	12 (Y+R=4.0 sec)		Average Delay (sec/veh):		15.8
Optimal Cycle:	34		Level Of Service:		B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Permitted			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	2	1 1	2 0	3	0 0	0 1	0	1 0	0 0	0	0 0
Volume Module:												
Base Vol:	0	416	491	345	910	0	27	0	84	0	0	0
Growth 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
Initial Bse:	0	416	491	345	910	0	27	0	84	0	0	0
Added Vol:	0	1	0	0	0	0	0	0	1	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	417	491	345	910	0	27	0	85	0	0	0
User 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
PHF Adj:	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
PHF Volume:	0	426	502	353	930	0	28	0	87	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	426	502	353	930	0	28	0	87	0	0	0
PCE 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
MLF 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
FinalVolume:	0	426	502	353	930	0	28	0	87	0	0	0
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	1.00	0.84	0.84	0.92	0.91	1.00	0.75	0.95	0.75	1.00	1.00	1.00
Lanes:	0.00	2.00	2.00	2.00	3.00	0.00	1.00	0.00	1.00	0.00	0.00	0.00
Final Sat.:	0	3178	3178	3502	5187	0	1431	0	1431	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.13	0.16	0.10	0.18	0.00	0.02	0.00	0.06	0.00	0.00	0.00
Crit Moves:			****	****					****			
Green/Cycle:	0.00	0.43	0.43	0.28	0.71	0.00	0.17	0.00	0.17	0.00	0.00	0.00
Volume/Cap:	0.00	0.31	0.36	0.36	0.25	0.00	0.11	0.00	0.36	0.00	0.00	0.00
Delay/Veh:	0.0	18.5	19.1	29.3	5.1	0.0	35.3	0.0	37.5	0.0	0.0	0.0
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	0.0	18.5	19.1	29.3	5.1	0.0	35.3	0.0	37.5	0.0	0.0	0.0
LOS by Move:	A	B	B	C	A	A	D	A	D	A	A	A
HCM2kAvgQ:	0	5	6	5	4	0	1	0	3	0	0	0

Note: Queue reported is the number of cars per lane.

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Tesoro Los Angeles Refinery
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

Intersection #4 Alameda Ave / I-405 NB Ramps

Cycle (sec):	100	Critical Vol./Cap.(X):	0.682

2020+Ops_PM.out

```
Loss Time (sec):      12 (Y+R=4.0 sec)  Average Delay (sec/veh):        23.6
Optimal Cycle:        57                Level Of Service:                 C
*****************************************************************************
Approach:      North Bound      South Bound       East Bound       West Bound
Movement:     L  -  T  -  R    L  -  T  -  R    L  -  T  -  R    L  -  T  -  R
------------|---------------||---------------||---------------||---------------|
Control:        Protected        Protected        Protected         Permitted
Rights:           Include          Include          Include           Include
Min. Green:     0    0     0     0    0     0     0    0     0     0    0     0
Lanes:        0  0  2  0  1    1  0  2  0  0    0  0  0  0  0    1  0  0  0  1
------------|---------------||---------------||---------------||---------------|
Volume Module:
Base Vol:       0  944   195    82  773     0     0    0     0   393    0   108
Growth 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
Initial Bse:    0  944   195    82  773     0     0    0     0   393    0   108
Added Vol:      0    0     0     0    0     0     0    0     0     1    0     0
PasserByVol:    0    0     0     0    0     0     0    0     0     0    0     0
Initial Fut:    0  944   195    82  773     0     0    0     0   394    0   108
User 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
PHF Adj:     0.96 0.96  0.96  0.96 0.96  0.96  0.96 0.96  0.96  0.96 0.96  0.96
PHF Volume:     0  982   203    85  804     0     0    0     0   410    0   112
Reduct Vol:     0    0     0     0    0     0     0    0     0     0    0     0
Reduced Vol:    0  982   203    85  804     0     0    0     0   410    0   112
PCE 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
MLF 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
FinalVolume:    0  982   203    85  804     0     0    0     0   410    0   112
------------|---------------||---------------||---------------||---------------|
Saturation Flow Module:
Sat/Lane:    1900 1900  1900  1900 1900  1900  1900 1900  1900  1900 1900  1900
Adjustment:  1.00 0.95  0.85  0.95 0.95  1.00  1.00 1.00  1.00  0.77 1.00  0.85
Lanes:       0.00 2.00  1.00  1.00 2.00  0.00  0.00 0.00  0.00  1.00 0.00  1.00
Final Sat.:     0 3610  1615  1805 3610     0     0    0     0  1461    0  1615
------------|---------------||---------------||---------------||---------------|
Capacity Analysis Module:
Vol/Sat:     0.00 0.27  0.13  0.05 0.22  0.00  0.00 0.00  0.00  0.28 0.00  0.07
Crit Moves:       ****        ****                              ****
Green/Cycle: 0.00 0.40  0.40  0.07 0.47  0.00  0.00 0.00  0.00  0.41 0.00  0.82
Volume/Cap:  0.00 0.68  0.31  0.68 0.48  0.00  0.00 0.00  0.00  0.68 0.00  0.08
Delay/Veh:    0.0 26.2  20.9  59.8 18.4   0.0   0.0  0.0   0.0  27.3  0.0   1.7
User DelAdj: 1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00  1.00 1.00  1.00
AdjDel/Veh:   0.0 26.2  20.9  59.8 18.4   0.0   0.0  0.0   0.0  27.3  0.0   1.7
LOS by Move:    A    C     C     E    B     A     A    A     A     C    A     A
HCM2kAvgQ:      0   14     4     4    9     0     0    0     0    11    0     1
*****************************************************************************
Note: Queue reported is the number of cars per lane.
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Tesoro Los Angeles Refinery
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Level Of Service Computation Report
2000 HCM Operations Method (Future Volume Alternative)

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*****************************************************************************
Intersection #9 I-405 SB Ramps / 223rd St
*****************************************************************************
Cycle (sec):         100                Critical Vol./Cap.(X):          0.514
Loss Time (sec):      16 (Y+R=4.0 sec)  Average Delay (sec/veh):         19.1
Optimal Cycle:        50                Level Of Service:                  B
*****************************************************************************
```

2020+Ops_PM.out

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1! 0	0	1 0	0 1	0	2 0	2 1	0	1 0	2 1	0
Volume Module:												
Base Vol:	3	6	3	128	2	37	860	817	18	4	355	79
Growth 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
Initial Bse:	3	6	3	128	2	37	860	817	18	4	355	79
Added Vol:	0	0	0	0	0	0	1	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	3	6	3	128	2	37	861	817	18	4	355	79
User 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
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	3	6	3	135	2	39	908	862	19	4	374	83
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	3	6	3	135	2	39	908	862	19	4	374	83
PCE 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
MLF 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
FinalVolume:	3	6	3	135	2	39	908	862	19	4	374	83
Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	0.95	0.95	0.95	0.86	0.86	0.92	0.91	0.91	0.95	0.89	0.89
Lanes:	0.25	0.50	0.25	1.00	0.05	0.95	2.00	2.94	0.06	1.00	2.45	0.55
Final Sat.:	453	907	453	1805	84	1547	3502	5060	111	1805	4128	919
Capacity Analysis Module:												
Vol/Sat:	0.01	0.01	0.01	0.07	0.03	0.03	0.26	0.17	0.17	0.00	0.09	0.09
Crit Moves:		****		****			****				****	
Green/Cycle:	0.01	0.01	0.01	0.15	0.15	0.15	0.50	0.67	0.67	0.01	0.18	0.18
Volume/Cap:	0.51	0.51	0.51	0.51	0.17	0.17	0.51	0.25	0.25	0.25	0.51	0.51
Delay/Veh:	66.4	66.4	66.4	41.2	37.8	37.8	16.8	6.5	6.5	57.1	37.8	37.8
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	66.4	66.4	66.4	41.2	37.8	37.8	16.8	6.5	6.5	57.1	37.8	37.8
LOS by Move:	E	E	E	D	D	D	B	A	A	E	D	D
HCM2kAvgQ:	1	1	1	4	1	1	10	4	4	0	5	5

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Note: Queue reported is the number of cars per lane.

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