MEMORANDUM

TO: Steve Heisler, ENSR

FROM: Patrick Kelley

DATE: April 26,2007

SUBJECT: Chevron El Segundo Refinery Construction Worker Parking/Commute Plan Analysis
21-J07- 2104

INTRODUCTION

The purpose of this memorandum is to evaluate the traffic impacts from construction workers on surrounding study area intersections related to the Chevron El Segundo Refinery Heavy Crude Project.

This analysis addresses the resulting impacts to adjacent intersections from the addition of construction worker traffic to the surrounding roadway network during the AM (7A-9A) and PM (4P-6P) peak hours at the intersections of:

1. Continental Boulevard at Grand Avenue
2. Continental Boulevard at Mariposa Avenue
3. Nash Street at Mariposa Avenue
4. Douglas Street at Mariposa Avenue
5. Douglas Street at Atwood Way

PROJECT DESCRIPTION

Chevron Products Company (Chevron) proposed modifications to the El Segundo Refinery to maintain or slightly increase its current production levels of saleable products while processing more heavy crude oil and less light crude oil than it currently processes. The changes required include modifications to the No. 4 Crude Unit and the Delayed Coker (Coker). Chevron also proposed modifications at the refinery's No.6 H_2S Plant to improve the removal of sulfur compounds from refinery fuel gas. The Final Environmental Impact Report (EIR) for this project was certified on August 9, 2006.

Chevron is proposing a modification to the project that requires changing the location for construction worker parking during construction of the project analyzed in the August 2006 Final EIR. Specifically, Chevron has determined that it will not be feasible to continue to use the off-site construction worker parking location at Dockweiler State Beach, which was specified in the Project Description in the August 2006 Final EIR, after April 2007. Chevron specified specific routes to be followed by construction workers when traveling to and from the Dockweiler State Beach parking facility, and has been transporting construction works between the parking facility and the refinery by bus, to avoid potential impacts to the traffic system in the vicinity of the

refinery. Chevron's permit to use the parking facility during construction of the proposed project, which was issued by the Los Angeles County Department of Beaches and Harbors (LCDBH), expired on March 31, 2007. Although the permit to use the parking facility has been renewed, LCDBH included conditions in the renewal that do not allow Chevron to use the facility during weekends during the summer and on several weekdays, beginning in May 2007. Because construction of the proposed project has and will continue to occur five to six days per week through March 2008, construction worker parking is needed five to six days per week every week during the construction period. Therefore, Chevron will not be able to continue to use the current parking facility after April 2007.

Chevron is proposing to use a different off-site location, located near the intersection of Sepulveda Boulevard and Grand Avenue in the City of El Segundo (Pacific Towers), for construction worker parking beginning in May 2007. Chevron is proposing to specify specific routes to be followed by construction workers traveling to and from this different facility, and to continue to transport workers between the parking facility and the refinery, to minimize impacts on the surrounding traffic system.

The original construction project was to last for 22 months. At this time (April 2007), 11 months of the construction project remain to be completed as summarized in Table 1. The proposed project is not expected to cause any change in the current operational employment at the refinery, and thus would not affect vehicular trip activity to/from the refinery during project operation. However, on some roadways near the refinery, traffic volumes will increase during the project construction period.

Table 1
Manpower Levels

Project Component	May 07	Jun 07	Jul 07	Aug 07	Sep 07	Oct 07	Nov 07	Dec 07	Jan 08	Feb 08	Mar 08
No. 4 Crude Unit	20	84	223	70	0	0	0	0	0	0	0
Coker	201	174	94	20	234	694	252	53	40	20	20
No. 6 H2S Plant	0	0	0	0	0	0	0	0	0	0	0
Total per Day	**221**	**258**	**317**	**90**	**234**	**694**	**252**	**53**	**40**	**20**	**20**
Total per Shift[a]	**221**	**216**	**206**	**55**	**117**	**347**	**126**	**53**	**40**	**20**	**20**

[a] Construction for the proposed No. 4 Crude Unit modifications will occur using two shifts per day from late-June 2007 through early August 2007, and construction for the proposed Coker modifications will occur using two shifts per day from mid-September 2007 through November 2007. Construction will occur using one shift per day for the rest of the construction period. Shaded entries indicate periods with two daily construction shifts.

Table 1 summarizes anticipated peak construction manpower levels and vehicles per day for the proposed project. As shown in this table, 11 months remain for the project construction period from May 2007 and ending in March 2008. Construction is anticipated to take place 10 hours per day, from 6:30 AM to 5:00 PM, five days per week, Monday through Friday, during most this construction period. During the turnaround for the No. 4 Crude Unit (late-June 2007 through early-August 2007), construction for the No. 4 Crude Unit modifications is anticipated to take place in two 10-hour shifts per day, from 6:30 AM to 5:00 PM and from 6:30 PM to 5:00 AM, six days per week, Monday through Saturday. During the turnaround for the Coker, from

mid-September 2007 through November 2007, construction for the Coker modifications is anticipated to take place in two 10-hour shifts per day, from 6:30 AM to 5:00 PM and from 6:30 PM to 5:00 AM, six days per week, Monday through Saturday.

As indicated in the CMP guidelines, The AM peak period of the adjacent street system surrounding the refinery is from 7:00 AM to 9:00 AM. Because the daytime construction shift starts at 6:30 AM, and the nighttime shift (when two shifts occur) ends at 5:00 AM, worker commuting traffic attributable to project construction will arrive before the AM peak period begins and will not affect the AM peak hour conditions. Therefore, no AM peak hour analysis is provided for 'with-project' conditions.

The PM peak period is from 4:00 PM to 6:00 PM. The nighttime construction shift will not affect the PM peak period, because the nighttime shift will begin at 6:30 PM, after the end of the PM peak period. However, because the daytime construction shift ends at 5:00 PM, construction workers for the proposed project will leave during the PM peak period. Therefore, the analysis examines impacts from construction worker commuting only during the PM peak hour, when traffic congestion is highest.

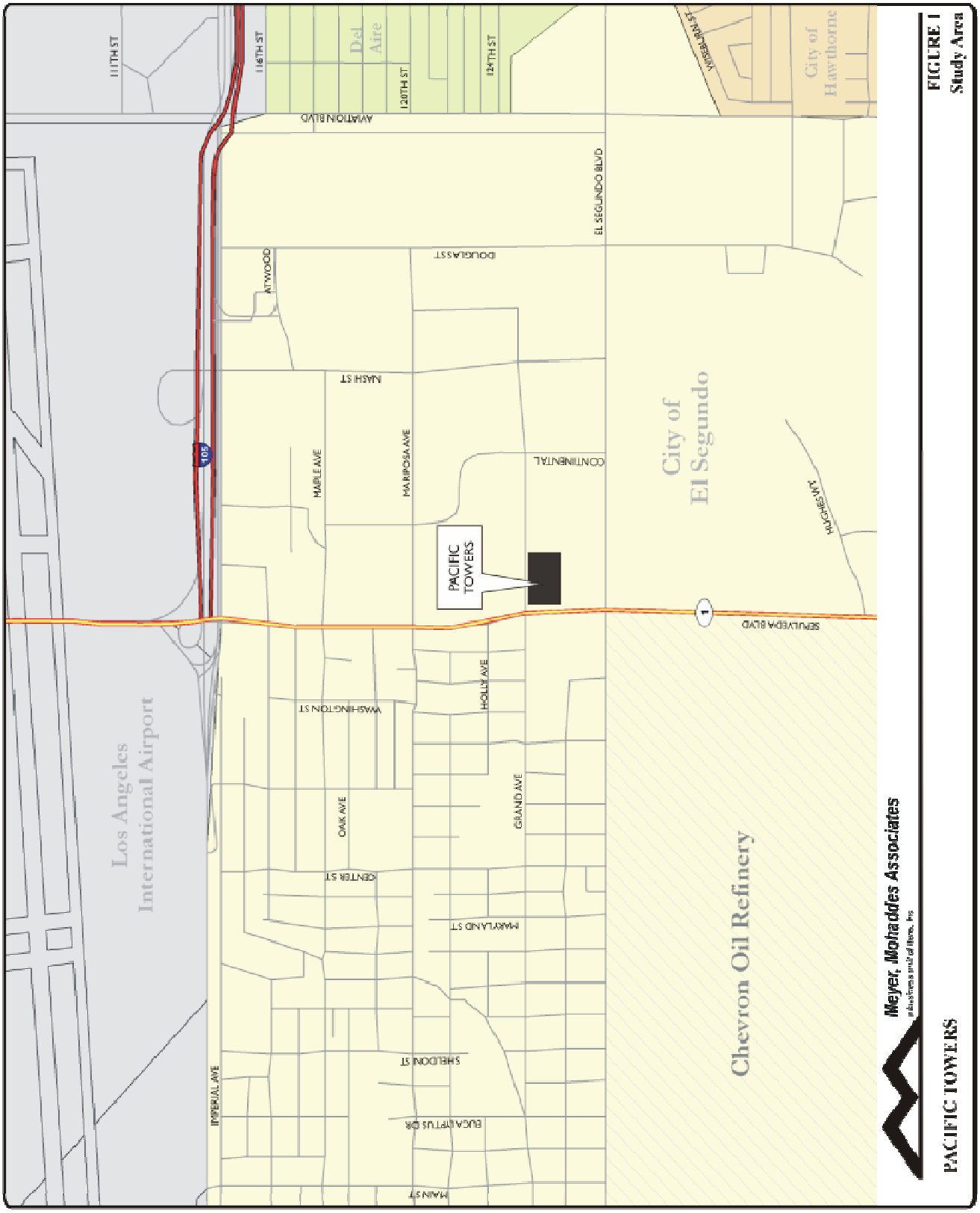
The peak number of construction workers during a shift for the remainder of the construction is anticipated to be 347, during the daytime shift in October 2007 (see Table 1). Construction personnel would commute to work in private automobiles, although carpooling would be encouraged. For purposes of a worst-case analysis, a vehicle occupancy rate of 1.0 person(s) per vehicle was used in the analysis, which means that there would be a peak of 347 worker vehicle trips generated at the beginning and end of a daytime construction shift by project construction activities.

PROJECT TRIP DISTRIBUTION

Chevron has identified an alternate parking location to be used by construction workers for the remaining 11 months of the construction project, illustrated in Figure 1.

To access this remote parking area, project construction employees would use the Glenn M. Anderson Freeway (I-105), exit at Nash Street exit (southbound), turn right on Mariposa Avenue to Sepulveda, left on Sepulveda Boulevard, and finally turn left on Grand Avenue in order to enter the parking lot. At the conclusion of the work shift, project construction workers will be returned via shuttle buses to the remote off-site parking area via Grand Avenue. As a contractual requirement of the contract between Chevron and its project construction contractors, project construction workers will be directed to exit the remote off-site parking area by traveling east on Grand Avenue, then north on Continental, left on Douglass, left on Atwood to the on-ramp to the eastbound Glenn M. Anderson Freeway (I-105). The I-105 Freeway has an interchange with the San Diego Freeway (I-405) allowing connections to other freeways and locales north and south of the refinery.

Project trip distribution is illustrated in Figure 2 and project-only volumes at local study area intersections are illustrated in Figure 3.


111TH ST
116TH ST
Del Aire
120TH ST
124TH ST
City of Hawthorne
AVIATION BLVD
EL SEGUNDO BLVD
DOUGLAS ST
ATWOOD
NASH ST
105
MAPLE AVE
MARIPOSA AVE
CONTINENTAL
City of El Segundo
PACIFIC TOWERS
HUGHES WAY
SEPULVEDA BLVD
Los Angeles International Airport
HOLLY AVE
WASHINGTON ST
OAK AVE
GRAND AVE
CENTER ST
MARTLAND ST
SHELDON ST
IMPERIAL AVE
BUCCANEER DR
MAIN ST
Chevron Oil Refinery
Meyer, Mohaddes Associates
FIGURE 1
Study Area
PACIFIC TOWERS

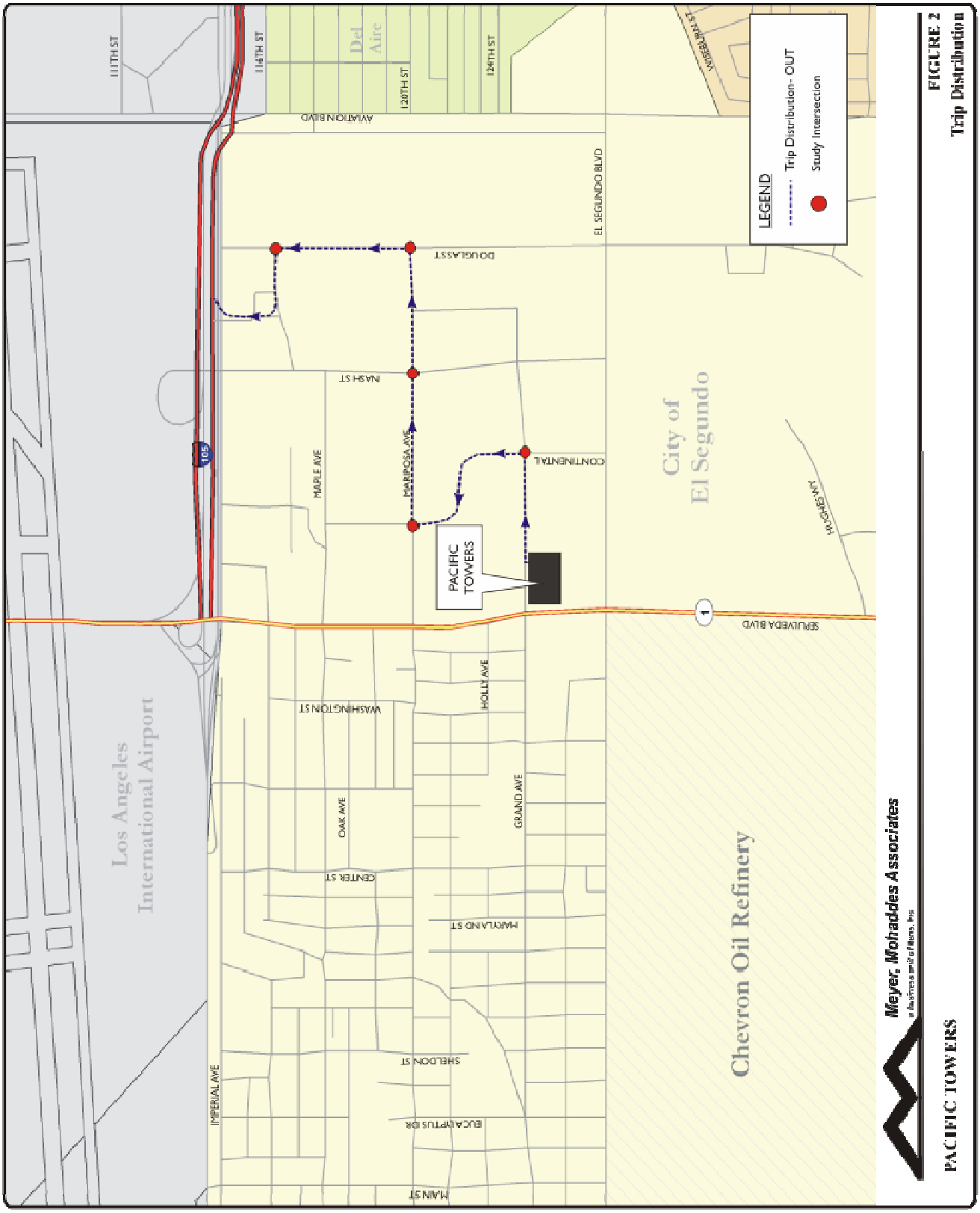


FIGURE 2
Trip Distribution
PACIFIC TOWERS

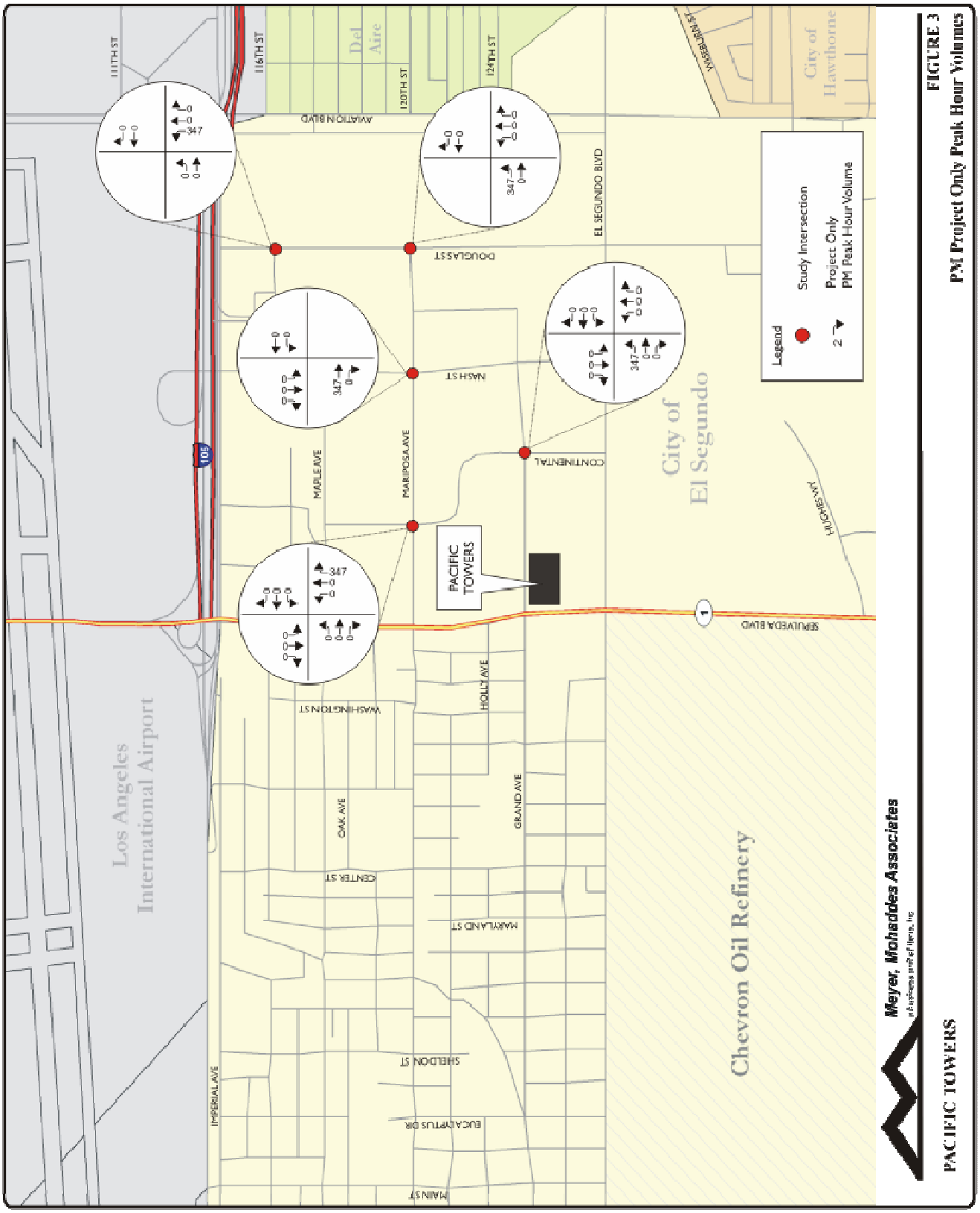


FIGURE 3
PM Project Only Peak Hour Volumes
PACIFIC TOWERS
Meyer, Mohaddes Associates
Legend
Study Intersection
Project Only
PM Peak Hour Volume
City of El Segundo
Chevron Oil Refinery
Los Angeles International Airport
City of Hawthorne
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CENTER ST
MARILAND ST
SHELDON ST
EUCALYPTUS DR
MAIN ST
IMPERIAL AVE
105

ANALYSIS CRITERIA

The project continues to be subject to the significance criteria from the South Coast Air Quality Management District (SCAQMD) used in the original EIR document:

Construction traffic impacts to transportation and circulation will be considered significant if the following criteria are met:

- Peak period levels on major arterials are disrupted to a point where level of service (LOS) is reduced to D, E or F for more than one month.
- An intersection's volume to capacity ratio increase by 0.02 (two percent) or more when the LOS is already D, E or F.
- A major roadway is closed to all through traffic, and no alternate route is available.
- There is an increase in traffic (e.g., 350 heavy-duty truck round-trips per day) that is substantial in relation to the existing traffic load and capacity of the street system.
- The demand for parking facilities is substantially increased.
- Water borne, rail car or air traffic is substantially altered.
- Traffic hazards to motor vehicles, bicyclists or pedestrians are substantially increased.

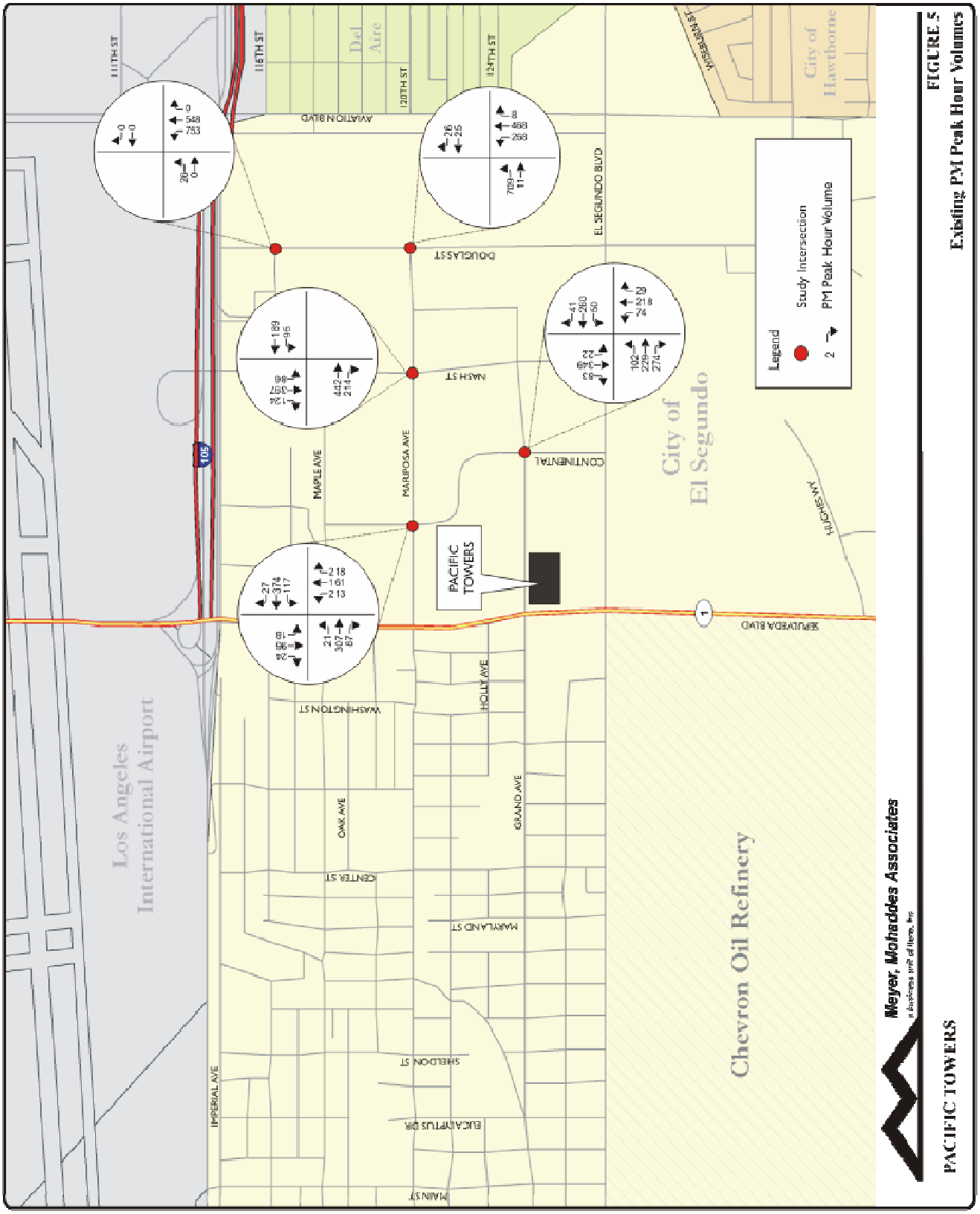
This project is also subject to a Congestion Management Program (CMP) analysis if the proposed project increases traffic demand on a CMP facility by two percent of capacity (V/C change greater than or equal to 0.02) and causes or worsens to a level of service (LOS) F (V/C > 1.00) condition at a location. Note: a change of two percent at an intersection caused by the addition of project traffic is considered a significant change but may or may not result in a significant impact. This methodology requires a project to mitigate the project's traffic impact to level of service (LOS) "E" or better whenever the traffic generated by the proposed development causes the level of service (LOS) of identified CMP intersections to change by .02 that causes or worsens to LOS "F". CMP locations within the study area include major intersections along state roadways (SR-1/Sepulveda) and freeway ramp locations where the project will add 150 or more trips in either direction during the AM or PM weekday peak hours.

The City of El Segundo, in accordance with the *City of El Segundo General Plan Circulation Element (2004)*, identifies a project-related traffic impact at area intersections as "significant" if the project's traffic results in an intersection level of service change from LOS D or better to LOS E or F or if there is an increase in ICU value of 0.020 or more, when the "With Project" intersection level of service is at LOS E or F (ICU = 0.901 or more).

ANALYSIS OF TRAFFIC IMPACTS

Traffic count information was collected by Wiltec Inc. at study area intersections in April 2007. The resulting intersection turn movement volumes are illustrated in Figures 4 and 5 for existing AM and PM peak period conditions, respectively. Figure 6 illustrates intersection turn movement volumes for existing-plus-project conditions during the PM peak hour. Intersection capacity utilization (ICU) values are presented in Table 2 (actual ICU calculations are included in

FIGURE 4
Existing AM Peak Hour Volumes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EUCALYPTUS DR
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FIGURE 5
Existing PM Peak Hour Volumes
PACIFIC TOWERS
Meyer, Mohaddes Associates

FIGURE 6
PM Existing Plus Project Peak Hour Volumes

Appendix A) and are a means of representing peak hour volume/capacity ratios. The ICU is the proportion of an hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. If an intersection is operating at 80 percent of capacity, then 20 percent of the signal cycle is not used. The signal could show red on all indications 20 percent of the time and the signal would just accommodate approaching traffic.

Table 2
ICU SUMMARY – EXISTING PLUS CONSTRUCTION PROJECT CONDITIONS

	EXISTING		EXISTING + PROJECT		
INTERSECTION	PM		PM		CHANGE
1. Continental Boulevard at Grand Avenue	0.292	A	0.433	A	0.141
2. Continental Boulevard at Mariposa Avenue	0.363	A	0.363	A	0.000
3. Nash Street at Mariposa Avenue	0.292	A	0.401	A	0.108
4. Douglas Street at Mariposa Avenue	0.324	A	0.433	A	0.108
5. Douglas Street at Atwood Way	0.243	A	0.352	A	0.108
Level of service ranges: .00 - .60 A .61 - .70 B .71 - .80 C .81 - .90 D .91 – 1.00 E Above 1.00 F					

SUMMARY AND CONCLUSIONS:

An examination of Table 2 indicates that all intersections presently operate at LOS 'A' or better and are forecast to continue to operate at LOS 'A' or better with the addition of project traffic. Traffic from the project does not cause any intersection to deteriorate to an unacceptable level of service nor does it contribute sufficient traffic to these locations to require mitigation. For the purpose of CMP Transportation Impact Analysis (TIA), a project impact is considered to be significant if the proposed project increases traffic demand on a CMP facility by two percent of capacity (V/C change greater than or equal to 0.02) and causes or worsens to a level of service (LOS) F (V/C > 1.00) condition at a location. Note: a change of two percent at an intersection caused by the addition of project traffic is considered a significant change but may or may not result in a significant impact.

Therefore, construction worker commuter traffic for the proposed modification to the project will not cause significant adverse impacts on intersections in the vicinity of the proposed alternate parking facility for the refinery, under the SCAQMD CEQA significance criteria, the Los Angeles County Congestion Management Program guidelines or the City of El Segundo criteria. Therefore, no mitigation is required for the use of this alternate parking location for the proposed project.

If you have any questions or concerns please contact Gary Hamrick or me at (562) 432-8484. Thank you.

cc: File

APPENDIX A:
COUNT DATA
ICU WORKSHEETS