The Los Angeles Department of Water & Power's (LADWP) Electrical Generation Stations Modifications Project (With Emphasis on the Harbor Generating Station (HGS) Site)

November 2000

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LADWP Electrical Generation Stations Modifications Project (With Emphasis on the Harbor Generating Station (HGS) Site)

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INTRODUCTION

1.1 INTRODUCTION

This report presents the results of a traffic analysis performed for the proposed modifications to three Los Angeles Department of Water and Power (LADWP) power generating stations to achieve an overall decrease in oxides of nitrogen ($NO_{x)}$ emissions throughout the South Coast Air Basin (Basin). This report has been prepared for submittal in support of the application for the project site.

1.2 PROJECT DESCRIPTION

The LADWP is proposing modifications to three power generating stations to help comply with its annual Regional Clean Air Incentives Market (RECLAIM) Allocations for future years, improve in-Basin power reliability, and participate in the Californian independent System Operator ("Cal-ISO") by supplying excess electrical power on a daily basis during the summer, thereby reducing the risk of blackouts for the state. The proposed project is anticipated to provide an overall decrease in No_x throughout the Basin. The proposed project consists of modifications to three power generating stations located in Los Angeles, the Harbor Generating Station (HGS) located in Wilmington, the Scattergood Generating Station (SGS) located in Playa del Rey, and the Valley Generating Station (VGS) located in Sun Valley.

1.2.1 Project Locations

The locations of the three power generating stations are shown on Figures 1-1, 1-2, and 1-3 and the project site plans for the three power generating stations are shown on Figures 1-4, 1-5, and 1-6. The HGS is located at 161 North Island Avenue, City of Los Angeles (Wilmington) adjacent to the Port of Los Angeles. The HGS occupies an irregularly shaped parcel of land bordered by Harry Bridges Boulevard to the north; Avalon Boulevard to the east; a container storage area to the south; and Lagoon Avenue to the west. The nearest residential area is located approximately one-quarter mile to the north.

Figure 1-1 Project Vicinity Map (HGS)

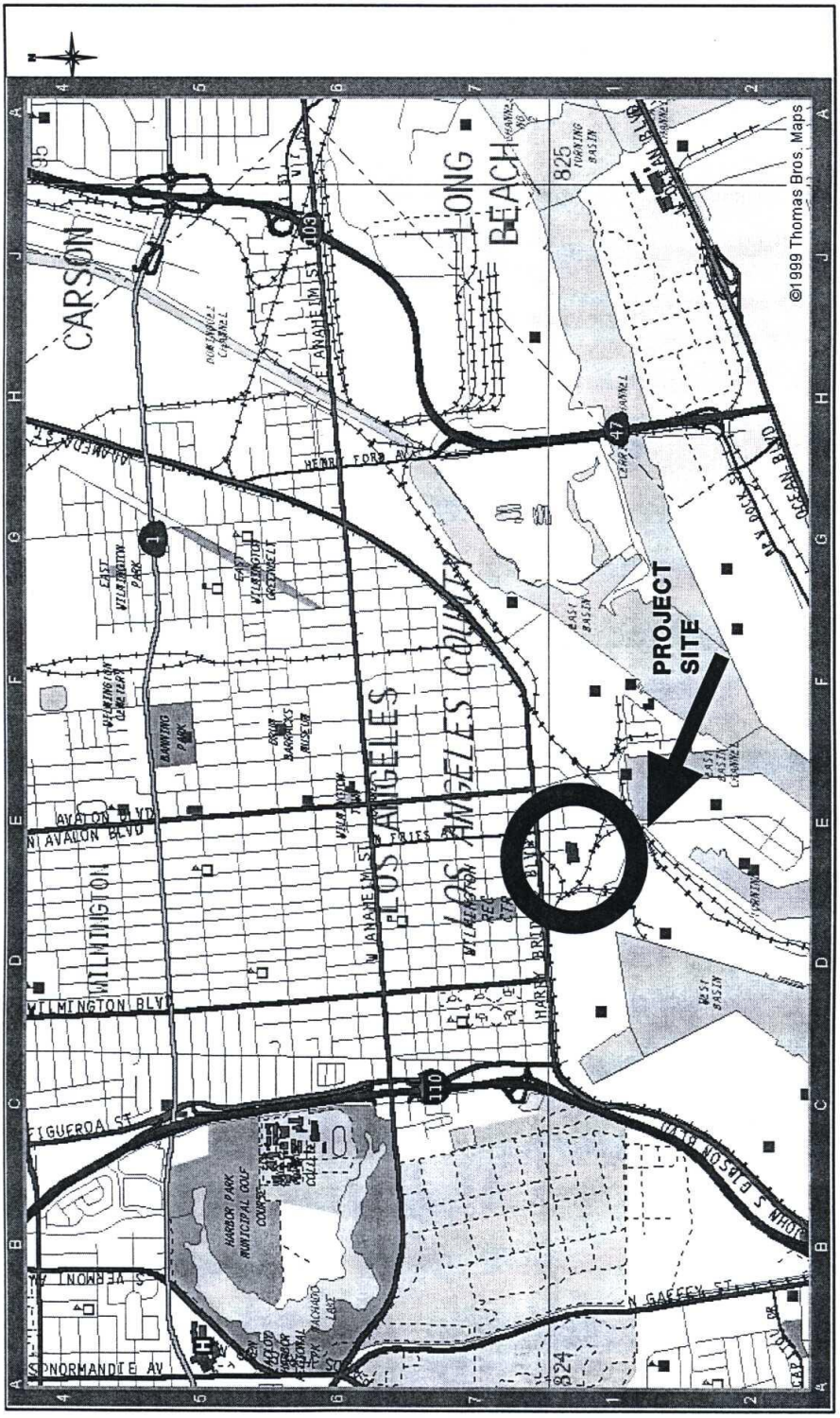

Figure 1-2 Project Vicinity Map (SGS)

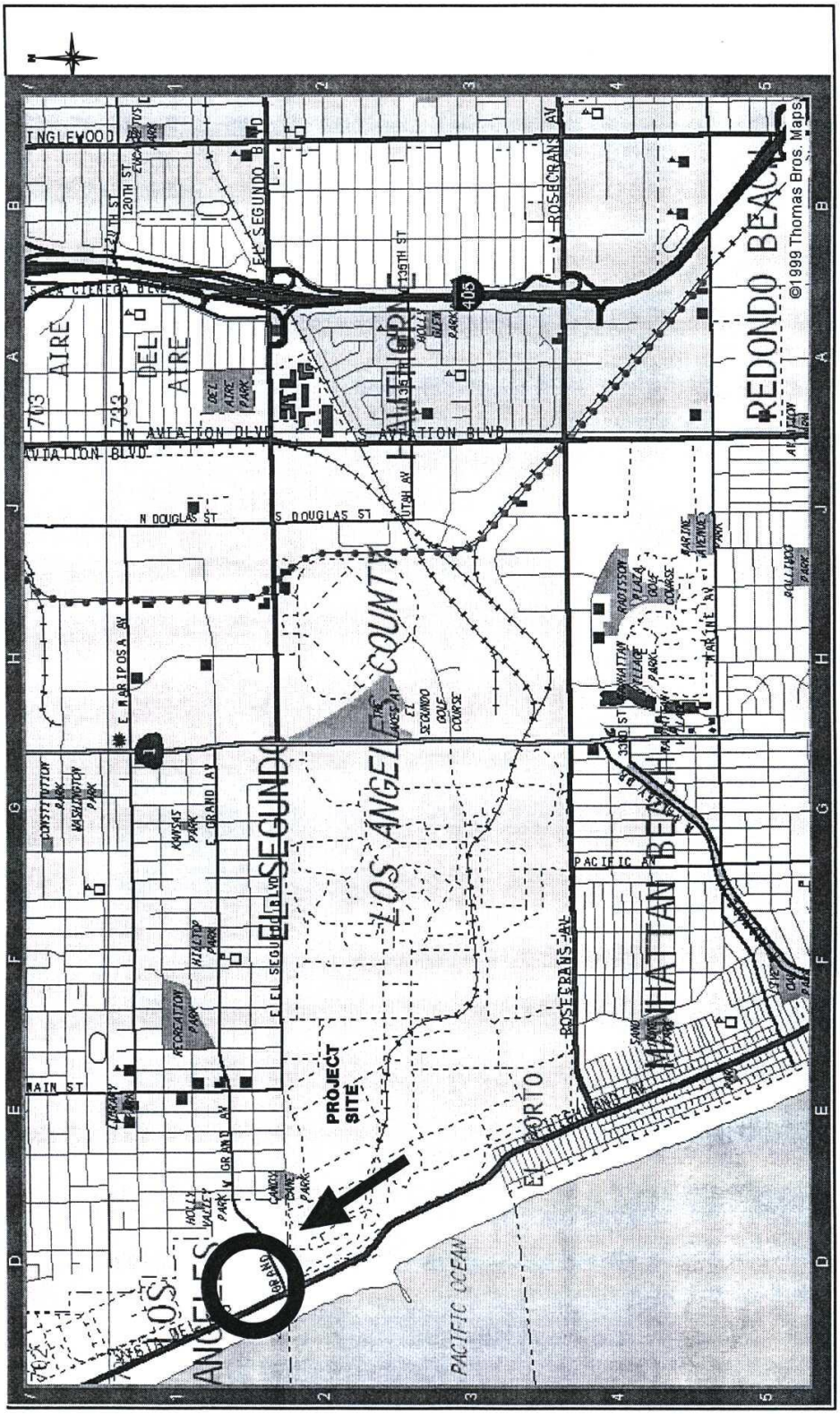

Figure 1-2
PROJECT VICINITY MAP
SCATTERGOOD GENERATING STATION(SGS)

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Harbor Generating Station
Traffic Impact Analysis

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Figure 1-3 Project Vicinity Map (VGS)

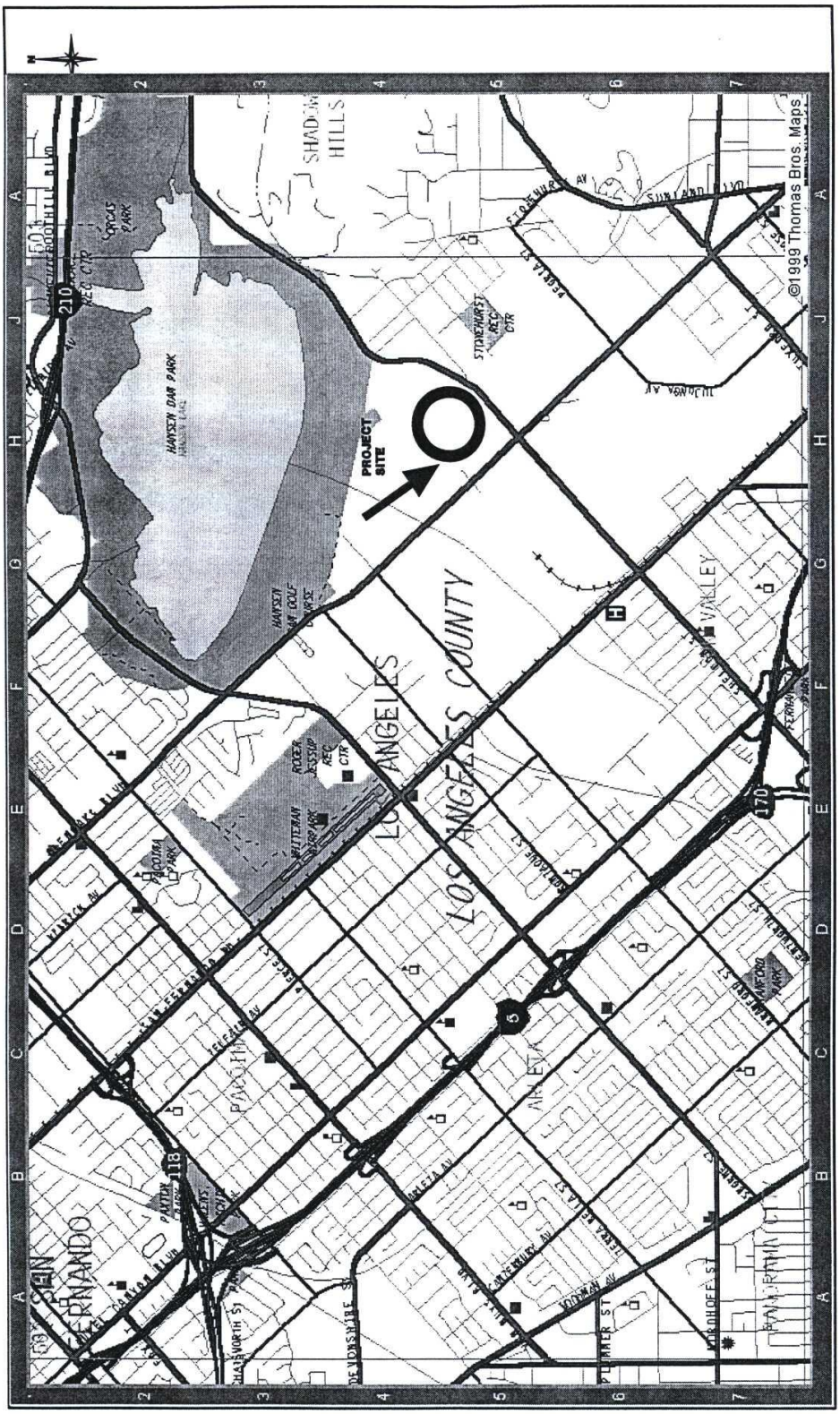

Figure 1-3

PROJECT VICINITY MAP (VGS)

Harbor Generating Station
Traffic Impact Analysis

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Figure 1-4 Project Site Plan(HGS)

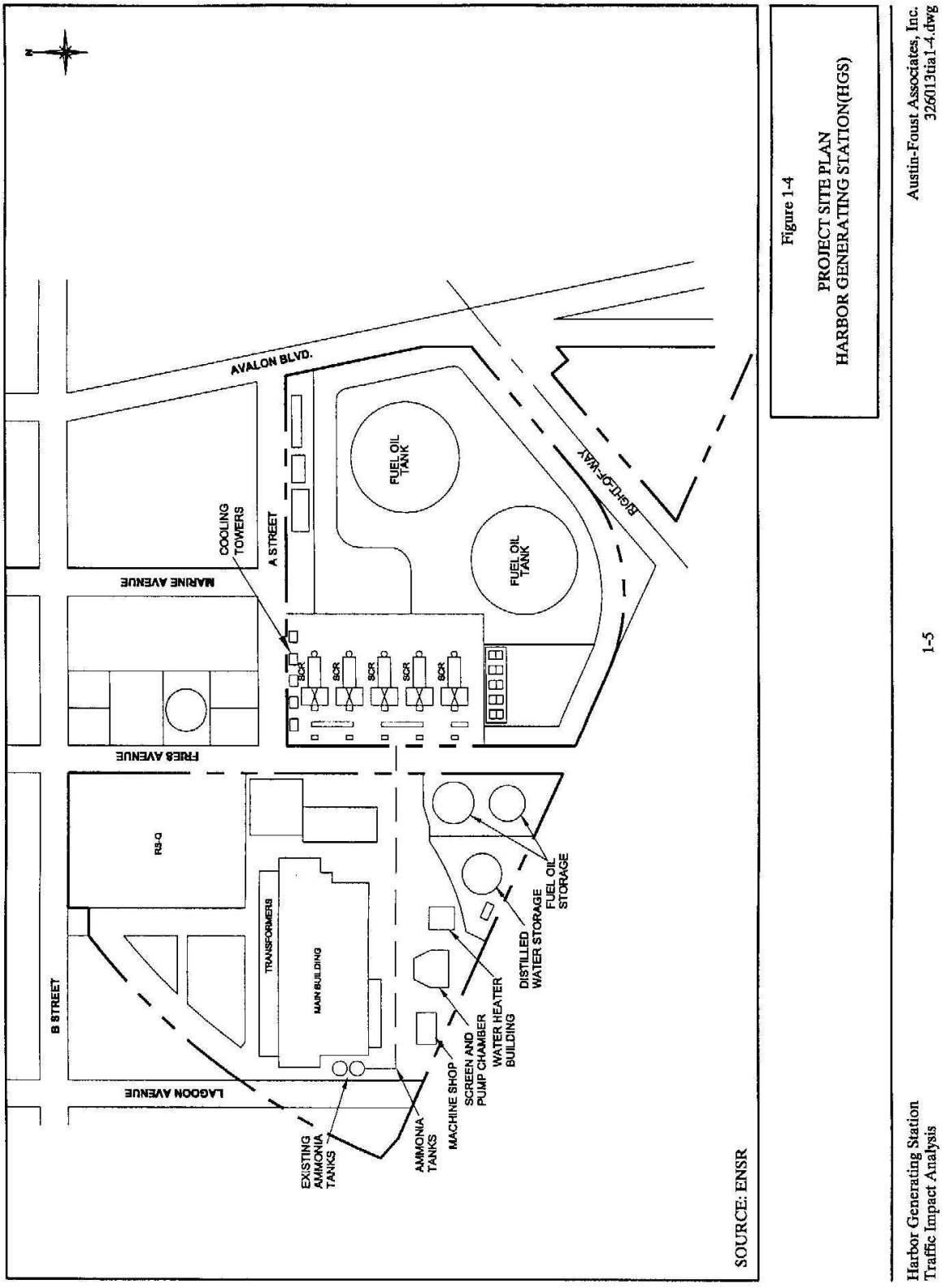

Figure 1-5 Project Site Plan (SGS)

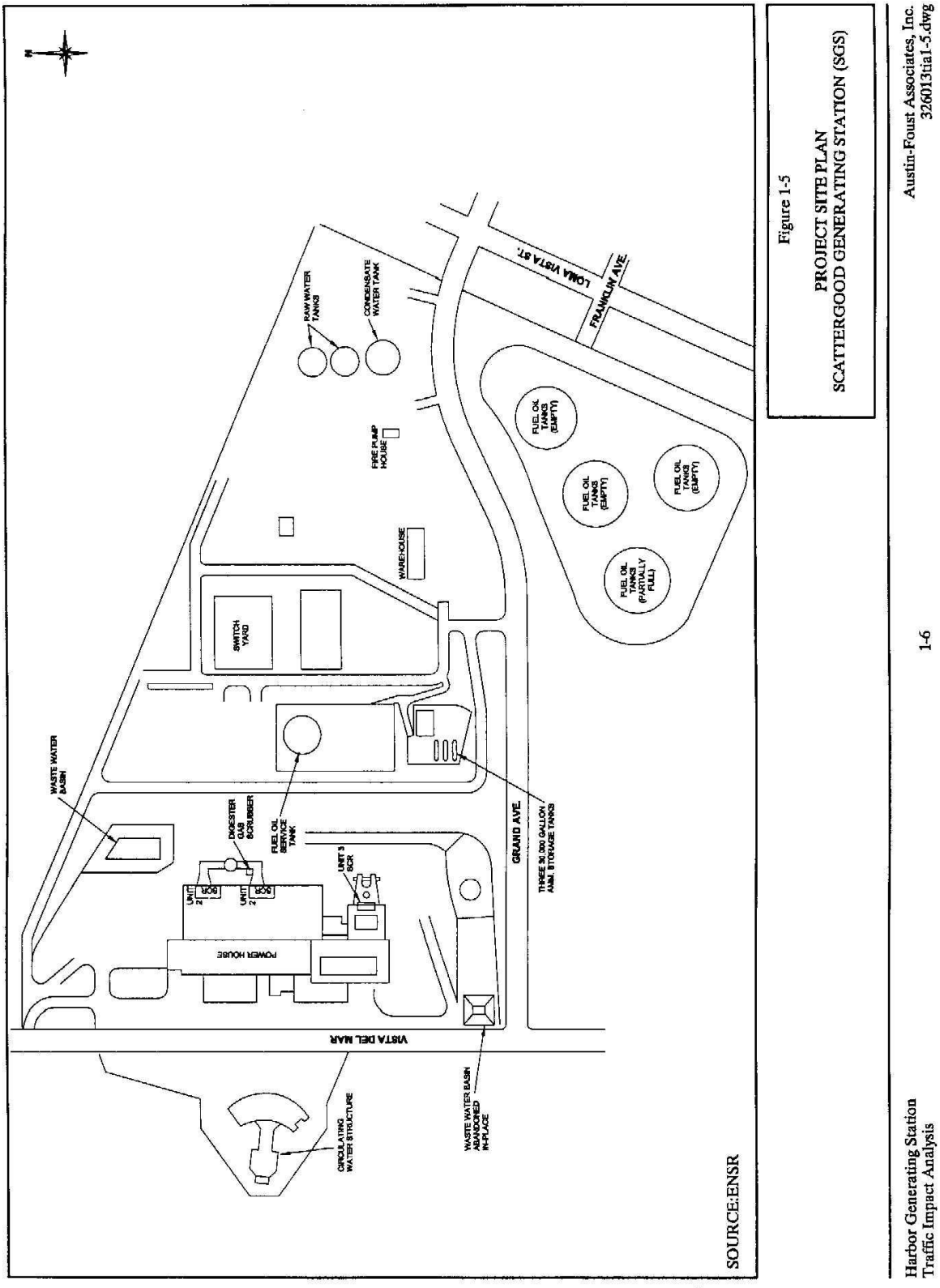

Figure 1-6 Project Site Plan (VGS)

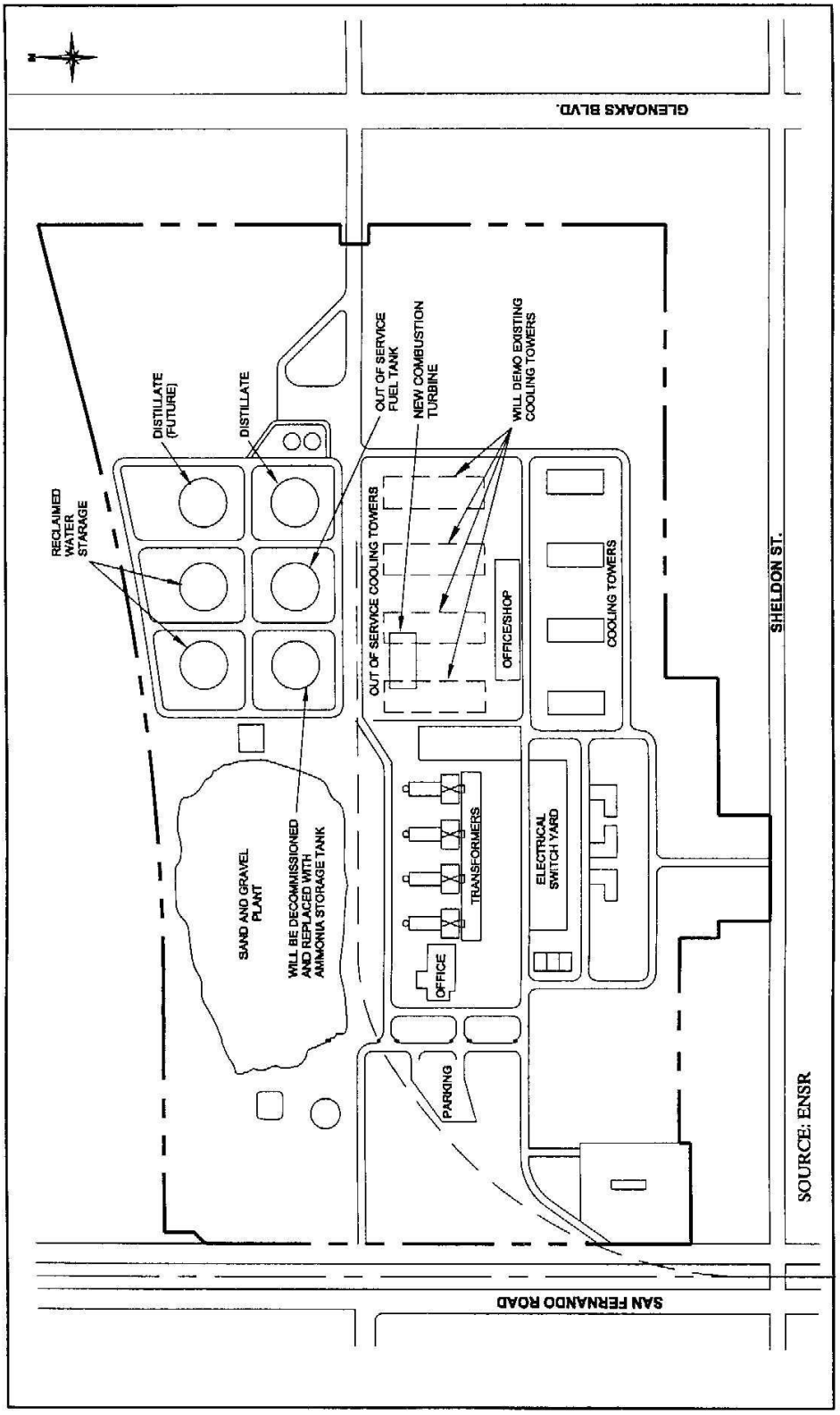

Figure 1-6
PROJECT SITE PLAN
VALLEY GENERATING STATION (VGS)

Harbor Generating Station
Traffic Impact Analysis

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The SGS is located at 12700 Vista Del Mar in the City of Los Angeles (Playa De Rey). The facility is bounded to the west by the Pacific Ocean; to the east by a residential neighborhood of single-family dwellings; to the south by Grand Avenue, beyond which is the Chevron El Segundo Refinery; and to the north by the Hyperion Wastewater Treatment Plant.

The VGS is located at 9430 San Fernando Road in the City of Los Angeles (Sun Valley). The VGS occupies a parcel of land bounded by Glenoaks to the northeast; Sheldon Road to the southeast; San Fernando Road to the southwest; and a flood control channel to the northwest, beyond which is Branford Road. The area surrounding the facility is primarily commercial/industrial; however, an emergency medical clinic, a hospital and two motels are present adjacent to the site on San Fernando Road. A sand and gravel plant is located adjacent to the northwest of the site. There are no residences in the immediate vicinity of the VGS with the nearest residential properties located approximately one-half mile north of the site.

1.2.2 Generating Station Improvements

The units, additions, and modifications proposed as part of the generating station improvements include the installation of combustion turbines (CT) and selective catalytic reduction (SCR) process to reduce NO_x, and where needed either the installation of aqueous ammonia storage tanks or the construction of a pipeline to transport the ammonia from an existing on-site tank to the new SCR's.

1.3 ANALYSIS SCOPE

The traffic analysis examines the impacts of adding construction project generated traffic to existing traffic on the surrounding arterial network. Table 1-1 summarizes the Los Angeles Department of Transportation (LADOT) tiered scale used to identify significant impact at intersections:

Table 1-1

Volume to Capacity Ratio Designations

Final Volume/Capacity (V/C)	Project-Related Increase In Volume/Capacity (V/C)
0.00 - 0.70	equal to or greater than 0.06
0.71 - 0.80	equal to or greater than 0.04
0.81 - 0.90	equal to or greater than 0.02
0.91 or greater	equal to or greater than 0.01

The traffic analysis material presented here is set out as follows:

Chapter 2.0 - Project Setting

Chapter 3.0 - Traffic Impact Analysis

Chapter 4.0 - Mitigation Measures

1.4 DEFINITIONS

Certain terms used throughout this report are defined below to clarify their intended meaning:

ADT - Average Daily Traffic.

ICU - Intersection Capacity Utilization. A factor used to measure the volume to capacity ratio for an intersection and determine the level of service.

LOS - Level of Service. A scale used to evaluate circulation system performance based on intersection ICU values or volume/capacity ratios of arterial segments. The levels range from "A" to "F", with LOS "A" representing free flow traffic and LOS "F" representing severe traffic congestion.

Peak Hour - This typically refers to the hour during the AM peak period (typically 7 AM - 9 AM) or the PM peak period (typically 3 PM - 6 PM) in which the greatest number of vehicle trips are generated by a given land use or are travelling on a given roadway.

VPD - Vehicles per Day. This has the same meaning as ADT but is generally used in a trip generation context rather than in reference to the highway volume of an arterial segment.

VPH - Vehicles per Hour.

V/C -Volume to Capacity Ratio. This is typically described as a percentage of capacity utilized by existing or projected traffic on a segment of arterial or an intersection turn movement.

Chapter 2.0

PROJECT SETTING

This chapter describes the project site in relation to the transportation setting. The existing circulation system is discussed, and existing traffic volumes and levels of service are summarized.

2.1 SURROUNDING HIGHWAY NETWORK

The anticipated construction traffic at the SGS and the VGS locations is forecast to be small and will have minor impacts only during the construction period expected to last approximately five months. Access to these project sites is available via direct access routes to regional roadway and freeway facilities. However, impacts for the HGS site will be greater due to the larger number of construction workers associated with project site modifications. Therefore, this study focuses primarily on the impacts from construction traffic associated with the HGS project site.

The HGS construction traffic may affect six primary roadways in the vicinity of the HGS. The following is a description of these roadways and other local circulation routes that may be taken by construction workers, haul trucks, and material delivery trucks.

Harbor Freeway Interstate 110) - is a six-to-eight lane freeway traveling from San Pedro to downtown Los Angeles. It passes west of the site and provides interchanges at "C" Street, Anaheim Street and Pacific Coast Highway (PCH).

San Diego Freeway (Interstate 405) - is an eight-to-ten lane freeway traveling south-north from Irvine to San Fernando. It passes north of the site and provides an interchange on Alameda Street.

Alameda Street - is a four-lane roadway extending west and north from the project site. There are a few signalized cross streets, consisting of PCH, Henry Ford Avenue, and Anaheim Street. All other cross street traffic is controlled by STOP signs and Alameda Street traffic does not stop at these locations. Alameda Street is bounded by primarily industrial uses and includes rail services.

Harry Bridges Boulevard - Alameda Street changes into Harry Bridges Boulevard as it turns into an east-west direction. Major intersections include Avalon Boulevard, Fries Avenue, Neptune Avenue and Figueroa Street. Bus service from the Southern California Rapid Transit District (SCRTD) is provided on Harry Bridges Boulevard.

Figueroa Street - is a four-lane north-south roadway extending from the project vicinity north to central Los Angeles and ends at a "T" intersection with Harry Bridges Boulevard. Located just north of Harry Bridges Boulevard are the Interstate 110 northbound on/off ramps.

Pacific Coast Highway (PCH) - is a six-lane east-west arterial roadway located north of the project site and is a State highway designated as SR-1. Predominate land use along this roadway in the vicinity of the project is strip commercial.

Anaheim Street - is a four-lane east-west roadway bounded with mostly strip commercial uses in the vicinity of the project.

Wilmington Boulevard - is a four-to-six lane north-south roadway that abuts a mixture of land uses including residential, strip commercial, and industrial uses.

Avalon Boulevard - is a four-lane divided roadway extending north-south from Water Street south of the project site to south-central Los Angeles. Land uses adjacent to Avalon Boulevard include the Port of Los Angeles (refineries, warehouses, and shipping berths) and a residential and commercial district south of PCH.

Fries Avenue - is a four-lane north-south roadway that provides access to incoming and outgoing traffic for the Port of Los Angeles and forms the eastern boundary for the LADWP HGS site.

Island Avenue - is a two-lane north-south collector roadway providing access to residential neighborhoods north of Harry Bridges Boulevard and is the gated entrance to the HGS site south of Harry Bridges Boulevard.

Water Street - is a two-lane east-west collector roadway south of the project site in the Port of Los Angeles area and is used as an alternate route between Avalon Boulevard and Fries Avenue.

It is expected that construction traffic generated by activities at the HGS site will access the site via Island Avenue and will continue along Harry Bridges Boulevard toward the Harbor Freeway and Alameda Street toward Interstate 405.

2.2 EXISTING TRAFFIC CONDITIONS

The anticipated construction traffic at the SGS and the VGS project sites is forecast to be relatively low, below the Congestion Management Program (CMP) guidelines and will have minor impacts only during the expected construction five month period. Access to these sites is available via direct access routes to regional roadway and freeway facilities.

The HGS site is located at 161 North Island Avenue, City of Los Angels (Wilmington) adjacent to the Port of Los Angeles. The HGS site occupies an irregularly shaped parcel of land bordered by Harry Bridges Boulevard to the north; Avalon Boulevard to the east; a container storage area to the south; and Lagoon Avenue to the west. The nearest residential area is located approximately one-quarter mile to the north.

The following 7 intersections in the HGS vicinity have been included in the traffic analysis:

1. Figueroa & I-110 Fwy ramp
2. Figueora & Harry Bridges Blvd
3. Alameda & I_405 NB
4. Alameda & 223rd/Wardlow Access
5. Alameda & Sepulveda
6. I-405 SB on/off & 223rd/Wardlow I-710
7. 223rd & Alameda/Wardlow access

Existing AM and PM peak hour turning movement volumes at these intersections were counted by Traffic Data Services, Inc., and are illustrated in Figures 2-1 and 2-2. Intersection capacity utilization (ICU) values are presented in the Table 2-1 (actual ICU calculations are included in 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 maximum 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. All intersections near the vicinity of the HGS site are presently operating at an acceptable level of service during the AM and PM peak hour under existing conditions.

Table 2-1

EXISTING LEVEL OF SERVICE SUMMARY

INTERSECTION	2000 EXISTING AM	PM
HGSl		
1. Figueroa & I-110 Fwy	.361	.397
2. Figueroa & Harry Bridges Blvd	.418	.405
3. Alameda & I-405 NB	.41	.52
4. Alameda & 223/Wardlow Access	.37	.52
5. Alameda & Sepulveda	.51	.83
6. I-405 SB on/off & 223/Wardlow	.42	.50
7. 223rd & Alameda/Wardlow Access	.45	.81

*Exceeds acceptable level of service

Level of service ranges: .00 - .60 A
.61 - .70 B
.71 - .80 C
.81 - .90 D
.91 - 1.00 E
Above 1.00 F

Average Daily Traffic (ADT)

Existing Average Daily Traffic (ADT) volumes were collected for selected roadway links near the HGS site and then compared to the ADT volumes previously presented in a 1991 study completed for the 1993 LADWP Harbor Generating Station Repowering Project. The 1991 study did not indicate that the proposed 1993 Harbor Generating Station Repowering Project would have significant construction/operational traffic impacts. The comparison of the existing (Year 2000) and 1991 24-hour traffic volumes on Harry Bridges Boulevard east of Figueroa Street and east of Avalon Boulevard is summarized in Table 2-2. An examination of this table indicates that the growth in traffic volumes in this area have been relatively level since 1991. In fact, comparison of the selected roadway links indicates a fifteen to twenty percent reduction in the ADT on

roadways adjacent to the HGS site. The propose construction activities at the HGB site are not forecast to contribute a significant amount of traffic to the roadway system on a daily basis (800 daily vehicle trips). The addition of the HGS site construction traffic to the existing ADT volumes in the vicinity results in a change of less than 0.02 (<2%), a change considered less than significant. In fact, when the HGS construction site traffic is added to current (Year 2000) existing conditions, the total daily traffic remains less than what previously existed in 1991, thereby demonstrating that adequate roadway capacity is available.

Table 2-2

Traffic Volumes

Location	CAP	1991 Vol	1991 V/C		Exist. Vol	Exist V/C		Project Vol	Exist+Prj Vol	Exist+Prj V/C	
E/O Figueroa	36,000	22,400	.62	B	18,800	.52	A	140	18,940	.53	A
E/O Avalon											A
	36,000	19,300	.54	A	13,600	.38	A	60	13,330	.38	

Level of service ranges: .00 - .60 A
.61 - .70 B
.71 - .80 C
.81 - .90 D
.91 - 1.00 E
Above 1.00 F

Figure 2-1 Existing AM Peak Hour Turn Volumes (HGS)

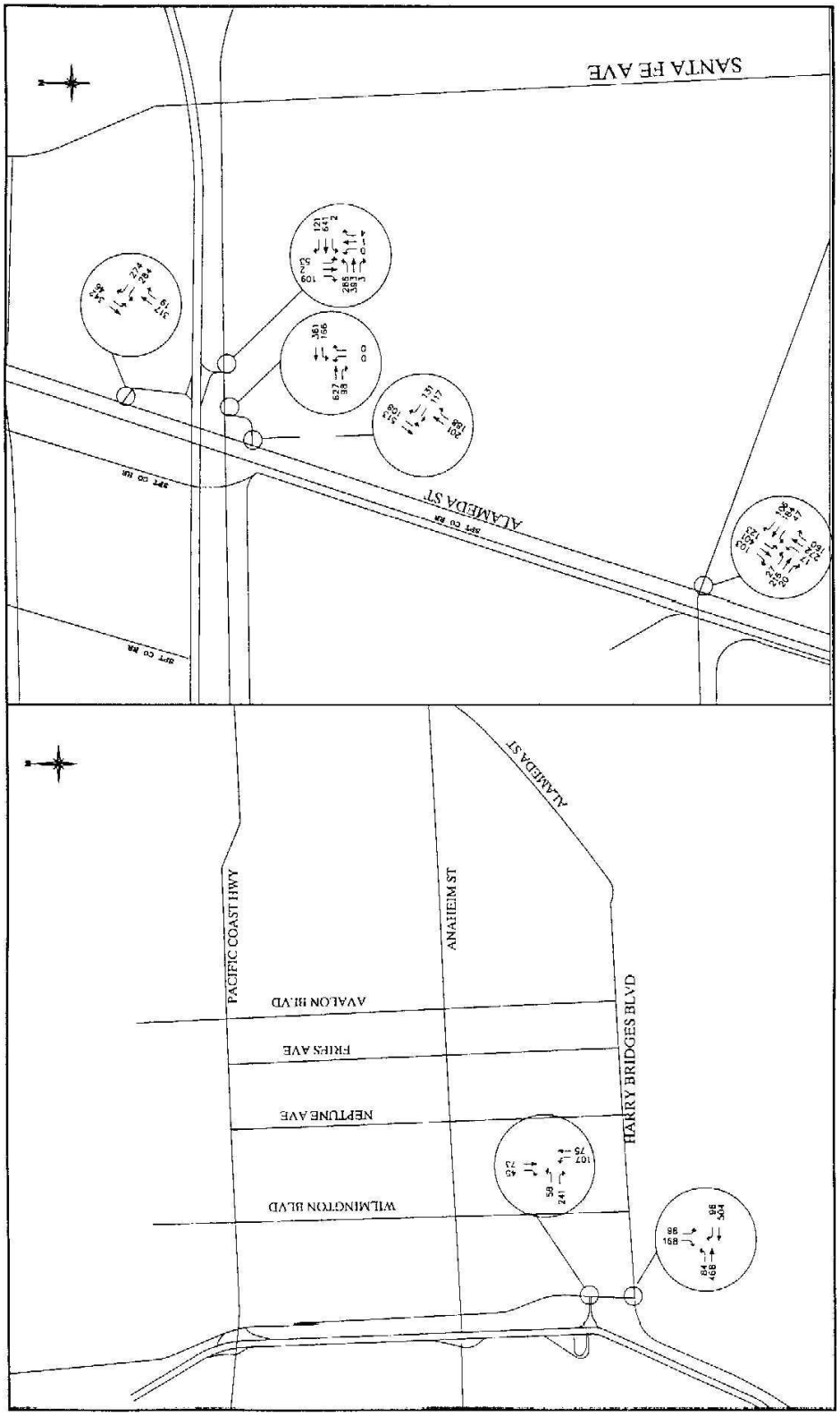

Figure 2-1
EXISTING AM
PEAK HOUR TURN VOLUMES (HGS)

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Harbor Generating Station
Traffic Impact Analysis

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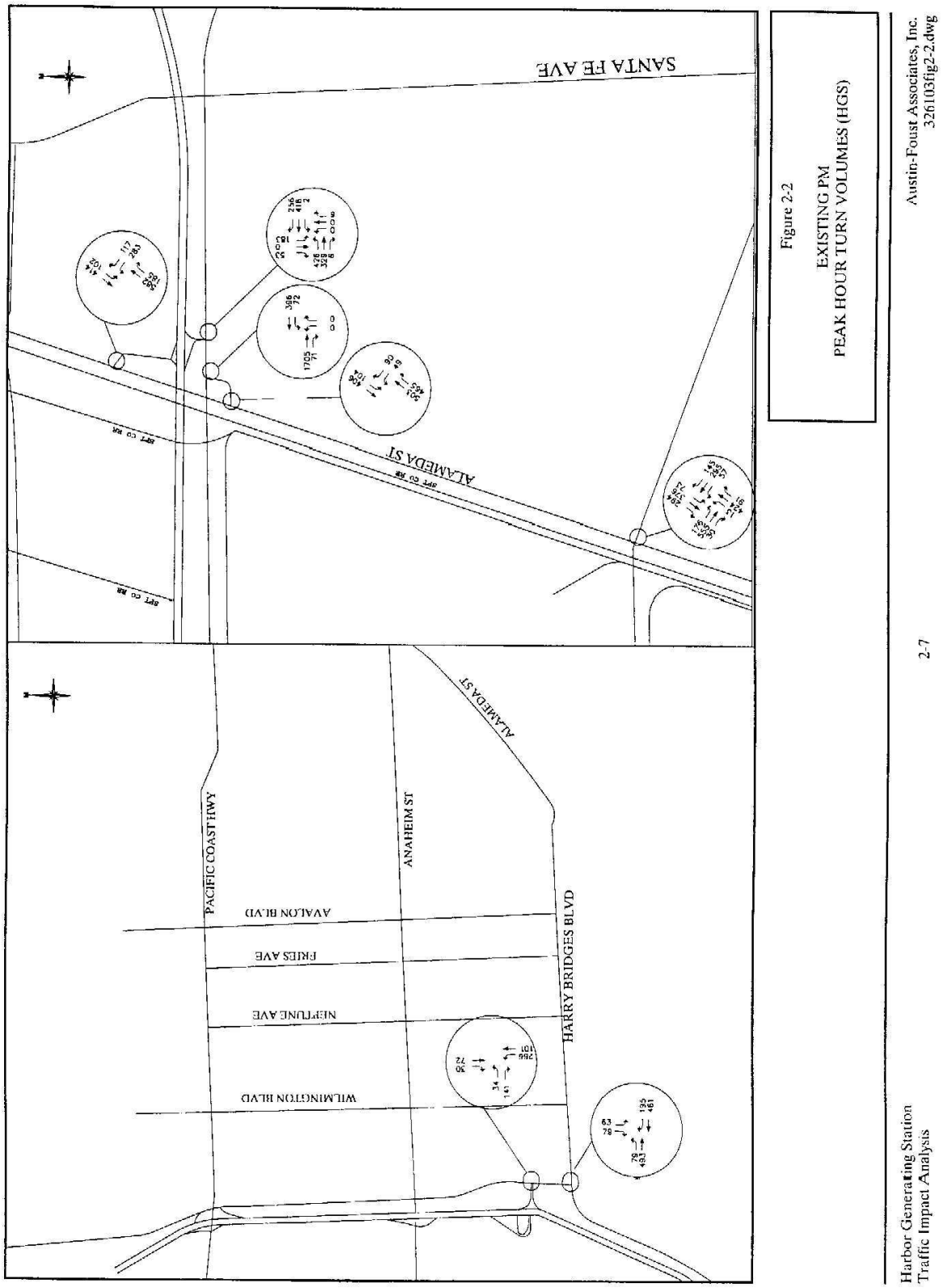
Figure 2-2 Existing PM Peak Hour Turn Volumes (HGS)



Chapter 3.0

TRAFFIC IMPACT ANALYSIS

This chapter describes the potential impacts of the proposed project's traffic upon the surrounding arterial network. Traffic generated by the implementation of the proposed project is added to the existing volumes presented in the previous chapter and the resulting capacity impacts are assessed.

3.1 TRIP GENERATION

As mentioned previously, anticipated construction traffic at the SGS and the VGS project sites is forecast to be small and will have minor impacts only during the construction phase, which is expected to last five months. Access to these sites is available via direct access routes to regional roadway and freeway facilities. However, traffic impacts for the HGS site are expected to be greater because of the larger number of construction workers associated with construction activities at this site. Therefore this study focused primarily on impacts from construction traffic at the HGS site.

Construction activities for the proposed modifications and installations at the three project sites are scheduled to begin February 2001 and be completed in June 2001. Construction is anticipated to take place seven days per week using two work shifts; 6:00 AM to 4:30 PM and 4:00 PM to 2:30 AM.

Table 3-1 summarizes the anticipated peak construction vehicles at each project site based on a "worst-case" vehicle occupancy of 1.0 persons per vehicle.

Table 3-1

CONSTRUCTION TRAFFIC SUMMARY

Location	Workers per Day	Work Shifts	Workers per Shift	Estimated Construction Time
Harbor Generating Station (HGS)	450	2	200	5 months
Scattergood Generating Station (SGS)	100	2	50	5 months
Valley Generating Station (VGS)	100	2	50	5 months

An examination of this table indicates that the addition of construction workers will be relatively small at the SGS and VGS project sites. At the HGS site, the construction effort is anticipated to require a peak of 400 daily vehicles or 800 vehicles trips per day during the construction period. These 400 daily vehicles are split between the two workshifts resulting in 200 daily vehicles per shift.

The AM peak hour of the adjacent street system occurs during the AM peak period of 7:00 AM to 9:00 AM as indicated in the CMP Guidelines. Construction activities at the three project sites will occur seven days a week using two workshifts. The first workshift is scheduled to begin at 6:00 AM and end at 4:30 PM and the second shift is scheduled to begin at 4:00 PM and end at 2:30 AM. Traffic attributable to the first workshift for construction activities at the three project sites will arrive at the site before the AM peak period and should not affect the AM peak hour ICU values. Traffic for the first workshift at the project site will leave at the beginning of the PM peak period and may affect the PM peak hour ICU values. Traffic attributable to the second workshift for construction activities at the project sites will arrive at the site before the PM peak period and will leave before the AM peak period would begin. Therefore, the second shift traffic should not affect the AM or PM peak hour ICU values. Accordingly, the analysis examines impacts from traffic attributable to the proposed project only from the first workshift and only during the PM peak hour.

3.2 TRIP DISTRIBUTION

Distribution of project generated traffic from the three sites was derived from observation of existing travel patterns in the vicinity of the project sites. An increase in vehicular movements will occur at the various project sites during the construction period. The anticipated construction traffic at the SGS and VGS project sites is considered less than significant, averaging only 50 vehicle trips during the PM peak period, during the five months construction activities. However, construction traffic at the HGS site is forecast to peak at 450 vehicles, with the addition of 50 workers in February 2001 only for regularly scheduled facility maintenance. Hence, this traffic analysis is focused on impacts at intersections and streets surrounding the HGS project site.

To provide a “worst-case” analysis, for the HGS site it is assumed that most of the construction personnel would commute to the site in private automobiles even though LADWP would encourage construction contractor's employees to carpool. Additionally, materials required to support the construction effort would be delivered to the project site by truck. Peak truck usage would correspond to

the peak manpower periods. Construction materials, heavy construction equipment, piping, and new equipment would be delivered throughout the construction period. All truck deliveries would be made at the main entrance from Harry Bridges Boulevard.

To estimate the project-related traffic volumes at various points on the transportation system adjacent to the HGS site, and thereby, establish the magnitude and extent of traffic impacts, a three-step process was utilized. First, the amount of traffic which would be generated during construction activities was determined. Second, the construction traffic was geographically distributed to appropriate residential, commercial, and industrial areas. Finally, the trips were assigned to specific roadways and the traffic increases were evaluated on a route-by-route basis.

For this analysis, the average daily truck traffic at the HGS site during construction activities was estimated to be approximately 70 trucks per day. Since these would mainly consist of soil and material deliveries, these trips would be spread throughout the work day with few deliveries occurring during the peak hour. Therefore, their contribution to overall traffic impacts is expected to be negligible. As a conservative or "worst case" analysis, the maximum expected employees at the construction site was also assumed to occur daily in conjunction with the truck trips.

3.3 2000/EXISTING PLUS PROJECT TRAFFIC IMPACTS

The HGS site construction activities would generate short-term impacts on traffic and circulation in the project vicinity during the construction period. The project sites construction traffic would temporarily affect the present traffic circulation patterns of the labor force as well as truck traffic in the area.

According to LADWP, construction traffic related to the HGS project site would utilize existing parking areas at the site. However, it would not affect the existing operational activities or shipping and receiving functions at the project site.

HGS construction traffic was distributed to the surrounding roadways with thirty percent directed toward the Alameda/I-405 interchange, fifty percent directed toward the Figueroa/I-110 interchange and the remaining twenty percent to the local surrounding area. Although roadways in the vicinity of the

HGS project site would be impacted by the project's construction-related traffic, this construction traffic would contribute to less than two percent of the daily traffic volume on these roadways.

To more carefully assess the impacts on the surrounding roadways, an intersection capacity utilization (ICU) analysis was conducted for the seven intersections which would be most directly impacted by project construction traffic. Analysis year-plus-project intersection volumes for the project site were generated by adding the project intersection volumes to the existing Year 2000 background intersection volumes. PM peak hour 2000-plus-project turn volumes are illustrated in Figure 3-1, and corresponding ICUs based on existing lane configurations are summarized in the following Table 3-2 (actual ICU calculations are included in Appendix A). An examination of this table reveals that the HGS project construction traffic does not have a significant impact on the forecast PM peak hour level of service at study area locations.

Table 3-1

EXISTING+ PROJECT LEVEL OF SERVICE SUMMARY

(2000) EXISTING INTERSECTION		EXISTNG+ PROJECT PM	% CHG
LAR and Carson Terminal			
1.Figueroa & I-110 Fwy	.397	.460	.077
2.Figueroa & Harry Bridges Blvd	.405	.416	.011
3.Alameda & I-405 NB	.52	.52	-NC-
4.Alameda & 223/Wardlow Access	.52	.55	.03
5.Alameda & Sepulveda	.83	.85	.02
6.I-405 SB on/off & 223/Wardlow	.50	.52	.02
7.223rd & Alameda/Wardlow Access	.81	.82	.01

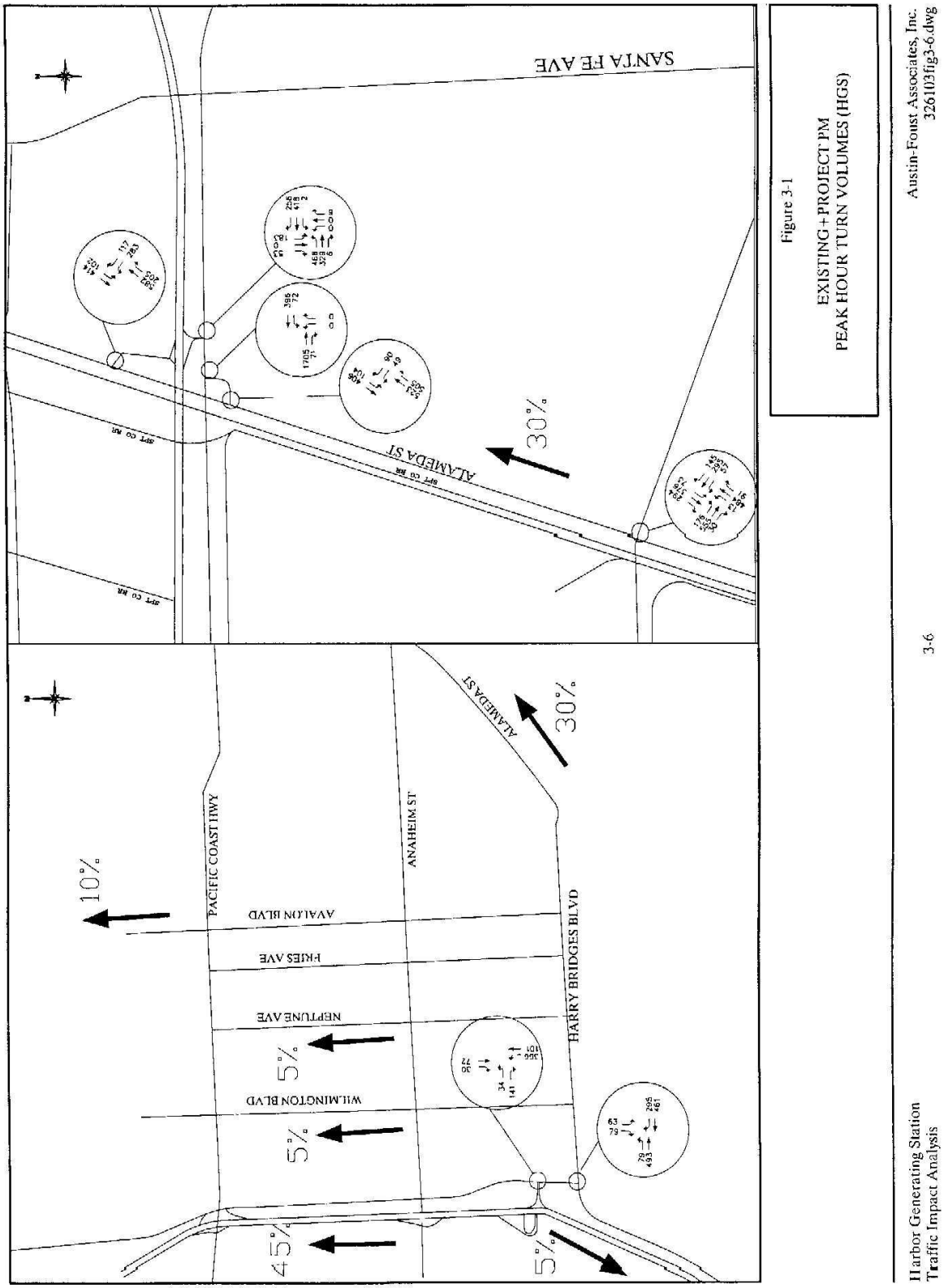
*Exceeds acceptable level of service
NC= No Change

Level of service ranges: .00 - .60 A
.61 - .70 B
.71 - .80 C
.81 - .90 D
.91 - 1.00 E
Above 1.00 F

3.5 ON-SITE CIRCULATION AND PARKING

As mentioned earlier, sufficient on-site parking is available to accommodate the increased parking demand from construction workers at the three generation stations. In particular, the physical arrangement of the HGS site provides parking capacity beyond the current operational requirements. On any given day, approximately 25 percent of the employees are not on the premises because of rotating shifts, vacations, and/or sick leave. The total number of parking spaces exceeds the maximum number of construction workers to allow for fluctuations in manpower and to provide ample maneuvering space for heavy trucks.

Figure 3-1 Existing+Project PM Peak Hour Turn Volumes (HGS)



Chapter 4.0

MITIGATION MEASURES

This chapter summarizes the traffic impacts identified in Chapter 3 and provides recommended mitigation measures, if any, that would reduce the significant impacts to the maximum extent feasible.

1) Project construction traffic at all three project sites does not significantly change the ICU values at study locations. Therefore, no mitigation is required because of project impacts.

2) Adequate off-street parking inside the generating stations will be provided to accommodate the peak construction and operating labor force after completion of the project. Therefore, no mitigation is required.

3) Based on the project sites' existing configurations, the entry point for construction, commuter, and delivery vehicles minimizes impacts on traffic and circulation patterns on the street system near the generating stations. Additionally, these configurations maintain access for pedestrians, bicyclists, and motor vehicle traffic. Therefore, no mitigation is required.

4) Although already insignificant, LADWP will disperse material deliveries and haul-trips throughout the off-peak hours to minimize further peak hour traffic impacts.

5) Although already insignificant, LADWP will conduct truck operations for the delivery of over-size equipment and materials to the maximum extent possible during off-peak hours to further minimize traffic impacts.

APPENDIX A

INTERSECTION CAPACITY UTILIZATION PROJECTIONS

INTERSECTION CAPACITY UTILIZATION

Intersection: Figueroa & I-110 NB/SB ramps
(EXISTING)
AM Count Date: 10/23/00

PM Count Date: 10/19/00

AM Peak Hour: 7:15A-8:15A PM Peak Hour: 4-5P

Analyst: TDS Agency: Wilmington

Movement	No. of Lanes	Capacity	AM Peak Hour Volume	AM Peak Hour V/C	PM Peak Hour Volume	PM Peak Hour V/C
NB Left	1	1600	107	.067*	266	.166*
NB Thru	2	3200	75	.024	101	.036
NB Right	0	0	3		13	
SB Left	1	1600	6	.004	11	.007
SB Thru	2	3200	73	.037*	72	.032*
SB Right	0	0	45		30	
EB Left	1.5		58	.036*	34	.011*
EB Thru	0	4800	198		211	
EB Right	1.5		241	.075	141	
WB Left	0	0	10		10	
WB Thru	1	1600	162	.121*	116	.088*
WB Right	0	0	22		15	

Sum of Critical V/C Ratios (*)	.261	.297
Adjustment for Lost Time	.100	.100
INTERSECTION CAPACITY UTILIZATION	**.361**	**.397**
Level of Service	A	A

LOS	Maximum ICU
A	.60
B	.70
C	.80
D	.90
E	1.00
F	n/a

INTERSECTION CAPACITY UTILIZATION

Intersection: Figueroa & I-110 NB/SB ramps
(EXISTING+PROJECT)
AM Count Date: 10/23/00

PM Count Date: 10/19/00

AM Peak Hour: 7:15A-8:15A PM Peak Hour: 4-5P

Analyst: TDS Agency: Wilmington

Movement	No. of Lanes	Capacity	AM Peak Hour Volume	AM Peak Hour V/C	PM Peak Hour Volume	PM Peak Hour V/C
NB Left	1	1600	107	.067*	366	.229*
NB Thru	2	3200	75	.024	101	.036
NB Right	0	0	3		13	
SB Left	1	1600	6	.004	11	.007
SB Thru	2	3200	73	.037*	72	.032*
SB Right	0	0	45		30	
EB Left	1.5		58	.036*	34	.011*
EB Thru	0	4800	198		211	
EB Right	1.5		241	.075	141	
WB Left	0	0	10		10	
WB Thru	1	1600	162	.121*	116	.088*
WB Right	0	0	22		15	

Sum of Critical V/C Ratios (*)	.261	.360
Adjustment for Lost Time	.100	.100
INTERSECTION CAPACITY UTILIZATION	**.361**	**.460**
Level of Service	A	A

LOS	Maximum ICU
A	.60
B	.70
C	.80
D	.90
E	1.00
F	n/a

INTERSECTION CAPACITY UTILIZATION

Intersection: Figueroa & Harry Bridges Blvd
(EXISTING)
AM Count Date: 10/20/00

PM Count Date: 10/19/00

AM Peak Hour: 7:30A-8:30A PM Peak Hour: 4-5P

Analyst: TDS Agency: Wilmington

Movement	No. of Lanes	Capacity	AM Peak Hour Volume	AM Peak Hour V/C	PM Peak Hour Volume	PM Peak Hour V/C
NB Left	0	0	15	{.009}*	22	
NB Thru	2	3200	31	.019	114	.073*
NB Right	0	0	16		99	
SB Left	0	0	98		63	{.039}*
SB Thru	2	3200	107	.098*	115	.080
SB Right	0	0	168	.105	79	
EB Left	1	1600	84	.053*	79	.049*
EB Thru	2	3200	468	.151	493	.162
EB Right	0	0	15		25	
WB Left	1	1600	75	.047	34	.021
WB Thru	2	3200	504	.158*	461	.144*
WB Right	1	1600	96	.060	195	.122

Sum of Critical V/C Ratios (*)	.318	.305
Adjustment for Lost Time	.100	.100
INTERSECTION CAPACITY UTILIZATION	**.418**	**.405**
Level of Service	A	A

LOS	Maximum ICU
A	.60
B	.70
C	.80
D	.90
E	1.00
F	n/a

INTERSECTION CAPACITY UTILIZATION

Intersection: Figueroa & Harry Bridges Blvd
(EXISTING+PROJECT)
AM Count Date: 10/20/00

PM Count Date: 10/19/00

AM Peak Hour: 7:30A-8:30A PM Peak Hour: 4-5P

Analyst: TDS Agency: Wilmington

Movement	No. of Lanes	Capacity	AM Peak Hour Volume	AM Peak Hour V/C	PM Peak Hour Volume	PM Peak Hour V/C
NB Left	0	0	15	{.009}*	22	
NB Thru	2	3200	31	.019	114	.073*
NB Right	0	0	16		99	
SB Left	0	0	98		63	{.039}*
SB Thru	2	3200	107	.098*	115	.080
SB Right	0	0	168	.105	79	
EB Left	1	1600	84	.053*	79	.049*
EB Thru	2	3200	468	.151	493	.162
EB Right	0	0	15		25	
WB Left	1	1600	75	.047	34	.021
WB Thru	2	3200	504	.158*	461	.144*
WB Right	1	1600	96	.060	295	.184
Right Turn Adjustment					WBR	.011*
Sum of Critical V/C Ratios (*)				.318		.316
Adjustment for Lost Time				.100		.100
INTERSECTION CAPACITY UTILIZATION				**.418**		**.416**
Level of Service				A		A

LOS	Maximum ICU
A	.60
B	.70
C	.80
D	.90
E	1.00
F	n/a

3. Alameda & I-405 NB

Existing 2000

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3200	317	.10*	582	.18*
NBR	1	1600	19	.01	185	.12
SBL	1	1600	46	.03*	102	.06*
SBT	2	3200	342	.11	414	.13
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	284	.18*	283	.18*
WBT	0	0	0		0	
WBR	1	1600	274	.17	117	.07
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				.41		.52

Existing+Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	2	3200	317	.10*	582	.18*
NBR	1	1600	19	.01	205	.13
SBL	1	1600	46	.03*	102	.06*
SBT	2	3200	342	.11	414	.13
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	284	.18*	283	.18*
WBT	0	0	0		0	
WBR	1	1600	274	.17	117	.07
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				.41		.52

4. Alameda & 223/Wardlow Access

Existing 2000

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	201	.06*	503	.16*
NBR	0	0	188	.12	465	.29
SBL	1	1600	108	.07*	104	.07*
SBT	3	4800	513	.11	406	.08
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	117	.07*	49	.03*
WBT	0	0	0		0	
WBR	1	1600	131	.08	90	.06
Right Turn Adjustment			Multi	.07*	Multi	.16*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				.37		.52

Existing+Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	3	4800	201	.06*	523	.16*
NBR	0	0	188	.12	505	.32
SBL	1	1600	108	.07*	104	.07*
SBT	3	4800	513	.11	406	.08
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	117	.07*	49	.03*
WBT	0	0	0		0	
WBR	1	1600	131	.08	90	.06
Right Turn Adjustment			Multi	.07*	Multi	.19*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				.37		.55

5. Alameda & Sepulveda

Existing 2000

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	17	.01	13	.01
NBT	2	3200	272	.14*	424	.16*
NBR	0	0	160		91	
SBL	1	1600	123	.08*	73	.05*
SBT	2	3200	401	.13	376	.12
SBR	1	1600	103	.06	294	.18
EBL	0	0	27		176	
EBT	1	1600	216	.16*	555	.48*
EBR	0	0	20		30	
WBL	0.5		47	{.03}*	57	{.04}*
WBT	1	3200	184	.11	295	16
WBR	0.5		106		145	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				.51		.83

Existing+Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1	1600	17	.01	13	.01
NBT	2	3200	272	.14*	484	.18*
NBR	0	0	160		91	
SBL	1	1600	123	.08*	73	.05*
SBT	2	3200	401	.13	376	.12
SBR	1	1600	103	.06	294	.18
EBL	0	0	27		176	
EBT	1	1600	216	.16*	555	.48*
EBR	0	0	20		30	
WBL	0.5		47	{.03}*	57	{.04}*
WBT	1	3200	184	.11	295	.16
WBR	0.5		106		145	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				.51		.85

6. I-405 SB on/off & 223/Wardlow

Existing 2000

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	1	.00*	0	.00*
NBR	0	0	4		6	
SBL	1	1600	53	.03*	183	.11*
SBT	0	0	2		0	
SBR	1	1600	109	.07	53	.03
EBL	2	3200	286	.09*	426	.13*
EBT	2	3200	393	.12	329	.10
EBR	1	1600	3	.00	6	.00
WBL	1	1600	2	.00	2	.00
WBT	3	4800	641	.16*	418	.13*
WBR	0	0	121		256	.16
Right Turn Adjustment			SBR	.04*	WBR	.03*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				.42		.50

Existing+Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	0		0	
NBT	1	1600	1	.00*	0	.00*
NBR	0	0	4		6	
SBL	1	1600	53	.03*	183	.11*
SBT	0	0	2		0	
SBR	1	1600	109	.07	53	.03
EBL	2	3200	286	.09*	466	.15*
EBT	2	3200	393	.12	329	.10
EBR	1	1600	3	.00	6	.00
WBL	1	1600	2	.00	2	.00
WBT	3	4800	641	.16*	418	.13*
WBR	0	0	121		256	.16
Right Turn Adjustment			SBR	.04*	WBR	.03*
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				.42		.52

7. 223rd & Wardlow Access

Existing 2000

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	102		115	
NBT	2	3200	0	.10*	0	.16*
NBR	0	0	208		400	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
FBL	0	0	0		0	
EBT	2	3200	627	.20*	1705	.53*
EBR	1	1600	98	.06	71	.04
WBL	2	3200	166	.05*	72	.02*
WBT	3	4800	361	.08	396	.08
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				.45		.81

Existing+Project

	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	102		115	
NBT	2	3200	0	.10*	0	.17*
NBR	0	0	208		440	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	0	0	0		0	
FBL	0	0	0		0	
EBT	2	3200	627	.20*	1705	.53*
EBR	1	1600	98	.06	71	.04
WBL	2	3200	166	.05*	72	.02*
WBT	3	4800	361	.08	396	.08
WBR	0	0	0		0	
Clearance Interval				.10*		.10*
TOTAL CAPACITY UTILIZATION				.45		.82