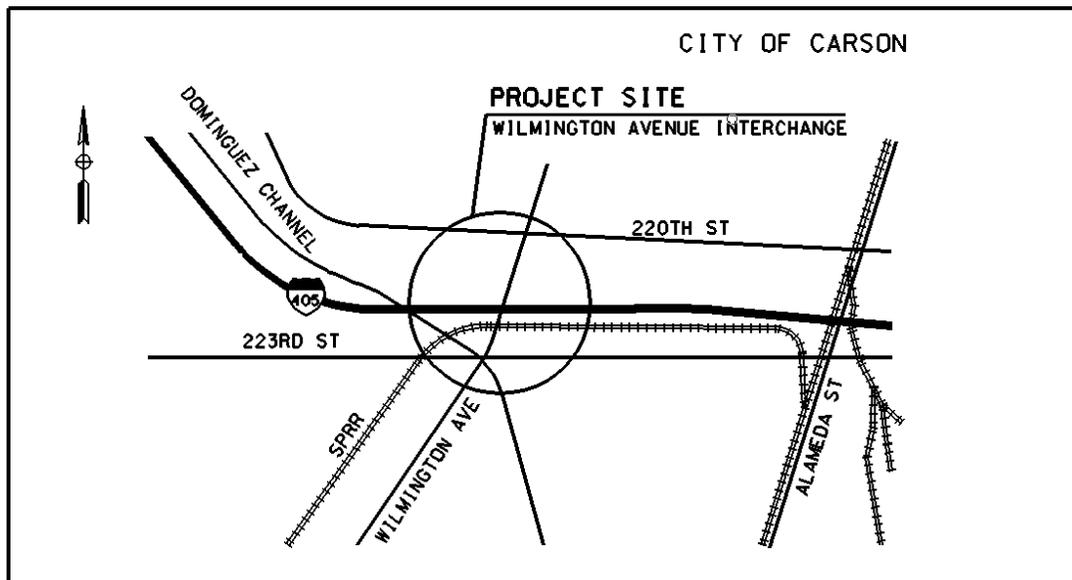


Interstate 405 at Wilmington Avenue Improvement Project

LOS ANGELES COUNTY, CALIFORNIA
DISTRICT 7 – LA – 405, PM 9.30/9.89
234000

Initial Study / Environmental Assessment



Prepared by

City of Carson and State of California Department of Transportation

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.



March 2008

**Interstate 405 at Wilmington Avenue Interchange
Improvement Project
in the City of Carson, County of Los Angeles**

INITIAL STUDY / ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C)

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried-out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

CITY OF CARSON
and
THE STATE OF CALIFORNIA
Department of Transportation

3/25/08

Date of Approval



M. Victor Rollinger, P.E.
Development Services General Manager
City of Carson

March 26, 2008

Date of Approval



Ronald Kosinski
Deputy District Director
District 07 – Los Angeles
California Department of Transportation

SUMMARY

The California Department of Transportation (Caltrans) and the City of Carson (City) propose to widen the existing on- and off-ramps of Interstate 405 (I-405) & Wilmington Avenue interchange (interchange); add a new northbound (NB) on-ramp; and widen Wilmington Avenue and 223rd Street in the City of Carson, within the County of Los Angeles. These improvements are needed to alleviate the traffic congestion that occurs on Wilmington Avenue, on the I-405 ramps, and at the Wilmington Avenue/223rd Street intersection. The proposed project is located approximately 3.4 miles south of the I-405/I-110 interchange and 2.0 miles north of I-405 & I-710 interchange. The intersection of Wilmington Avenue/223rd Street is located approximately 500 feet south of the I-405/Wilmington Avenue interchange.

Three Alternatives are being considered: the No-Build Alternative and two build alternatives, Alternative 1 and 2. Alternative 1 consists of widening the existing on- and off-ramps and modifying Wilmington Avenue and 223rd Street. Alternative 2 consists of adding a new northbound (NB) on-ramp to I-405, in addition to the improvements associated with Alternative 1. Wilmington Avenue would be widened by converting the existing westerly and easterly sidewalks into through-lanes. The build alternatives require the acquisition of right-of-way, but no relocation of residence or businesses would be required. All partially and fully acquired properties will be treated in conformance with the federal Uniform Relocation and Real Property Acquisition Policy Act (or the “Uniform Relocation Act”).

Some hazardous materials from past activities may have contaminated the project area. A site investigation is being conducted to identify if any excavated soil is contaminated. The findings of the site investigation will be used to determine the proper soil handling and disposal methods during the project construction. Specifications for the health and safety of the workers, as well as that of the public, will be addressed when handling/disposing of any contaminated soil.

During the construction phase, a temporary closure of one driveway access point for the Chevron Gas Station, located at 22222 Wilmington Avenue, and the Shell Gas Station, located at 22232 Wilmington Avenue, would be required by Alternatives 1 and 2. At least one driveway access point to both gas stations would be maintained at all times during the construction period.

There would be short-term (temporary) noise, dust, and access problems during the construction of the proposed project. Measures to minimize these impacts are discussed in this document. Since these construction-related impacts would not be permanent, they are considered below the level of significance as defined by California Environmental Quality Act (CEQA).

Summary of Mitigation Measures

Environmental Category	Impact	Mitigation Measure
Community Impacts (including traffic and pedestrian use)	Construction impacts on businesses and the local community	<ul style="list-style-type: none"> • Develop a construction staging plan and TMP that identifies alternate detour routes, safe pedestrian routes, and residential and commercial access routes to be used during construction. • Notify area residents, businesses, and any service/utility providers about the project construction schedule. • Compensate property owners for the loss of land through the Caltrans ROW appraisal process. • Coordinate with UPRR
Visual and Aesthetics	Soundwall construction	<ul style="list-style-type: none"> • Maximize the use of landscape areas while following Caltrans standards. Reinforce a unified design theme compatible with the adjacent community.
Cultural Resources	Grading and excavation	<ul style="list-style-type: none"> • If buried cultural materials are encountered during construction, work in that area must halt until a qualified archaeologist can evaluate the significance of the find.
Hydrology/Water Quality/Stormwater	Construction in and over Dominguez Channel and potential for dewatering of contaminated groundwater	<ul style="list-style-type: none"> • The contractor shall develop a Storm Water Pollution Prevention Plan (SWPPP) and conform to the requirements of the Caltrans Standard Specifications to reduce impacts to water quality. The plan shall be approved by Caltrans prior to project construction and implementation. • Install a groundwater monitoring well to test soils and groundwater quality.
Geology and Soils	Potential seismic hazard	<ul style="list-style-type: none"> • Adhere to all applicable Caltrans seismic requirements.
Paleontology	Ground disturbance may impact nonrenewable paleontological resources	<ul style="list-style-type: none"> • Excavation into previously undisturbed older subsurface sediments should be monitored by a qualified paleontological monitor.
Hazardous Materials/Waste	Potential for encountering soil contamination, ADL in soil, or LBP coatings	<ul style="list-style-type: none"> • All contaminated soils shall be treated in conformance with the California DTSC regulations • Specifications for the removal of asbestos, suspected meals coated with lead-based paint, and other hazardous substances, if encountered during construction, shall be included in the project. • All litter and solid waste will be taken to an approved disposal facility.

Summary of Mitigation Measures

Environmental Category	Impact	Mitigation Measure
Air Quality	Particulate emissions from construction activities	<ul style="list-style-type: none"> • The project will be required to comply with regional SCAQMD rules, which would assist in reducing short-term air pollutant emissions. • Construction equipment shall be properly tuned and maintained in accordance with manufacturer’s specifications. • During construction, trucks and vehicles in loading and unloading queues must be kept with their engines off when not in use to reduce vehicle emissions. • Construction emissions shall be phased and scheduled to avoid emissions peaks, where feasible, and discontinued during second-stage smog alerts
Noise	Elevated noise during construction and traffic noise during operation	<ul style="list-style-type: none"> • The City of Carson will notify the area businesses and residents of the construction schedule at least two weeks in advance of the construction and provide a telephone hotline for any complaints. • The construction schedule will be arranged so that the soundwalls would be completed before the NB on-ramp construction to minimize construction noise impacts to the residences north of I-405 from ramp construction. • All equipment shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have an unmuffled exhaust. • As directed by the Caltrans resident engineer, the contractor shall implement appropriate additional noise abatement measures.
Biological Resources	Tree removal impacts	<ul style="list-style-type: none"> • When trees are removed, they will be replaced with trees of comparable size and canopy quality to attract nesting birds. Ground preparation and removal of any or all those trees should occur between September 1st and February 1st to minimize the chance of disturbing nesting birds protected by the Migratory Bird Treaty Act of 1918. • If storm water BMPs are implemented at the interior of the NB loop-ramp area, the existing Cottonwood trees would be removed and replaced within the loop in commensurate numbers. Caltrans shall coordinate with the City of Carson to determine specific locations of replacement trees.

This Initial Study/Environmental Assessment has found that all environmental impacts can be mitigated to a point where a Mitigated Negative Declaration/Finding of No Significant Impact would be the appropriate determination.

CONTENTS

SUMMARY.....	S-1
CONTENTS	I
1.0 PROPOSED PROJECT	1
1.1 Introduction.....	1
1.2 Purpose and Need.....	2
1.3 Project Description.....	10
1.4 Permits and Approvals Needed	19
2.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES	21
2.1 Introduction.....	21
2.2 Community Impacts	23
2.3 Traffic and Transportation/Pedestrian Facilities	34
2.4 Visual and Aesthetic Effects.....	40
2.5 Cultural Resources	52
2.6 Hydrology/Water Quality/Stormwater	55
2.7 Topography, Geology, Soils, and Seismicity	62
2.8 Paleontology.....	67
2.9 Hazardous Materials/Waste	69
2.10 Air Quality.....	72
2.11 Noise	94
2.12 Public Services	109
2.13 Biological Resources	110
2.14 Climate Change.....	114
2.15 Cumulative Impacts	116
3.0 CONSULTATION AND COORDINATION.....	119
3.1 Scoping	119
3.2 Coordination.....	120

4.0 LIST OF PREPARERS..... 121

5.0 DISTRIBUTION LIST 123

6.0 REFERENCES..... 127

APPENDIXES

- A CEQA Checklist
- B Notice of Initiation of Studies (NOIS) and Newspaper Advertisement for Open House
- C Open House Meeting Notes and Comments Received
- D Title VI Policy Statement
- E Minimization and Mitigation Summary
- F Acronyms and Abbreviations

TABLES

1-1	Year 2006 and 2030 Average Daily Traffic Volumes.....	3
1-2	Current Year 2006 NB I-405 Peak Hour Traffic Volumes.....	3
1-3	Signalized Intersection LOS and Delay.....	6
1-4	Existing and Future Years Forecast Study Intersection LOS AM and (PM) Peak Hours	7
1-5	Northbound On-Ramp Merge LOS	7
1-6	Comparison of Turn Pocket Length and Freeway Off-Ramp Storage for Existing (2006) and Future No Build (2030) Condition Peak Hour	8
1-7	Ramp Accident Rates at the I-405/Wilmington Interchange (July 2, 2003 to June 30, 2006)	9
1-8	Intersection Delay Along Wilmington Avenue in the Study Area.....	10
2-1	Racial Composition of Population in the Study Census Tracts	25
2-2	Study Census Tract Socioeconomic Characteristics.....	26
2-3	Potentially Impacted Properties.....	28
2-4	Existing Year 2006 and Year 2030 Forecast Study Intersection LOS for All Alternatives during AM and (PM) Peak Hours.....	35
2-5	Comparison of Turn Pocket Length and Freeway Off-Ramp Storage for Existing, No Build, and Build Alternatives Condition Peak Hour 95th Percentile Queue Lengths.....	36
2-6	Ambient Air Quality Standards.....	74
2-7	Health Effects Summary for Air Pollutants.....	75
2-8	Criteria Air Pollutants Data Summary (North Long Beach Monitoring Station)	83
2-9	Estimate of Project Daily Construction Emissions.....	87
2-10	Summary of Operation Phase Regional Emissions.....	90
2-11	Noise Measurement Results	101
2-12	City of Carson Maximum Construction Noise Limits.....	103
2-13	Construction Equipment Noise.....	103
2-14	Predicted Future Noise Levels and Barrier Analysis.....	106
2-15	Summary of Recommended Barriers	107

FIGURES

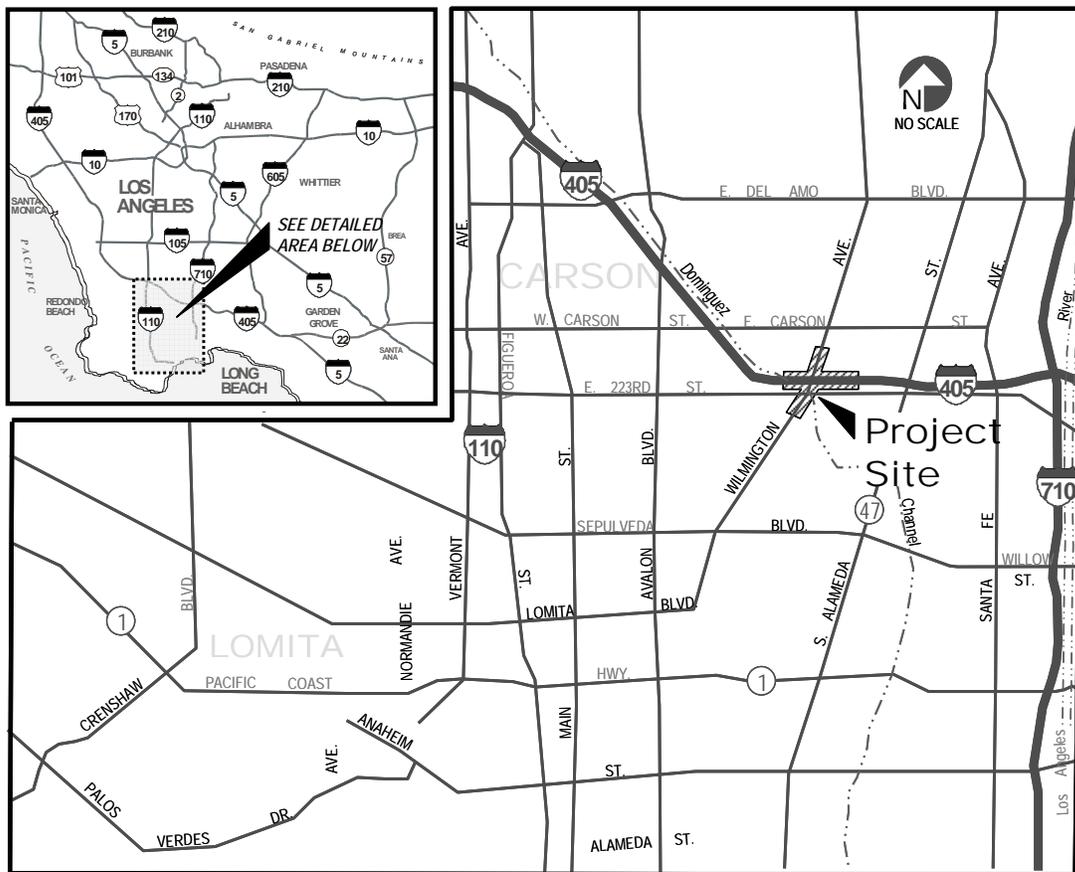
1-1	Project Location and Vicinity Map	1
1-2	Existing Intersection Configuration.....	4
1-3	Existing (2006) Peak Hour Traffic Volume.....	5
1-4	Aerial View of Proposed Improvements	13
1-5	Alternative 1 Lane Configuration	17
1-6	Alternative 2 Lane Configuration	18
2-1	Potentially Impacted Properties.....	31
2-2	Alternative 1 Year 2030 Peak Hour Traffic Volumes.....	37
2-3	Alternative 2 Year 2030 Peak Hour Traffic Volumes.....	38
2-4	Aerial View of the Project Area	40
2-5	Residential Landscape Unit	41
2-6	Commercial Landscape Unit	43
2-7	I-405 Landscape Unit	45
2-8	Proposed View of NB On-Ramp with Soundwalls (view looking north over the interchange)	51
2-9	Proposed View of NB On-Ramp with Soundwalls (view looking west from the neighborhood).....	51
2-10	Typical A-Weighted Sound Levels	96
2-11	Sensitive Receptors and Noise Measurement Locations	99

1.0 PROPOSED PROJECT

1.1 Introduction

The California Department of Transportation (the Department or Caltrans) and the City of Carson (City) propose to widen existing on- and off-ramps of Interstate 405 (I-405) & Wilmington Avenue Interchange; add a new northbound (NB) on-ramp; and widen Wilmington Avenue and 223rd Street in the City of Carson, within the County of Los Angeles. The proposed project is located approximately 3.4 miles south of I-405/I-110 interchange and 2.0 miles north of I-405/I-710 interchange (see Figure 1-1). The intersection of Wilmington Avenue/223rd Street is located approximately 500 feet south of the I-405/Wilmington Avenue interchange.

Figure 1-1 – Project Location and Vicinity Map



The 2006 Regional Transportation Improvement Program (RTIP), combined with the City's local matching funds, is expected to fund the proposed project. The 2006 RTIP was approved by FHWA on October 2, 2006.

1.2 Purpose and Need

The purpose of the proposed project is to achieve the following objectives:

- Improve the movement of people and goods through the project area.
- To help reduce emissions from transportation sources.
- To reduce existing and forecast traffic congestions.
- To help achieve the goals of the SCAG's 2004 Regional Transportation Plan.

I-405 is one of the most heavily traveled freeways in California. Traffic volumes in the vicinity of the Wilmington Avenue Interchange have long exceeded 200,000 vehicles per day. With the commercial and residential developments along Wilmington Avenue, Carson Street, and Sepulveda Boulevard, there has been increased traffic volumes on Wilmington Avenue at the I-405 interchange. The following discussion describes existing and projected transportation needs within the study area.

1.2.1 Current and Traffic Forecasts

The study area consists of four intersections along Wilmington Avenue including 220th Street, I-405 NB on- and off- ramps, I-405 southbound (SB) on- and off- ramps and 223rd Street. All of these intersections are signalized. Lane geometry at the study intersections for the existing condition is shown in Figure 1-2. There is currently a project under construction on the NB I-405 off-ramp to Wilmington Avenue which will increase the amount of storage available on the ramp.

Traffic conditions were analyzed in the study area. Congestion levels were based on the Level of Service (LOS) ratings, Annual Average Daily Traffic (AADT) volumes, and AM/PM peak hour traffic volumes.

Table 1-1 shows the average daily traffic volumes for 2006 and 2030 design year on the roadways in the study area. Figure 1-3 shows the 2006 peak hour traffic turning movements at the four study area intersections. It also shows peak hour truck volumes on the two freeway on-ramps. Table 1-2 shows Year 2006 peak hour traffic volumes on NB I-405.

Table 1-1
Average Daily Traffic Volumes for 2006 and 2030

Intersection with Wilmington Avenue	2006 Volume	2030 Volume
Wilmington Avenue North of I-405 ¹	20,600	25,500
Wilmington Avenue South of I-405 ¹	30,000	37,200
I-405 NB Loop On-Ramp ²	4,100	5,100
I-405 SB On-Ramp ²	16,900	20,900
I-405 NB Off-Ramp ²	17,700	21,900
I-405 SB Off-Ramp ²	5,800	7,100
I-405 North of Wilmington Avenue ³	263,000	325,000
I-405 South of Wilmington Avenue ³	288,000	356,000
¹ 2001 Counts plus 5% growth, average daily volumes		
² Volumes used on Caltrans Traffic Accident Surveillance and Analysis System (TASAS) Table B 7/1/03-6/30/06 for each ramp		
³ 2005 AADT Caltrans Report, average annual daily volumes		

Source: Parsons, 2007a

Table 1-2
Year 2006 NB I-405 Peak Hour Traffic Volumes

I-405 North of Wilmington Avenue Interchange	AM Peak	PM Peak
Peak hour volume combined directions in all lanes	17,800 ¹	17,100 ²
NB volume	9,457 ³	7,914 ³
NB Highly Occupied Vehicles (HOV) volume	1,513 ⁴	1,266 ⁴
NB general purpose lanes volume	7,944	6,648
¹ Caltrans 2005 AADT table plus one percent growth		
² Calculation from AM volume based on K factors in Caltrans 2006 Peak Hour Volume Data Report		
³ Calculated from previous row and D factors in Caltrans 2006 Peak Hour Volume Data Report		
⁴ Calculated from previous row and comparative HOV and mixed flow lane data in Caltrans District 7 2006 HOV Annual Report		

Source: Parsons, 2007a

Traffic forecasts for the study area were developed for the 2030 design year. Based on recent traffic growth, an annual traffic growth rate of one percent was assumed for the project area from year 2006 to year 2030. Daily and peak hour traffic volumes for the 2030 design year were determined by increasing the year 2006 volumes by 24 percent as shown in Table 1-1.

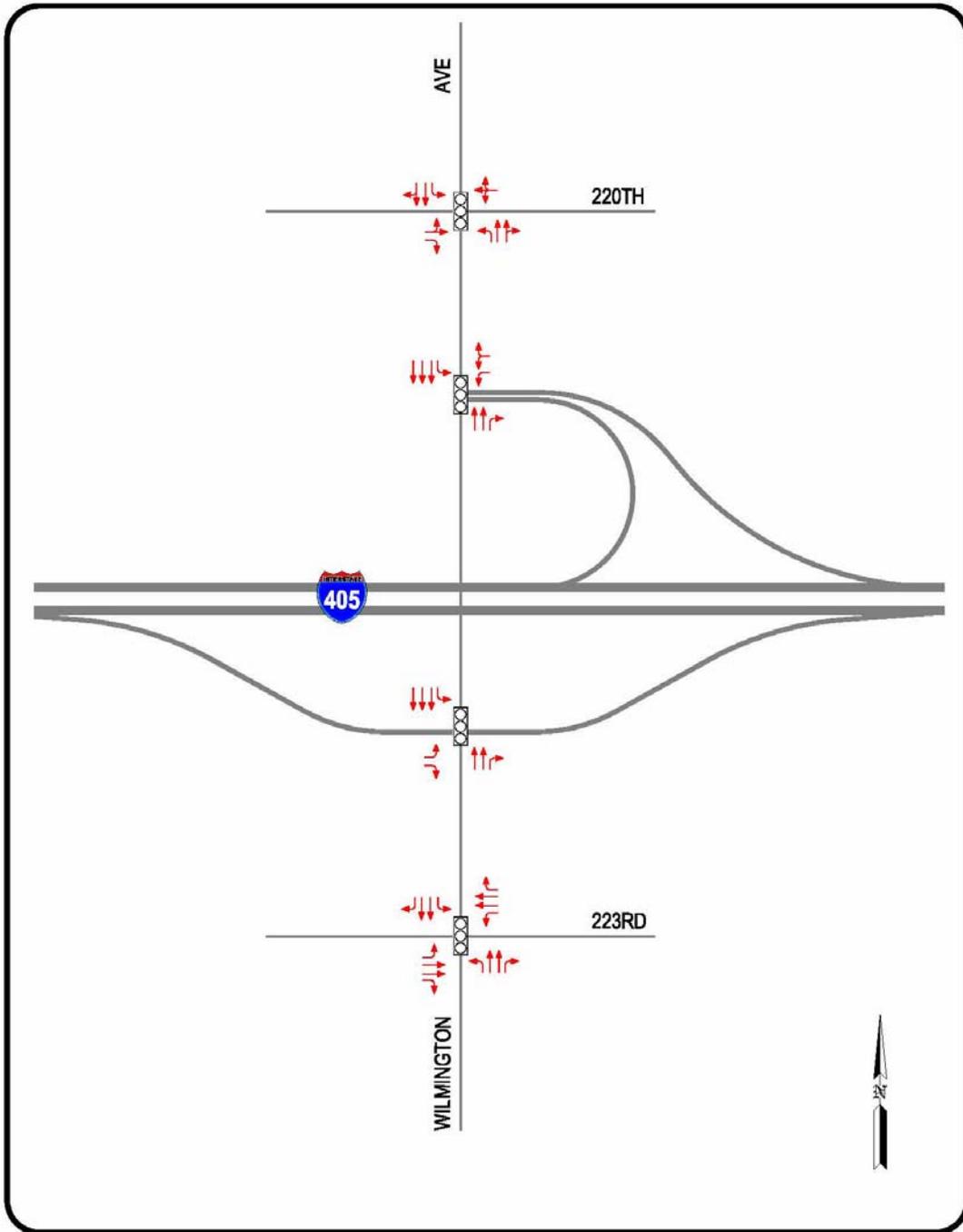


Figure 1-2 – Existing Intersection Configuration

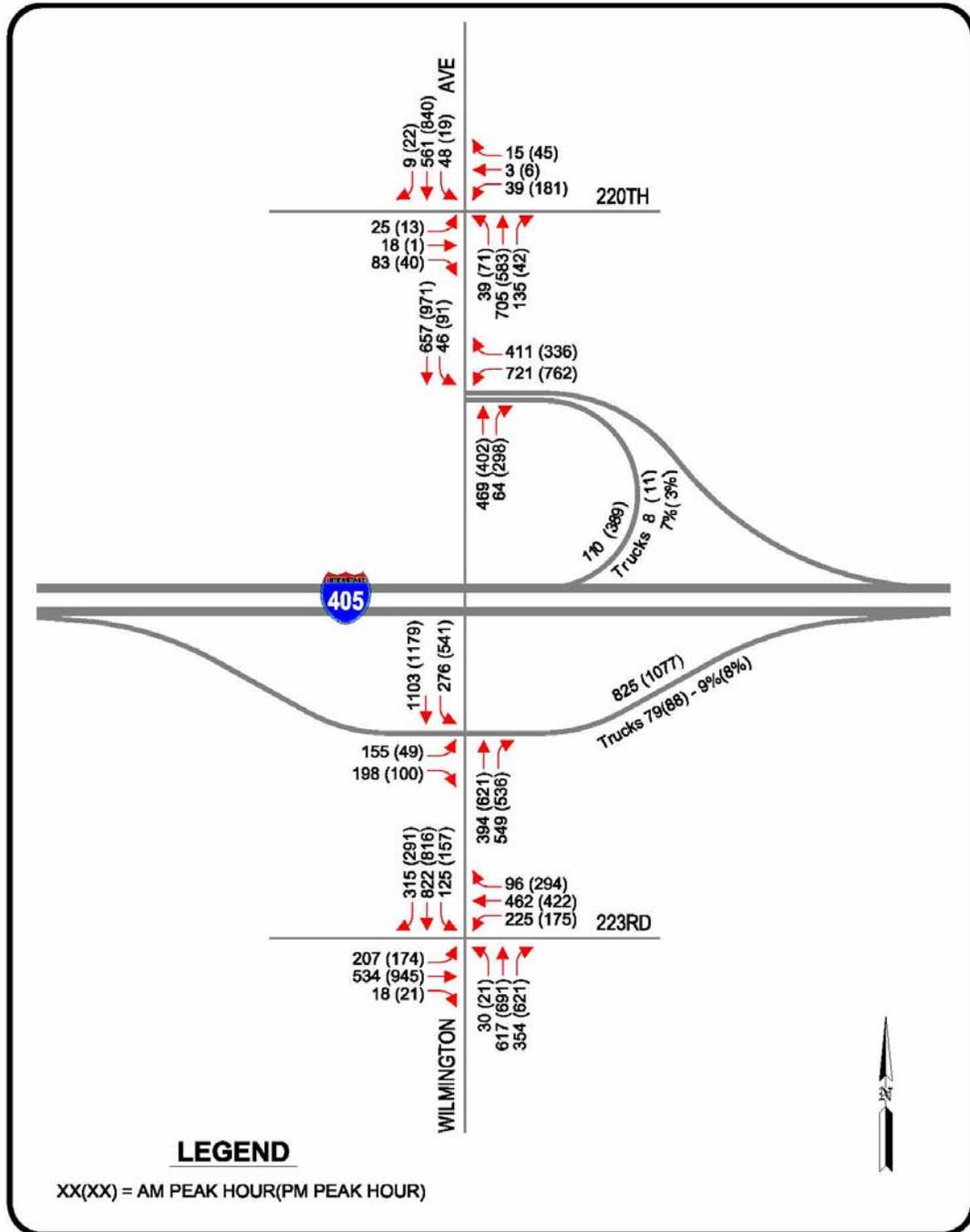


Figure 1-3 – Existing (2006) Peak Hour Traffic Volume

1.2.2 Level-of-Service (LOS) and Queuing

Congestion levels were analyzed using the LOS procedures presented in the Highway Capacity Manual – 2000 Edition (HCM). LOS is a measure of the quality of traffic flow and can denote any of an infinite number of combinations of traffic operating conditions that may occur on a given travel lane or at a given intersection when it is subjected to various traffic volumes.

Table 1-3 shows LOS definitions for signalized intersections. There are six levels of service, A through F, which relate to traffic congestion from best to worst, respectively. In general, Level A represents free-flow conditions with no congestion whereas Level F represents severe congestion with stop-and-go conditions. Levels E and F typically are considered to be unsatisfactory. Corresponding to each intersection LOS shown in Table 1-4 is an average vehicular delay that is estimated by the HCM method for signalized intersections. This value indicates the amount of delay, expressed in seconds, that the average motorist at the intersection is expected to experience at a signalized intersection.

**Table 1-3
Signalized Intersection Level of Service (LOS) and Delay**

LOS	Interpretation	Average Delay (seconds)
A	Uncongested operations; all vehicles clear in a single cycle.	0.0-10.0
B	Uncongested operations; all vehicles clear in a single cycle.	10.1-20.0
C	Light congestion; occasional backups on critical approaches.	20.1-35.0
D	Congestion on critical approaches, but intersection functional. Vehicles required to wait through more than one cycle during short peaks. No long-standing lines formed.	35.1-55.0
E	Severe congestion with some long-standing lines on critical approaches. Blockage of intersection may occur if traffic signal does not provide for protected turning movements.	55.1-80.0
F	Total breakdown with stop-and-go operations.	>80.0

Source: Transportation Research Board, *Highway Capacity Manual*, 2000.

Table 1-4 shows the peak hour intersection LOS for the study area in the years 2006, 2011 (opening year), and 2030 (design year). All four intersections are forecast to operate at LOS F under the No Build alternative during both peak hours in year 2030, with the exception of

Wilmington Avenue/220th Street intersection, which is expected to continue to operate at LOS C in the AM peak hour.

Table 1-4
Existing and Future Years Forecast Study Intersection LOS
AM and (PM) Peak Hours

Intersection with Wilmington Avenue	Existing (2006)	Future No Build (2011)	Future No Build (2030)
220 th Street	C(E)	C(F)	C(F)
NB Ramps	E(F)	D(F)	E(F)
SB Ramps	F(F)	F(F)	F(F)
223 rd Street	F(F)	C(D)	F(F)

Source: Parsons, 2007a

Table 1-5 shows that under existing conditions the I-405 NB on-ramp and the I-405 freeway mainline currently merge at LOS C during both morning and evening peak hours. In year 2030, NB I-405 freeway forecast volumes are 9,851 in the general purpose lanes during the AM peak hour and 8,244 during the PM peak hour. These volumes exceed the capacity of the four general purpose freeway lanes (generally 2,000 vehicles per hour per lane). Forced flow volumes and over capacity operations are assumed on the I-405 mainline in 2030; therefore, merge analysis of the NB on-ramp from Wilmington Avenue to NB I-405 was not conducted for year 2030. Using the HCM procedures, a merge when the freeway mainline exceeds capacity would result in LOS F. Note that the merge would be forecast to operate at LOS F not because of the merge, but because the freeway itself would be operating at LOS F.

Table 1-5
Northbound On-Ramp Merge LOS

Traffic Condition	AM	PM
Existing (2006)	C	C
No Build (2030)	NA ¹	NA ¹
¹ Freeway mainline volume exceeds capacity, merge calculation is not meaningful since freeway mainline is over capacity.		

Source: Parsons, 2007a

A major reason for the currently poor traffic service on Wilmington Avenue is queuing at traffic signals that extend beyond the length of existing left turn pockets. Such queues block through-lanes and reduce the capacity of those lanes and thereby degrade LOS. Table 1-6 shows the existing length of left turn pockets and the lengths of existing peak hour queues.

The table also identifies the peak hour left turn queues that exceed their turn pocket length. Available queuing distances on freeway off-ramps and their existing peak hour queues are also shown in the table. Queues on the NB off-ramp from I-405 to Wilmington Avenue currently extend onto the mainline of the freeway in both morning and evening peak hours. There is a project currently under construction that will increase the storage on the ramp. That project is included in the No Build condition.

Table 1-6 also shows that the queuing problems would have deteriorated by year 2030 under the No Build condition, except on the NB exit ramp where the ongoing construction project results in an improved queuing situation. However, the SB off-ramp is forecast to have a queue that extends onto the freeway mainline in the morning peak hour under the No Build condition in year 2030.

**Table 1-6
Comparison of Turn Pocket Length and Freeway Off-Ramp Storage for
Existing (2006) and Future No Build (2030) Condition Peak Hour¹**

Intersection with Wilmington Avenue	Existing Condition (2006)			Future No Build Condition (2030)		
	Storage Length (feet)	AM Peak Length (feet)	PM Peak Length (feet)	Storage Length (feet)	AM Peak Length (feet)	PM Peak Length (feet)
SB Left at 220th Street	217	81	49	217	117	57
NB Left at 220th Street	56	48	92	56	33	113
SB Left at NB Ramps	149	126	112	149	93	97
NB Off-Ramp	950 ¹	1,178	1,564	1258 ^{1,2}	641 ²	1,108 ²
SB Left at SB Ramps	280	379	868	280	457	1,140
SB Off-Ramp	608 ¹	530	244	608 ¹	780	346
SB Left at 223rd Street	203	273	415	203	345	502
NB Left at 223rd Street	221	96	86	221	126	104
Eastbound Left at 223rd Street	299	386	453	299	563	562
Westbound Left at 223rd Street	188	416	453	188	602	562
<p>Bold Type face indicated a queue exceeding storage</p> <p>¹ 95th Percentile queue length</p> <p>² Crosswalk to exit nose</p> <p>³ Reflects completion of current project to increase storage on this ramp.</p>						

Source: Parsons, 2007a

1.2.3 Accident Rates

A Caltrans Traffic Accident Surveillance and Analysis System (TASAS) summary of accident records for the three year period, July 1, 2003 to June 30, 2006, was reviewed (see Table 1-7). For I-405 mainline traffic at the Wilmington Avenue interchange, the total actual accident rate is lower than the statewide average.

Table 1-7
Ramp Accident Rates at the I-405/Wilmington Interchange
(July 1, 2003 to June 30, 2006)

Ramp	No. of Accidents			Person		Accident Rate (A/MVM)					
						Actual Rate			Average Rate		
	FAT	F+I	TOT	Killed	Injured	FAT	F+I	TOT	FAT	F+I	TOT
SB Off-ramp (PM 9.71)	0	2	13	0	2	0.000	0.32	2.08	0.005	0.61	1.50
SB On-ramp (PM 9.39)	0	0	10	0	0	0.000	0.00	0.55	0.002	0.32	0.80
NB On-ramp (PM 9.39)	0	3	14	0	5	0.000	0.67	3.12	0.003	0.32	0.85
NB Off-ramp (PM 9.38)	0	8	26	0	10	0.000	0.42	1.36	0.005	0.61	1.50

FAT = Fatal; F+I = Fatal and Injuries; TOT = Total
A/MVM = Accidents per Million Vehicle Miles

Source: TASAS Table B, District 7

The SB off-ramp has a total accident rate higher than the statewide average. However, 11 of the 13 accidents (85 percent) reported occurred at the ramp terminus or intersection. The TASAS Selective Accident Retrieval (TSAR) Accident Summary indicates that 31 percent of the accidents were sideswipe accidents, 39 percent were rear end accidents, and 23 percent were broadside accidents. Improvements to the ramp terminus and intersection are included in the proposed project. With these improvements it would be expected that the total accidents would be reduced by approximately 50 percent, which is equivalent to the reduction of approximately 6 accidents. This would bring the accident rate to below the statewide average.

The SB on-ramp has accident rates lower than the statewide average. Most of the accidents (7 of 10 or 70 percent) occurred at the ramp entry and intersection area. With the proposed improvements it would be expected that the total accidents would be reduced by approximately 50 percent, which is equivalent to the reduction of approximately 5 accidents.

For the NB on-ramp, 78.6 percent of accidents occurred on Wilmington Avenue in the vicinity of the ramp entrance. The rate of fatal and injury accidents is more than twice as high as the statewide average and the rate of total accidents is more than 3.5 times the statewide average. With the proposed improvements it would be expected that the total accidents would be reduced by approximately 50 percent, which is equivalent to the reduction of approximately 7 accidents. This would bring the accident rate to below the statewide average.

The NB off-ramp has an accident rate lower than the statewide average. This ramp has recently been improved with the addition of a second lane along the portion of the ramp downstream of its single lane entry from the freeway and a third lane on the ramp approach to the arterial. Although not a part of this project, these improvements alone would be expected to reduce the number of total accidents at this ramp intersection by at least 50 percent or approximately 13 accidents. The proposed improvement for this project would also be expected to minimally reduce the number of accidents perhaps by 15 percent or a reduction of 2 accidents.

1.2.4 Commuter Time Savings

Time savings for commuters at the intersections along Wilmington Avenue in the future year (2030) with the proposed project improvement is estimated and presented in Table 1-8 in terms of the delay time.

**Table 1-8
 Intersection Delay Along Wilmington Avenue in the Study Area**

Existing (Year 2006)		Future Year (2030)		Time Saving	
AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
143	119.6	NA	NA	NA	NA
262	292.7	41.1	77.8	220.9	214.9

Source: Parsons, 2007a

1.3 Project Description

1.3.1 Existing Facility

The proposed project is located at the I-405/Wilmington Avenue interchange, which is a fully developed urban/industrial area in the city of Carson approximately 16 miles south of downtown Los Angeles. The city's municipal boundaries encompass approximately 19.3 square miles of land in the South Bay region of Los Angeles County. It is served by the Harbor Freeway (I-110), which runs between the Los Angeles Harbor and downtown Los Angeles; the San Diego Freeway (I-405), which runs from Orange County north through the San Fernando Valley; and the Artesia Freeway or State Route (SR) 91, which runs from Redondo Beach east to Riverside County.

Wilmington Avenue is an arterial roadway that runs north/south through the cities of Carson, Compton, and Los Angeles. It provides access to I-405 and SR 91 in Carson, as well as to the adjacent communities of Compton to the north and Wilmington to the south. A development of single-family homes is located along SB Wilmington Avenue, north of I-

405, in the study area; however, access to this residential complex is provided from 220th Street. The rest of the properties along Wilmington Avenue are either commercial or industrial.

The study area is intersected by the Dominguez Channel, which runs in a northwest-southeast direction. The Dominguez Channel is a natural bottom channel that discharges to the Los Angeles Harbor and the Pacific Ocean.

The east-west running 223rd Street is an arterial highway that extends through Carson from Western Avenue (SR 213) in the west to the Long Beach Freeway or Interstate Highway 710 (I-710) to the east, some 6 miles away; 223rd Street becomes Wardlow Road and continues into Long Beach. The land use along 223rd Street is heavy industrial and commercial; however, farther to the west, residential uses can also be found. Numerous trucking companies are located along 223rd Street near the project. On-street parking is generally prohibited, and the posted speed limit on 223rd Street is 45 miles per hour.

Union Pacific Railroad (UPRR) has an at-grade crossing with 223rd Street approximately 780 feet west of the Wilmington Avenue intersection. This railroad is not a major through-line, and it provides loading/unloading service to a few trucking companies located south of 223rd Street.

1.3.2 Project Alternatives

This section describes the Alternatives that comprise the proposed project:

- No-Build Alternative,
- Alternative 1 - the Street Widening and Ramp Modifications ,
- Alternative 2 - the Street Widening, Ramp Modifications, and New NB On-ramp

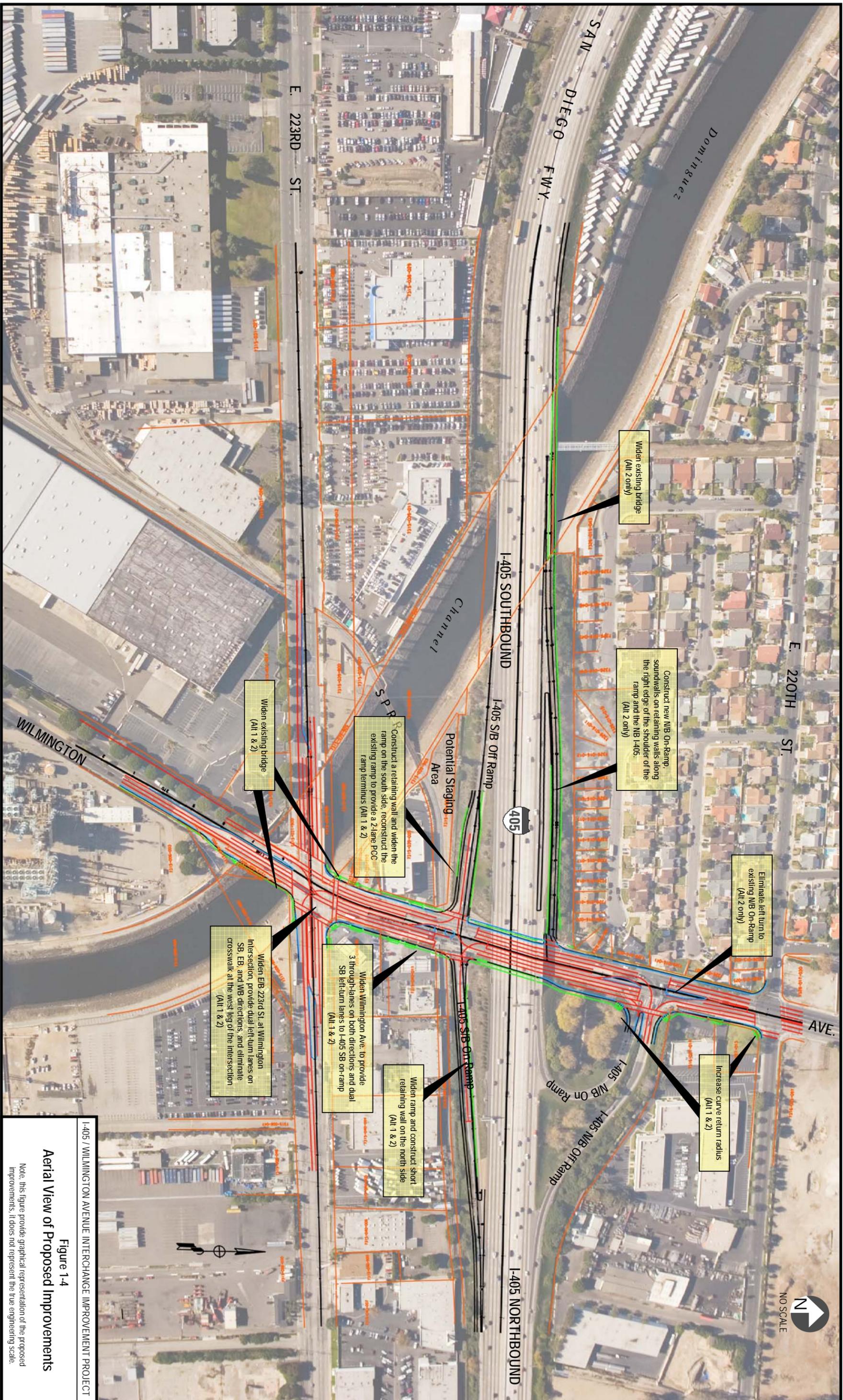
“No Build” Alternative

This alternative would maintain the current configuration of the interchange and the surrounding local streets. Congestion within the project limits would not be alleviated and the situation would deteriorate over time. This approach is inconsistent with Caltrans’ goal of providing an efficient interregional mobility system. There would be no cost associated with this alternative.

Alternative 1: (Street Widening and Ramp Modifications)

This alternative proposes conventional widening of Wilmington Avenue, 223rd Street, and the I-405 ramps to enhance their capacity, reduce conflicting movements, and alleviate traffic congestion (see Figure 1-4). The project components under Alternative 1 include:

- Reconstructing the I-405 SB off-ramp terminus and providing two turn lanes at the ramp intersection with Wilmington Avenue. A short retaining wall would be constructed along the south side of the ramp.
- Widening the I-405 SB on-ramp to accommodate truck turning and to provide standard shoulders, standard freeway entrance geometrics and a 30-to-1 taper for the lane drop beyond the ramp meter limit line. A short retaining wall would be constructed along the north side of the ramp.
- Relocating the sidewalk on the east side of Wilmington Avenue to behind the bent; widening Wilmington Avenue, including the bridge over the Dominguez Channel, to provide an additional through lane on the approach to the 223rd Street intersection and an additional shared through and right-turn lane on the approach to the SB on-ramp intersection in the NB direction; providing dual southbound left-turn lanes in the place of single left-turn lane at the I-405 SB on-ramp intersection and the 223rd Street intersection; changing the existing SB dedicated right-turn lane at the 223rd Street intersection to a shared through and right-turn lane.
- Widening the departure on the eastbound (EB) 223rd Street from the Wilmington Avenue intersection to accommodate the southbound Wilmington Avenue dual left-turn movements; providing dual left-turn lane in the place of single left-lane on 223rd Street at the intersection in both direction; eliminating the EB dedicated right-turn lane; change the No. 2 EB through lane to a shared through and right-turn lane.
- Providing curb ramps on the curb returns at the Wilmington Avenue and 223rd Street intersection to comply with requirements of the Americans with Disabilities Act of 1990 (ADA); and eliminating the crosswalk at the west leg of the intersection.



I-405 / WILMINGTON AVENUE INTERCHANGE IMPROVEMENT PROJECT

Figure 1-4
Aerial View of Proposed Improvements

Note: this figure provide graphical representation of the proposed Improvements. It does not represent the true engineering scale.

- Synchronizing new and modified traffic signals within the project limits and connecting them to CTNET (an advanced traffic management system that Caltrans uses for managing their surveillance and communication network and traffic signals and provides link between traffic signal systems operated by local agencies and by Caltrans).

Lane configurations with the proposed Alternative 1 improvements are presented in Figure 1-5.

Alternative 2: (Street Widening, Ramp Modifications, and New NB On-ramp)

Alternative 2 would provide all improvement described under Alternative 1, and in addition a new on-ramp would be provided to serve the traffic moving from southbound Wilmington Avenue to NB I-405 (refer to Figure 1-4). The ramp would not carry a large volume of traffic, but it would eliminate the SB Wilmington Avenue left turns at the existing northbound ramp intersection, thus improving the LOS for the remaining movements. The additional project components under Alternative 2 include:

- Providing a new compact diamond type northbound on-ramp in the northwest quadrant of the interchange. The NB I-405 bridge over Dominguez Channel (Bridge No. 53-1166) would be widened to accommodate the new ramp.
- Constructing soundwalls on retaining walls along the right edges of shoulder of the NB I-405 and the new NB on-ramp.
- Reconstructing the shoulder along the existing I-405 main line auxiliary lane west of the Wilmington Avenue undercrossing to accommodate a standard shoulder width and a standard auxiliary lane drop.
- Eliminating the conflicting left-turn movements from SB Wilmington Avenue to the NB loop on-ramp.

Lane configurations with the proposed Alternative 2 improvements are presented in Figure 1-6.

1.3.3 Scheduling

A 2-year construction period is scheduled to commence in mid-2010 and be complete by mid 2012. Construction will be divided into three stages as outlined below:

Stage 1: This phase of construction would last about 13 months and would include the following activities:

- Phase 1: This phase would take approximately 3 months and would include the following activities
 - Constructing the soundwall on retaining walls along the NB I-405 freeway and new NB on-ramp (for Alternative 2 only)
 - Constructing the new I-405 NB on-ramp
- Phase 2: This phase would take approximately 3 months and would include the following activities
 - Widening the NB Wilmington Avenue and the east side of the Dominguez Channel Bridge at the intersection with 223rd Street
- Phase 3: This phase would take approximately 7 months and would include the following activities
 - Widening the NB I-405 freeway bridge over Dominguez Channel
 - Constructing southerly retaining wall along the I-405 SB off-ramp and
 - Widening the south sides of the I-405 SB on- and off-ramps

Stage 2: This stage of construction would last about 8 months and would include the following activities:

- Continuing the new NB on-ramp construction (Alternative 2) and the freeway ramp widening
- Widening the SB Wilmington Avenue and the west side of the Dominguez Channel bridge at the 223rd Street intersection
- Constructing the northerly retaining walls along the I-405 SB on- and off-ramps
- Widening the north sides of the I-405 SB on- and off-ramps

Stage 3: This phase of construction would last about 3 months and would include the following activities:

- Constructing raised medians on Wilmington Avenue and 223rd Street
- Overlaying Wilmington Avenue

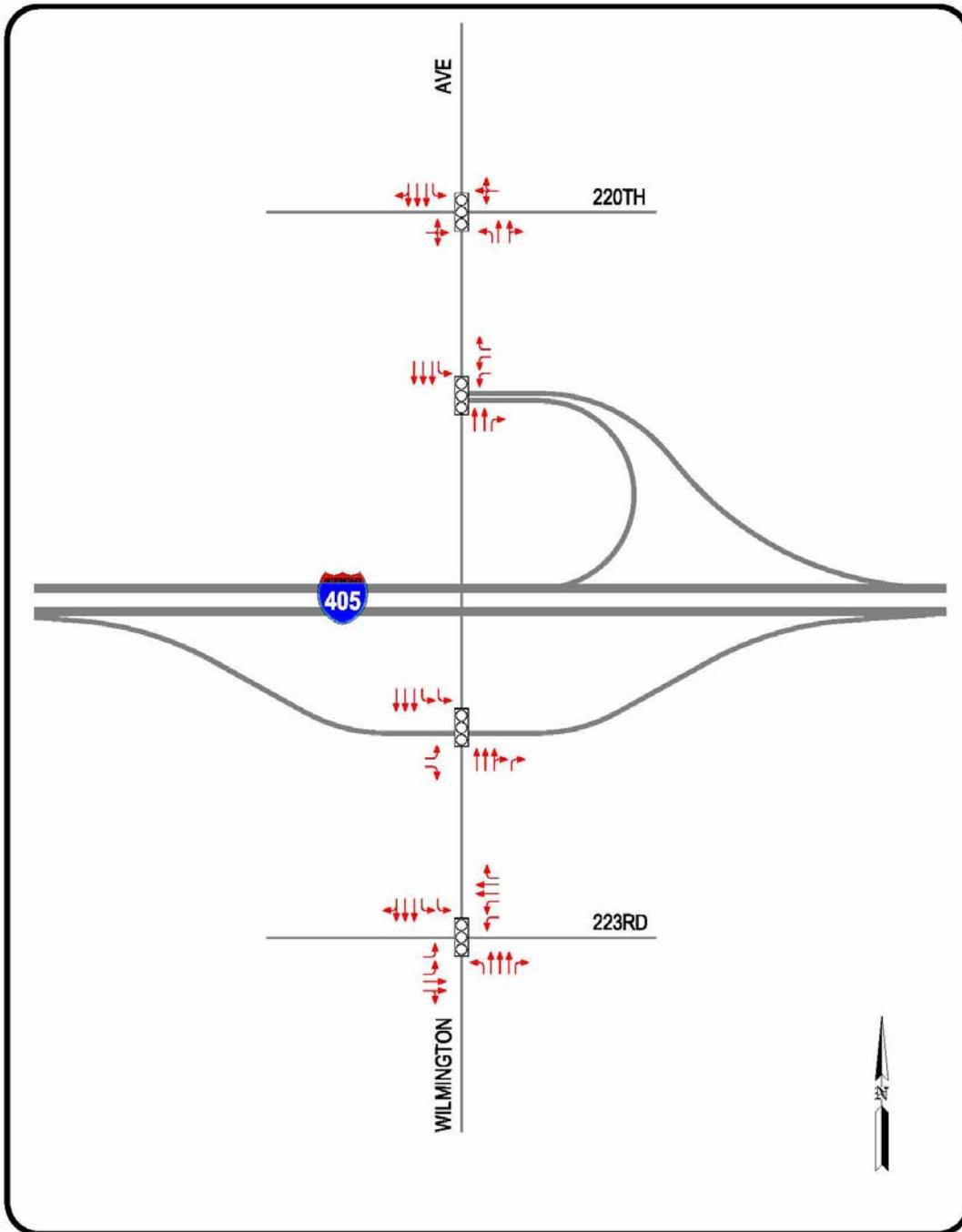


Figure 1-5 – Alternative 1 Lane Configurations

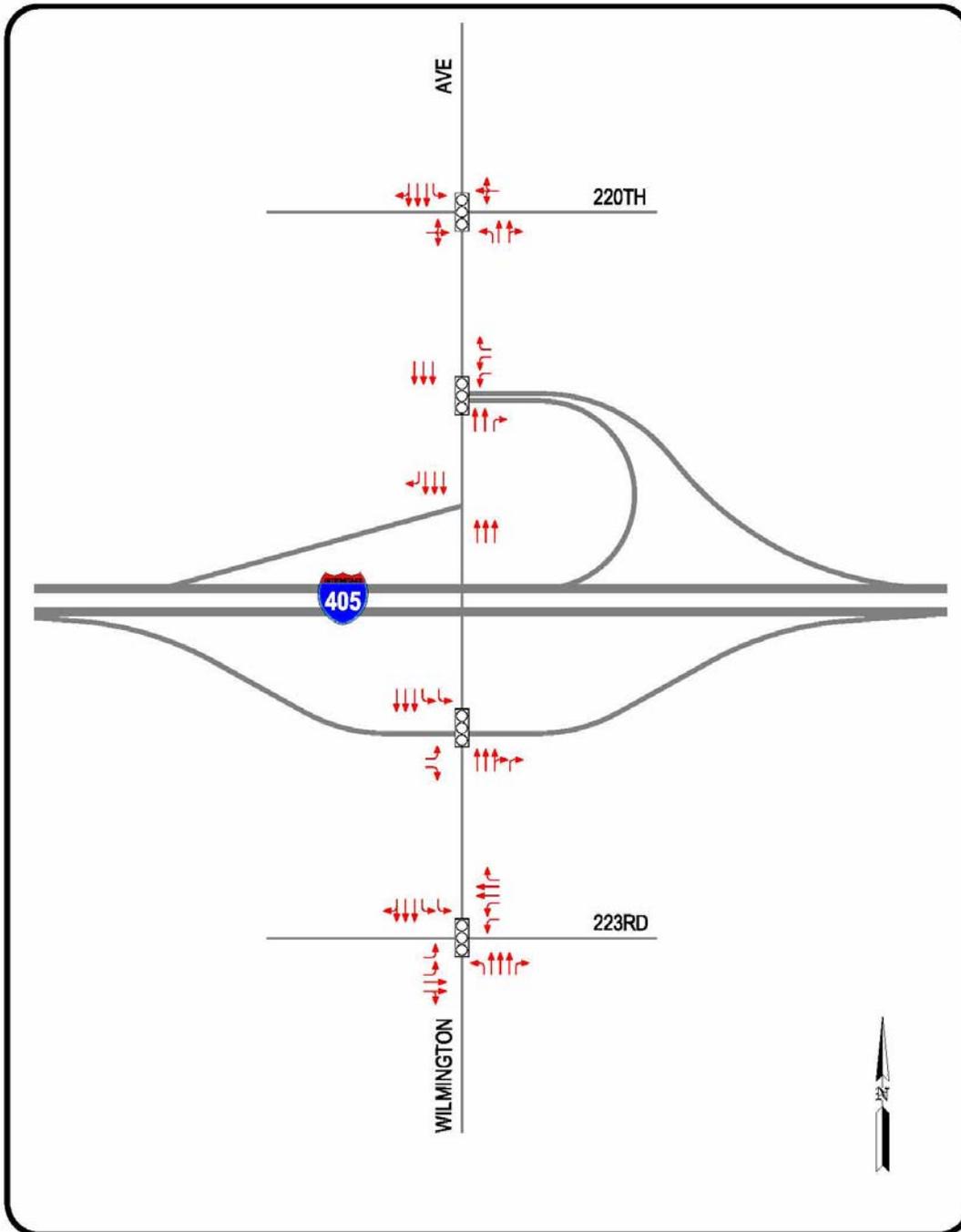


Figure 1-6 – Alternative 2 Lane Configurations

1.3.4 Other Projects

Several projects were identified that are approved or planned within the project vicinity, including:

1. I-405 NB off-ramp at Wilmington Avenue modification (Caltrans Contract No. EA07-188804 Route: 07-LA-405-14.6/15.1). Construction started in January 2007, and will be completed by July 2007.
2. I-405 and Avalon Boulevard interchange modification (Caltrans Project Nos. EA07186-23390K, 07-186-23400K, and 07-932083). This project is under environmental review. Construction is expected to commence in summer 2008 and be completed by summer 2010.
3. Construction of a soundwall along I-405 between Long Beach Boulevard and Stagg Street in the City of Long Beach and City of Carson (Caltrans Project No. EA-07-186-23300K, 07-LA-405-KP 6.4/43/1). The purpose of the project is to reduce traffic noise levels and exposure at noise-sensitive residential uses adjacent to the freeway from Long Beach Boulevard to 223rd Street along I-405. The project will be funded by the Los Angeles County Metropolitan Transportation Authority (MTA). The Noise Barrier Scope Summary Report (NBSSR) was prepared and approved in March 2004. Construction is scheduled to commence in March 2008 and be completed in April 2009.
4. Slab replacement and grinding in Long Beach, Carson, and Signal Hill from Los Angeles and Orange County line to I-405 and I-110 separation (Caltrans Project No. EA 244404). PS&E was prepared in June 2005. The construction schedule was not finalized by the time of preparation of this report.
5. Installing and upgrading flared end sections of existing metal beam guardrails at various locations on I-405 from PM 0.0 to 48.5 and I-110 from PM 0.0 to 33.15 (Caltrans Project No. EA 243601). The construction schedule was not finalized by the time of preparation of this report.

1.4 Permits and Approvals Needed

Prior to commencement of the construction activities, the following permits or approvals will be required:

Agency	Permit/Approval
U.S. Army Corps of Engineers (USACOE)	Section 404 Permit for dredging and filling in the Dominguez Channel
Los Angeles Regional Water Quality Control Board (RWQCB)	Section 401 Water Quality Certification for work in the Dominguez Channel
RWQCB	Groundwater Dewatering Permit for discharges of groundwater from construction and project dewatering to surface waters in coastal watersheds of Los Angeles
California Department of Fish and Game (CDFG)	Section 1602 Agreement for Streambed Alteration
Los Angeles County Department of Public Works	Encroachment Permit for modifications that will impact the right of way or the hydraulic system of the Dominguez Channel
Union Pacific Railroad (UPRR)	Railroad License/Agreement for work within railroad ROW
City of Carson	Grading and construction permits

2.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES

2.1 Introduction

The proposed project is a joint project by Caltrans in corporation with the City of Carson and the FHWA and is subject to state and federal environmental review requirements. Project documentation has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA's responsibility for environmental review, consultation, and any other action required in accordance with NEPA and other applicable Federal laws for this project is being carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327. Caltrans is the lead agency under CEQA and NEPA.

Each environmental factor analysis includes discussion of the affected environment, environmental consequences and avoidance, minimization, and compensation measures of each project alternatives. When the impacts are found to be potentially significant, as determined pursuant to CEQA, mitigation measures are developed to minimize the impacts to a less than significant level. CEQA requires that each significant effect on the environment resulting from the project be identified and mitigated.

CEQA has suggested thresholds of significance to be used as bases for determining mitigation (CEQA Guidelines Section 15064.7). Per NEPA regulations (40 CFR 1508.27), significance is based on context and intensity. The magnitude of the impact is evaluated and no judgment of its significance is made in the document. Usage of the term "significance" in this document is being made pursuant to CEQA only. Under NEPA, all impacts are discussed regardless of threshold amount and include mitigation measures where reasonable. Each section discusses mitigation measures, the CEQA significance criteria, and the context and intensity of environmental impacts as required by NEPA.

Analysis and discussion of various environmental factors are primarily based on a review of natural resource databases and scientific literature, and technical studies including:

- Traffic Study (Parsons, 2007a)
- Air Quality Analysis (Parsons, 2007b)
- Archaeological Survey Report (ECORP, 2007a)
- Paleontology Study Report (ECORP, 2007b)
- Historic Property/Architecture Survey Report (ECORP, 2007c)
- Community Impact Assessment (Parsons, 2007c)
- Hydrology, Floodplain, Water Quality, and Stormwater Runoff Impact Analysis (Parsons, 2007d)
- Natural Environmental Study (Parsons, 2007e)
- Noise Study Report (Parsons, 2007f)
- Visual Impact Analysis (Parsons, 2007g)
- Initial Site Assessment (MCE, 2003)

2.1.1 Resources Resulting in No Impacts

As part of the scoping and environmental analysis conducted for the project, the following environmental resources were considered but no potential for adverse impacts to these resources was identified. Consequently, there is no further discussion regarding these resources in this document (See Appendix A, CEQA Checklist for more information).

Agricultural Resources. The project site is located in a highly developed, urban area of the City of Carson with no farmland or agricultural resources within the project area and vicinity. No impacts to agricultural resources would occur.

Mineral Resources. The proposed project is located in a highly urbanized area of the City of Carson. The State Department of Conservation does not designate the project site as a Significant Mineral Aggregate Resources Area; thus, no impacts resulting from the loss of mineral resources are anticipated.

Energy. During project construction fossil fuels would be consumed from construction equipment and worker vehicle operation. The increased fuel consumption would be temporary and would cease at the end of the construction activity.

Once the project is under operation, traffic flow within the project limits would be improved, resulting in some energy savings to the operating vehicles. No impact would occur.

Land Use and Planning. The proposed project is compatible with all existing land use and environmental plans and policies, and it would not require any modification or change to any existing zoning or land use. The project is located within a highly developed area with a mix of land uses including industrial, commercial, and residential. The project is consistent with adopted local plan.

Population and Housing. Growth within the project area and vicinity is controlled by the City of Carson General Plan. The proposed improvements to the I-405/Wilmington Avenue interchange would accommodate growth and relieve congestion within the project locality. The project is not considered growth inducing and would not directly or indirectly contribute to population growth.

The proposed project would not require the acquisition or displacement of residents. Thus, the proposed project would not create a demand for additional housing.

Utilities and Service Systems. The proposed project does not include the construction of any new developments that would generate wastewater, solid waste, or increase the demand for water supplies. No impacts are anticipated.

2.2 Community Impacts

The information presented in this section is excerpted from the Community Impact Assessment prepared for this project (Parsons, 2007c).

2.2.1 Affected Environment

The project site is situated in an urban/industrial area in the City of Carson in the southern portion of Los Angeles County. Existing land uses within the immediate vicinity of the project site are comprised of a mixed use of residential, commercial, and heavy industry. A dense single-family residential development is located north of I-405 and west of Wilmington Avenue. Commercial buildings, gas stations, restaurants, and fast-food vendors are located along both sides of Wilmington Avenue between 220th Street and 223rd Street, except for the area where the residential homes are located. A refinery is located west of Wilmington Avenue south of 223rd Street.

The project area is located in a highly developed area of Carson. Based on the City of Carson Web site, 11 major businesses are located within a 2.5-mile radius of the project site. Although no major new development within the immediate vicinity of the project site is expected, more car dealership development could be established along 223rd Street west of

Wilmington Avenue since the City of Carson has designated 223rd Street, west of the Dominguez Channel, as “Auto Row.”

Population Characteristics

Year 2000 U.S. Census data from the 3 census tracts (i.e., 5433.03, 5439.03, and 5439.04) that cover the project area were used to characterize population demographic features within the project area. The population of these 3 census tracts is approximately 15,300 residents, which is less than one percent of the population of Carson. Approximately 26 percent of residents within the study census tracts are between the ages of 5 and 19, compared to approximately 11 percent within Carson and the County of Los Angeles. The percentage of residents older than age 65 is almost equal in the study census tracts, as in the city and county.

Table 2-1 presents the racial composition of the population in the study census tracts and the larger region. The study census tracts contain nearly 69 percent in the non-white race category, which is representative of Carson at approximately 69 percent non-white, but it is substantially higher than the County of Los Angeles, which is approximately 46 percent non-white. Out of the non-white population, approximately 42 percent of residents in the study census tracts identify themselves as Hispanic or Latino, which is higher than Carson at 35 percent and slightly lower than the County of Los Angeles at 45 percent. Based on this statistic, the study area is considered a predominantly minority community, as with the larger population within the County of Los Angeles.

Table 2-1
Racial Composition of Population in the Study Census Tracts

Racial Categories	Study Census Tracts		City of Carson		County of Los Angeles	
	Number	Percent	Number	Percent	Number	Percent
Total Population	15,325	100	89,730	100	9,519,338	100
One Race (of total population)	14,501	94.6	85,162	94.9	9,049,557	95.1
White	3,969	25.9	23,049	25.7	4,637,062	48.7
Black or African American	2,600	16.9	22,804	25.4	930,957	9.8
American Indian and Alaska Native	100	.65	505	0.6	76,988	0.8
Asian	3,969	25.9	19,987	22.3	1,137,500	11.9
Native Hawaiian and Other Pacific Islander	544	3.5	2,680	3	27,053	0.3
Some other race	3,475	22.6	16,137	18	2,239,997	23.5

Table 2-1
Racial Composition of Population in the Study Census Tracts

Racial Categories	Study Census Tracts		City of Carson		County of Los Angeles	
	Number	Percent	Number	Percent	Number	Percent
Two or more races (of total population)	851	5.5	4,568	5.1	469,781	4.9
Hispanic or Latino (of any race) (compared with the total population)	6,370	41.5	31,332	34.9	4,242,213	44.6

Source: U.S. Census 2000.

Socioeconomic Demographics

According to Year 2000 U.S. Census data, 3,995 households are located within the study census tracts; 3,339 are family households and 656 are non-family households (see Table 2-2). The average household size in the study census tracts is 3.99 persons, which is higher than the average household size of 3.59 for the City of Carson and 2.98 in the County of Los Angeles. The average family size in the study census tracts of 4.25 persons exhibits the same trend as the household size, which is higher than Carson at 3.92 persons and the County of Los Angeles at 3.61 persons.

As shown in Table 2-2, the median household and family annual incomes for the study census tracts (\$54,022 and \$53,750) are similar to Carson (\$54,866 and \$52,284), but they are higher than those for the County of Los Angeles (\$46,452 and \$42,189). Individual earnings in 1999 below the poverty level (defined as a minimum income level below which a person is officially considered to lack adequate subsistence and to be living in poverty) within the study area census tracts were reported to be 11 percent, which is higher than that of Carson (9 percent) but lower than the County of Los Angeles (18 percent). Family incomes below poverty level within the study census tracts are reported at 9 percent, which is higher than that of Carson (7 percent), but lower than the County of Los Angeles (15 percent).

The U.S. Department of Health and Human Services (HHS) establishes the poverty threshold on an annual basis. A family is considered “low-income” if its income is at or below the HHS poverty guidelines. The Year 1999 poverty threshold for an average family size of 4 was \$16,700. Based on the HHS thresholds for poverty, the study area is not at the poverty level and is not considered a low-income population.

Table 2-2
Study Census Tract Socioeconomic Characteristics

Socioeconomic Characteristics	Study Census Tracts		City of Carson		County of Los Angeles	
	Number	Percent	Number	Percent	Number	Percent
Total Population	15,325	100	89,730	100	9,519,338	100
Population 16 years and older in civilian labor force	7,119	46.45	40,514	45.15	4,307,762	45.25
Employed population 16 years and older in civilian labor force	6,346	41.40	37,300	41.56	3,953,415	41.53
Unemployed population 16 years and older in civilian labor force	773	5.04	3,214	3.58	354,347	3.72
Individuals in 1999 below Poverty Level	1,745	11.38	8,216	9.15	1,674,599	17.59
Families in 1999 below Poverty Level	317	9.49	1,463	7.09	311,226	14.56
Total Families	3,339	100	20,243	100	2,136,977	100
Average Family Size	4.25	--	3.92	--	3.61	--
Median Family Income in 1999	\$54,022	--	\$54,886	--	\$46,452	--
Total Households	3,995	100	24,648	100	3,133,774	100
Average Household Size	3.99	--	3.59	--	2.98	--
Median Household Income in 1999	\$53,750	--	\$52,284	--	\$42,189	--

Source: U.S. Census 2000.

Community Cohesion

Community cohesion is the degree to which residents have a “sense of belonging” to their neighborhood, a level of commitment to the community, or a strong attachment to neighbors, groups, and institutions, usually because of continued association over time. The project study area is located in a highly developed urban/industrial area. Prominent commercial/industrial uses in the project area include British Petroleum (BP) Carson Refinery and a portion of 223rd Street designated by the City of Carson as “Auto Row,” which is occupied by automobile dealerships and auto repair shops. Single-family homes are located at the area north of I-405 west of Wilmington Avenue. Typically, residents living in an urbanized area are less cohesive than those living in the rural area, and residents of single-family homes are more cohesive than those living in multi-family units. Based on the number of residents participating in the Open House organized as part of the Project Report

preparation on May 3, 2007 and the observation of their relationship, community cohesion within the project area is considered moderate to high.

2.2.2 Environmental Consequences

Both NEPA and CEQA require consideration of social and economic impacts of projects in the preparation of environmental documents. NEPA and CEQA policies state that consideration is to be given to qualitative factors and unquantifiable environmental amenities and values, along with economic and technical considerations, in decision making that may affect the environment (CEQA Guidelines 15131(b)).

Socioeconomic impacts are analyzed by examining the potential of the proposed project to adversely impact the following:

- Physically divide an established community
- Human-made and natural resources and/or aesthetic values
- Community cohesion and the availability of public facilities and services
- Adverse employment effects and tax and property value losses
- Injurious displacement of people, businesses, and farms
- Disruption of desirable community and regional growth
- Disproportionately high and adverse human health and environmental effects on minority and/or low-income populations.

Other laws that involve community impact analysis include the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970, and the American with Disabilities Act of 1990, Executive Order (EO) 12898 (Environmental Justice), and Title VI of the Civil Rights Act.

Title VI of the Civil Rights Act of 1964 mandates that “no person shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” The Civil Rights Restoration Act of 1987 amended this act by making all federal activities, not just those that are federally funded, subject to the mandates of Title VI. The Title VI Policy Statement for this project is included in Appendix D of this document. EO 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations” (February 11, 1994), mandates that federal agencies identify and

address disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority and/or low-income populations.

According to FHWA Order 6640.23 (1998), a “minority” is an individual classified as Black/African American, Hispanic, Asian and Pacific Islander, American Indian, and other non-white persons. A minority population is defined as any readily identifiable group of minority persons who lives in geographic proximity and, if circumstances warrant, who will be similarly affected by a proposed FHWA program, policy, or activity.

Build Alternatives

Community Impacts

During construction, commercial properties located along Wilmington Avenue and in the project area may experience temporary access changes or restrictions. Traffic lane closures would occur during the approximate 2-year construction period.

Direct effects on businesses and residences resulting from the proposed project are anticipated to be less than significant, as determined pursuant to CEQA. Right of Way (ROW) required for Alternative 1 would require a full acquisition of one parcel and partial acquisition of nine parcels; two additional partial acquisitions parcels would be required for Alternative 2. The full acquisition parcel (APN#7315-008-902) is located at the southeast corner of Wilmington Avenue and 223rd Street and is owned by Los Angeles County Flood Control District. No relocation of the existing industries or businesses would be required. Table 2-3 summarizes, and Figure 2-1 shows, the potentially impacted properties from implementation of Alternatives 1 and 2.

**Table 2-3
Potentially Impacted Properties**

Ref #	Name	Type of Use	Alternative 1	Alternative 2
1	Railroad ROW Ownership: UPRR APN# 7315-040-800	Transportation	Partial relinquishment of 467 square feet of railroad ROW at the Wilmington Avenue railroad crossing.	Same as Alternative 1
2	Chevron Gas Station Ownership: MACLAND Investment, Inc. APN#: 7315-040-011	Commercial	Partial relinquishment of approximately 2,011 square feet within State ROW resulting in the loss of landscaping area.	Same as Alternative 1
3	Shell Gas Station Ownership: EQUILON Enterprises, LLC APN# 7315-040-001	Commercial	Partial taking of approximately 2,654 square feet, resulting in loss of landscaping areas and parking spaces.	Same as Alternative 1
4	Sanitation District	Undeveloped	Partial loss of land (407 square	Same as Alternative 1

**Table 2-3
Potentially Impacted Properties**

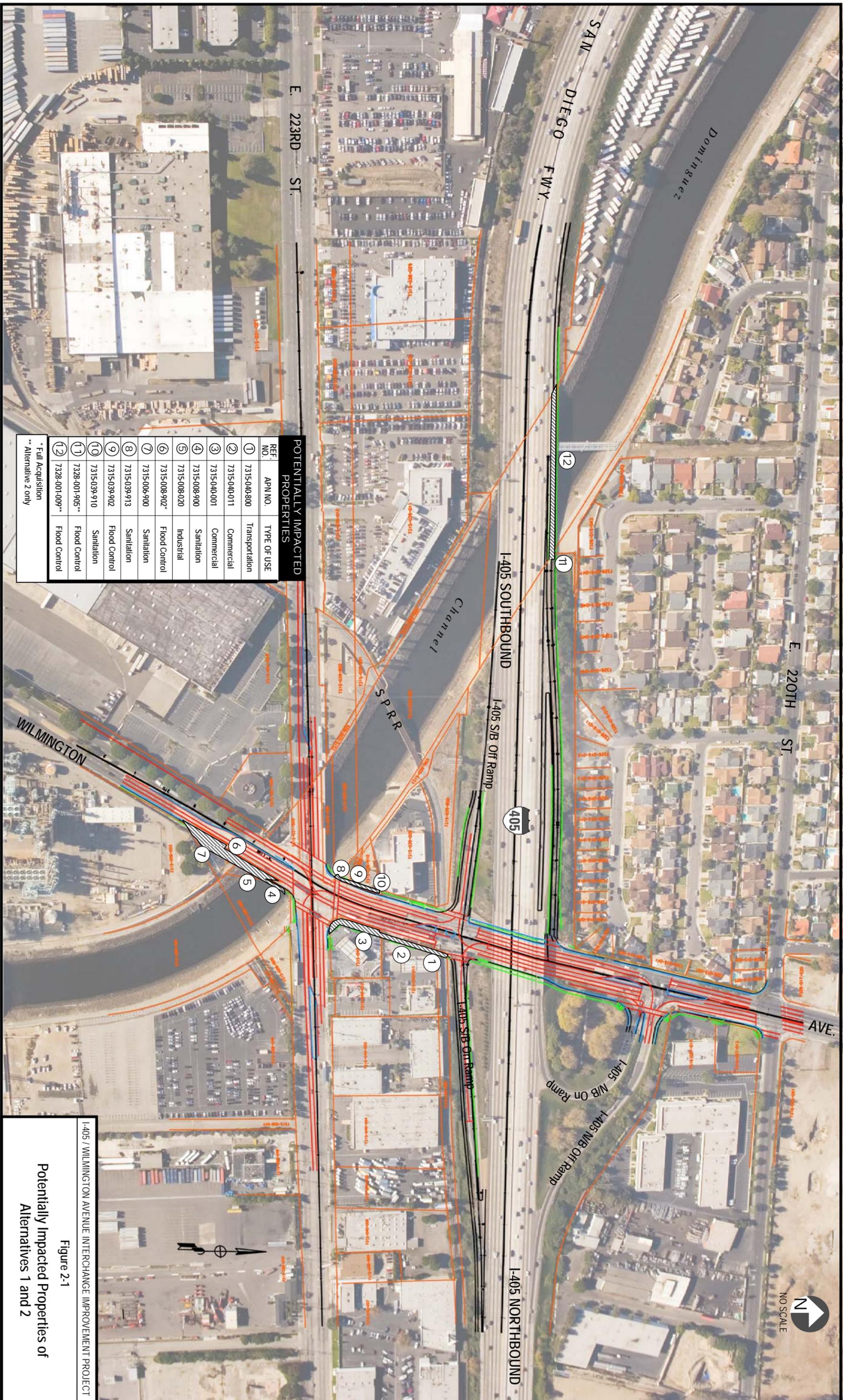
Ref #	Name	Type of Use	Alternative 1	Alternative 2
	Ownership: County of Los Angeles Sanitation District APN# 7315-008-900		feet) required for the bridge widening on northbound Wilmington Avenue and westbound 223 rd Street over the Dominguez Channel.	
5	Ownership: Watson Land Co APN# 7315-008-020	Industrial	Partial loss of land. 262 square feet required for the bridge widening on the northbound side of Wilmington Avenue.	Same as Alternative 1
6	County Flood Control Land Ownership: County of Los Angeles APN# 7315-008-902	Flood Control	Full Take of Parcel	Same as Alternative 1
7	Ownership: County of Los Angeles Sanitation District APN# 7315-006-900	Sanitation	Partial loss of land (4,001 square feet) required for the widening of northbound Wilmington Avenue.	Same as Alternative 1
8	Davidson City Pumping Plant Ownership: County of Los Angeles APN# 7315-039-913	Sanitation	Partial loss of land (592 square feet).	Same as Alternative 1
9	County Flood Control Land Ownership: County of Los Angeles APN# 7315-039-902	Flood Control	Partial taking of approximately 67 square feet for maintenance access.	Same as Alternative 1
10	Davidson City Pumping Plant Ownership: County of Los Angeles Sanitation District APN# 7315-039-910	Sanitation	Partial loss of land (501 square feet).	Same as Alternative 1
11	Ownership: Flood Control APN# 7328-009-905	Flood Control	No impact	Partial loss of land, 480 square feet for the widening of the northbound Dominguez Channel bridge. This would result in a loss of flood control land..
12	Ownership: Carson Estate Co. APN# 7328-001-009	Flood Control	No Impact	Partial loss of land, 8,523 square feet for the widening of the northbound Dominguez Channel bridge. This would result in a loss of flood control access.
*	Caltrans	State ROW	Relinquishment.	Relinquishment.

Source: Parsons, 2007f

During project construction, a temporary closure of one driveway access point for the Chevron Gas Station (APN#: 7315-040-011), located at 22222 Wilmington Avenue, and the Shell Gas Station (APN#: 7315-040-001), located at 22232 Wilmington Avenue, would be required by both Alternatives 1 and 2. At least one driveway access point to both the Shell and Chevron gas stations would be maintained at all times during the construction period. No business closures would be required. No effects to employment either during construction or operation are anticipated.

Potential land acquisition from the Shell gasoline station (APN 7315-040-001) on the west side of Wilmington Avenue north of 223rd Street will result in the loss of up to four parking stalls. A mini-market with Subway sandwich shop is located on the site. The two existing stalls closest to Wilmington Avenue along the northern edge of the site and two stalls in the southwest corner of the site will be removed. Currently there are five stalls along the north edge of the site and two stalls located in the southwest corner of the site. With redesign of the parking layout, four stalls can be located along the north edge of the site and at least three could be located in the southwest corner of the site. This would restore the number of current parking stalls on the site.

The proposed project would not alter or affect the existing land use, cohesion, or character of the community, nor would it physically divide an established community, as developed around the Wilmington Avenue/I-405 Project. The proposed project would not result in adverse employment effects or tax and property value losses. No sensitive uses identified in the project area would be significantly impacted by the proposed project, as determined pursuant to CEQA. No public services or facilities would be directly impacted as a result of this project. The existing pedestrian environment of the project area would not be permanently impacted by the proposed project. The community would benefit from increased pedestrian access, and street capacity that would reduce projected traffic congestion in the project area. No significant, permanent, adverse impacts to the community would result from the proposed project, as determined pursuant to CEQA.



POTENTIALLY IMPACTED PROPERTIES

REF. NO.	APN NO.	TYPE OF USE
①	7315-040-800	Transportation
②	7315-040-011	Commercial
③	7315-040-001	Commercial
④	7315-008-900	Sanitation
⑤	7315-008-020	Industrial
⑥	7315-008-902*	Flood Control
⑦	7315-006-900	Sanitation
⑧	7315-039-913	Sanitation
⑨	7315-039-902	Flood Control
⑩	7315-039-910	Sanitation
⑪	7328-001-905**	Flood Control
⑫	7328-001-009**	Flood Control

* Full Acquisition
 ** Alternative 2 only

I-405 / WILMINGTON AVENUE INTERCHANGE IMPROVEMENT PROJECT
 Figure 2-1
 Potentially Impacted Properties of
 Alternatives 1 and 2

Environmental Justice Impacts

Potential environmental justice impacts are defined as those adverse effects that would be predominantly borne by a minority population and/or low-income population or are greater in magnitude than the adverse effects that would be experienced by non-minority and/or non-low-income population. Although the study census tracts covering the project area contain predominantly minority populations, they are representative of the larger population of Carson. The environmental impacts that would occur because of Alternatives 1 and 2 would be typical for roadway improvement construction in an urban area, regardless of the demographic or socioeconomic characteristics of the community. Construction impacts to various environmental resources, such as air quality, noise, and public utilities, from construction activities would be temporary, and they would be avoided, minimized, or rectified to the extent possible as mitigation for the proposed project. In addition, no land acquisitions would be required of any residential units, public/community service facilities, parks, or schools. The proposed project would not disproportionately affect minority or low-income population compared to the larger population within Carson; therefore, the proposed project would not cause environmental justice impacts per the guidance stipulated in EO 12898.

No-Build Alternative

The No-Build Alternative proposes no construction or physical changes in the project area. As a result, no direct effects would occur with the No-Build Alternative implementation. However, traffic congestion along this portion of Wilmington Avenue would substantially worsen in the future; thus, affecting local businesses and residents as well as commuters along Wilmington Avenue.

2.2.3 Avoidance, Minimization, and Compensation Measures

The City of Carson in cooperation with Caltrans will implement the following measures:

- Develop a construction staging plan and a Traffic Management Plan (TMP) that identifies alternate traffic detour routes, bus terminals, transit routes and operation hours, pedestrian routes, and residential and commercial access routes to be used during the construction period. The TMP will consist of the following elements to minimize construction related traffic disruption:
 - 1) Temporary traffic controls and signing shall be utilized
 - 2) The implementation of traffic control procedures will be in conformance with the Caltrans Traffic Manual.

- 3) A minimum of one through travel lane in each direction will be provided.
 - 4) Public information center and telephone hotline
 - 5) Additional project signing
 - 6) Advertising in local and regional newspapers Staff attendance at local neighborhood and business association meetings to inform residents and merchants/landowners of project progress.
- Notify area residents, businesses, and any service providers about the project construction schedule, and assistance programs, traffic-impacted areas, and the TMP at least 2 to 4 weeks in advance of the project construction.
 - Arrange with utility providers in advance of the project construction to minimize impacts to public utilities.
 - Compensate property owners for any impacts occurred from land acquisitions through the Caltrans ROW appraisal process. Property owners would be compensated with fair market value for their property based on the highest and best use. All benefits and services will be provided equitably to all affected parties without regard to race, color, religion, age, national origins, and disability as specified under Title VI of the Civil Rights Act of 1964.
 - Coordinate with UPRR well in advance to determine the construction schedule to avoid disruption of railroad activities.
 - Develop and implement a pedestrian traffic detouring plan to ensure the safety of pedestrians, as well as to minimize pedestrian traffic disruption.
 - To the extent applicable, arrange the project construction schedule to avoid any two projects in close vicinity to occur simultaneously.

2.3 Traffic and Transportation/Pedestrian Facilities

This section addresses traffic impacts as a result of implementation of the proposed project. The analysis is based on the results of a recent traffic study conducted for the project (Parsons, 2007a).

2.3.1 Affected Environment

Current and traffic forecasts at the four intersections along Wilmington Avenue, including 220th Street, I-405 NB on- and off- ramps, I-405 southbound (SB) on- and off- ramps and 223rd Street, are presented in Section 1.3 of this report.

2.3.2 Environmental Consequences

Build Alternatives

Operational Impact

The proposed project is an operational improvement project and as such is not forecast to increase traffic volumes. Chapter 1 of this document discusses the existing and forecasted traffic conditions without the proposed project. As shown in Table 1-4, all four intersections are forecasted to operate at LOS F under the No Build Alternative during the peak hours in Year 2030.

A traffic study was conducted to study traffic conditions with implementation of the proposed build alternatives. Based on the new lane configurations (Figures 2-2 and 2-3), the proposed project would increase the capacity of the intersections along Wilmington Avenue and thereby reduce V/C ratios (or associated LOS) as demonstrated in Table 2-4 and 2-5.

In addition to improving LOS, the project would enhance safety. Since LOS is being improved, no hazards are expected to be created or made worse by the project and some are expected to be reduced.

**Table 2-4
Existing and Future Years Forecast Study Intersection LOS
for All Alternatives during AM and (PM) Peak Hours**

Intersection with Wilmington Avenue	Existing (2006)	Construction Completion (2011)			Future Year (2030)		
		No Build	Alt 1	Alt 2	No Build	Alt 1	Alt 2
220 th Street	C(E)	C(F)	A(B)	A(B)	C(F)	A(B)	A(C)
NB Ramps	E(F)	D(F)	B(B)	B(B)	E(F)	B(B)	B(B)
SB Ramps	F(F)	F(F)	A(B)	A(B)	F(F)	B(B)	A(B)
223 rd Street	F(F)	F(F)	C(D)	C(D)	F(F)	C(E)	C(E)

Source: Parsons, 2007a

Table 2-5
Comparison of Turn Pocket Length and Freeway Off-Ramp Storage
for Existing, No Build, and Build Alternatives Condition
Peak Hour 95th Percentile Queue Lengths in Feet

Intersection with Wilmington Avenue	Existing (2006)			Future No Build (2030)			Alternative 1 (2030)			Alternative 2 (2030)		
	Storage Length	AM Peak	PM Peak	Storage Length	AM Peak	PM Peak	Storage Length	AM Peak	PM Peak	Storage Length	AM Peak	PM Peak
SB Left at 220th Street	217	81	49	217	117	57	217	77	46	217	77	47
NB Left at 220th Street	56	48	92	56	33	113	100	35	105	131	38	129
SB Left at NB Ramps	149	126	112	149	93	97	100	62	102	-	-	-
NB Off-Ramp	950 ¹	1,178	1,564	1258 ¹	641	1,108	1258 ¹	208	382	1258 ¹	210	354
SB Left at SB Ramps	280	379	868	280	457	1,140	320	85	295	320	81	343
SB Off-Ramp	608 ¹	530	244	608 ¹	780	346	608 ¹	166	112	608 ¹	166	124
SB Left at 223rd Street	203	273	415	203	345	502	205	74	176	205	78	176
NB Left at 223rd Street	221	96	86	221	126	104	151	42	62	151	42	62
Eastbound Left at 223rd Street	299	386	453	299	563	562	290	116	142	290	116	142
Westbound Left at 223rd Street	188	416	453	188	602	562	248	129	187	248	129	187

Bold Type face indicated a queue exceeding storage
¹Crosswalk to exit nose

Source: Parsons, 2007a

Impact to Emergency Access

During project construction, there could be temporary construction impacts affecting fire protection agencies, law enforcement agencies, and emergency services. Implementation of the proposed project would enhance emergency access through the reduction of congestion along Wilmington Avenue and at freeway access points.

Impact to Railroad

There is a railroad crossing at Wilmington Avenue within the project area. No changes to that crossing are proposed. No changes in safety risks are anticipated.

Impact to Parking

Street parking is not currently permitted along Wilmington Avenue within the project limits and this will not be changed by the proposed project. The project is limited to roadway improvements and would therefore not result in any increase in demand for street parking.

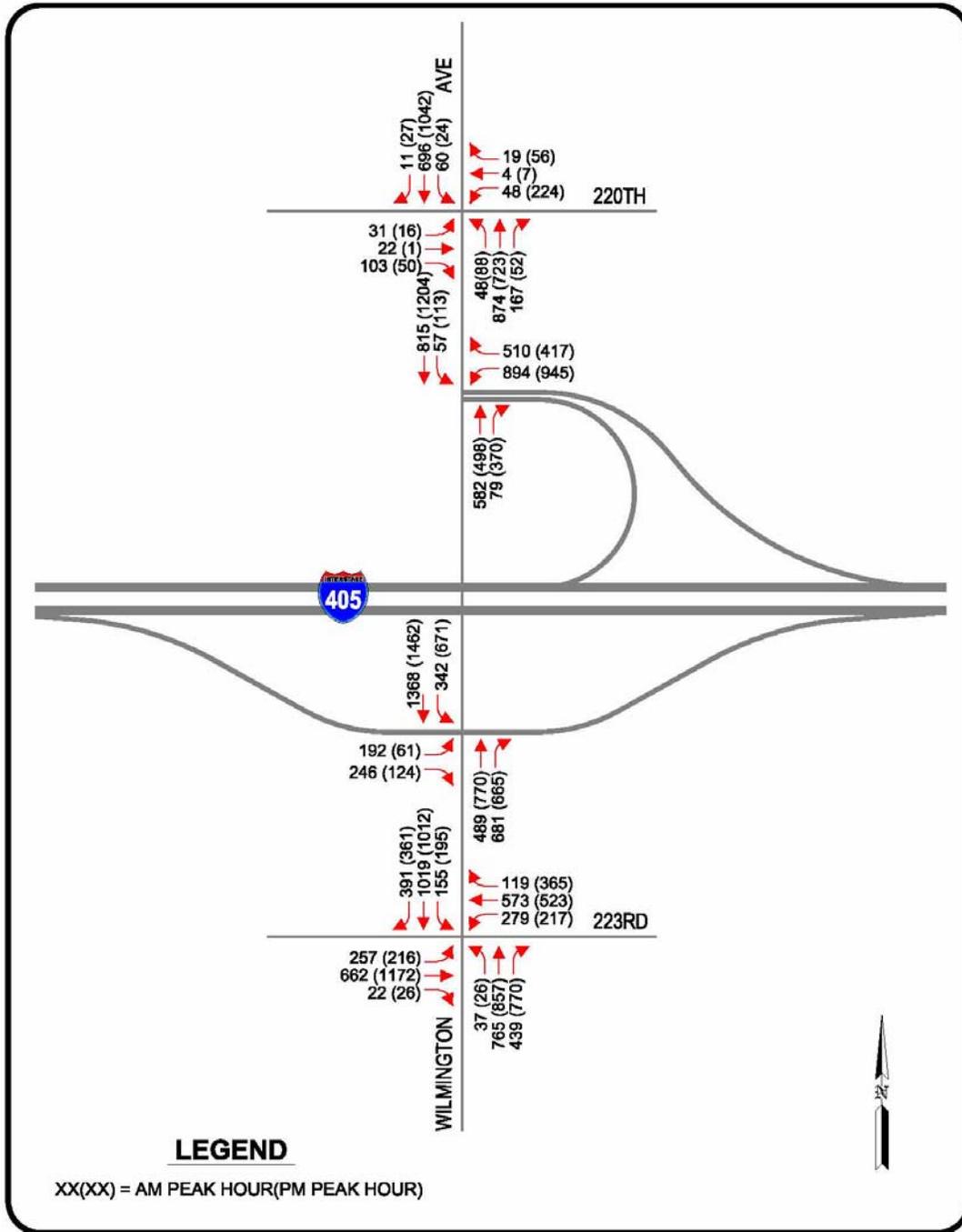


Figure 2-2 – Alternative 1 Year 2030 Peak Hour Traffic Volumes

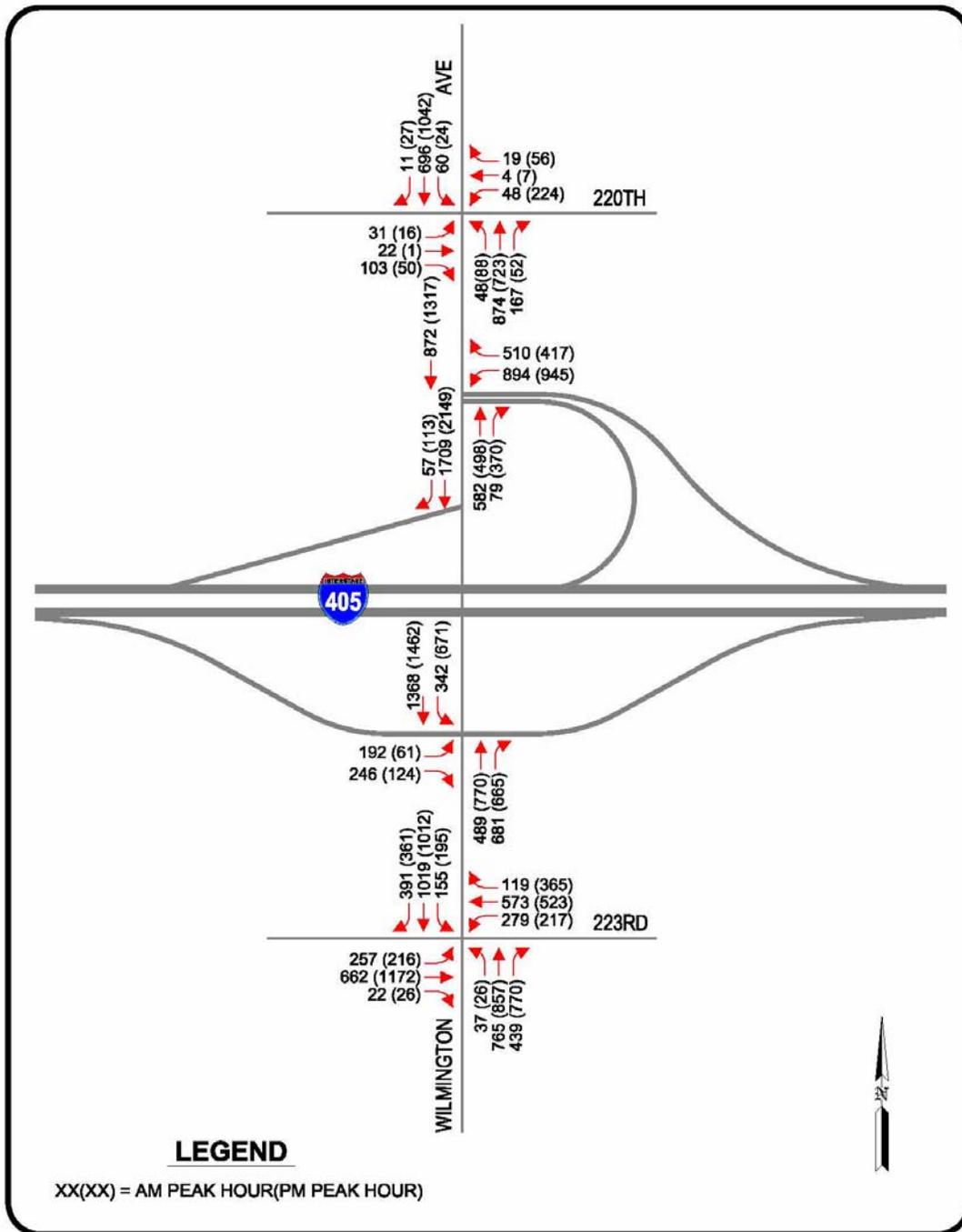


Figure 2-3 – Alternative 2 Year 2030 Peak Hour Traffic Volumes

Impact to Existing Transportation System

The proposed project would improve traffic conditions. It is anticipated that the proposed project would improve circulation of vehicles on roadways within the project limits. Circulation would be altered by the implementation of a ramp from SB Wilmington Avenue to NB I-405. Vehicles will enter the ramp by turning right off of Wilmington Avenue. Currently, SB traffic on Wilmington Avenue must turn left to access I-405 NB. The proposed project would improve the LOS at the intersection in the project area, and would result in some travel time savings as demonstrated in Table 1.8 of Section 1.3.3.

Conflict with Adopted Policies, Plans, or Programs Supporting Alternative Transportation

A Class I bikeway along Dominguez Channel is shown in the current Transportation/Circulation Element of the Carson General Plan. The bikeway does not currently exist. The proposed project would potentially widen existing bridges over the channel but, since the bikeway does not currently exist, no impacts are expected as a result of the proposed project. The build alternatives would not impede future bikeway construction along the channel.

The only transit service within the proposed project limits is provided by the Carson Circuit Transit System. The current map of shuttle bus Route F shows a major stop at the intersection of Wilmington Avenue and 223rd Street. That stop is located on 223rd Street west of the bridge over the Dominguez Channel. There is another stop on 220th Street west of Wilmington Avenue. No shelter or other fixed transit facility (except for signs designating stop locations which are mounted on signposts primarily for other signs) currently exists within the proposed project limits, so no impacts are expected as a result of the proposed project.

No-Build Alternative

Without implementing the proposed improvements, traffic congestion at the four intersections within the project limits will continue to worsen, as shown in the forecast presented in Section 1.3 (refer to Tables 1-4 and 1-6).

2.3.3 Avoidance, Minimization, and Compensation Measures

- In addition to the TMP, a construction management plan will be prepared that describes construction management activities pertaining to onsite and offsite street circulation, planned haul routes, and temporary traffic lane closures. The construction plans are subject to review by the City.

2.4 Visual and Aesthetic Effects

This section analyzes how the proposed project would affect the visual quality of the project roadway corridor and views of the project from the surrounding community. The FHWA methodology entitled Visual Impact Assessment for Highway Projects (FHWA, 1981) guidelines were used for conducting the analysis (Parsons, 2007g).

2.4.1 Affected Environment

The visual environment within the project study area can be divided into three landscape units – Residential, in the northeast quadrant of the interchange; Commercial, in the remaining three quadrants of the interchange; and I-405, which includes the freeway viewshed. I-405 is elevated within the project area over the surrounding landscape (see Figure 2-4). Landscape plantings within the interchange are only partially visible to travelers on the freeway; however, the plantings behind the residential properties help to buffer the homes from the freeway.

The Residential Unit is made up of smaller 1- and 2-story detached units with both front and backyards. The 2-story residences adjacent to the freeway do not have windows on the freeway side. The homes that are adjacent to I-405 have a 7- to 8-foot block wall located on the homeowners' side. Views to the freeway are further screened by a row of dense vegetation along the embankment. Homes further back in the development have limited views of the freeway because of the close spacing of the homes and vegetation along the freeway. Typical views within this unit can be seen in Figure 2-5.

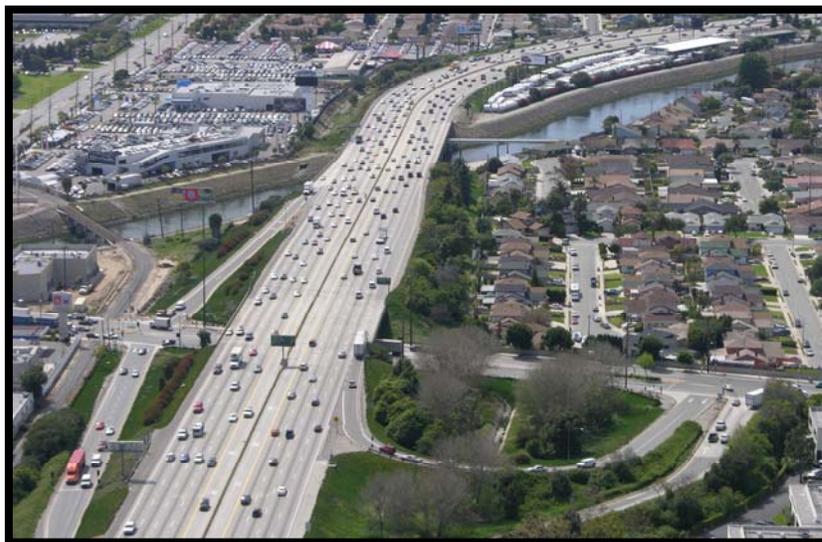


Figure 2-4 – Aerial View of the Project Area



This page intentionally left blank



Figure 2-6
Commercial Landscape Unit

This page intentionally left blank.



Figure 2-7
I-405 Landscape Unit

This page intentionally left blank.

Street views, both urban arterial and freeway, dominate the views within the Commercial Landscape Unit, including 223rd Street, Wilmington Avenue, and I-405. The commercial establishments along the arterial roadways are one story structures, many of which cater to automobile traffic. Views to the project area are generally along Wilmington Avenue and from the parking areas associated with the commercial units along Wilmington, as shown in Figure 2-6. On Wilmington Avenue, the views of the I-405 bridge create a focal mid to foreground view as you approach the bridge. Traveling south, the background views are dominated by the refinery, while EB travelers have background views of city development.

The I-405 Landscape Unit includes those views associated with I-405, including views within the interchange ramps. In general, these views include limited foreground views of freeway elements, including paving, roadside barriers, signage, interchange ramps and associated landscaping, and other typical roadway elements; and mid- to background views of adjacent development, particularly the refinery, which dominates many of the background views. Figure 2-7 shows the views along the I-405 Landscape Unit.

Visual Quality

Views from the Residential Landscape Unit to the project area are limited by the existing wall along the property line, the lack of windows facing the project area, and the presence of existing vegetation along the freeway. In general, the view has an overall moderately low visual quality because of the presence of the freeway and the surrounding developments. The intactness of the view is low because of the presence of the freeway with the industrial background. Both the vividness and unity of the views are moderately low and are helped by the presence of the vegetated screen created by the freeway plantings.

Within the Commercial Landscape Unit, views have an overall low visual quality, with a low vividness, intactness, and unity. Vividness is low because of the number of industrial elements within the viewshed, including the refinery, the freeway, and the railroad spur. The intactness and unity are affected by many of these same factors, along with the commercial development that creates conflicting patterns of color, line forms, and texture.

Because the interchange is “below” the freeway, many of the interchange elements are not visible to travelers along I-405. The most notable features, other than the ramp gores, are the plantings within the loop ramp in the northeast quadrant and along the freeway east of the I-405 bridge over the Dominguez Channel. The general views within the I-405 Landscape Unit are low with low vividness, intactness, and unity.

Viewer Groups, Exposure, and Awareness

In general, the order of “most to least sensitive” viewer groups within the study area are – residents, business owners and employees, shoppers/business users, regular motorists, and occasional motorists.

Residents: The residents in the northeast quadrant of the interchange are likely to have a high concern about the project and its effects on views from their homes and neighborhood. In addition, based on the community plans described above, residents are likely to be concerned about the image of their community as viewed from the freeway. These views are seen by thousands of travelers, both residents and nonresidents, each day for short durations.

Business Owners, Employees, and Customers: Business owners and their employees along Wilmington Avenue have clear views to portions of the project. There are potentially hundreds of views per day for these viewers, both mid-ground and foreground. It is anticipated that these views are of short duration. Employees and customers would likely have a low to moderate awareness of the project, while owners may have a moderate to high awareness of the project because of their concerns over how it might affect business traffic rather than visual quality.

Regular Motorists: This group is primarily made up of local residents who live in the community and regularly use this interchange to access work and home, as well as commuters from outside of the immediate area that regularly pass through the interchange. Wilmington Avenue carries thousands of travelers each day, and volumes on I-405 are much greater with more than 200,000 vehicles per day. During free-flow travel, the project area can be crossed in a few minutes.

Daily commuters would be anticipated to have a greater awareness of views within the project area from each of the roadways because of the frequency of traveling the route and the length of time spent on the interchange each day.

Occasional Motorists: This group typically comprises nonresidents passing through the area. These viewers would have a low awareness of the project and any changes to the visual environment. They are more likely to respond to any enhanced visual quality and place identification included in the project.

2.4.2 Environmental Consequences

NEPA and CEQA require consideration of visual resource impacts of projects in preparation of environmental documents. The CEQA Guidelines (1998) state that a project may have a significant impact on visual quality if it would:

- Have a substantial adverse effect on a scenic vista;
- Substantially damage scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;
- Substantially degrade the existing visual character or quality of the site and its surroundings; or
- Create a new source of substantial light or glare, which would adversely affect day or nighttime views in the area.

For projects that do not create a substantial impact on existing visual quality, a more nuanced approach categorizes impact levels as low, moderate, moderately high, and high based on the following descriptions:

Low: Minor adverse change to the existing visual resource, with low viewer sensitivity to any change. May or may not require mitigation.

Moderate: Adverse change cannot be described as minor or viewer response is thought to be greater. Impacts can be mitigated within 5 years using conventional practices.

Moderately High: Moderate adverse change in the visual resource with high viewer response or high adverse change with a moderate viewer response. Extraordinary mitigation measures may be required, and landscape treatments required may take more than 5 years to mitigate.

High/Significant: High level of adverse change or a high level of sensitivity to the change such that architectural design and landscape treatments cannot mitigate impacts. An alternative project design may be required to avoid adverse impacts.

For this analysis, the proposed project would be considered to have a substantial impact if it were to result in obstruction or impairment of important views from a public roadway or scenic vista, result in substantial modification to the height of the existing

structures/topography of the area, or cause a large reduction in the landscape/vegetation within the interchange area

Build Alternatives

Implementation of Alternative 1 would have a low level of visual impact to the project area. Many of the proposed improvements, including improved curb radii, replaced paving, signal improvements, and small roadway widening would not be perceivable by most of the traveling public. The widened cross section of Wilmington Avenue in the area of the Dominguez Channel would be more noticeable, but much of this would be a swapping of parking lot paving with roadway paving; therefore, changes to the existing visual environment would be very small.

Impacts associated with Alternative 2 are similar to Alternative 1. In addition, a new I-405 NB on-ramp would be constructed behind the Residential Landscape Unit. This would require removal of the existing vegetation and construction of soundwalls along I-405 and the ramp. Based on Caltrans' landscape setback requirements, there would not be sufficient room for new tree plantings within the remaining area between the soundwall and the residents' property wall; however, vine plantings on the soundwall could be used to soften the appearance and texture of the wall.

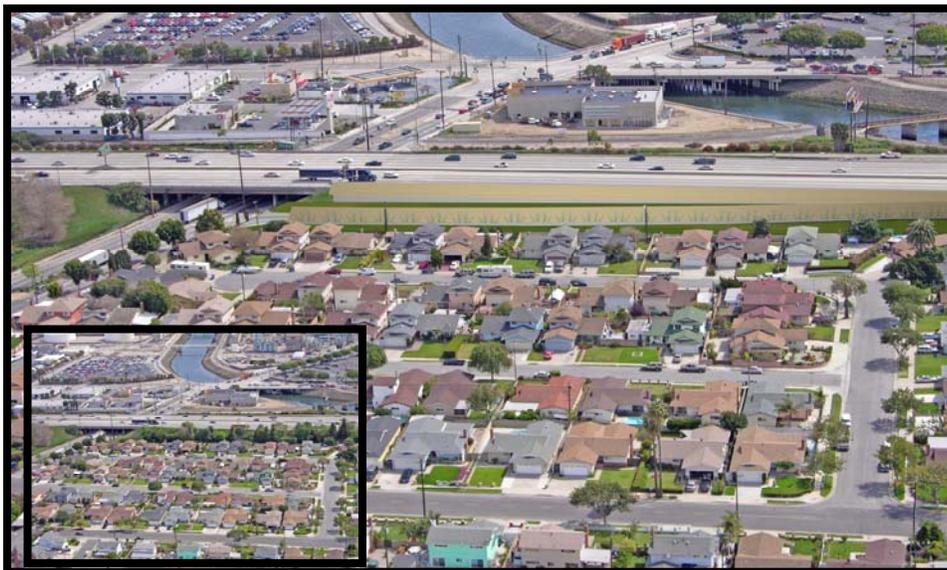
Removal of vegetation and the inclusion of soundwalls along the new I-405 NB on-ramp would result in a moderate impact to the visual environment. The impact would not be significant because property perimeter walls partially block views from the adjacent residences and there is a lack of windows on the freeway side of the homes, particularly within the second stories. Figures 2-8 and 2-9 show a "birds-eye" view of the proposed soundwall location from the resident's point of view.

No-Build Alternative

The No-Build Alternative would not affect views along Wilmington Avenue, or substantially degrade the existing visual character or quality of the site and its surroundings. Nor would it create a new source of light or glare, which would adversely affect day or nighttime views in the area.



**Figure 2-8 Proposed View of NB On-Ramp with Soundwalls
(view looking north over the interchange)**



**Figure 2-9 Proposed View of NB On-Ramp with Soundwalls
(view looking west from the neighborhood)**

2.4.3 Avoidance, Minimization, and Compensation Measures

To address the potential adverse visual impacts to the interchange area, the following actions are recommended. With implementation of these mitigation measures, the visual impacts of this project can be reduced and would not result in a substantial change in overall visual

quality for the area. The following mitigation proposals are subject to change, especially for the current stage of planning for this project, but necessary aesthetic and landscape mitigation will occur wherever feasible.

- Maximize the use of available landscape areas within the interchange, within established limitations required by Caltrans for planting setbacks. The landscape design should reinforce the design of the architectural elements to create a unified, cohesive design theme.
- Include trees in the new plantings to areas behind the residences to the greatest extent possible to replace those removed by the project.
- Utilize drainage and water quality elements within the interchange that maximize the allowable landscape area.
- Detail soundwalls architecturally to be visually compatible with the adjacent community. Use architectural detailing, such as pilasters, wall caps, and patterns to the block layout or textures to the panels, to enhance the image of the wall.
- Apply architectural detailing to the retaining walls, including textures, colors, and patterns.
- Involve the community in participating in the design process.
- During the final design phase, explore the possibility of placing the right-of-way fencing in visually unobtrusive locations. An aesthetic treatment to the standard chain link fence should be considered for pedestrian traffic areas and highly visible locations, with the agreement that the city will maintain the fencing perpetuity.
- Provide plantings, where feasible, near the base of the wall, to blend the wall into the surrounding neighborhood.

2.5 Cultural Resources

A Historic Property Survey Report (HPSR), Historic Resources Evaluation Report (HRER), and Archaeological Survey Report (ASR) were prepared for the proposed project in March 2007 (ECORP, 2007a-c). These reports were prepared pursuant to the guidelines established in the Caltrans Environmental Handbook, Vol. II (Cultural Resources) issued in June 2006.

2.5.1 Affected Environment

Area of Potential Effects

The Area of Potential Effects (APE) boundary was established in consultation with Caltrans professionally qualified staff on February 27, 2007. The APE includes the properties from which new ROW would be acquired and adjacent properties subject to indirect effects. The Direct APE includes the maximum extent of ground disturbance from both alternatives.

Archaeological Resources

The results of a records search of the South Central Coastal Information Center at California State University, Fullerton conducted on January 29, 2007, revealed that no prehistoric or historic-period archaeological resources were recorded within the APE (ECORP, 2007a) for the proposed project. The results of the Native American Heritage Sacred Lands File Check and consultation with Native Americans did not identify any archaeological or Native American cultural resources within the APE. An archaeological survey was conducted on March 5, 2005. The survey area is the same as the Direct APE, which includes the existing interchange with southbound on- and off-ramps, the area needed for the new northbound on -ramp, and the areas where Wilmington Avenue and 223rd Street would be widened. No prehistoric or historic archaeological resources were identified within the Direct APE, or archaeological APE, during the survey. The APE is almost entirely developed with streets and freeway, industrial and commercial buildings, houses, and parking areas. The only unpaved areas in the Direct APE are adjacent to the SB on- and off-ramps for the current interchange. These areas consist of fill placed during construction of the ramps and are slopes covered with ice plant. Based on this, archaeological impacts are not anticipated and no further archaeological investigations are warranted. However, it is always possible to encounter subsurface archaeological resources in areas where only surface inspection has taken place.

Historic Architectural Resources

The records search of the South Central Coastal Information Center at California State University, Fullerton conducted on January 29, 2007, revealed that six buildings are in close proximity to the APE; however, none are within the APE. A review of the Caltrans Historic Bridge Inventory indicates the bridges located within the project APE have been evaluated by Caltrans and determined “not eligible” for the National Register. The records search indicates that no properties within the project APE have been given formal local, state, or

national designations of historical significance. Several buildings are currently within the Indirect APE. All of these buildings meet the criteria for the Caltrans Section 106 Programmatic Agreement (PA) Attachment 4 (Properties Exempt From Evaluation). Therefore, research indicates that no significant “historic properties” as defined by the National Historic Preservation Act (NHPA) or “historical resources” as defined by CEQA are located within the APE.

2.5.2 Environmental Consequences

Title 36 *Code of Federal Regulations* (CFR) Part 800 defines adverse effect on historic properties as follows:

Section 800.5(1), Criteria of Adverse Effect – An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Adverse effects on historic properties include, but are not limited to:

- Physical destruction of or damage to all or part of the property
- Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation, and provision of handicapped access, that is not consistent with the Secretary of the Interior’s Standards for the Treatment of Historic Properties (1995)
- Removal of the property from its historic location
- Change of the character of the property’s use or of physical features within the property’s setting that contribute to its historic significance
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property’s significant historic features
- Neglect of a property, which causes its deterioration

The CEQA Guidelines state that a project may have a significant effect on the environment if it may “cause a substantial adverse change in the significance of an historical resource” (CEQA Guidelines, Section 15064.5 [b], 2000).

Such changes include “physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired” (CEQA Guidelines, Section 15064.5 [b][1], 2000).

Build Alternatives

The results of a historic architectural survey prepared for this project indicate that there are no buildings determined eligible for inclusion in the National Register of Historic Places (NRHP), and none of the properties within the APE had been given formal local designations of historical significance for the purposes of Section 106 of the NHPA or the NEPA. No impacts to significant historical resources are anticipated.

The results of a records search revealed that no archaeological resources were recorded within the APE. A field inspection was conducted, and confirmed that no prehistoric or historic archaeological sites were identified in the APE. Based on this, no archaeological impacts are anticipated and no further archaeological investigations are warranted.

No-Build Alternative

No direct or indirect effects to archaeological and historical resources would occur with implementation of the No-Build Alternative.

2.5.3 Avoidance, Minimization, and Compensation Measures

In the unlikely event that buried archaeological materials are encountered during excavation and construction, it is Caltrans’ policy to stop work until a qualified archaeologist can evaluate the nature and significance of the find.

2.6 Hydrology/Water Quality/Stormwater

2.6.1 Affected Environment

Surface Water

The project site is located within the Dominguez Watershed, which is part of the West Coast Hydrologic Sub-Area (HSA 405.12), and is within the jurisdiction of the Los Angeles RWQCB. The Dominguez Watershed is comprised of approximately 110 square miles of land in the southern portion of Los Angeles County. Approximately 96 percent of the total watershed area is developed and the land use is predominantly transportation. Typically, watersheds are defined by the natural topography of its drainage area; however, the Dominguez Watershed boundary is defined by a network of storm drains and smaller flood control channels. The Dominguez Channel extends from the Los Angeles International

Airport to the Los Angeles Harbor and drains large (if not all) portions of the cities of Inglewood, Hawthorne, El Segundo, Gardena, Lawndale, Redondo Beach, Torrance, Carson and Los Angeles. Drainage along the freeway alignment is conveyed towards designed collection facilities and enters the Dominguez Channel through a series of corrugated metal pipes (CMPs), trapezoidal concrete channels, and reinforced concrete pipes (RCPs). The portion of the Dominguez Channel that is adjacent to the project site has rip rap-lined sides and a soft bottom. The remaining land areas within the watershed drain to several debris basins and lakes or directly to the Los Angeles and Long Beach Harbors.

Within the project limits, the Dominguez Channel is designated as an impaired water body under Section 303(d) of the Clean Water Act (CWA) by the State Water Resources Control Board (SWRCB) for several pollutants, including aldrin (tissue), ammonia, Benthic Community Effects, ChemA (tissue), Chlordane (tissue), chromium (sediment), Dichloro-Diphenyl-Trichloroethane (DDT) (tissue and sediment), dieldrin (tissue), high coliform count, lead (tissue), Polycyclic Aromatic Hydrocarbons (PAHs) (sediment), and zinc (sediment). The Dominguez Channel has no prescribed Total Maximum Daily Loads (TMDLs) in effect at this time.

Floodplain

Flood plain boundaries were delineated on the Flood Insurance Rate Maps (FIRMs) by the Federal Emergency Management Agency (FEMA). The project area was shown on the FIRM map for this area to lie within Zone A and Zone AR. The two flood zones are defined as follows:

- Zone A – Flood insurance rate zone that corresponds to the 1-percent annual chance floodplains that are determined in the Flood Insurance Study by approximate methods of analysis.
- Zone AR – Flood insurance rate zone used to depict areas protected from flood hazards by flood control structures, such as a levee, that are being restored.

Groundwater

The Dominguez Watershed is underlain by two groundwater basins, the West Coast Basin to the west and south, and the Central Basin to the north and east. The basins are separated by the Newport-Inglewood Fault, although there is some hydraulic connection between them. The proposed project site is located over the West Coast Basin. According to information

from the Los Angeles County Department of Public Works (LACDPW), the depth to groundwater at the site area ranges from 6 to 36 feet bgs, near the intersection of Wilmington Avenue and 223rd Street.

According to information from the RWQCB and the California Environmental Protection Agency (Cal-EPA), there are 16 Leaking Underground Storage Tank (LUST) facilities located within a 0.5-mile radius of the project site. Seven of these sites are located upgradient of the project area. Additionally, a 8,330-foot-deep abandoned oil well is located approximately 0.5-mile west of the project area. Since there are many pollutant sources upgradient of the project site, it is likely that the groundwater is contaminated within the project limits.

2.6.2 Regulatory Framework

In 1948, Congress enacted the Water Pollution Control Act, which has since been amended extensively on several occasions, and it is now commonly referred to as the CWA. The CWA delineates a national permitting system for point discharges known as the National Pollutant Discharge Elimination System (NPDES). NPDES permits typically incorporate specific discharge limitations for point source discharges to ensure that dischargers meet permit conditions and protect state-defined water quality standards. California is authorized to administer key components of the federal water quality management program in the state. The California Water Code (CWC) establishes nine administrative areas in the State, administered by RWQCB, which adopt Water Quality Control Plans for their respective regions. The Water Quality Control Plans designate beneficial uses for each receiving water body and establish water quality objectives to ensure reasonable protection of the beneficial uses. The primary method of plan implementation for point discharges is through the issuance of permits.

The existing NPDES framework was expanded in 1987 to regulate stormwater runoff (discharges) originating from municipal, industrial, and construction sites. Section 402(p) of the CWA establishes a framework for regulating municipal and industrial stormwater discharges under the NPDES program. The Phase II Stormwater Program regulations provide that discharges of stormwater to waters of the United States, from construction projects that result in land disturbance of equal or greater than 1 acre or less than 5 acres are prohibited unless the discharge is conducted in compliance with the NPDES permit. Construction activities subject to this General Permit include clearing, grading, and disturbance to ground, such as stockpiling or excavation. Stormwater pollution prevention

plans are required for issuance of a construction NPDES permit and typically include both structural and non-structural best management practices (BMPs) to reduce water quality impacts.

2.6.3 Environmental Consequences

Construction and operational impacts to surface waters were assessed with regard to potential degradation of water quality and changes in surface water flow. Effects on future water quality, both with and without implementation of the project alternatives, were estimated based on the potential for runoff to reach surface water resources and the types of pollutants anticipated.

The proposed project would have significant impacts to water resources during construction and operation, as determined pursuant to CEQA, if any of the following occur:

- Violate any water quality standards or waste discharge requirements (for construction only)
- Substantially degrade water quality
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level
- Substantially alter the existing drainage pattern of the area in a manner that would result in substantial erosion or sedimentation within or downstream of the proposed project area
- Substantially alter the existing drainage pattern of the area or substantially increase the rate or amount of surface runoff in a manner that would result in flooding within or downstream of the project area
- Create or contribute runoff that would exceed the capacity of existing or planned stormwater drainage systems
- Place structures within a 100-year flood hazard area, which would expose people or structures to substantial risk of loss, injury, or death

Build Alternatives

The proposed project would not create or contribute runoff that would exceed the capacity of the existing storm water drainage system, or provide substantial additional sources of

polluted runoff that would violate or be inconsistent with any federal, State or local water quality standards. The proposed project would not substantially alter the existing drainage pattern and would not substantially deplete groundwater supplies or interfere with groundwater recharge. The proposed project will place piles in the Dominguez Channel; however, through the hydrologic analysis performed as part of the Hydrology, Floodplain, Water Quality, and Stormwater Runoff Impact Analysis (Parsons 2007d), it has been determined that this would not substantially impede or redirect the flow, or exceed the capacity of the channel.

The proposed project will encroach upon a floodplain; however, flooding in this area is typically confined to the Dominguez Channel, and structures that will be utilized to facilitate bridge widening are designed to be placed in the flow line. This would not result in the exposure of people or structures to a significant risk of loss, injury, or death involving flooding. Short-term water quality impacts would occur during construction of the proposed project; however, no adverse impacts to water quality from construction are anticipated. No adverse impacts to water quality from operations are anticipated, so long as the proper BMPs or media filters are utilized.

Construction of the proposed retaining wall would require excavation of the soil to the depth of approximately six feet below ground surface. Groundwater may be encountered and dewatering may be required. Since groundwater at the project site is likely to be contaminated, testing of groundwater to identify appropriate handling and disposal method would be required. Piles installation as part of bridge construction would not require groundwater dewatering because the Cast in Steel Shell (CISS) pile is proposed to be used and the piles would penetrate through groundwater. With the proper handling of groundwater during the dewatering process, no impacts to any surface water or groundwater are anticipated as a result of dewatering operations.

No-Build Alternative

No direct or indirect effects to water resources would be expected to occur under the No-Build Alternative.

2.6.4 Avoidance, Minimization, and Compensation Measures

- Under Section 402(p) of the Water Quality Protection Act of 1987, the project must conform to the requirements of Caltrans' Statewide NPDES Permit, Order No. 99-06-DWQ, NPDES No. CAS000003 in addition to the BMPs specified in Caltrans'

Statewide Storm Water Management Plan (SWMP). Since the proposed project is subject to the Caltrans' Statewide NPDES Permit, permanent Treatment BMPs would be incorporated into the project to the Maximum Extent Practicable (MEP) during the project planning and design process.

- When applicable, the project must also conform to the requirements of the General NPDES Permit for Construction Activities, Order No. 99-08-DWQ, NPDES No. CAS000002, and any subsequent general permit in effect at the time of project activity. RWQCB administers and enforces the General Permit program. The objectives of the General Permit are:
 - To identify pollutant sources that may affect the quality of discharges of stormwater associated with construction activity from the project site; and
 - To identify, construct, and implement stormwater pollution preventive measures and BMPs to reduce pollutants in stormwater discharges from the construction site both during construction and after construction is completed.
- The City is required to ensure that an Stormwater Pollution Prevention Plan (SWPPP) and Monitoring Program are prepared and implemented prior to construction activities. The contractor shall develop a SWPPP to incorporate federal, State, and resource agency approved methodologies as well as all other appropriate techniques for reducing impacts to water quality. The plan shall incorporate control measures in the following categories: soil stabilization practices; sediment control practices; sediment tracking control practices; wind erosion control practices; and non-storm water management and waste management and disposal control practices. The plan shall be approved by Caltrans prior to project construction and implementation.
- The contractor shall be required to comply with water pollution control provisions and the SWPPP and conform to the requirements of the Caltrans Standard Specifications Section 7-1.01G "Water Pollution," of the Standard Specifications.
- Appropriate BMPs will be obtained from the Caltrans Storm Water Quality Handbook Project Planning and Design Guide (Caltrans, May 2007) and the Construction Site Best Management Practices Manual (Caltrans, March 2003). The

following special BMPs shall be considered for implementation to prevent debris falling and depositing in the Dominguez Channel because of construction over the channel:

- Limit demolition and construction located over the channel to the dry season (April to October).
- Employ nonshattering methods for demolition activities (e.g., wrecking balls would not be acceptable).
- Place platforms under/adjacent to the bridge structures to collect debris.
- Secure all materials on bridge structures to prevent discharges being carried into the channel by the wind.
- Use attachments on equipment, such as backhoes, to catch debris from small demolition operations.
- Stockpile accumulated debris and waste generated from demolition away from the channel.
- Use drip pans during equipment operation, maintenance, cleaning, fueling, and storage for spill prevention. Place drip pans under all vehicles and equipment placed on the bridge structures when expected to be idle for more than 1 hour.
- Keep equipment used in the channel free of leak.
- Direct water from concrete curing and finishing operations away from inlets and watercourses to collection areas for dewatering.
- Re-vegetating disturbed slopes following Caltrans policies and procedures
- Rounding slopes and benches to reduce concentrated flows, and preserving existing vegetation as much as possible to minimize erosion (Parsons, 2008).
- Rip-rap and culverts with flared end sections would be implemented, where possible, to reduce concentrated flows and limit erosion
- In areas where available right-of-way for the placement of Treatment BMPs are limited, a media filter will be installed in its place. The Targeted Design Constituents (TDCs) identified for the project area are lead (tissue) and zinc (sediment). Site criteria such as soil types and depth to groundwater indicate that a Media Filter is the most feasible Treatment BMP to implement for this project for the removal of lead (tissue) and zinc (sediment) from stormwater runoff.

- Install a groundwater monitoring well near the retaining wall to test soils and groundwater quality. If the groundwater is contaminated, the contractor shall be required to dispose of the groundwater in accordance with the current regulatory requirements.

2.7 Topography, Geology, Soils, and Seismicity

2.7.1 Affected Environment

Topography

The topography of the project site is a relatively flat coastal plain underlain by unconsolidated alluvial sediments deposited in recent time by the Los Angeles River. Site geology, seismicity, and soil condition were reviewed and summarized as part of the Preliminary Foundation Study (Converse Consultant, 2007).

Geology and Soils

The project site lies along the southern margin of the Los Angeles Basin in the Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges province is characterized by northwest trending valleys and mountain ranges which have formed in response to regional tectonic forces along the boundary between the Pacific and North American tectonic plates. The geologic structure is dominated by northwest trending right-lateral faults, most notably, the San Andreas, San Jacinto, Elsinore, Whittier and Newport-Inglewood faults. The province extends southward from the Transverse Ranges province at the north end of the Los Angeles basin to the southern tip of the Baja California Peninsula.

The project is located on a broad sediment-filled basin along the southern edge of the Los Angeles Coastal Plain within the Dominguez Gap. The coastal basin has been gradually filled with Quaternary-age marine and non-marine sediments. The Los Angeles River deposited stream and flood plain sediments across the coastal plain during recent time to form a relatively flat and broad river flood plain through the Dominguez Gap to the Pacific Ocean. Soils underlying the project site consist of alluvial sand, silt and clay sediments. Most of these natural river and stream channels are now controlled by dams and flood control channels that collect surface runoff and convey storm water runoff to the ocean.

The I-405/Wilmington Avenue interchange is located at an approximate ground surface elevation of 24 feet above mean sea level (MSL). Wilmington Avenue crosses below the I-405 freeway bridge overcrossing. The I-405 over-crossing and access ramps have been built-up with artificial fill soils placed on top of natural alluvial sediments. The raised ground

surface elevations for the built-up access ramps and I-405 freeway range in elevation from 24 feet to 47 feet above MSL.

Borings drilled at the project site indicate that the site is underlain by 5 feet to 20 feet of fill and fine-grained alluvium including clays, silts and silty sand and sands (Converse Consultant, 2007). The soils consist of soft plastic clay to stiff silty clay, loose to slightly compact silts and loose to dense silty sands and sands.

Based on the Open File Report 98-19 for Long Beach Quadrangle, the historical high groundwater table in the project vicinity is about 20 feet below ground surface (bgs). Based on the available logs of test boring data, the depth of groundwater in the channel vicinity is about 15 feet to 25.5 feet bgs. It should be noted that the borings might not have been left open for a sufficient period of time to establish equilibrium groundwater conditions. In addition, fluctuations in the groundwater level could occur due to change in seasons, variations in rainfall, and other groundwater basin factors.

The groundwater level beneath the site can vary depending upon the water level in the Dominguez Channel and upon the seasonal precipitation and groundwater basin activities including groundwater recharge, storage and pumping occurring in the general site vicinity.

Seismicity

The project site is located in a seismically active area. The geologic processes that have caused earthquake events and strong ground shaking in the past can be expected to continue.

A fault is considered by the State of California to be active if geologic evidence indicates that movement on the fault has occurred in the last 11,000 years, and potentially active if movement is demonstrated to have occurred in the last 2 million years.

The project site is not located within a currently designated State of California Earthquake Fault Zone for surface fault rupture. No surface faults are known to project through or towards the site. The closest known faults to the project site are the Newport Inglewood fault, Palos Verdes fault, concealed Puente Hills Blind Thrust fault and Whittier fault.

The closest known surface trace of an active fault to the project site is the Newport Inglewood fault zone located about 2 miles east of the project site. The Newport Inglewood fault is about 41 miles long on shore and extends northwest from Huntington Beach

through Long Beach to Culver City and the Cheviot Hills. The Newport Inglewood fault continues offshore to the southeast of Huntington Beach and makes landfall in La Jolla as the Rose Canyon fault. The Newport Inglewood fault is characterized by a series of uplifted and folded hills and mesas, including Newport Mesa, Huntington Beach Mesa, Bolsa Chica Mesa, Alamitos Heights and Landing Hill, Signal Hill and Reservoir Hill, Dominguez Hills, and Baldwin Hills.

Several earthquakes have occurred along the fault zone including the March 10, 1933 “Long Beach” earthquake of Richter magnitude (M) 6.4, with its epicenter off Newport Beach, and smaller earthquakes at Inglewood on June 20, 1920 (M 4.9), and Gardena on November 14, 1941 (M 5.4). These faults show evidence of right-lateral strike slip focal mechanisms and stress fields. No historical earthquake is known to have been accompanied by surface rupture.

The Newport Inglewood fault is considered to be active and considered capable of producing a maximum moment magnitude (M_w) 7.1 earthquake. The slip rate is considered to be about 1.0 mm/year but may range up to 2 to 3 mm/year. The orientation of structural elements of the Newport Inglewood fault zone is generally attributed to right-lateral, en-echelon, strike-slip faulting at depth.

Seismic Hazards

The project site is situated in a seismically active region. As is the case for most areas of Southern California, ground-shaking resulting from earthquakes associated with nearby and more distant faults may occur at the project site. During the life of the project, seismic activity associated with active faults can be expected to generate moderate to strong ground shaking at the site.

According to the California Building Code (2001), the proposed site is located in Seismic Zone 4. Seismic Zone 4 includes those areas of California that have experienced major (Richter magnitude greater than 7) historic earthquakes and high levels of recent seismicity. Major damage corresponding to intensities VIII or higher on the Modified Mercalli Intensity Scale should be expected within this zone.

The State of California Seismic Hazard Zone Map for the Long Beach Quadrangle (March 25, 1999) does show the project site located within an area of potential liquefaction. The

project site is not shown with any earthquake-induced landslide areas due to the relatively flat condition of the site topography.

Review of recent seismological and geophysical publications indicates that the seismic hazard for the project site still remains high.

2.7.2 Environmental Consequences

The potential for geological hazard impacts from the proposed project would be considered significant pursuant to CEQA if the project would:

- Expose people or structures to substantial adverse effects, including the risk of loss, injury, or death involving strong seismic shaking or seismic-related ground failure, including liquefaction.
- Be located on a geologic unit or soil type that is unstable, or that could become unstable as a result of the project, and potentially result in landslides, lateral spreading, subsidence, liquefaction, or collapse.
- Result in substantial soil erosion or loss of topsoil.

Build Alternatives

The project site is situated in a seismically active region. As is the case for most areas of Southern California, ground-shaking resulting from earthquakes associated with nearby and more distant faults may occur at the project site. During the life of the project, seismic activity associated with active faults can be expected to generate moderate to strong ground shaking at the site.

According to the California Building Code (2001), the proposed site is located in Seismic Zone 4. Seismic Zone 4 includes those areas of California that have experienced major (Richter magnitude greater than 7.0) historic earthquakes and high levels of recent seismicity. Major damage corresponding to intensities VIII or higher on the Modified Mercalli Intensity Scale should be expected within this zone.

The State of California Seismic Hazard Zone Map for the Long Beach Quadrangle (March 25, 1999) does show the project site located within an area of potential liquefaction. The project site is not shown with any earthquake-induced landslide areas due to the relatively flat condition of the site topography.

Review of recent seismological and geophysical publications indicates that the seismic hazard for the project site still remains high.

Secondary effects of seismic activity include surface fault rupture, soil liquefaction, lateral spreading, landslides, and earthquake-induced flooding. Site-specific potential for each of these seismic hazards is discussed in the following paragraphs.

Surface Fault Rupture: The site is not located within a currently designated State of California Earthquake Fault Zone. Based on a review of existing geologic information, no known active surface fault zone crosses or projects toward the site. The potential for surface rupture resulting from the movement of the nearby major faults is not known with certainty but is considered very low.

Liquefaction: Liquefaction is defined as the phenomenon in a soil mass, due to the development of excess pore pressures, suffers a substantial reduction in its shear strength to a constant value and deforms continuously until the imposed shear stresses become equal to steady-state shear strength. During earthquakes, excess pore pressures in saturated soil deposits may develop as a result of induced cyclic shear stresses resulting in liquefaction.

Review of the State of California Seismic Hazard Zones Map for the Long Beach Quadrangle released March 25, 1999 shows that the proposed project site is located within a potential liquefaction zone.

Liquefaction analysis was conducted based on “Recommended Procedures for Implementation of DMG Special Publication 117 Guidelines for Analyzing and Mitigating Liquefaction in California, March 1999.” Available logs of test borings were used for liquefaction analysis. Based on the liquefaction analysis the subject onsite soil was determined to have a low susceptibility to liquefaction under earthquake ground shaking.

Lateral Spreading: Seismically induced lateral spreading involves primarily lateral movement of earth materials due to ground shaking. It differs from slope failure in that complete ground failure involving large movement does not occur due to the relatively smaller gradient of the initial ground surface. Lateral spreading is demonstrated by near-vertical cracks with predominantly horizontal movement of the soil mass involved. The topography at the project site and in the immediate vicinity of the site is very flat. Under these circumstances, the potential for lateral spreading at the subject site is considered low.

Landslides: Seismically induced landslides and other slope failures are common occurrences during or soon after earthquakes. The project site is very flat. In the absence of significant ground slopes, the potential for seismically induced landslides to affect the proposed site is considered extremely low.

Earthquake-Induced Flooding: This is flooding caused by failure of dams or other water-retaining structures as a result of earthquakes. The potential of earthquake induced flooding of the subject site is considered to be low because there is no dam located in the project vicinity.

The proposed project will be built to current earthquake standards and will use best engineering practices to minimize damage from ground shaking. These standards have been established to reduce the damage from seismic activity, which will reduce the potential for impacts to the public.

No-Build Alternative

Under the No-Build Alternative, the risk of exposing people or structures to potential substantial adverse effects as a result of seismic activities and seismic-related ground failure within the project area would remain the same.

2.7.3 Avoidance, Minimization, and Compensation Measures

All applicable Caltrans seismic requirements would be adhered to; therefore, no mitigation measures are required.

2.8 Paleontology

2.8.1 Affected Environment

The results of the paleontological literature review indicate that the project APE contains imported fill and Younger and Older Quaternary Alluvium (ECORP, 2007b). Imported fill and the Younger Quaternary Alluvium which is found near the ground surface do not contain vertebrate fossils. However, the deeper Older Quaternary Alluvium has produced four vertebrate fossils depths ranging from 10 to 30 feet below the surface in the vicinity of the proposed project area. The Older Quaternary Alluvium within the Los Angeles Basin is considered highly fossiliferous.

The maximum proposed depth of ground disturbance is 21 feet below the original ground at the beginning of the new northbound on-ramp. The depth of the ground disturbance for the

roadway improvements in Wilmington Avenue and 223rd Street will be approximately 3 feet. In addition, excavations for the structure footings, pile tips or underground utilities might be deeper. Ground disturbance within the direct APE will likely encounter the Older Quaternary Alluvium.

2.8.2 Environmental Consequences

Build Alternatives

The results of the paleontological literature review indicate that substantive subsurface excavation within the boundaries of the project APE has the potential to expose significant nonrenewable paleontological resources. Vertebrate fossils have been encountered within the Older Quaternary Alluvium at depths ranging from 10 to 30 feet below the surface in the vicinity of the proposed project area. Ground disturbance is anticipated within the Older Quaternary Alluvium. Therefore, a qualified vertebrate paleontologist is required to develop a monitoring program to mitigate the impacts to nonrenewable paleontological resources. The monitoring program may include monitoring of initial grading activities, as well as recovery, preparation (to a point of identification), cataloguing, and curation of fossil materials. Also, a preconstruction meeting would be conducted in which the project paleontologist will explain the procedures necessary to protect and safely remove potentially significant fossil materials for study and curation. The methods employed during monitoring, and/or recovery of fossil specimens should be documented in a report of findings. Any fossils that are collected should be inventoried and placed in an accredited scientific institution for curation. These measures would reduce any potential impacts to significant nonrenewable paleontological resources to less than significant.

No-Build Alternative

No direct or indirect effects to paleontological resources would occur with implementation of the No-Build Alternative.

2.8.3 Avoidance, Minimization, and Compensation Measures

Excavation into previously undisturbed older subsurface sediments should be monitored by a qualified paleontological monitor. The monitor will have the authority to divert grading away from exposed fossil resources temporarily in order to recover the fossils specimens and contextual data. Fossils recovered will be prepared, identified, and cataloged before donation to the accredited repository designated by the City of Carson. The paleontological principal

investigator will prepare a final report which will include a list of resources recovered, documentation of each locality, and interpretation of resources recovered.

2.9 Hazardous Materials/Waste

2.9.1 Affected Environment

An Initial Site Assessment (ISA) was performed for this project during the Project Study Report preparation phase of development (MCE Group, 2003). The updated ISA was performed in October 2007 (Converse Consultant, 2007). The updated ISA confirmed the information presented in the original ISA.

The ISA revealed limited evidence of hazardous waste in connection with the study area; however, it did recommend that a Site Investigation (SI) be conducted. This SI would include the collection of soil samples at various locations to determine if hazardous wastes such as aerially deposited lead, petroleum hydrocarbons, volatile organic compounds or pesticides exist within the project area that is proposed to have existing soil disturbed.

A draft work plan to conduct the subsurface investigation has been prepared by Converse Consultant in parallel with the ISA update, and is subject to review and approval by Caltrans. The subsurface sampling will include advancing approximately 30 soil boreholes at the site. Approximately 26 borings in exposed soil on the shoulders and slopes adjacent to the streets, freeway, and freeway on- and off-ramps will be collected. These borings will be hand augered to a completed depth of approximately 3 feet bgs. Soil samples will be collected at approximately 0.5, 2, and 3 feet bgs. The investigation will begin once the work plan is approved by the Hazardous Waste Section of Caltrans.

To evaluate the potential impact to soil and groundwater beneath the project area from adjacent businesses to the south of the I-405 freeway, soil borings along the east side of Wilmington Avenue will also be drilled to an approximate depth of 35 feet bgs or until groundwater is encountered. The soil and groundwater samples will be selectively analyzed for:

- Organophosphorus pesticides, organochlorine pesticides and chlorinated herbicides
- Total Petroleum Hydrocarbon (TPH)
- Volatile Organic Compounds (VOCs) plus oxygenates
- Title 22 Metals
- pH

2.9.2 Environmental Consequences

The proposed project may result in significant impacts, as determined pursuant to CEQA, if it would:

- Create a significant hazard to the public or environment through the routine transport, storage, use, or disposal of hazardous materials
- Create a significant hazard to the public through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Be located within 0.4-km (0.25-mi) of a site that emits hazardous emissions or handles hazardous or acutely hazardous materials, substances, or wastes
- Be located on a site that is known to contain hazardous materials or is listed pursuant to Government Code Section 65962.5 and, as a result, could create a significant hazard to the public or the environment

Build Alternatives

Hazardous Materials Sites. Based on review of environmental databases, site reconnaissance and historical research, the ISA identified the following potential recognized environmental concerns directly related to the project:

Leak Underground Storage Tank (LUST). Review of the LUST facilities from the database report list the Texaco property as a facility with leaking underground storage tanks. A release of petroleum hydrocarbons occurred at the site on November 15, 1994. The release of the petroleum hydrocarbons affected the local groundwater. A pollution characterization report and remedial plan was developed in October 2001. The abatement methods of remediation were to excavate, remove contaminated soil and dispose, free produce recovery, and removal of floating product from the local water table. Due to the proximity of this facility with respect to the project, direction of groundwater flow or gradient, and shallow depth to groundwater, there is a likelihood that the horizontal and vertical limits of impacted groundwater and soil could extend within the limits of the project.

Construction of the proposed retaining wall would require excavation of the soil to the depth of approximately six feet below ground surface. Groundwater may be encountered and dewatering may be required. Since groundwater at the project site is likely to be contaminated, testing of groundwater to identify appropriate handling and disposal method would be required. Piles installation as part of bridge construction would not require

groundwater dewatering because the CISS pile is proposed to be used and the piles would penetrate through groundwater. With the proper handling of groundwater during the dewatering process, no impact to any surface water and groundwater body is anticipated.

Aerially Deposited Lead (ADL). Surface soil adjacent to travel lanes within the project corridor may contain ADL from vehicle exhaust. Areas within the proposed project corridor where soil may be disturbed during construction will be tested for ADL according to Caltrans ADL testing guidelines. Caltrans has very specific guidelines for work around ADL contamination along a transportation corridor. This includes special variances obtained from DTSC. Caltrans requirements for handling ADL will be followed.

Lead Based Paint (LBP) Coating. Lead and other heavy metals, such as chromium, may be present within yellow thermoplastic paint markings on the pavement. Based on the project limits and the projected disturbed area, the paint marking area is anticipated to be minimal, which would not result in a significant change pursuant to CEQA in the ambient air quality standard for lead. The impact is not considered significant with mitigation measures incorporated, as determined pursuant to CEQA.

LBP. The pavement to be disturbed by the construction activities that contains yellow thermoplastic paint markings will be tested for LBP prior to removal. The workers involved in LBP removal would be required to adhere to the Office of Safety and Health Administration (OSHA) requirements to prevent any health effects. Since the construction would take place after business hours, inhalation of dusty materials by the public is not anticipated. No site cover is required.

No-Build Alternative

No direct or indirect effects would occur under the No Build Alternative.

2.9.3 Avoidance, Minimization, and Compensation Measures

- All contaminated soils shall be treated in conformance with the California DTSC regulations
- Specifications for the removal of asbestos, suspected meals coated with lead-based paint, and other hazardous substances, if encountered during construction, shall be included in the project.
- All litter and solid waste will be taken to an approved disposal facility.

- Install a groundwater monitoring well near the retaining wall to test soils and groundwater quality. If the groundwater is contaminated, the contractor shall be required to dispose of the groundwater in accordance with the current regulatory requirements.

2.10 Air Quality

2.10.1 Affected Environment

An air quality assessment was prepared for the proposed project (Parsons, 2007b). Information related to air quality regulations and study methodology can be found in the Air Quality Technical Report, which is incorporated by reference into this IS/EA document.

Regulatory Background

A number of statutes, regulations, plans, and policies have been adopted that address air quality issues. The proposed project site and vicinity are subject to air quality regulations developed and implemented at the federal, state, and local levels. Plans, policies, and regulations that are relevant to the proposed project are discussed in the following sections.

Federal Regulations/Standards

The federal Clean Air Act (CAA) was passed in 1970, and last amended in 1990. It forms the basis for the national air pollution control effort. Basic elements of the act include national ambient air quality standards (NAAQS) for criteria air pollutants, hazardous air pollutants emission standards, state attainment plans, motor vehicle emissions standards, stationary source emission standards and permits, acid rain control measures, stratospheric ozone (O₃) protection, and enforcement provisions.

The NAAQS have two tiers: primary standards to protect public health and secondary standards to prevent environmental degradation (e.g., damage to vegetation and property, visibility impairment). The CAA mandates that the state submit and implement a State Implementation Plan (SIP) for areas not meeting the NAAQS. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 Amendments to the CAA identify specific emission reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable progress toward attainment and incorporation of additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA that are most applicable to the project include Title I (Nonattainment Provisions) and Title II (Mobile Source Provisions).

Title I of the CAA identifies attainment, nonattainment, and unclassifiable areas with regard to the criteria pollutants, and it sets deadlines for all areas to reach attainment for the following criteria pollutants: O₃; nitrogen dioxide (NO₂); sulfur dioxide (SO₂); particulates less than ten microns in diameter (PM₁₀); carbon monoxide (CO); and lead (Pb). The NAAQS were amended in July 1997 to include the 8-hour O₃ standard and an NAAQS for fine particulates less than 2.5 microns in diameter (PM_{2.5}).

The United States Environmental Protection Agency (EPA) revised the ozone standard in 1997, setting the 8-hour standard at 0.08 parts per million (ppm). However, a number of events delayed implementation of the new 8-hour standard. In May 2003, the EPA released its proposed rule to implement the 8-hour ozone NAAQS and plans to issue a final rule by the end of 2003. On April 15, 2004, the EPA promulgated attainment designations based on the 8-hour O₃ standard. The new area designation and classification took effect on June 15, 2004. The South Coast Air Basin (SCAB) was classified as a severe-17 nonattainment area, which has 17 years from the designation date to demonstrate attainment (2021). The standards for all criteria pollutants are presented in Table 2-6; health effects that result from exposure to these pollutants are shown in Table 2-7.

Title II of the CAA contains a number of provisions with regard to mobile sources, including motor vehicle emission standards (e.g., new tailpipe emissions standards for cars and trucks, nitrogen oxides [NO_x] standards for heavy-duty vehicles), fuel standards (e.g., requirements for reformulated gasoline), and a program for cleaner fleet vehicles.

**Table 2-6
Ambient Air Quality Standards**

Pollutant	Averaging Time	California Standards ^{a,c} Concentration	Federal Standards ^{b,c}	
			Primary	Secondary
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	—	—
	8 Hour	0.07 ppm (137 µg/m ³)	0.08 ppm (157 µg/m ³)	—
Respirable Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	150 µg/m ³	Same as Primary
	Annual Average (AAM)	20 µg/m ³	— ^d	—
Fine Particulate Matter (PM _{2.5})	24 Hour	No Separate State Standard	35 µg/m ³ ^e	Same as Primary
	Annual Average (AAM)	12 µg/m ³	15 µg/m ³	—
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	—
	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	—
Nitrogen Dioxide (NO ₂) [*]	Annual Average (AAM)	0.030 ppm (56 µg/m ³)	0.053 ppm (100 µg/m ³)	Same as Primary
	1 Hour	0.18 ppm (338 µg/m ³)	—	—
Sulfur Dioxide (SO ₂)	Annual Average (AAM)	—	0.030 ppm (80 µg/m ³)	—
	24 Hour	0.04 ppm (105 µg/m ³)	0.14 ppm (365 µg/m ³)	—
	3 Hour	—	—	0.5 ppm (1,300 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)	—	—
Lead (Pb) ^f	30-Day Average Calendar Quarter	1.5 µg/m ³	1.5 µg/m ³	Same as Primary
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer- visibility of 10 miles or more due to particles when relative humidity is less than 70% Method: CARB Method V.	No Federal Standards	
Sulfates	24 Hour	25 µg/m ³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)		
Vinyl Chloride ^f	24 Hour	0.01 ppm (26 µg/m ³)		

^{*} NO₂ standard was amended on February 22, 2007, to lower the 1-hr standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes become effective after regulatory changes are approved by the Office of Administrative Law, late 2007

^a California standards for O₃, CO (except Lake Tahoe), SO₂ (1 and 24 hour), NO₂, suspended particulate matter—PM₁₀, PM_{2.5}, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

^b National standards (other than O₃, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

^c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to these reference conditions; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

^d The annual standard of 50 µg/m³ was revoked by EPA in December 2006, due to a lack of evidence linking health problems to long-term exposure to coarse particulate pollution.

^e Based on 2004-2006 monitored data, EPA tightened the 24-hour standard of PM_{2.5} from the previous level of 65 µg/m³. The updated area designation will become effective in early 2010.

^f The California Air Resources Board (CARB) has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for implementation of control measures at levels below the ambient concentrations specified for these pollutants.

AAM – annual arithmetic mean; mg/m³ – milligrams per cubic meter; µg/m³ – micrograms per cubic meter; ppm – parts per million
µg/m³ – micrograms per cubic meter; ppm – parts per million

Source: CARB, 2007

**Table 2-7
Health Effects Summary for Air Pollutants**

Pollutant	Sources	Primary Effects
Ozone (O ₃)	Atmospheric reaction of organic gases with nitrogen oxides in the presence of sunlight.	Aggravation of respiratory diseases; irritation of eyes; impairment of pulmonary function; plant leaf injury.
Nitrogen Dioxide (NO ₂)	Motor vehicle exhaust; high temperature; stationary combustion; atmospheric reactions.	Aggravation of respiratory illness; reduced visibility; reduced plant growth; formation of acid rain.
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust; and natural events, such as decomposition of organic matter.	Reduced tolerance for exercise; impairment of mental function; impairment of fetal development; impairment of learning ability; death at high levels of exposure; aggravation of some cardiovascular diseases (angina).
Particulate Matter (PM ₁₀ and PM _{2.5})	Fuel combustion in motor vehicles, equipment, and industrial sources; construction activities; industrial processes; residential and agricultural burning; atmospheric chemical reactions.	Reduced lung function; aggravation of the effects of gaseous pollutants; aggravation of respiratory and cardio-respiratory diseases; increased cough and chest discomfort; soiling; reduced visibility.
Sulfur Dioxide (SO ₂)	Combustion of sulfur-containing fossil fuels; smelting of sulfur-bearing metal ores; industrial processes.	Aggravation of respiratory and cardiovascular diseases; reduced lung function; carcinogenesis; irritation of eyes; reduced visibility; plant injury; deterioration of materials (e.g., textiles, leather, finishes, coating).
Lead (Pb)	Contaminated soil.	Impairment of blood function and nerve construction; behavioral and hearing problems in children.

Source: EPA, 2006a.

Nonattainment designations are categorized by the EPA into seven levels of severity: basic, marginal, moderate, serious, severe-15¹, severe-17, and extreme. The South Coast Air Basin (SCAB) is currently classified as a nonattainment area for O₃, and fine particulates (PM₁₀ and PM_{2.5}). Based on 1990 CAA Amendments (CAAA), the SCAB nonattainment designations are as follows: nonattainment for PM_{2.5}, requiring attainment by 2015; and “severe-17” for O₃, requiring attainment with the 8-hour O₃ standard by 2021 (the former 1-hour O₃ standard was revoked by EPA on June 15, 2005; thus, is no longer in effect for the state of California). The SCAB was in “serious nonattainment” status for PM₁₀ until 2006. The Basin met the PM₁₀ standards at all stations except for western Riverside where the annual PM₁₀ standard was not met as of 2006. The annual standard was revoked by EPA in December 2006, due to a lack of evidence linking health problems to long-term exposure to

coarse particulate pollution. The 24-hour PM₁₀ standard is retained at its existing value. Currently, the Basin meets the 24-hour average federal standard and the only days that exceed the standard are associated with high wind natural events or exceptional events such as wildfires.

For CO, attainment demonstrations were previously submitted to EPA in 1992, 1994, and 1997 to bring the SCAB into attainment with the federal standard in 2000. In 2001, the CO standard was exceeded in the SCAB on three days, thus leaving the basin in nonattainment status. At that time, a request to EPA for an extension of the attainment date to 2002 was planned to be included in the revision to the 1997 Air Quality Management Plan (AQMP). Due to delays, the CO attainment demonstration provided in the 1997 AQMP amendments lapsed. In January 2005, the California Air Resources Board (CARB) declared CO attainment for the SCAB based on air quality data collected during 2001 through 2003. The redesignation has been approved by the State Office of Administrative Law, and it became effective on July 23, 2004. The 2005 CO Redesignation Request and Maintenance Plan for SCAB was reviewed and approved by EPA, and the federal CO attainment status for SCAB became effective on June 11, 2007.

All nonattainment areas are subject to a “transportation conformity” measure, requiring local transportation and air quality officials to coordinate their planning to ensure that transportation projects do not hinder an area’s ability to reach its clean air goals. These requirements become effective one year after an area’s nonattainment designation.

State Regulations/Standards

The State of California began to set California Ambient Air Quality Standards (CAAQS) in 1969 under the mandate of the Mulford-Carrell Act. The California Clean Air Act (CCAA) was enacted on September 30, 1988, and it became effective January 1, 1989. The CCAA requires all areas of the state to achieve and maintain the CAAQS by the earliest practicable date. Table 2-6 shows the CAAQS currently in effect for each of the criteria pollutants, as well as the other pollutants recognized by the state. As shown in Table 2-6, the CAAQS are more stringent than the NAAQS for most of the criteria air pollutants. In general, the California state standards are more health protective than the corresponding NAAQS. In addition, the CAAQS include standards for other pollutants recognized by the state. For example, California has set standards for sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Moreover, on April 28, 2005, CARB approved a new 8-hour-

¹ The “-15” and “-17” designate the number of years within which attainment must be achieved.

average O₃ standard of 0.070 ppm, to further protect California's most vulnerable population (i.e., children) from the adverse health effects associated with ground-level O₃. The standard went into effect early 2006.

Based on the CAAQS, the SCAB complies with the state standards for sulfates, hydrogen sulfide, and vinyl chloride, but is unclassified for the California standard for visibility-reducing particles.

Regional Air Quality Plan

The CARB coordinates and oversees both state and federal air pollution control programs in California. The CARB has divided the state into 15 air basins. Authority for air quality control within each basin has been given to local Air Pollution Control Districts (APCD) or Air Quality Management Districts (AQMD) to regulate stationary source emissions and develop local plans for achieving and maintaining attainment.

SCAQMD is the agency responsible for attaining state and federal clean air standards in the SCAB. Within Riverside County, the SCAQMD also has jurisdiction over the Salton Sea Air Basin and a portion of the Mojave Desert Air Basin. SCAQMD works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments; and it cooperates actively with all state and federal government agencies. SCAQMD regulates stationary source emissions and has been given the authority to regulate mobile emissions as an indirect source. As such, it also has transportation-related programs aimed primarily at reducing the number of cars on the road and promoting the use of cleaner fuels and vehicles. In addition, SCAQMD is responsible for developing and adopting an AQMP that serves as the blueprint for all future rules necessary to bring the SCAB into compliance with federal and state clean air standards. CARB regulates motor vehicles and fuels.

SCAQMD is required to update its plans on a regular basis. Updates may take the form of a new plan or an amendment. Plans range in scope from the regional AQMP to plans dealing with specific pollutants in specific geographic locales. Every three years, SCAQMD prepares an overall plan for air quality improvement. Each update of the plan includes revisions and amendments to the previous plan and has a 20-year horizon. The 2007 AQMP employs the most recent scientific findings, primarily in the form of updated emission inventories, ambient measurements, new meteorological episode data and new modeling tools. It also incorporates a comprehensive strategy aimed at controlling pollution from all sources, including stationary sources, area sources, on-road and off-road mobile sources.

The 2007 AQMP was adopted by the SCAQMD Governing Board on June 1, 2007. The 2007 AQMP Transportation Conformity Budgets was adopted by the Board on July 13, 2007 and was forwarded to CARB for its approval and subsequent submittal to EPA. Furthermore, on June 22, 2007, a State Strategy was proposed by the AQMD Board that recommended more aggressive actions to reduce emissions from mobile sources which contribute over 80 percent of the particulate matter pollution in the region. On September 27, 2007, the CARB adopted the revised State Strategy for the 2007 SIP and the 2007 AQMP as part of the SIP.

The Final 2007 AQMP builds upon improvements accomplished from previous plans, and aims to incorporate all feasible control measures while balancing costs and socioeconomic impacts. The 2007 AQMP outlines the air pollution control measures needed to meet federal health-based standards for O₃ (8-hour standard) by 2024 and PM_{2.5} by 2015. The basic PM (PM₁₀ and PM_{2.5}) control strategy contained in the 1997 Plan and 2003 Plan, augmented by additional PM_{2.5} control measures included in this Plan revision (2007 AQMP), appears to be adequate to demonstrate attainment of the new federal PM_{2.5} standard. The emissions reductions are expected to be achieved through implementation of new and advanced control technologies as well as improvement of existing control techniques.

The 2007 AQMP includes a total of 31 stationary and 30 mobile source control measures. These measures are derived from:

- SCAQMD Stationary and Mobile Source Control Measures;
- State Control Strategy proposed by CARB; and
- SCAQMD Staff proposed Policy Options to supplement CARB's Control Strategy;
- Transportation Strategy and Control Measures provided by SCAG.

AQMP control strategy for stationary and mobile source emissions are based on the following approaches:

- Energy efficiency and conservation;
- Equipment and facility modernization;
- Good management practices;
- Area source emission control programs;

- Market incentive/compliance flexibility; and
- Mobile source reduction programs.

SCAQMD adopts rules and regulations to implement portions of the AQMP. Several of these rules may apply to construction or operation of the project. For example, SCAQMD Rule 403 requires the implementation of best available fugitive dust control measures during active construction periods capable of generating fugitive dust emissions from onsite earth-moving activities, construction/demolition activities, and construction equipment travel on paved and unpaved roads.

Transportation Conformity Rule

The CAA Amendments of 1990 require that transportation plans, programs, and projects that are funded by or approved under Title 23 United States Code (U.S.C.) or the Federal Transit Act, must conform to state or federal air quality plans for achieving the NAAQS. “Conformity” is defined under section 176(c) of the CAA as conforming to the purpose of the SIP to ensure that transportation plans, programs, and projects do not produce new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS. According to the CAA, federally supported activities must conform to the implementation plan's purpose of attaining and maintaining these standards.

In determining whether a project conforms with an approved air quality plan, agencies must use current emission estimates based on the most recent population, employment, travel, and congestion estimates determined by an area’s metropolitan planning organization (MPO). MPOs are required to develop and maintain 20-year Regional Transportation Plans (RTP) and 3-year (at minimum) Regional Transportation Improvement Programs (RTIP or TIP) that set out transportation policies and programs for the region. A conforming RTIP/TIP model outcome projects that the regulated pollutants will be reduced to acceptable levels within time frames that meet the NAAQS.

SCAG is the Metropolitan Planning Organization (MPO) for the project region and is responsible for developing the RTP and RTIP for the region including Los Angeles, Orange, San Bernardino, Riverside, Imperial, and Ventura Counties. The RTP provides a long-term vision of regional transportation goals, policies, objectives, and strategies; assesses current and projected demand for travel and goods movement; and identifies necessary actions to meet the region’s mobility and accessibility needs. The 2004 RTP was federally approved on June 7, 2004.

SCAG developed the 2006 RTIP in compliance with state and federal requirements based on the list of projects proposed by the County transportation commissions. The 2006 RTIP implements the 2004 RTP, and includes a listing of all transportation projects proposed over a 6-year period, Fiscal Years (FY) 2006/7 – 2011/12. The 2006 RTIP was adopted on October 2, 2006.

The proposed project is referenced in Appendix I of the federally approved 2004 RTP, within the “2004 RTP – Los Angeles County, Arterial Projects” list, under the RTP ID #1A01SB01*². The project is also listed in the Final 2006 RTIP – Los Angeles County Local Highway Projects list, under the conformity category “non-exempt,” as follows:

LAE0688 Model No.: L406; Program Code: CARH3; Description: Widen Wilmington Ave. from 223rd St. including I-405 ramp modification. Improve Wilmington Avenue/ I-405 interchange by adding a new northbound on-ramp and widening of Wilmington.

Given that the proposed project is consistent with the 2004 RTP and included in the 2006 RTIP, it will not interfere with the timely implementation of all Transportation Control Measures (TCMs) identified in the currently approved SIP. Because the proposed project is included in the regional analysis for determining emissions budgets of the RTIP, the project meets the regional air quality conformity criteria.

Project-Level CO Conformity and Final PM_{2.5} Hot-Spot Analysis Rule

Conformity at the project level requires hot-spot analysis for the projects in nonattainment or maintenance areas. As discussed previously, a region is a nonattainment area if one or more monitoring stations in the region fail to attain the relevant CAAQS or NAAQS. Areas that were previously designated as nonattainment, but have recently met the CAAQS or NAAQS, are called maintenance areas. In general, projects must not cause the CO standard to be violated, and in nonattainment areas, the project must not cause any increase in the number and severity of violations.

In March 2006, the Transportation Conformity Rule was updated to include regulations for performing qualitative analysis of PM₁₀ and PM_{2.5} hot-spot impacts. Only projects that are considered “Projects of Air Quality Concern” are required to perform an analysis. Projects of air quality concern are defined, generally, as: 1) new or expanded highway projects that have a significant number of or significant increase in diesel vehicles, 2) projects affecting intersections that are Level of Service D, E, or F with a significant number of diesel vehicles,

² Projects marked with an asterisk (*) indicate those projects that were modeled in the RTP analysis.

3) new or expanded bus and rail terminals and transfer points with a significant number of diesel vehicles congregating in a single location, and 4) projects in or affecting locations, areas, or categories of sites that are identified in the PM₁₀ or PM_{2.5} applicable implementation plan as sites of possible violation.

EPA Rule on Control of Mobile Source Air Toxics

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined in the CAA as hazardous air pollutants (HAPs). EPA identified 21 of these pollutants as MSATs, which are set forth in an EPA final rule, Control of Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17235). The list includes toxics that are emitted from both on-road mobile sources and non-road mobile sources, including non-road vehicles and construction equipment, commercial boats, trains, ships, and aircraft. EPA further extracted a subset of this list of 21 components that are now labeled as the “six priority MSATs.” These include benzene, formaldehyde, acetaldehyde, diesel particulate matter (DPM)/diesel exhaust organic gases, acrolein, and 1,3-butadiene, and they are considered the priority transportation toxics. Of these six pollutants, DPM, 1,3-Butadiene, and benzene account for approximately 89 percent of the total toxic air pollutants for potential excess cancer risk. DPM accounts for 71.2 percent of the total toxic air pollutants for potential excess cancer risk (FHWA, 2006; CARB, 2000).

The FHWA released interim guidance on February 3, 2006, to determine when and how to address MSAT impacts in the NEPA process for transportation projects. FHWA has identified three levels of analysis:

- 1) no analysis for exempt projects or projects with no potential for meaningful MSAT effects;
- 2) qualitative analysis for projects with low potential MSAT effects; and
- 3) quantitative analysis for projects with higher potential MSAT effects.

Under Category 1, three types of projects are included: a) projects qualifying as a categorical exclusion under 23 CFR 771.117(c); b) projects exempt under the CAA conformity rule under 40 CFR 93.126; and (c) other projects with no meaningful impacts on traffic volumes or vehicle mix. The proposed project would not affect traffic volume or mix in the project area; thus, it would have minimal potential MSAT effect.

Regional Air Quality

The project site is located in Los Angeles County, an area within the South Coast Air Basin (Basin) that includes Orange County and the non-desert portions of Los Angeles, Riverside, and San Bernardino counties. Air quality conditions in the Basin are under the jurisdiction of the SCAQMD, a regional agency that regulates stationary sources of pollution throughout the Basin.

The Basin climate is determined by its terrain and geographical location. The Basin is a coastal plain with connecting broad valleys and low hills. The Pacific Ocean forms the southwestern border. High mountains surround the rest of the Basin.

The region lies in the semi-permanent, high-pressure zone of the eastern Pacific. The resulting climate is mild and tempered by cool ocean breezes. This climatological pattern is rarely interrupted. However, periods of extremely hot weather, winter storms, or Santa Ana wind conditions do exist.

The Basin experiences a persistent temperature inversion (increasing temperature with increasing altitude) as a result of the Pacific High. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and the lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer. This phenomenon is observed in mid-afternoon to late afternoon on hot summer days, when the smog appears to clear up suddenly. Winter inversions frequently break by mid-morning.

Winds in the vicinity of the project area blow predominantly from the west-southwesterly direction, with relatively low velocities. Wind speeds in the project area average about 8 miles per hour (mph). Summer wind speeds average slightly higher than winter wind speeds. Low average wind speeds, together with a persistent temperature inversion, limit the vertical dispersion of air pollutants throughout the Basin. Strong, dry north or northeasterly winds, known as Santa Ana winds, occur during the fall and winter months, dispersing air contaminants. The Santa Ana conditions tend to last for several days at a time.

The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas are transported predominantly onshore into

Riverside and San Bernardino counties. In the winter, the greatest pollution problems are CO and NO_x because of extremely low inversions and air stagnation during the night and early morning hours. In the summer, the longer daylight hours and the brighter sunshine combine to cause a reaction between hydrocarbons and NO_x to form photochemical smog.

Local Air Quality

Criteria Pollutants

The proposed project site is located within SCAQMD jurisdiction. SCAQMD maintains a network of air quality monitoring stations located throughout the SCAB and has divided the Basin into 27 source/receptor areas (SRAs). The project is located in SRA number 4, South Coastal Los Angeles County. The nearest air monitoring station to the project site is the North Long Beach Monitoring Station (Station No. 072), which is located at 3648 Long Beach Boulevard, approximately 3 miles east of the eastern project limit. All criteria pollutants are monitored at this station (i.e., O₃, CO, NO₂, Pb, SO₂, PM₁₀, and PM_{2.5}), as shown in Table 2-8. According to Table 2-8, exceedances of the California standards were recorded at the North Long Beach station for O₃ (1-hour, California standard), PM₁₀ (24-hour and annual), and PM_{2.5} (24-hour and annual) on one or more occasions from 2002 through 2005. The national standards were exceeded only for PM_{2.5} (24-hour and annual). No exceedances of either the state or national standards were recorded for SO₂, Pb, NO₂, or CO.

**Table 2-8
Criteria Air Pollutants Data Summary (North Long Beach Monitoring Station)**

Pollutant	Standard	2003	2004	2005	2006
Ozone (O ₃)	<u>(1-Hour)</u>				
	Maximum Concentration (ppm)	0.10	0.09	0.09	0.08
	Days > CAAQS (0.09 ppm)	1	0	0	0
	<u>(8-Hour)</u>				
	Maximum Concentration (ppm)	0.07	0.07	0.07	0.06
	Days > NAAQS (0.08 ppm)	0	0	0	0
	Days > CAAQS (0.07 ppm) ^a	0	0	0	0
Particulate Matter (PM ₁₀)	<u>(24-Hour)</u>				
	Maximum Concentration (µg/m ³)	63	72	66	51
	Days > CAAQS (50 µg/m ³)	24	25	24	n/a
	Days > NAAQS (150 µg/m ³)	0	0	0	0
	<u>(Annual Average)</u>				
	National Annual Average (50 µg/m ³) ^b	33	33	30	31
	State Annual Average (20 µg/m ³) ^b	33	33	30	n/a

**Table 2-8
Criteria Air Pollutants Data Summary (North Long Beach Monitoring Station)**

Pollutant	Standard	2003	2004	2005	2006
Particulate Matter (PM _{2.5})	<u>(24-Hour)</u> Maximum Concentration (µg/m ³)	115	67	54	59
	Days > NAAQS (65 µg/m ³)	3 ^c	1	0	0
	3-year Average 98 th Percentile (µg/m ³) ^c	48	47	45	n/a
	<u>(Annual)</u> Annual Arithmetic Mean (15.0 µg/m ³)	18.0	17.9	15.9	14.1
Carbon Monoxide (CO)	<u>(1-Hour)</u> Maximum Concentration (ppm)	5.5	4.2	4.2	4.2
	Days > CAAQS (20 ppm)	0	0	0	0
	Days > NAAQS (35 ppm)	0	0	0	0
	<u>(8-Hour)</u> Maximum Concentration (ppm)	4.7	3.4	3.5	3.4
	Days > CAAQS (9.0 ppm)	0	0	0	0
Nitrogen Dioxide (NO ₂)	<u>(1-hour)</u> Maximum Concentration (ppm)	0.14	0.12	0.14	0.10
	Days > NAAQS (9 ppm)	0	0	0	0
	Days > CAAQS (0.25 ppm)	0	0	0	0
	<u>(Annual)</u> Annual Arithmetic Mean (0.053 ppm)	0.029	0.028	0.024	0.024
Sulfur Dioxide (SO ₂)	<u>(24-hour)</u> Maximum Concentration (ppm)	0.008	0.012	0.010	0.010
	Days > CAAQS (0.04 ppm)	0	0	0	0
	Days > NAAQS (0.14 ppm)	0	0	0	0
	<u>(Annual)</u> Annual Arithmetic Mean (0.03 ppm)	0.003	0.005	0.002	0.002

ppm – parts per million; µg/m³ – micrograms per cubic meter; AAM – Annual Arithmetic Mean; n/a – not available

^a The new California 8-hour-average O₃ standard was adopted by CARB on April 28, 2005; therefore, the exceedance statistics are not applicable before this date.

^b State statistics are based on California-approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

^c Attainment condition for PM_{2.5} is that the 3-year average of the 98th percentile of 24-hour concentrations at each monitor within an area must not exceed 65 µg/m³.

Source: CARB, 2007

Toxic Air Contaminants

Toxic Air contaminants (TACs) consist of a variety of compounds, including metals, minerals, soot, and hydrocarbon-based chemicals. There are hundreds of different types of air toxics, with varying degrees of toxicity. Sources of TACs include industrial processes, such as petroleum refining and chrome plating operations; commercial operations, such as gasoline stations and dry cleaners; and motor vehicle exhaust. TACs are a concern in the SCAB because of the large number of mobile sources and industrial facilities throughout the basin.

The regulatory approach used in controlling TAC levels relies on a quantitative risk assessment process rather than on ambient air conditions to determine allowable levels of emissions from the source. In addition, for carcinogenic air pollutants, there is no safe concentration in the atmosphere. Local concentrations can pose a health risk and are termed “toxic hot spots.”

The regulatory approach used in controlling TAC levels relies on a quantitative risk assessment process rather than on ambient air conditions to determine allowable emissions from the source. In addition, for carcinogenic air pollutants, there is no safe concentration in the atmosphere. Local concentrations can pose a health risk and are termed “toxic hot spots.”

The most comprehensive study on air toxics in the SCAB is the Multiple Air Toxics Exposure Study (MATES-II), which was conducted by SCAQMD. The monitoring program measured more than 30 air toxics, including both gaseous and particulate TACs. The monitoring study was accompanied by a computer modeling study in which SCAQMD estimated the risk of cancer from breathing toxic air pollution throughout the region, based on emissions and weather data. MATES-II found that the maximum cancer risk in the region from carcinogenic air pollutants ranged from about 1,100 in a million to 1,750 in a million, with an average regional risk of approximately 1,400 in a million. The higher risk levels were found in the urban core areas in south central Los Angeles County, in Wilmington adjacent to the San Pedro Bay Ports, and near freeways. Overall, the study showed that airborne DPM contributed approximately 70 percent of the cancer risk. Mobile sources accounted for approximately 90 percent of the cancer risk, and industries and other stationary sources accounted for the remaining 10 percent.

The ARB prepares a series of maps that show regional trends in estimated outdoor inhalable cancer risk from air toxic emissions in an ongoing effort to provide insight to the relative risk. The estimates represent the number of potential cancers per million people based on a lifetime of breathing air toxics (i.e., 24 hours per day outdoors for 70 years). The 2001 Southern Los Angeles County map, which is the most recently available map to represent existing conditions, shows the average cancer risk in this region ranges from 100 to 1,500 cases per million, while the vast majority of the project area is between 500 and 1,000 cancers per million.

Based on the finding that DPM is a significant contributor to cancer risk in the region, SCAQMD has approved fleet rules to limit diesel exhaust emitted by municipal vehicle fleets, trash trucks, street sweepers, taxis, shuttles, and buses in the region. That rule will be one of many measures outlined in a comprehensive plan to reduce toxic air pollution from both mobile and stationary sources. Other programs to reduce diesel emissions include SCAQMD grant programs that cover conversion of diesel equipment to alternative fuels.

Assembly Bill (AB) 1807 (Tanner Bill) set up a statewide process to determine the need for methods to set standards for TACs. The process includes identification of TACs, determination of emissions and ambient levels of the identified compounds, preparation of regulatory needs documents, and establishment of minimum statewide emission control standards by CARB.

Asbestos

According to the California Division of Mines and Geology, the project location is not an area of naturally occurring asbestos. Naturally occurring asbestos areas are identified based on the type of rock found in the area. Asbestos containing rocks found in California are ultramafic rocks including serpentine rocks, which are not present in the project area (California Division of Mines and Geology, 2003).

2.10.2 Environmental Consequences

Residential areas are considered to be sensitive to air pollution because residents, including children and the elderly, tend to be at home for extended periods of time, resulting in sustained exposure to pollutants. Sensitive land uses in the project vicinity include one- and two-story detached residences that are located northwest of I-405 / Wilmington Avenue interchange. The closest residences are located approximately 65 feet from the I-405 NB shoulder. Other potentially sensitive uses in the more distant area include schools, religious institutions, and hospitals. The closest schools to the project site are the Carnegie Middle School and Bonita Elementary School, which are located approximately 0.7-mile and 0.75-mile to the west of the project west limit, respectively. Nearest hospital is the Carson Artificial Kidney Center, which is located approximately 0.5-mile north of I-405. Several churches exist within 1-mile distance from I-405/Wilmington Avenue interchange.

Build Alternatives

Temporary air quality impacts would result from project construction activities. Air pollutants would be emitted by construction equipment, and fugitive dust would be

generated during construction activities, such as pavement grinding and paving operations. Once construction is completed, the primary source of regional emissions generated by the proposed project will be from motor vehicles.

Construction Impacts

Project construction would be divided into 3 stages, as described in Section 2.5 of this report. Equipment operations and various construction activities would result in criteria air pollutant emissions on a temporary basis. The worst-case day construction emissions (i.e., the days that have the most intense construction activities) are calculated as summarized in Table 2-10. As shown in the table, with mitigation incorporated, construction of the project would emit the criteria air pollutants at the level less than the regional significance threshold levels set forth by the SCAQMD.

The localized effects from onsite construction emissions were evaluated to determine potential pollutant concentrations at sensitive receptor locations. Localized construction emissions were estimated using the onsite mass daily emissions, considering a maximum disturbed area of 0.5 and 1 acres per day for construction stages 1 and 2, respectively. The first row of single-family residences north of I-405 and west of Wilmington Avenue were considered the closest sensitive receptors to the various construction sites as part of the air quality analysis. As shown in the Table 2-9, with mitigation measures incorporated, project construction would not cause exceedance of local daily emission thresholds for criteria air pollutants established by the SCAQMD (Parsons, 2007b).

Table 2-9
Estimate of Project Daily Construction Emissions ^a (pounds/day)

Construction Stage	Unmitigated Emissions				Mitigated Emissions				
	VOC	NO _x	CO	PM ₁₀	VOC	NO _x	CO	PM ₁₀	
<i>STAGE 1</i>									
<i>Phase 1 (3 months)</i>									
Onsite	5	60	23	5 ^b	4	57	22	4	
Offsite ^c	1	18	8	<1	1	17	8	<1	
Total	6	79	31	6	6	75	30	5	
SCAQMD Regional Daily Significance Threshold	75	100	550	150	75	100	550	150	
Over/(Under) regional threshold	(69)	(21)	(519)	(144)	(69)	(25)	(520)	(145)	
Exceed Threshold?	No	No	No	No	No	No	No	No	
Maximum Construction Onsite Emissions ^d									
Maximum Daily (worst case days)	5	60	23	5 ^b	—	57	22	4 ^b	
Localized Daily Significance	—	125	417	4	—	125	417	4	

Table 2-9
Estimate of Project Daily Construction Emissions^a (pounds/day)

Construction Stage	Unmitigated Emissions				Mitigated Emissions				
	VOC	NO _x	CO	PM ₁₀	VOC	NO _x	CO	PM ₁₀	
Threshold									
Over/(Under)	—	(65)	(394)	1	—	(68)	(395)	0	
Exceed Threshold?	—	No	No	Yes	—	No	No	No	
<i>Phase 2 (3 months)</i>									
Onsite	5	60	23	8 ^b	4	57	22	6	
Offsite ^c	1	18	8	<1	1	17	8	<1	
Total	6	79	31	9	6	75	30	7	
Over/(Under) regional threshold	(69)	(21)	(519)	(141)	(69)	(21)	(520)	(143)	
Exceed Threshold?	No	No	No	No	No	No	No	No	
Maximum Construction Onsite Emissions ^e									
Maximum Daily (worst case days)	5	60	23	8 ^b	4	57	22	6	
Localized Daily Significance Threshold	—	129	681	12	—	129	681	12	
Over/(Under)	—	(69)	(658)	(4)	—	(72)	(659)	(6)	
Exceed Threshold?	—	No	No	No	—	No	No	No	
<i>Phase 3 (7 months)</i>									
Onsite	6	80	33	17 ^b	6	76	31	12	
Offsite ^c	1	18	11	<1	1	18	10	<1	
Total	8	99	44	18	8	94	42	13	
Over/(Under) regional threshold	(67)	(1)	(506)	(132)	(67)	(6)	(508)	(137)	
Exceed Threshold?	No	No	No	No	No	No	No	No	
Maximum Construction Onsite Emissions ^f									
Maximum Daily (worst case days)	6	80	33	17 ^b	6	76	31	12	
Localized Daily Significance Threshold	—	234	1,480	108	—	234	1,480	108	
Over/(Under)	—	(154)	(1,447)	(91)	—	(158)	(1,449)	(96)	
Exceed Threshold?	—	No	No	No	—	No	No	No	
<i>STAGE 2</i>									
Onsite	5	67	28	9 ^b	5	63	26	7	
Offsite ^c	1	16	9	<1	1	15	8	<1	
Total	7	83	37	10	7	79	35	8	
Regional Daily Significance Threshold	75	100	550	150	75	100	550	150	
Over/(Under)	(68)	(17)	(513)	(140)	(68)	(21)	(515)	(142)	
Exceed Threshold?	No	No	No	No	No	No	No	No	

Table 2-9
Estimate of Project Daily Construction Emissions^a (pounds/day)

Construction Stage	Unmitigated Emissions				Mitigated Emissions				
	VOC	NO _x	CO	PM ₁₀	VOC	NO _x	CO	PM ₁₀	
Maximum Construction Onsite Emissions ^g									
Maximum Daily (worst case days)	5	67	28	9 ^b	5	63	26	7	
Localized Daily Significance Threshold	—	139	726	14	—	139	726	14	
Over/(Under)	—	(72)	(698)	(5)	—	(76)	(700)	(7)	
Exceed Threshold?	—	No	No	No	—	No	No	No	
<p>^a Compiled using the CEQA Air Quality Handbook and the emissions inventory from OFFROAD model. The equipment mix and use assumption for each phase is provided by the construction engineer, a list of which is included in the appendix to this technical assessment.</p> <p>^b PM₁₀ emissions estimates are based on compliance with SCAQMD Rule 403 requirements for fugitive dust suppression.</p> <p>^c Offsite emissions include motor vehicle emissions associated with construction equipment transport to site, workers commute, and debris hauling activities.</p> <p>^d The project site is located in SCAQMD Source Receptor Area (SRA) No. 4. The nearest residences are located approximately 45 feet north of the new onramp. In regard to the LST look-up tables, this analysis considered a maximum 0.5-acre would actively be disturbed at one time during Stage 1, Phase 1. The LSTs are for a 1-acre site with receptor within a 25- meter distance in SRA # 4</p> <p>^e The localized emission analysis for Stage 1, Phase 2 considered a maximum 1-acre per day would be disturbed; and LSTs are for a 1-acre site with receptor within a 50- meter distance in SRA No. 4</p> <p>^f The localized emission analysis for Stage 1, Phase 3 considered a maximum 2.6-acre per day would be disturbed; and LSTs are for a 2-acre site with receptor within a 100- meter distance in SRA No. 4 .</p> <p>^g The localized emission analysis for Stage 2 considered a maximum 1.2-acre would actively be disturbed at one time during Stage 2. The LSTs are for a 1-acre site with receptor within a 45- meter distance in SRA No. 4.</p> <p>^h Mitigation measure consists of maintaining construction equipment properly tuned. Exhaust emissions reduction is 5 percent for all criteria pollutants. Additional watering would provide 67 percent reduction in fugitive PM₁₀ emissions.</p>									

Source: Parsons, 2007b

Operational Impacts

Based on the air quality analysis, project operations would not cause an exceedance of regional or local daily emission thresholds of criteria pollutants, as set forth by SCAQMD, EPA, and applicable state requirements as summarized in the following paragraphs.

A. Regional Impact

The primary source of air pollutant emissions generated by the proposed project would be from motor vehicles traveling on Wilmington Avenue and freeway ramps within the project limits. To determine the regional direct operational impact, the emissions analysis was performed for the project study area including Wilmington Avenue and freeway ramps within the project limits. Criteria pollutant emissions from vehicles traveling in the project study area were estimated and compared with the No Build Alternative for the opening year (2011) and design year (2030) using projected peak-hour vehicle miles traveled (VMT) data

for the No Build and Build Alternatives, for respective roadway segments. As shown in Table 2-10, emissions of criteria pollutants under the Build Alternatives are estimated to be slightly lower than those from the No Build Alternative. This is due to the fact that similar VMTs for both the Build and No Build Alternatives, but slightly higher vehicle operating speeds for the project Build Alternative compared to the No Build Alternative. The Build Alternatives have a net beneficial effect on operational air quality.

Table 2-10
Summary of Operation Phase Regional Emissions (lbs/day)

Year	Alternative	Exhaust CO	Exhaust VOC	Exhaust NO _x	Exhaust SO ₂	PM ₁₀ Total	PM _{2.5} Total
2006	Existing	172.0	7.6	37.2	<1	1.7	1.1
2011	No Build	123.3	4.9	26.2	<1	1.7	1.1
	Build	118.5	4.5	25.9	<1	1.6	1.0
	Net Difference	-4.8	-0.4	-0.3	0	-0.1	-0.1
2030	No Build	40.9	1.4	7.1	<1	1.8	1.1
	Build	39.1	1.3	7.0	<1	1.7	1.0
	Net Difference	-0.8	-0.1	-0.1	0	-0.1	-0.1

1. Emissions are calculated using emission factors from EMFAC2002, at the projected average speed of each category of vehicles within the study area (from Traffic Study).
2. VMT and average speed data are summarized in Table 4-9 of this Air Quality Report.
3. The calculation worksheets are included in Appendix A to this report.

Source: Parsons, 2007b

B. Local Impacts

Project-level air quality or hot-spot analysis has been performed for CO, PM₁₀, and PM_{2.5} to determine the level of impact as a result of project operation. The analysis years consist of the project opening year (2011) and the design or horizon year (2030).

B.1 CO Hot-Spot Analysis

As part of the air quality analysis performed for this project (Parsons, 2007b), a screening exercise following the CO Hot-Spot Analysis Protocol (UC Davis, 1997) was performed to determine whether the project requires a qualitative or quantitative analysis or none would be necessary. Based on the procedural analysis, it is concluded that the project is satisfactory and no qualitative CO analysis is required. Therefore, no impact from CO hot-spot is anticipated.

B.2 Particulate Matter (PM_{2.5} and PM₁₀) Qualitative Hot-Spot Analysis

A qualitative analysis for localized PM emissions was conducted following the methodology provided in EPA Guidelines.

The 2006 Final Transportation Conformity Rule defines a project of air quality concern (POAQC) that requires PM₁₀ and PM_{2.5} hot-spot analysis in 40 CFR 93.123(b)(1) as:

1. New or expanded highway projects that have a significant number of or significant increase in diesel vehicles;
2. Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;
3. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;
4. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; and
5. Projects in or affecting locations, areas, or categories of sites that are identified in the PM_{2.5} and PM₁₀ applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

The proposed project is not considered a POAQC based on the following reasons:

- The proposed project is not a new or expanded highway project. It would not affect highway traffic volume or traffic mix. The new NB on-ramp would improve traffic conditions by eliminating the left turn queue of SB Wilmington to NB I-405 loop on-ramp, and redirecting the associated traffic to a right turn. The proposed project improvements include roadway widening and interchange improvements, but would not increase traffic on the surrounding roadways/highways. This type of project improves roadway operations by reducing traffic congestion and reducing delay time per vehicle. Based on the Traffic Study (Parsons, 2007), the proposed project would not increase traffic volumes along the local roadways. The traffic volume along the proposed segment of Wilmington Avenue would be well below the 125,000 average daily trips (ADT) threshold for a POAQC. Similarly, based on the project traffic study, even recognizing that the 10 percent truck traffic, truck volumes would be below the 10,000 truck ADT threshold for a POAQC.
- The proposed project would not affect intersections that are at LOS D, E, or F with a significant number of diesel vehicles. The purpose of the proposed project is to improve existing conditions by reducing the congestion and delay time per vehicle

and/or improving the LOS at intersections within the project vicinity (see Section 4.3 (15) – Transportation and Traffic).

- The proposed project does not include the construction of a new bus or rail terminal.
- The proposed project does not expand an existing bus or rail terminal.

Therefore, the proposed project meets the CAA requirements and 40 CFR 93.116 without a qualitative hot-spot analysis pursuant to FHWA and USEPA Transportation Conformity Guidance for Qualitative Hot-spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas. The proposed project would not create a new, or worsen an existing, PM₁₀ or PM_{2.5} violation. A PM Conformity Hot-Spot Analysis form was prepared and was concurred in by the SCAG Transportation Conformity Working Group on May 22, 2007 (Parsons, 2007b).

Several projects were identified that are approved or planned within the project vicinity, as presented in Chapter 2 of this report. Since these projects are located within the locality of the proposed project, if construction of one or all of them occur at the same time, cumulative air quality impacts from construction emissions could temporarily result. Based on the proposed schedule of these projects, it is likely that they would be completed before the proposed project is constructed. The City of Carson will attempt to manage these independent schedules to ensure that no two projects in the close vicinity would occur at the same time. This will minimize cumulative air quality impacts during construction.

Since these projects are listed in the 2006 RTIP and the 2004 RTP, they are consistent with the SIP and meet conformity requirements. Impacts from operation of these related projects are considered to be less than significant.

Sensitive land uses in the project vicinity include one- and two-story detached residences that are located northwest of I-405 / Wilmington Avenue interchange. The closest residences are located approximately 65 feet from the I-405 northbound shoulder. Other potentially sensitive uses in the more distant area include schools, religious institutions, and hospitals. The closest schools to the project site are the Carnegie Middle School and Bonita Elementary School, which are located approximately 0.7-mile and 0.75-mile west of the project western limit, respectively. The nearest hospital is the Carson Artificial Kidney Center, which is located approximately 0.5-mile north of I-405. Several churches exist within a 1-mile distance from I-405/Wilmington Avenue interchange.

As discussed previously, during construction, air quality significance thresholds would potentially be exceeded even with mitigation incorporated. This will result in short term potentially significant impacts to sensitive receptors during construction. However, air quality impacts would decrease in significance once the project becomes operational. This would result in a beneficial result for sensitive receptors.

The proposed project would improve traffic flow and safety conditions at the interchange. No objectionable odors are expected to be created as a result of implementing the proposed project. No impacts from odor would occur.

No-Build Alternative

Under the No-Build Alternative, there would be no construction activities related to Wilmington Avenue capacity enhancement within the project limits. Therefore, no short-term pollutant emissions from construction equipment would occur. This alternative would retain the roadway with its existing lane configuration. Traffic demand would continue to increase, and congestion through the project limits would worsen.

2.10.3 Avoidance, Minimization, and Compensation Measures

Reduction of construction emissions would be achieved by complying with the requirements of the existing SCAQMD rules and regulations, and implementing additional mitigation measures. Compliance with the SCAQMD rules and regulations as presented below is considered to be part of the project. Implementation of mitigation measures would be subject to mitigation monitoring.

Compliance with SCAQMD Rules

- The project will be required to comply with regional rules, which would assist in reducing short-term air pollutant emissions. The SCAQMD Rule 403 requires that fugitive dust be controlled with best available control measures so that the presence of such dust does not remain visible in the atmosphere beyond the property line of the emission source. In addition, SCAQMD Rule 402 prohibits dust from creating a nuisance off site. Implementation of these dust suppression techniques, as required by the SCAQMD, can reduce fugitive dust generation (and thus the PM₁₀ component) by 50 to 75 percent. Compliance with these rules would reduce impacts on nearby sensitive receptors.
- Compliance with SCAQMD Rule 1113 on the use of architectural coatings shall be implemented to reduce VOC emissions, as feasible.

Additional Mitigation Measures

- All land clearing/earth-moving activity areas shall be watered to remain visibly moist during active operations.
- Water, three times daily, or non-toxic soil stabilizers shall be applied, as needed, to reduce off-site transport of fugitive dust from all unpaved staging areas and unpaved road surfaces.
- Construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications.
- During construction, trucks and vehicles in loading and unloading queues must be kept with their engines off when not in use to reduce vehicle emissions. Construction emissions shall be phased and scheduled to avoid emissions peaks, where feasible, and discontinued during second-stage smog alerts.

2.11 Noise

A Noise Study Report was prepared to assess potential noise impacts of the proposed project on noise sensitive receptors located within the vicinity of the project site. The analysis followed the Caltrans Traffic Noise Analysis Protocol (Protocol) (Caltrans, 2006) and Technical Noise Supplement (Caltrans, 1998), which satisfy the requirements for noise compatibility studies and abatement requirements. The Protocol is also consistent with the requirements of FHWA and it is designed to evaluate potential traffic-generated noise impacts, as well as determining reasonable and feasible noise abatement measures for the project.

Alternative 2 was considered for the analysis because it includes the addition of a new NB on-ramp which would bring the roadway traffic closer to the sensitive receptors than Alternative 1; therefore, it provides the “worst-case” scenario. Results of the noise impact analysis indicated that there would be traffic noise impact at the residences located west of I-405 between Wilmington Avenue and the Dominguez Channel. Soundwalls are recommended to provide noise abatement.

Information related to study methodology and detailed study results can be found in the Noise Study Report (Parsons, 2007f), which is incorporated by reference to this IS/EA document.

2.11.1 Affected Environment

Fundamental of Traffic Noise

Sound, Noise, and Acoustic

Sound is mechanical energy transmitted by pressure waves in a compressible medium (i.e., gaseous, liquid, or the elastic stage of a solid). For traffic sound, the medium of concern is air. Noise is generally defined as unwanted sound that may be loud, unpleasant, unexpected, or undesired. Although sound can be easily measured, the perceptibility of sound is subjective, and the physical response to sound complicates the analysis of its impact on people. People judge the relative magnitude of sound in subjective terms such as “noisiness” or “loudness.”

Frequency and Hertz

A continuous sound can be described by its frequency (pitch) and its amplitude (loudness). Low-frequency sounds are low in pitch, like the low notes on a piano keyboard; similarly, high-frequency or high-pitch notes can be generated by the high notes on a piano. Frequency relates to the pressure wave oscillations and is expressed in terms of rate of oscillations, or cycles, per second. Cycles per second are commonly referred to as Hertz (Hz). The human hearing system is not equally sensitive to sound at all frequencies. The range of frequencies that can be heard by the healthiest human ears spans from 16 to 20 Hz on the low end to approximately 20,000 Hz (or 20 kilohertz [kHz]) on the high end.

Sound Pressure Levels and Decibels

The amplitude of a sound determines its loudness. Sound pressure amplitude is measured in units of micro-Newton per square meter ($\mu\text{N}/\text{m}^2$), also called micro-Pascal (μPa). One μPa is approximately one hundred billionths (0.0000000001) of normal atmospheric pressure. Sound pressure level (Lp) is measured and quantified using a logarithmic ratio of actual sound pressures to a reference pressure squared. This unit is called decibel and abbreviated as dB.

A-Weighted Decibels

Sound pressure level alone is not a reliable indicator of loudness. The frequency, or pitch, of a sound also has a substantial effect on how humans will respond. The human hearing system is not equally sensitive to sound at all frequencies; therefore, to approximate this frequency-dependent human response, the A-weighted system is used to adjust measured sound levels. The A-weighted sound level is expressed as “dBA.” This scale de-emphasizes low frequencies to which human hearing is less sensitive and focuses on mid- to high-range frequencies. In general, the healthy human ear is most sensitive to sound frequencies

between 1,000 Hz and 5,000 Hz, and it perceives a sound within that range as being more intense than a sound of higher or lower frequency with the same magnitude. The A-scale weighting approximates the frequency response of the average young ear when listening to most ordinary sounds. Noise levels for traffic noise studies are typically reported in terms of A-weighted decibels (dBA). In environmental noise studies, A-weighted sound pressure levels are commonly referred to as noise levels. Figure 2-10 shows typical A-weighted noise levels.

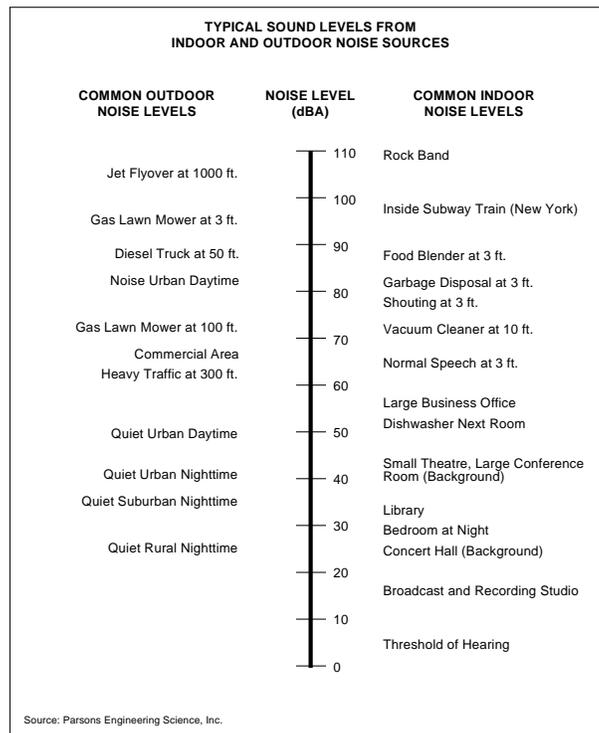


Figure 2-10 Typical A-Weighted Sound Levels

Human Response to Changes in Noise Levels

It is widely accepted that the smallest change in sound levels that is detectable by human hearing under ambient conditions is 3 to 5 dB. A change of 5 dB or greater is readily perceptible, and a change of 10 dB is perceived as being twice or half as loud. Changes of 1 to 3 dB are detectable only under quiet, controlled conditions; and changes of less than 1 dB are usually indiscernible.

As discussed previously, doubling of sound energy results in a 3-dB increase in the sound level, which means that doubling of sound energy (e.g., doubling the volume of traffic on a highway) would result in a barely perceptible change in sound level.

Noise levels from a particular source generally decline as distance to the receptor increases. Other factors, such as the weather and reflecting or shielding, also intensify or reduce the noise level at any given location.

Noise Descriptors

Noise in our daily environment fluctuates over time. Some noise levels occur in regular patterns, others are random. Some noise levels fluctuate rapidly, others slowly. Some noise levels vary widely, others are relatively constant. Various noise descriptors have been developed to describe time-varying noise levels. The following is a list of the noise descriptors most commonly used in traffic noise analysis:

- **Equivalent Sound Level (L_{eq})** – L_{eq} is a measurement of the acoustical energy content of sound averaged over a specified period; thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same amount of acoustical energy to the ear during exposure. The 1-hour A-weighted equivalent sound level, $L_{eq(h)}$, is the energy average of the A-weighted sound levels occurring during a 1-hour period and is the basis for Noise Abatement Criteria (NAC) used by Caltrans and FHWA.
- **Maximum Sound Level (L_{max})** – L_{max} is the highest instantaneous sound level measured during a specified period.
- **Insertion Loss (I.L.)** – I.L. is the actual noise-level reduction at a specific receiver because of construction of a noise barrier between the noise source (e.g., roadway traffic) and the receiver. Generally, it is the net effect of the soundwall attenuation and the loss due to ground-type effects.

Sound Propagation

As sound propagates over a distance, it changes in both pressure level and frequency content. The manner in which noise reduces with distance depends on the following factors:

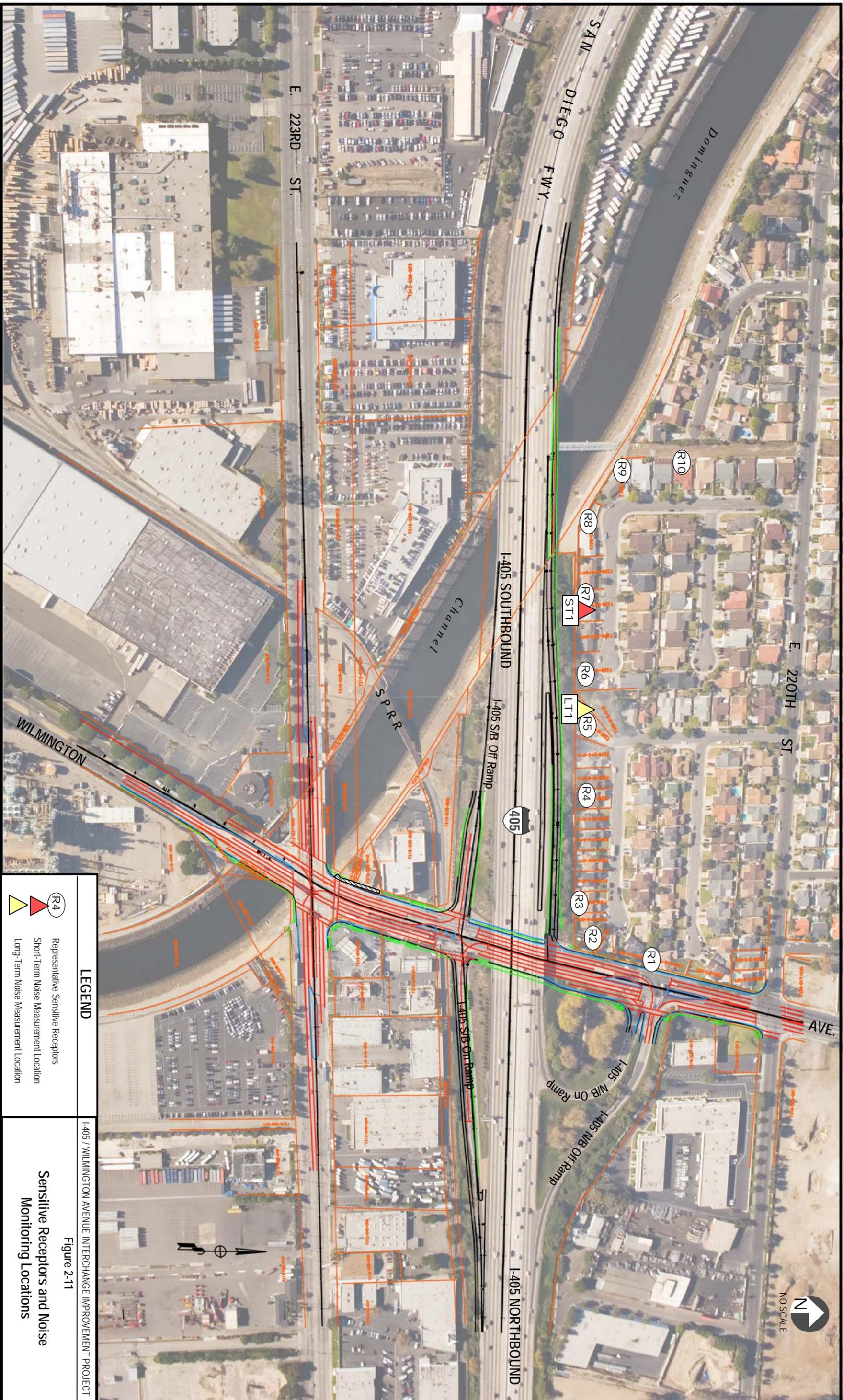
- **Geometric Spreading** – Sound from a small, localized source (i.e., a point source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (or drops off) at a rate of 6 dB for each doubling of distance. Highway noise is not a single, stationary point source of sound. The movement of the vehicles on a highway makes the source of the sound appear to emanate from a line (i.e., a line source) rather than a point. This line source results in

cylindrical spreading rather than the spherical spreading which results from a point source. The change in sound level from a line source is 3 dB per doubling of distance.

- **Ground Absorption** – Most often, the noise path between the highway and the observer is very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. For acoustically hard sites (i.e., those sites with a reflective surface, such as a parking lot or a smooth body of water, between the source and the receiver), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees, between the source and the receiver), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the geometric spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance for a line source and 7.5 dB per doubling of distance for a point source.
- **Atmospheric Effects** – Research by Caltrans and others has shown that atmospheric conditions can have a significant effect on noise levels when noise receptors are located more than 200 feet from a highway. Wind has been shown to be the most important meteorological factor within approximately 500 feet of the source, whereas vertical air temperature gradients are more important for greater distances. Other factors, such as air temperature, humidity, and turbulence, also have significant effects.

Existing Noise Environment

The noise environment in the project area is dominated by traffic traveling along I-405 and Wilmington Avenue. Noise measurements were conducted in March 2007 at two representative sensitive receptor locations within the project limits to establish the baseline conditions and calibrate the roadway traffic noise prediction model. Land uses adjacent to the project corridor consist of single-family homes located along SB Wilmington Avenue, north of I-405 in the project area; the other properties along Wilmington Avenue are either commercial or industrial. Figure 2-11 shows the locations of sensitive receptors and measurement sites. Noise measurements indicate that the vehicular traffic noise associated with I-405 was the dominant noise source at these locations.



LEGEND

-  (R4) Representative Sensitive Receptors
-  Short-Term Noise Measurement Location
-  Long-Term Noise Measurement Location

I-405 / WILMINGTON AVENUE INTERCHANGE IMPROVEMENT PROJECT

Figure 2-11

Sensitive Receptors and Noise Monitoring Locations

The ambient noise level at one of the measurement sites (LT1) was continuously measured for a minimum of 24 hours. The noise level at the other site (ST1) was sampled for a short-term duration of 20 minutes. Table 2-11 presents the results of the short-term and long-term measurements. The measurement results indicate that existing traffic noise level for the residential area is 68 dBA- $L_{eq}(h)$.

Table 2-11
Noise Measurement Results

Site No.	Street Address, City	Land Use ^a	Meter Location	Measurement Dates	Start Time	Measurement Duration	Peak-Hour Time	Measured Peak-Hour L_{eq} , dBA ^b
LT1	1600 Bach Street	SFR	Back Yard	March 5-6, 2007	12:10 PM	24 hours	1:00 PM	69.9
ST1	1526 Bach Street	SFR	Back Yard	March 5, 2007	12:56 PM	20 minutes	1:00 PM	67.7

^a Land Use: SFR – single-family residence.
^b The measured peak-hour noise level recorded during the long-term measurement period.

Source: Parsons, 2007f

2.11.2 Environmental Consequences

Federal and state regulations, standards, and policies relating to traffic noise are discussed in detail in the Caltrans Traffic Noise Analysis Protocol (Protocol), (Caltrans, 2006). Protocol requirements apply to Type 1 projects. A Type 1 project is defined in 23 CFR 772 as a proposed federal or federal-aid highway project for the construction of a highway on a new location or the physical alteration of an existing highway that significantly changes either the horizontal or vertical alignment or increases the number of through traffic lanes. The FHWA has clarified its interpretation of Type 1 projects by stating that a Type 1 project is any project that has the potential to increase noise levels at adjacent receptors. This includes projects to add interchanges, ramps, or auxiliary or truck-climbing lanes to an existing highway. A project to widen an existing ramp by a full lane width is also considered a Type 1 project. Caltrans extends this definition to include state-funded highway projects. The proposed project’s build alternative evaluated in this report is Alternative 2, and it is considered Type 1 because it includes an increase in the number of through traffic lanes, or constructing a new freeway or new alignment.

Under FHWA regulations, a traffic noise impact is considered to occur when the project results in a substantial noise increase or when the predicted noise levels approach or exceed the NAC specified in the regulation (23 CFR 772), as defined by Caltrans. A noise increase is considered by Caltrans to be substantial when the predicted noise levels with the project

exceed existing noise levels by 12 dBA, $L_{eq}(h)$ (the 1-hour, A-weighted equivalent sound level). A traffic noise impact will also occur when predicted noise levels with the project approach within 1 dBA, or exceed the NAC. Caltrans Protocol states that if it is predicted that there would be a traffic noise impact, all feasible noise abatement measures must be identified and implemented. The abatement must provide a minimum of 5 dBA noise reduction for the impacted receivers to be considered feasible. Greater noise reductions are encouraged as long as they can be achieved under the reasonableness guidelines. The overall reasonableness of noise abatement is determined by considering a multitude of factors including, but are not necessarily limited to, the cost of abatement, noise abatement benefits, date of development along the highway, and opinions of impact residents. Normally, noise abatement is not designed for the second-floor level (Caltrans, 1998b).

Under CEQA, a substantial noise increase may result in a significant adverse environmental effect; if so, the noise increase must be mitigated or identified as a noise impact for which it is likely that only partial (or no) mitigation measures are available. Specific economic, social, environmental, legal, and technological conditions may make noise mitigation measures infeasible.

Build Alternatives

Construction Phase

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate surrounding area. Construction noise is regulated by Caltrans Standard Specifications, July 2002, Section 7-1.01I, Sound Control Requirements. These requirements state that noise levels generated during construction shall comply with applicable local, state, and federal regulations and that all equipment shall be fitted with adequate mufflers according to the manufacturers' specifications.

The applicable local noise standard for project construction is Section 5502 (c) of the Carson Municipal Code, which provides exterior noise standards that regulate construction noise near residential uses. Table 2-12 summarizes the noise standards for nonscheduled, intermittent, short-term operations (i.e., less than 20 days), as well as standards for repetitively scheduled and relatively long-term construction operations (i.e., periods of 21 days or more) of equipment. As Table 19 shows, the Ordinance provides two sets of limits on construction noise: (1) between the hours of 7:00 a.m. and 8:00 p.m., Monday through Saturday; and (2) between the hours of 8:00 p.m. and 7:00 a.m. and on Sundays and legal holidays.

Table 2-12
City of Carson Maximum Construction Noise Limits

Construction Time	Maximum Allowed Noise Level (dBA)	
	Single-Family Residential	Multi-Family Residential
a. Maximum noise levels for nonscheduled, intermittent, short-term operation of 20 days or less for construction equipment.		
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75	80
Daily, 8:00 p.m. to 7:00 a.m. and all day Sundays and legal holidays.	60	64
b. Maximum noise level for repetitively scheduled and relatively long-term operation (i.e., periods of 21 days or more) of construction equipment.		
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	65	70
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays.	55	60

Source: Carson Municipal Code Section 5502(c).

Table 2-13 summarizes noise levels produced by construction equipment commonly used on roadway construction projects. As indicated, equipment involved in construction is expected to generate noise levels ranging from 74 to 85 dBA at a distance of 50 feet. Noise produced by construction equipment can be expected to naturally attenuate over distance at a rate of approximately 6 dBA per doubling of distance. Construction noise impacts would be short-term and intermittent, and could be mitigated by requiring the contractors to adhere to Caltrans Standard Specifications and City of Carson Noise ordinance.

Table 2-13
Construction Equipment Noise

Type of Equipment	Maximum Noise Level, dBA at 50 feet
Excavator	83
Backhoe	75
Front End Loader	74
Dozer	85
Grader	75
Concrete Pump	81
Vibratory Roller	78
Compactor	76
Crane	85
Asphalt Paver	79
Asphalt Roller	78
Heavy-Duty Dump Trucks	77

Source: Parsons, 2007f.

Operation Noise

The land use within the project limits is comprised of residences, commercial, and industrial developments. FHWA regulations (23CFR772) and the Traffic Noise Analysis Protocol (TNAP) state that noise abatement is only considered where noise impacts are predicted and only where frequent human use occurs, and where a lowered noise level would be of benefit. As a matter of practice, abatement is only considered for places where people are exposed to highway noise for at least 1 hour on a regular basis. Potential noise abatement measures include:

- Avoiding the project impact by using design alternatives, such as altering the horizontal and vertical alignment of the project
- Constructing noise barriers (soundwalls)
- Acquiring property to serve as a buffer zone
- Using traffic management measures to regulate types of vehicles and speeds
- Acoustically insulating public use or nonprofit institutional structures.

Noise Modeling

A noise assessment was conducted to determine future noise impacts of the proposed project at sensitive receptors within the boundaries of the project (Parsons, 2007f). The future/worst-case scenario traffic noise levels at the outdoor frequent human use areas along the project corridor were modeled for Alternative 2 roadway and future traffic conditions to determine the appropriate abatement measures.

The FHWA traffic noise model, TNM 2.5, was used for the roadway noise computations (FHWA 2004). TNM 2.5 input is based on a three-dimensional grid created for the study area to be modeled. All roadway, barrier, and receiver points are defined by their x, y, and z coordinates. Roadways and barriers are coded into TNM 2.5 as line segments defined by their end points. Receivers, defined as single points, are typically located at sensitive receptors, such as residences, schools, and recreational outdoor areas. Receivers are modeled at a height of 5 feet above ground elevation.

To determine the noise levels generated by roadway traffic, the TNM 2.5 computer program requires inputs of traffic volumes, speeds, and vehicle types for each defined segment. Three vehicle types were input into the model: automobiles, medium trucks, and heavy trucks. The propagation path between source and receiver is modeled in TNM 2.5 by specifying the intervening rows of houses or building structures, special terrain features, and existing

barriers. Propagation of noise can be specified by selecting ground types, such as hard soil, loose soil, pavement, and lawn field grass. The loose soil ground type was selected in the modeling. All other natural obstructions, such as cuts and fills that could affect the future predicted noise levels (e.g., the Dominguez Channel terrain lines) were also included in the input file.

Since the highest traffic noise levels occur when traffic is heavy but remains free-flowing, LOS D volumes were used in the model to ensure the worst-case scenario traffic noise for the future year. The LOS D traffic volume used for this project is 1,950 vehicles per hour per lane (vph/lane) for the I-405 mainline and 1,500 vph/lane for high occupancy vehicle (HOV) lanes. Wilmington Avenue and ramp traffic volumes projected for future 2030 (Parsons 2007f) were compared to the LOS D volumes of 1,000 vph/lane, and the lesser of the two were used to model ramps and roadway traffic for the proposed Alternative 2. Details of model inputs and outputs can be found in the Noise Study Report (Parsons, 2007f) prepared as part of this environmental document.

Future noise impacts at the representative sensitive receptors were estimated using TNM to calculate peak hour traffic noise from I-405 and Wilmington Avenue traffic. The modeled noise levels were adjusted for the 2 dB calibration adjustment value, and the results were added to the community background noise to determine the noise level at the sensitive receptors. The analysis was focused on the sensitive noise receptors, adjacent to the proposed project alignment. These include the residences that are located immediately north of the proposed new NB I-405 on-ramp, between Wilmington Avenue and the easement west of Lostine Avenue. A receptor R11, west of the project limits, was also included in analysis to examine the potential benefit of project abatement in the area west of the project study area.

Predicted noise levels for Alternative 2 (worst-case scenario) are presented in Table 2-14. The results show that the noise level at all of the sensitive receptors located northwest of the I-405/Wilmington Avenue interchange approach or exceed the NAC level of 67 dBA noise impact criteria for residences increase of up to 2 dB over existing peak-hour noise levels is predicted at many receptors. A noise abatement analysis was conducted by including a combination of a shoulder barrier along NB I-405 and a shoulder barrier along the new NB on-ramp, which would be located south of the residential area along I-405. The I-405

**Table 2-14
Predicted Future Noise Levels and Barrier Analysis**

Receptor Number	Land Use ²	Existing Noise Levels ^{1,3} L _{eq(h)} , dBA	No Build Noise Levels ^{1,3,5} L _{eq(h)} , dBA	Peak-Hour Noise Levels, L _{eq(h)} , dBA ^{1,6}											Barrier Number/ Location
				Project Build No Barrier	Activity Category (NAC)	Impact Type (S, A/E, or None) ⁴	Noise Prediction with Barrier and Barrier Insertion Loss (I.L.)								
							8 ft		10 ft		12 ft		14 ft		
							L _{eq(h)}	I.L.	L _{eq(h)}	I.L.	L _{eq(h)}	I.L.	L _{eq(h)}	I.L.	
R1	SFR	67 ^E	68	68	B (67)	A/E	66	2	66	2	65	3	65	3	–
R2 ^C	SFR	69 ^E	70	71	B (67)	A/E	67	4	67	4	66 ^{R,T}	5	66	5	S508/ Shoulder of the Ramp and
R3	SFR	67 ^E	68	69	B (67)	A/E	64	5	64	5	63 ^{R,T,5}	6	62	7	
R4 ^W	SFR	67 ^E	68	69	B (67)	A/E	64	5	62 ^{R,T}	7	61	8	60	9	
R5 ^W	SFR	68 ^{E,LT1}	69	70	B (67)	A/E	64	6	63 ^{R,T}	7	62	8	61	9	
R5A	SFR	69 ^{M,CAL}	70	71	B (67)	A/E	63	8	62 ^{R,T}	9	62	9	61	10	S500/ Shoulder of I-405
R6 ^W	SFR	70 ^E	71	71	B (67)	A/E	66	5	64 ^{R,T}	7	64	7	63	8	
R7 ^W	SFR	68 ^E	69	69	B (67)	A/E	65	4	64 ^{R,T}	5	64	5	63	6	
R8 ^W	SFR	71 ^E	72	70	B (67)	A/E	65	5	65 ^T	5	64 ^{R,5}	6	63	7	
R9 ^W	SFR	69 ^E	70	70	B (67)	A/E	66	4	65 ^T	5	63 ^{R,5}	7	63	7	
R10 ^{*W}	SFR	65 ^E	66	66	B (67)	A/E	62	4	62	4	61 ^R	5	61	5	
R11 ^W	SFR	67 ^E	68	68	B (67)	A/E	64	4	64	4	63 ^R	5	62	6	

1 L_{eq(h)} are A-weighted, peak-hour noise levels in decibels.
2 Land Use: SFR – single-family residence.
3 M – Measured noise level; STxx or LTxx – measurement site number; E – Estimated from future “Build” and measurement sites.
4 S – Substantial increase (12 dBA or more); A/E – Approach or exceed NAC.
5 Needed for other receptors.
6 Modeled values were added to 58 dBA background community noise level.
CAL. Calibration
R Recommended height to meet feasibility requirements of the Caltrans Noise Abatement Protocol.
T Minimum height required to block the line-of-sight from the receptor truck exhaust stacks.
C Critical receptor.
N Nonoutdoor use area; thus, no abatement is required.
W Includes the benefits of an existing property wall.
* Non first-row receptor.

Source: Parsons, 2007f

soundwall would extend from east of the Wilmington Avenue overcrossing to the Dominguez Channel, and the ramp soundwall would extend along the shoulder of the proposed new on-ramp to the point where it would join the mainline I-405.

The analysis was conducted for barrier heights ranging from 8 feet to 14 feet. The barrier heights and locations were evaluated to provide a minimum 5-dB noise reduction and cut line-of-sight to truck stacks at the impacted noise-sensitive areas. Table 2-15 provides a summary of the recommended barriers, including the number of benefited residences, reasonable cost per residence, and reasonable allowance cost per barrier.

Table 2-15
Summary of Recommended Barriers

Barrier Number	Receptor Number	Type and Number of Benefited Receptor Units ^a	Barrier Location	Barrier Height and Total Length	Reasonable Cost per Receptor Unit ^b	Reasonable Allowance Cost of Barrier
S500	R2 through R11	22 SFR ^a	I-405 Shoulder/ Northbound	10 feet and 870 feet	\$46,000	\$1,012,000
S508			Shoulder/ Northbound On-Ramp	10 feet and 12 feet and 1,840 feet		
^a Land Use: SFR – single-family residence ^b Based on the reasonable allowance of \$32,000 per residence/unit.						

Source: Parsons, 2007f

The minimum barrier heights required to cut the line-of-sight from each receptor to the exhaust stacks of heavy trucks were calculated for all recommended barriers. These heights were determined through calculations performed by TNM 2.5. All recommended barriers meet or exceed the minimum 5-dB noise abatement requirement for the benefited receivers.

No-Build Alternative

No direct effects to the noise environment would be expected to occur under the No-Build Alternative. However, some residences in the project area would not receive the benefit of the soundwalls to be constructed as part of the project abatement.

2.11.3 Avoidance, Minimization, and Compensation Measures

During Construction

- The City of Carson will notify the area businesses and residents of the construction schedule at least two weeks in advance of the construction. The notice will contain

the telephone hotline for the residents to contact the City personnel for any complaint about the project construction.

- The construction schedule will be arranged so that the soundwalls would be completed as early as possible in the construction phasing (i.e. after the new on ramp is constructed) to minimize construction noise impacts to the residences north of I-405 from ramp construction.
- All equipment shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have an unmuffled exhaust.
- As directed by the Caltrans resident engineer, the contractor shall implement appropriate additional noise abatement measures including, but not limited to, changing the location of stationary construction equipment, turning off idling equipment, rescheduling construction activity, notifying adjacent residents in advance of construction work, or installing acoustic barriers around stationary construction noise sources.

During Operation

Two types of soundwalls are proposed to be installed to minimize traffic noise impacts from proposed project.

- Construction of combined soundwalls types S500 and S508. Soundwall S500 would be 10 feet in height located along the shoulder of I-405 between stations 495+00 and 503+67. Soundwall S508 would be extended along the proposed new NB on-ramp, between stations 496+49 and 514+95; with a length of 1,840 feet. It would be 12 feet high between stations 496+49 and 497+76 (approximately 128 feet in length), and it would continue at a height of 10 feet from station 497+76 to station 508+25 (approximately 644 feet in length), where its height would be raised to 12 feet and would continue to station 514+95. The combination of these two soundwalls would provide feasible noise reduction from highway traffic noise for the first-row single-family residences, which are located northwest of the I-405/Wilmington Avenue interchange. Approximately 21 residences would be benefited from these soundwalls.

Receptor R1, which is located adjacent to SB Wilmington Avenue, includes the benefit of an existing 6-foot-high property wall along Wilmington Avenue. Although the new ramp shoulder barrier would provide some benefit in reducing the noise level for this receptor, the reduction would be less than the 5-dB minimum noise abatement requirement.

Vibration During Implementation

During project operation, vibration from traffic operations would occur; however, based on field experience, it is not anticipated to be higher than the current level generated by the I-405 freeway. The new NB I-405 on-ramp would be designed to meet or exceeded Caltrans highway standards for industrial area (not residential area) with the predicted traffic volumes and type of vehicles it carries. Therefore, a significant increase in vibration effect is not anticipated.

2.12 Public Services

2.12.1 Affected Environment

Many community facilities are located near the project site. Del Amo Elementary School is located approximately 0.75-mile northwest of the project interchange, and it is positioned in a suburban neighborhood. Andrew Carnegie Middle School and Bonita Street Elementary School are located approximately 1 mile north of the project site, and they are closer to the I-405/Carson Street interchange. Ayala Family Child Care is located on East 220th Street approximately 0.25-mile from the project site. Four places of worship are located within a 1-mile radius of the project site; three of these are on 223rd Street, and one is on East Carson Street.

The project study area is under the jurisdiction of the Los Angeles County Sheriffs Department (Carson Station). The Carson Station, which is located in southwest Los Angeles County, provides police services for the unincorporated County areas of West Compton, Gardena, Torrance, and Rancho Dominguez, and the City of Carson (by contract). The Station's jurisdiction includes California State University, Dominguez Hills, and University of California at Los Angeles/Harbor General Hospital. The Carson Station is located approximately 2.1 miles from the project site (City of Carson 2007b). The Los Angeles County Fire Department (LACFD) provides fire protection and other emergency services to the project area. The fire station located nearest to the project is LACFD #36, which is located approximately 2.3 miles from the project area (County of LA 2006).

2.12.2 Environmental Consequences

Proposed Alternatives 1 and 2 would not result in impacts to community service facilities, including health care and recreational facilities. No places of worship, child care, or school facilities would be affected by either build alternative. A TMP would be developed prior to construction in order to minimize these traffic impacts. The potentially affected agencies, as well as all applicable public safety personnel of the City of Carson, would be notified of the

proposed project, and their input would be incorporated into the TMP to avoid any unacceptable response time issues that would endanger the public.

The proposed project does not include new residential, commercial, or industrial development or other such uses. Thus the proposed project would not increase the need for additional fire protection, law enforcement services, public utilities, or result in increases in student enrollment at nearby schools.

The proposed project would not induce a population increase in the area, nor would it include new residential, commercial, or industrial development or uses. Thus, the proposed project would not increase the demand or use of existing parks and other facilities in the area.

2.12.3 Avoidance, Minimization, and Compensation Measures

Measures proposed under Community Impacts and Traffic and Transportation and Pedestrian Facilities would minimize impacts to public service and facilities.

2.13 Biological Resources

2.13.1 Affected Environment

A Natural Environment Study (Minimal Impacts) was prepared for the project (Parsons, 2007e). The project study area were surveyed in early January 2007 and late February 2007 for evidence of listed species, potential habitat that each would require, and ecologically important biotic communities. Steady, heavy transportation use and regular landscaping upkeep of the surface roads and freeway, commercial development south of I-405, and residential development north of I-405 have transformed all of the lands that would be affected by project implementation. No species protected by authority of either the federal or state Endangered Species Act was observed during the pedestrian surveys of the project study area.

A search of existing records (California Natural Diversity Data Base [CNDDDB], 2003) for all formally listed species, those species not yet listed but thought to be in decline in at least part of their historic range, and natural ecological communities of regional importance yields no entries closer to the project study area than 1-mile. The nearest occurrences summarize field notes regarding two vascular plants and one rodent, which were collected more than 1.25 miles to the south. Both plant species are deemed by CNDDDB accounts as “possibly extirpated,” with the rodent “extirpated.” One of the plant species was last recorded in 1882

at Bixby Knolls, which is north of Long Beach; no collection date was obtainable for the other species, suggesting that its last observation was a long time ago. The rodent was last collected in 1865. The closest natural community type exists 8.5 miles southwest from the project study area along bluffs at the Palos Verdes Peninsula. Appendix A includes complete reports from the most current CNDDDB data archive.

Vegetation

Landscape ornamentals along 223rd Avenue and Wilmington Avenue include ornamental fig (probably *Ficus rubiginosa*) as the most conspicuous City tree planted along 223rd Street and Wilmington Avenue, fan palms (*Washingtonia filifera*), sycamores (*Platanus racemosa*) planted where space for their expected size allows, pines (*Pinus* sp.), gum trees (*Eucalyptus* sp.), camphor trees (*Cinnamom camphora*), bottlebrush (*Callistemon* sp.), and jacaranda (*Jacaranda mimosifolia*).

Iceplant (*Carpobrotus edulis*) has been used extensively along the shoulders of I-405 as a groundcover, although Algerian ivy (*Hedera canariensis*) also covers much ground in some places. The iceplant has formed large and unbroken mats of a thick, shallow-rooted nature, especially where it is not shaded by trees. Chinese elm (*Ulmus parvifolia*) has the largest extent of groundcover on the north shoulder of I-405 west of Wilmington Avenue. Two exotic pines, Canary island (*Pinus canariensis*) and what appears to be Calabrian pine (*P. brutia*), were the next most common species on this shoulder. Shamel ash (*Fraxinus uhdei*), Brazilian pepper tree (*Schinus terebinthefolius*), and a tree closely resembling the Queensland pittosporum (*Pittosporum rhombifolium*) also grow on this embanked shoulder. Where openings occur amid these various trees, smaller-size shrubs also flourish, including a yellow-flowered acacia (*Acacia* sp.), cape plumbago (*Plumbago auriculata*), and jade plant (*Crassula ovata*). One small patch of pampass grass (*Cortaderia selloana*) is well-established amidst the taller trees.

Cottonwood trees (*Populus fremontii*) were planted within the loop on-ramp on the east side of Wilmington Avenue. The cottonwood trees and pines of undetermined species compose all of the canopy in this portion of the project study area.

Animal

The developed state of the project study area and the absence of any plant community native to this region limit the area's general suitability to most animals. A single, young lizard (probably a side-blotched, *Uta stansburiana*) was glimpsed at a distance on the north shoulder of I-405. Burrows and dirt mounds made by two rodents, pocket gophers (*Thomomys bottae*)

under I-405 and California ground squirrels (*Spermophilus beecheyi*) amid iceplant on the north shoulder of I-405 were found in a few places. Neither was common.

Insects aside, a mourning cloak butterfly (*Nymphalis antiopa*) notable among them, all other animals noted onsite were birds. Some house finches (*Carpodacus mexicanus*) were singing from perches north of I-405 and likely nest at opportune places around the interchange. One northern mockingbird (*Mimus polyglottos*) was also vocalizing from among these trees. Mallards (*Anas platyrhynchos*), gadwalls (*A. strepera*), pied-billed grebes (*Podilymbus podiceps*), and coots (*Fulica americana*) were feeding in the Dominguez Channel. A solitary spotted sandpiper (*Actitis macularia*) was hunting insects at the water's edge on the west side of the channel, and a few house finches were found foraging among last year's dead weeds, which had grown in crevices in the ungrouted riprap of its banks.

Standing Water

Muck and debris have accumulated in a shallow, concrete drainage ditch at the toe of the north shoulder of I-405. Without that blockage, water would trickle westward to the Dominguez Channel. Water has pooled here long enough to create temporary conditions favorable to the growth of cattails (*Typha latifolia*) in two separate places, with one somewhat older than the other. These two clumps are smaller than 100 square feet.

This ditch is designed for periodic maintenance consistent with routine transportation practice and needs in the immediate area given the lay of the land around Wilmington Avenue and the I-405 shoulder. Wetlands do not exist within the area of immediate project disturbance. This water, which has accumulated in a lined drainage structure and appears to be neglected, does not meet criteria for jurisdictional waters of the United States administered by the U.S. Army Corps of Engineers, and it would not be classified as wetlands.

Invasive Alien Species

No concise, authoritative, and comprehensive list of alien plant species has been promulgated by the federal government since 1999 when President Clinton signed Executive Order 13112, which pertains to invasive species of all types. The State of California issued a compendium³ for alien plant species, and they are ranked roughly by their proclivity to spread aggressively through natural communities within the state. Five species widely regarded as invasive pests occur within the project study area.

³ <http://ucce.ucdavis.edu/files/filelibrary/5319/4898.pdf>

Two horticultural varieties planted deliberately on the shoulders of the freeway are included on the list of most invasive wildland pest plants: iceplant (*Carpobrotus edulis*) and Brazilian pepper tree (*Schinus terebinthefolius*). Pampass grass (*Cortaderia selloana*) may have been introduced by windborne seeds from elsewhere in the area. European fountain grass (*Pennisetum setaceum*) is well-established along the block wall at the north edge of the ROW.

Australian saltbush (*Atriplex semibaccata*) was found growing in sidewalk cracks where the I-405 NB off-ramp ends at Wilmington Avenue. This noxious alien plant was not found elsewhere within the project study area.

2.13.2 Environmental Consequences

The proposed project area is situated in a highly urbanized area in the City of Carson, outside the vicinity of any natural drainages, streams, or creeks. No sign of any listed species was observed anywhere within the biological area of potential effect. Similarly, designated critical habitat essential to the life history of any listed species does not encompass any lands anywhere near the project area. Lastly, the project study area is commercial and residential in character, and no remnant of any of the native ecological communities remains anywhere near the interchange; therefore, no substantive consequences to any listed species or worthy community type are anticipated from the proposed interchange and roadway improvements.

The cottonwoods in the loop on the east side of Wilmington Avenue would not be disturbed since only minor changes to that on-ramp would occur within the existing graded shoulders. No roadway construction would occur inside the loop on-ramp. The existing landscaped area bounded by the loop-ramp could potentially be used to construct the storm water BMPs treatment structure. If the design of that structure requires removing the cottonwood trees (i.e., seven mature trees and four immature trees) from the interior of the loop, then the loss would be a temporary minor impact. After finishing this part of the project, land available within the loop could be replanted with cottonwoods in numbers commensurate with the removed trees and sustained by temporary irrigation until they become established. The replacement trees would constitute full mitigation for project effects inside this loop.

If the proposed new on-ramp across the north shoulder of I-405 (Alternate 2) were built, as much as 77,500 square feet (1.7 acres) of lands now planted to horticulturally convenient landscape species would be cleared. None of the plants presently growing on the slope have

regional importance. They would be replaced with nursery stock at the completion of construction as space allows for decorative landscaping.

For these reasons, implementation of either build alternative would not affect listed species or ecological communities at the interchange. No change of species composition or important habitat would result during the improvement construction, and once completed and in operation, the biotic character of the immediate vicinity would be similar to the existing conditions.

2.13.3 Avoidance, Minimization, and Compensation Measures

In the absence of listed species inhabiting the project study area or its general vicinity, and an uncompromised natural biotic community anywhere near the interchange, mitigation for structural impacts would not be warranted; therefore, neither proposed budget nor recommendations for formal mitigation onsite or in the general area need be pursued.

Construction of a new NB on-ramp (Alternate 2), westward from Wilmington Avenue and up the existing shoulder north of I-405, would require removal of most of the vegetation presently growing there. If that access ramp becomes part of the project design, the ground preparation and removal of trees should occur between August and December to minimize the chance of disturbing nesting birds protected by the Migratory Bird Treaty Act of 1918.

If stormwater BMPs are constructed at the interior of the NB loop-ramp area, which would result in the removal of the existing cottonwood trees, then the cottonwood trees would be replanted at the available land within the loop in numbers commensurate with the trees removed, and they would be sustained by temporary irrigation until they become established.

2.14 Climate Change

2.14.1 Regulatory Setting

While climate change has been a concern since at least 1988, as evidenced by the establishment of the United Nations and World Meteorological Organization's Intergovernmental Panel on Climate Change (IPCC), the efforts devoted to greenhouse gas (GHG). GHGs related to human activity include: Carbon dioxide, Methane, Nitrous oxide, Tetrafluoromethane, Hexafluoroethane, Sulfur hexafluoride, HFC-23, HFC-134a, and HFC-152a. GHG emissions reduction and climate change research and policy have increased dramatically in recent Years. In 2002, with the passage of Assembly Bill 1493 (AB 1493), California launched an innovative and pro-active approach to dealing with GHG Emissions

and climate change at the state level. AB 1493 requires the Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions; these regulations will apply to automobiles and light trucks beginning with the 2009 model year.

On June 1, 2005, Governor Arnold Schwarzenegger signed Executive Order S-3-05. The goal of this Executive Order is to reduce California's GHG emissions to: 1) 2000 levels by 2010, 2) 1990 levels by the 2020 and 3) 80% below the 1990 levels by the year 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006. AB 32 sets the same overall GHG emissions reduction goals while further mandating that ARB create a plan, which includes market mechanisms, and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." Executive Order S-20-06 further directs state agencies to begin implementing AB 32, including the recommendations made by the state's Climate Action Team.

Climate change and GHG reduction is also a concern at the federal level; however, at this time, no legislation or regulations have been enacted specifically addressing GHG emissions reductions and climate change.

2.14.2 Environmental Consequences

An individual project does not generate enough greenhouse gas emissions to significantly influence global climate change. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases.

Caltrans and its parent agency, the Business, Transportation, and Housing Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California's GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the *Climate Action Program at Caltrans* (December 2006).

One of the main strategies in the Caltrans' Climate Action Program to reduce GHG emissions is to make California's transportation system more efficient. The highest levels of carbon dioxide from mobile sources, such as automobiles, occur at stop-and-go speeds (0-25 miles per hour) and speeds over 55 mph. Relieving congestion by enhancing operations and

improving travel times in high congestion travel corridors will lead to an overall reduction in GHG emissions.

The I-405 at Wilmington Interchange Improvement Project would help reduce long queues and alleviate global climate change concerns by reducing carbon dioxide emissions, a major greenhouse gas. The current configuration of the interchange creates long queues and delays at the ramp intersections and does not have the capacity to carry 2030 projected traffic volumes. This project would provide congestion relief by eliminating geometric deficiencies and non-standard features at the interchange.

Caltrans recognizes the concern that carbon dioxide emissions raise for climate change. However, modeling and gauging the impacts associated with an increase in GHG emissions levels, including carbon dioxide, at the project level is not currently possible. No federal, state or regional regulatory agency has provided methodology or criteria for GHG emission and climate change impact analysis. Therefore, the Department is unable to provide a scientific or regulatory based conclusion regarding whether the project's contribution to climate change is cumulatively considerable.

2.15 Cumulative Impacts

A cumulative impact, as defined by the CEQ in 40 CFR 1508.7, is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of which agency or person undertakes such actions. CEQA Guidelines Section 15355 defines cumulative impacts as two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts under CEQA can result from individually minor but collectively significant actions taking place over a period of time.

Several projects were identified that are approved or planned within the project vicinity, including:

1. I-405 NB off-ramp at Wilmington Avenue modification (Caltrans Contract No. EA07-188804 Route: 07-LA-405-14.6/15.1). Construction started in January 2007, and will be completed by July 2007.
2. I-405 and Avalon Boulevard interchange modification (Caltrans Project Nos. EA07186-23390K, 07-186-23400K, and 07-932083). This project is under

environmental review. Construction is expected to commence in summer 2008 and be completed by summer 2010.

3. Construction of a soundwall along I-405 between Long Beach Boulevard and Stagg Street in the City of Long Beach and City of Carson (Caltrans Project No. EA-07-186-23300K, 07-LA-405-KP 6.4/43/1). The purpose of the project is to reduce traffic noise levels and exposure at noise-sensitive residential uses adjacent to the freeway from Long Beach Boulevard to 223rd Street along I-405. The project will be funded by MTA. The Noise Barrier Scope Summary Report was prepared and approved in March 2004. Construction is scheduled to commence in March 2008 and be completed in April 2009.
4. Slab replacement and grinding in Long Beach, Carson, and Signal Hill from Los Angeles and Orange County line to I-405 and I-110 separation (Caltrans Project No. EA 244404). PS&E was prepared in June 2005. The construction schedule was not finalized by the time of preparation of this report.
5. Installing and upgrading flared end sections of existing metal beam guardrails at various locations on I-405 from PM 0.0 to 48.5 and I-110 from PM 0.0 to 33.15 (Caltrans Project No. EA 243601). The construction schedule was not finalized by the time of preparation of this report.
6. Current projects in the planning process, including any Caltrans, City of Carson, or County of Los Angeles projects, will be subject to separate environmental review, and will be required to develop traffic mitigation measures to reduce their respective impacts.

The cumulative impacts of the proposed project are limited to the construction activities (e.g., noise, dust, temporary drainage, and temporary access limitations, etc.) for the roadway improvements. These impacts can be minimized if simultaneous construction schedules can be avoided or minimized. Based on the known proposed schedules of these projects, it is likely that a number of them would be completed before the commencement of construction for the proposed project.

As indicated in the above related project list, Caltrans has planned on construction of a soundwall along the northbound side of I-405, which would be funded by MTA. If Alternative 2 is implemented and the recommended soundwalls are constructed, the soundwall originally proposed by Caltrans and MTA would not be required.

This page intentionally left blank.

3.0 CONSULTATION AND COORDINATION

3.1 Scoping

3.1.1 What is Scoping?

Scoping is a process designed to examine a proposed project early in the environmental impact analysis and review process. Scoping is intended to identify the range of issues raised by the proposed project and to outline feasible alternatives or mitigation measures to avoid potentially significant environmental effects. The scoping process inherently stresses early consultation with local agencies, responsible agencies, review agencies, trustee agencies, tribal governments, and any federal agency whose approval or funding of the proposed project will be required for completion of the project.

Scoping is considered an effective way to bring together and resolve the concerns of other agencies and individuals who may potentially be affected by the proposed project, as well as other interested persons, such as the general public, who might not be in accord with the action on environmental grounds.

3.1.2 Scoping Procedures for the Proposed Project

The environmental document for this project is an IS/ES. NEPA and CEQA regulations do not require an IS/EA to undergo formal scoping procedures. However, consistent with Caltrans's early involvement philosophy, and in light of the project's potential importance, scoping procedures were none the less undertaken. Scoping was conducted from April 15, 2007 to May 15, 2007. Public Scoping Notification advertisements were placed in the following newspapers on the following dates:

Daily Breeze: April 26, 2007

La Opinion: April 26, 2007

Public Scoping Notification letters were mailed to agencies and interested parties listed in Section 5.3. In addition to that, residents and property owners in a 500-foot radius of the proposed project area were mailed Scoping Notification flyers.

The Scoping Notification newspaper advertisements, letters, and flyers sought public comments, questions and concerns regarding the proposed project. The public was also encouraged to participate in the Open House arranged on May 3, 2007 at the Community

Center of the City of Carson to provide the public with the first hand information of the project and to answer questions the public may have. The public was invited to submit written comments, questions, and concerns to:

Mr. Eduardo Aguilar, Senior Environmental Planner

Caltrans District 7

100 Main Street

Los Angeles, CA 90012

or

Mr. Massoud Ghiam, P. E., Senior Civil Engineer

City of Carson, 701 East Carson Street

Carson, CA 90749

A copy of the newspaper ad, public notification/scoping letters and flyers is presented in Appendix B. Meeting notes for the Open House as well as written comments submitted by the public are included in Appendix C.

3.2 Coordination

Caltrans has worked in close coordination with the City of Carson well before the commencement of the Project Report and Environmental Document preparation phase in late 2006. The proposed project has the full support of the City of Carson. Furthermore, Caltrans has coordinated efforts with all the appropriate local agencies, as well as the SCAG. This document has an extensive distribution list which can be referenced in Section 5.0.

4.0 LIST OF PREPARERS

Caltrans District 7, Division of Environmental Planning

Eduardo A. Aguilar	Senior Environmental Planner, Environmental Document Reviewer
Anthony Baquiran	Environmental Planner, Environmental Document Reviewer

Caltrans Project Development

David Yan	Project Manager
Hamid Toossi	Office of Design “D”

City of Carson

Massoud Ghiam, P. E.	Senior Civil Engineer/Project Coordinator
Farrokh Abolfathi, P.E.	Principal Engineer/Project Manager

Parsons Transportation Group, Inc.

Carlos Cadena, P.E.	Director of Engineering, Project Manager
Anne Kochaon, QEP	Environmental Project Manager/Document Coordinator
Gary Petersen	Senior Project Manager/Reviewer
Steve Crouch, P.E.	Senior Project Engineer
John Zheng, P.E.	Project Engineer
Joe El Harake, P.E.	Senior Traffic Manager
Neal Denno, P.E.	Project Manager/Traffic Engineer
Nasrin Behmanesh, Ph.D, P.E.	Principal Engineer, Air Quality Analysis and Noise Study
Richard Bottcher, P.E.	Senior Hydrologist, Floodplain Study
Ryan Hansen	Principal Planner, Water Quality Study
Jeffrey R Lormand	Registered Landscape Architect, Visual Impact Assessment
John Moeur, Ph.D.	Principal Biologist, Natural Environment Study
Michelle Wegener	Associate Environmental Planner, Community Impact Assessment
Angela Schnapp	Senior Environmental Planner, Hazardous Materials
Elizabeth Koos	Technical Editor/Document Editorial
Ron Carbon	Graphic Designer

ECORP Consulting, Inc.

Roger Mason, Ph.D. Cultural Resources Study

KEC Engineers, Inc.

Kavous Emami Principal Engineer/Utilities

Converse Consultants

William Chu, P.E., G.E. Principal Engineer/Geotechnical

5.0 DISTRIBUTION LIST

The following officials, agency representatives and interested parties have received either a copy of the draft environmental document or a notice informing them of its availability.

Elected Officials

Federal

Congressperson Lucille Roybal-Allard (District 33)

Congressperson Xavier Becerra (District 30)

Senator Barbara Boxer

Senator Diane Feinstein

State

State Senator Laura Richardson, District 55

State Assembly Member Jenny Oropeza, District 28

Local

Los Angeles County Supervisor Gloria Molina, District 1

Los Angeles County Supervisor Yvonne B. Burke, District 2

Los Angeles County Supervisor Zev Yaroslavsky, District 3

Los Angeles County Supervisor Don Knabe, District 4

Los Angeles County Supervisor Michael D. Antonovich, District 5

City of Carson

Councilman Mike A. Gibson

Councilman Elito M. Santarina

Councilman Harold C. Williams

Mayor Jim Dear

Mayor Pro Tempore Julie Ruiz-Raber

City Manager Jerome G. Groomes

City Clerk Helen S. Kawagoe

City of Los Angeles

Mayor Antonio Villaraigosa

Government Agencies

Federal

U.S. Fish & Wildlife Service

U.S. Army Corps of Engineers – Los Angeles District

U.S. Environmental Protection Agency Region 9

U.S. Federal Emergency Management Agency

U.S. Department of Transportation, Federal Highway Administration
U.S. Department of Energy
U.S. Department of Housing and Urban Development
U.S. Department of Interior
U.S. Department of Agriculture
U.S. Department of Commerce
Native American Tribal Councils

State

Office of Planning and Research, State Clearinghouse
Air Resources Board
California Department of Fish and Game
California Highway Patrol
California Resources Agency
California Regional Water Quality Control Board
California Department of Transportation, Headquarters
California Department of Transportation – District 7
California Transportation Commission
California Native American Heritage Commission
California Native Plant Society

Regional

Southern California Association of Governments
South Coast Air Quality Management District
South Bay Cities Council of Governments
South Bay of Economic Development Partnership, Inc
Sierra Club

Los Angeles County

County Clerk
County of Los Angeles Department of Regional Planning
County of Los Angeles Metropolitan Transportation Authority
County of Los Angeles Department of Public Works
County of Los Angeles Sanitation District
County of Los Angeles Fire Department
County of Los Angeles Sheriff Department
County of Los Angeles Public Library, Carson Branch

Local Jurisdictions

City of Carson

Housing and Neighborhood Development
Department of Transportation
Department of Developmental Services: Public Works, Planning,

Building Safety, Engineering, and Transportation
Planning Department
Economic Development Commission
Environmental Commission
Parks & Recreation Commission
Public Safety Commission
Public Works Commission
Planning Commission
Carson Community Development Center

Nearby Cities

City of Los Angeles Planning Department
City of Los Angeles Department of Transportation
City of Los Angeles Department of Public Works Bureau of Engineering
City of Torrance Community Development Department
City of Gardena Community Development Department
City of Signal Hill Community Development Department
City of Compton Planning Department
City of Long Beach Planning and Building Department

Other Interested and Potentially Affected Parties

Union Pacific Railroad
Golden State Water Company
West Basin Municipal Water District
Metropolitan Water – Palos Verde
Dominguez Water Company
Waste Management
Pacific Pipeline System Incorporated
Chevron
Mobile Oil
Shell Oil Pipeline-South
ConocoPhillips (TOSCO)
Powerline Oil Company
BP West Coast Products LLC
Southern California Gas Playa Del Rey-Transmission
Southern California Edison Distribution.
Southern California Gas Company
Kinder Morgan Energy Partners
Verizon Communications
SBC/Pacific Bell
MediaOne-Carson
AT&T
Air Products & Chemicals Incorporated
Praxair Incorporated

Los Angeles Unified School District
Del Amo Elementary School
Ayala Family Child Care
Intercoast Colleges
Carson Christian School
Preferred Training Center
Bonita Street Elementary School
Carson Montessori School

Native American Representatives Consulted

Anthony Morales, Gabrielino/Tongva Tribal Council
Robert Dorame, Gabrielino Tongva Indians of California Tribal Council
Sam Dunlap, Gabrielino Tongva Council/ Gabrielino Tongva Nation
Ron Andrade, Los Angeles City/County Native American Indian Commission
Cindi Alvitre, Ti'at Society
John Tommy Rosas, Tongva Ancestral Territorial Tribal Nation
Susan Frank, Gabrielino Band of Mission Indians of California
Mecedes Dorame
Gabrielino Tongva Indians of California Tribal Council

6.0 REFERENCES

- Caltrans 2003. Caltrans Storm Water Quality Handbook Construction Site Best Management Practices Manual. March.
- Caltrans. 2007. Caltrans Storm Water Quality Handbook Project Planning and Design Guide. May.
- CARB. 2007. *California Air Resources Board*. Web site: <http://www.arb.ca.gov/aqs/> (Revised February 22, 2007). Accessed May, 2007.
- City of Carson. 2007a. City of Carson General Plan. Accessed February 14, 2007, from the City of Carson Web site at: http://ci.carson.ca.us/content/department/dev_service/generalplan.asp
- . 2007b. City of Carson Major Businesses. Accessed February 19, 2007, from the City of Carson Web site at: <http://ci.carson.ca.us/content/department/majorbusiness.asp>
- . 2005. City of Carson Municipal Code Section 5502(c). (Website: <http://www.codepublishing.com/ca/Carson.html>.; Accessed April 2007)
- . 2002. City of Carson General Plan Environmental Impact Report, Volume II. October.
- Converse Consultant. 2007. Draft Foundation Study Report for I-405 at Wilmington Avenue Interchange Improvement Project, May
- ECORP. 2007a. Archaeological Survey Report for I-405 at Wilmington Avenue Interchange Improvement Project, March.
- . 2007b. Paleontology Study Report for I-405 at Wilmington Avenue Interchange Improvement Project, March.
- . 2007c. Historical Property Survey Report for I-405 at Wilmington Avenue Interchange Improvement Project, March.
- EPA. 2006. *United States Environmental Protection Agency*. Final Revisions to the National Ambient Air Quality Standards for Particulate Pollution (Particulate Matter). EPA Web site: <http://www.epa.gov/oar/particlepollution/naqsrev2006.html>
- MCE Group. 2003. Revised Initial Site Assessment Report for Preparation of Project Study Report for I-405/Wilmington Avenue Interchange and 223rd Avenue/Wilmington Avenue Intersection Improvements, City of Carson, January
- Parsons. 2007a. Traffic Study for I-405 at Wilmington Avenue Interchange Improvement Project, May.
- . 2007b. Air Quality Analysis for I-405 at Wilmington Avenue Interchange Improvement Project, August.

- . 2007c. Community Impact Assessment for I-405 at Wilmington Avenue Interchange Improvement Project, June.
 - . 2007d. Hydrology, Floodplain, Water Quality, and Stormwater Runoff Impact Analysis for I-405 at Wilmington Avenue Interchange Improvement Project, April.
 - . 2007e. Natural Environmental Study for I-405 at Wilmington Avenue Interchange Improvement Project, May.
 - . 2007f. Noise Study Report for I-405 at Wilmington Avenue Interchange Improvement Project, August.
 - . 2007g. Visual Impact Analysis for I-405 at Wilmington Avenue Interchange Improvement Project, April.
- Parsons. 2008. Stormwater Data Report for I-405 at Wilmington Avenue Interchange Improvement Project, January.
- U.S. Census. 2000. United States Census Bureau. The Decennial Census. Accessed February 14, 2007, from the U.S. Census Web site at: <http://factfinder.census.gov/home/saff/main.html?lang=en>

Appendix A
CEQA Checklist

Environmental Checklist

The Environmental Significance Checklist is used to identify physical, biological, social and economic factors which could potentially be impacted by a proposed action. In many cases, some of the above mentioned factors are not affected simply because of the nature of the action. In other cases, the technical studies performed to study certain factors which could potentially be affected by the proposed action clearly indicate that the action would pose no impact to those factors. In the Checklist, those factors are check marked “No Impact”. If further clarification is merited, the items will be immediately followed by a discussion.

In other cases, technical studies indicate that one or more of the above mentioned factors will be affected by the proposed action. In the Checklist, these factors are check-marked either:

- Less Than Significant Impact
- Less Than Significant With Mitigation
- Potentially Significant Impact

The factors checked below could be potentially affected by the proposed project:

<input checked="" type="checkbox"/> Aesthetics	<input type="checkbox"/> Agricultural Resources	<input checked="" type="checkbox"/> Air Quality
<input checked="" type="checkbox"/> Biological Resources	<input checked="" type="checkbox"/> Cultural Resources	<input checked="" type="checkbox"/> Geology / Soils
<input checked="" type="checkbox"/> Hazards & Hazardous Materials	<input checked="" type="checkbox"/> Hydrology / Water Quality	<input type="checkbox"/> Natural Resource
<input type="checkbox"/> Land Use / Planning	<input checked="" type="checkbox"/> Social and Economic	<input type="checkbox"/> Population / Housing
<input type="checkbox"/> Public Services	<input type="checkbox"/> Utilities / Service Systems	<input checked="" type="checkbox"/> Transportation / Traffic
<input checked="" type="checkbox"/> Noise	<input type="checkbox"/> Mandatory Findings of Significance	

1. AESTHETICS

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Affect any scenic resources including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway, or result in the obstruction of any scenic vista or view open to the public, or creation of an aesthetically offensive site open to public view?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Implementation of Alternative 1 would have a low level of visual impact to the project area. Many of the proposed improvements, including improved curb radii, replaced paving, signal improvements, and small roadway widening would not be perceivable by most of the traveling public. The widened cross section of Wilmington Avenue in the area of the Dominguez Channel would be more noticeable, but much of this would be a swapping of parking lot paving with roadway paving; therefore, changes to the existing visual environment would be very small.

Impacts associated with Alternative 2 are similar to Alternative 1. In addition, a new I-405 NB on-ramp would be constructed behind the Residential Landscape Unit. This would require removal of the existing vegetation and construction of soundwalls along I-405 and the ramp. Based on Caltrans' landscape setback requirements, there would not be sufficient room for new tree plantings within the remaining area between the soundwall and the residents' property wall; however, vine plantings on the soundwall could be used to soften the appearance and texture of the wall.

Removal of vegetation and the inclusion of soundwalls along the new I-405 NB on-ramp would result in a moderate impact to the visual environment. The impact would not be significant because property perimeter walls partially block views from the adjacent residences and there is a lack of windows on the freeway side of the homes, particularly within the second stories.

2. AGRICULTURAL RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of farmland to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Reduction in acreage of any agricultural crop or commercial timber stands, or affects prime, unique, or other farmland of State or local importance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site is located in a highly developed, urban area of the City of Carson with no farmland or agricultural resources within the project area and vicinity. No impacts to agricultural resources would occur.

3. AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Violate any air quality standard?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in changes in air movement, moisture, or temperature, or any climatic conditions?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Result in an increase in air pollutant emissions, adverse effects on or deterioration of ambient air quality?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Results in the creation of objectionable odors?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project is located in the SCAB, which is designated as a nonattainment area for O₃, CO, PM₁₀, and PM_{2.5}. Areas designated as nonattainment are required to develop attainment plans to meet state and federal goals for air quality. The 2006 RTIP and the 2004 RTP, prepared by the SCAG, are the current attainment plans for the SCAB region. Projects listed in the current attainment plans (i.e., RTIP and RTP) are by definition considered consistent with the SIP; therefore, they meet conformity requirements of the CAA. The proposed project is listed in the final 2006 RTIP and 2004 RTP; thus, the project is considered to meet the CAA requirements and is in conformity with the SIP. The proposed project would not conflict with or obstruct implementation of the SIP; therefore, there is no impact to the applicable air quality plan.

During project construction, there would be the potential for air pollutant emissions to be provided in quantities that would exceed the current air quality standards. However, implementation of the project would have the potential to improve local air quality within the project area. The results of air quality analysis are summarized below.

Sensitive land uses in the project vicinity include one- and two-story detached residences that are located northwest of I-405 / Wilmington Avenue interchange. The closest residences are located approximately 65 feet from the I-405 northbound shoulder. Other potentially sensitive uses in the more distant area include schools, religious institutions, and hospitals. The closest schools to the project site are the Carnegie Middle School and Bonita Elementary School, which are located approximately 0.7-mile and 0.75-mile west of the project western limit, respectively. The nearest hospital is the Carson Artificial Kidney Center, which is located approximately 0.5-mile north of I-405. Several churches exist within a 1-mile distance from I-405/Wilmington Avenue interchange.

As discussed earlier, during construction, air quality significance thresholds would potentially be exceeded even with mitigation incorporated. This will result in short term potentially significant impacts to sensitive receptors during construction. However, air quality impacts would decrease in significance once the project becomes operational. This would result in a beneficial result for sensitive receptors.

The proposed project would improve traffic flow and safety conditions at the interchange. No objectionable odors are expected to be created as a result of implementing the proposed project. No impacts from odor would occur.

4. BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Have substantial adverse effects, either directly or through habitat modifications, on any species identified as a candidate, sensitive or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Have a substantial adverse effect on any wetlands, riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Change in the diversity of species, or numbers of any species of animals (birds, land animals including reptiles, fish and shellfish, benthic organisms, insects or micro fauna)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Introduction of new species of plants into an area, or result in a barrier to the normal replenishment of existing species?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Introduction of new species of animals into an area, or result in a barrier to the migration of movement of animals?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Removal or deterioration of existing fish or wildlife habitat?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Conflict with any applicable habitat conservation plan, natural community conservation plan or other approved local, regional or state habitat plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project area is situated in a highly urbanized area in the City of Carson, outside the vicinity of any natural drainages, streams, or creeks. No sign of any listed species was observed anywhere within the biological area of potential effect. Similarly, designated critical habitat essential

to the life history of any listed species does not encompass any lands anywhere near the project area. Lastly, the project study area is commercial and residential in character, and no remnant of any of the native ecological communities remains anywhere near the interchange; therefore, no substantive consequences to any listed species or worthy community type are anticipated from the proposed interchange and roadway improvements.

The cottonwoods in the loop on the east side of Wilmington Avenue would not be disturbed since only minor changes to that on-ramp would occur within the existing graded shoulders. No roadway construction would occur inside the loop on-ramp. The existing landscaped area bounded by the loop-ramp could potentially be used to construct the storm water best management practices (BMPs) treatment structure. If the design of that structure requires removing the cottonwood trees (i.e., seven mature trees and four immature trees) from the interior of the loop, then the loss would be a temporary minor impact. After finishing this part of the project, land available within the loop could be replanted with cottonwoods in numbers commensurate with the removed trees and sustained by temporary irrigation until they become established. The replacement trees would constitute full mitigation for project effects inside this loop.

If the proposed new on-ramp across the north shoulder of I-405 were built, as much as 77,500 square feet (1.7 acres) of lands now planted to horticulturally convenient landscape species would be cleared. None of the plants presently growing on the slope have regional importance. They would be replaced with nursery stock at the completion of construction as space allows for decorative landscaping.

Implementation of either build alternative would not affect listed species or ecological communities at the interchange. No change of species composition or important habitat would result during the improvement construction, and once completed and in operation, the biotic character of the immediate vicinity would be similar to the existing conditions.

5. CULTURAL RESOURCES

Would the project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

The results of a historic architectural survey prepared for this project indicate that there are no buildings previously determined eligible for inclusion in the National Register of Historic Places

(NAHP), and none of the properties within the APE had been given formal local designations of historical significance for the purposes of Section 106 of the NHPA or the NEPA. The historic architectural survey identified several buildings within the architectural or indirect APE, all of which meet the criteria for the Caltrans Section 106 PA Attachment 4 (Properties Exempt From Evaluation). Therefore, no properties that meet the definition of a “historic property” in accordance with Section 106 or a “historic resource” in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, none of the properties are historical resources for the purposes of CEQA. No impacts to significant historical resources are anticipated.

The results of a records search of the South Central Coastal Information Center at California State University, Fullerton, revealed that no archaeological resources were recorded within the project APE. A field inspection was conducted, and confirmed that no prehistoric or historic archaeological sites were identified in the APE. Based on this, no archaeological impacts are anticipated and no further archaeological investigations are warranted. However, the presence of significant subsurface archaeological resources is always a possibility in areas where only surface inspection has taken place. If potentially significant archaeological resources (e.g., stone artifacts, dark ashy soils burned rocks, old glass, metal, or ceramic artifacts) are discovered during ground disturbances, work in that location would be diverted and a qualified archaeologist would be contacted immediately to evaluate the resource. The archaeologist may recommend further study to evaluate the resource for significance. This project design feature would reduce any potential for impacts to less than significant.

The results of the paleontological literature review indicate that substantive subsurface excavation within the boundaries of the project APE has the potential to expose significant nonrenewable paleontological resources. Vertebrate fossils have been encountered within the Older Quaternary Alluvium at depths ranging from 10 to 30 feet below the surface in the vicinity of the proposed project area. Ground disturbance is anticipated within the Older Quaternary Alluvium. Therefore, a qualified vertebrate paleontologist is required to develop a monitoring program to mitigate the impacts to nonrenewable paleontological resources. The monitoring program may include monitoring of initial grading activities, as well as recovery, preparation (to a point of identification), cataloguing, and curation of fossil materials. Also, a preconstruction meeting would be conducted in which the project paleontologist will explain the procedures necessary to protect and safely remove potentially significant fossil materials for study and curation. The methods employed during monitoring, and/or recovery of fossil specimens should be documented in a report of findings. Any fossils that are collected should be inventoried and placed in an accredited scientific institution for curation. These measures would reduce any potential impacts to significant nonrenewable paleontological resources to less than significant.

Historic records do not indicate the presence of cemeteries or Native American burial grounds within the proposed project area. The project site has been previously disturbed by construction of the existing freeway, buildings, pavement, and landscaping. Therefore, it is not expected that project implementation would disturb any human remains. However, this does not preclude the possibility that subsurface cultural deposits, including human remains, may be present within the project area. Grading or excavation activities could impact undiscovered resources such as human remains. It is Caltrans’ policy to stop work until a qualified archaeologist can evaluate the nature and significance of the find. If human remains are found during ground disturbance, under state law the Los Angeles County Coroner’s office must be notified immediately and all activity in that area must cease until

appropriate measures have been implemented. If the Coroner determines that the remains are Native American, the NAHC must also be contacted. The NAHC will designate a Most Likely Descendent (MLD) who will make recommendations concerning the discovery. This impact would be considered less than significant with implementation of these measures.

6. GEOLOGY AND SOILS

Would the project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii. Seismic-related ground failures and hazards, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in or be affected by substantial soil erosion or siltation (whether by water or wind), or result in the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or offsite landslide, lateral spreading, subsidence, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks of life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Appreciably change the topography or ground surface relief features?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Destroy, cover, or modify any unique geologic or physical features?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site is situated in a seismically active region. As is the case for most areas of Southern California, ground-shaking resulting from earthquakes associated with nearby and more distant faults may occur at the project site. Secondary effects of seismic activity include surface fault rupture,

soil liquefaction, lateral spreading, landslides, earthquake-induced flooding, tsunamis, seiches, and volcanic eruption hazard. Site-specific potential for each of these seismic hazards is discussed in the IS/EA.

During construction, wind and water could result in erosion of exposed soils. However, compliance with National Pollutant Discharge Elimination System (NPDES) permit requirements for control of erosion and implementation of sediment control measures such as Best Management Practices would reduce potential impacts to the acceptable level. Thus, significant soil erosion and loss of topsoil during construction is not anticipated. Once completed, the proposed project would result in a slight increase in paved area, and therefore would not contribute to soil erosion or the loss of topsoil.

Because of the geological conditions occurring in the proposed project study area, there would be no increased risk of exposure to unstable or expansive soils or geologic units. There would be no increased risks of landslides, lateral spreading, or collapse. The project would not substantially change the topography, or destroy any unique geologic or physical features.

7. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Violate any published Federal, State, or local standards pertaining to hazardous waste, solid waste or litter control?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

An ISA conducted for the project site concluded that hazardous waste contamination within the proposed project area may be found (MCE, 2003). Therefore, as part of the Project Report and Environmental Document preparation, a subsurface investigation is being conducted by Converse Consultants to evaluate the potential existence of soil contamination caused by past and present land uses.

The findings of the site investigation will be used to determine the proper soil handling and disposal methods during the project construction. Since the volume of disturbed soil is expected to be low, a practical and cost effective means of remediation in this area is excavation and disposal. Specifications for the health and safety of the workers, as well as that of the public, will be addressed when handling/disposing of the contaminated soil. Reuse of the contaminated soil within the Caltrans ROW will be considered, subject to the stipulations imposed by the Department of Toxic and Substance Control (DTSC). Litter and solid waste will be handled and disposed of as outlined in the Avoidance and Minimization measures described below.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
b) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

c) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident/non-accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Involve a substantial risk of an explosion or in any way affect overall public safety?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project itself would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous material, or increase the risk of an explosion or the release of hazardous substances into the environment or adversely affect overall public safety. However, this type of hazard could occur from other sources in the project area since most of the land uses are commercial and industrial dominated. Implementation of the project would alleviate traffic congestion and conflicting movement at the I-405 and Wilmington Avenue interchange, thus minimizing the potential for traffic hazards.

8. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Violate or be inconsistent with Federal, State or local water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or offsite?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Would the project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
g) Modify the channel of a river or stream or the bed of the ocean or any bay, inlet or lake?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Encroach upon a floodplain or result in or be affected by floodwaters or tidal waves?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Adversely affect the quantity or quality of surface water, groundwater, or public water supply?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Result in the use of water in large amounts or in a wasteful manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
k) Affect wild or scenic rivers or natural landmarks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
l) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
m) Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
n) Expose people or structures to inundation by Seishi, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project would not create or contribute runoff that would exceed the capacity of the existing storm water drainage system, or provide substantial additional sources of polluted runoff that would violate or be inconsistent with any federal, State or local water quality standards. The proposed project would not substantially alter the existing drainage pattern and would not substantially deplete groundwater supplies or interfere with groundwater recharge. The proposed project will place piles in the Dominguez Channel; however, through the hydrologic analysis performed as part of the Hydrology, Floodplain, Water Quality, and Stormwater Runoff Impact Analysis (Parsons 2007d), it has been determined that this would not substantially impede or redirect the flow, or exceed the capacity of the channel.

The proposed project will encroach upon a floodplain; however, flooding in this area is typically confined to the Dominguez Channel, and structures that will be utilized to facilitate bridge widening are designed to be placed in the flow line. This would not result in the exposure of people or structures to a significant risk of loss, injury, or death involving flooding.

Short-term water quality impacts would occur during construction of the proposed project; however, with the implementation of Construction Site BMPs, no adverse impacts to water quality from construction are anticipated. Since Treatment BMPs (Media Filter) designed to remove pollutants from runoff are proposed with this project, no adverse impacts to water quality from operations are anticipated.

9. NATURAL RESOURCES

Would the Project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Result in the increased use of fuel or energy in large amounts or in a wasteful manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in an increase in the rate of use of any natural resource?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in the substantial depletion of any nonrenewable resource?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Result in the loss of availability of a known mineral resource or locally important mineral resource recovery site, that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project is located in a highly urbanized area of the City of Carson. No mineral resources that would be of value to the region or residents of the state have been identified in the vicinity of the project site. The State Department of Conservation does not designate the project site as a Significant Mineral Aggregate Resources Area; thus, no impacts resulting from the loss of mineral resources are anticipated.

During project construction fossil fuels would be consumed from construction equipment and worker vehicle operation. The increased fuel consumption would be temporary and would cease at the end of the construction activity.

Once the project is under operation, traffic flow within the project limits would be improved, resulting in some energy savings to the operating vehicles. No adverse impact would occur.

10. LAND USE AND PLANNING

Would the project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project is compatible with all existing land use and environmental plans and policies, and it would not require any modification or change to any existing zoning or land use.

The proposed project aims to enhance roadway capacity, reduce conflicting movements, and alleviate traffic congestion at the local intersections within Carson. The project is located within a highly developed area with a mix of land uses including industrial, commercial, and residential. Growth within the project area and vicinity is controlled by the City of Carson General Plan. The proposed improvements to the I-405/Wilmington Avenue interchange would accommodate planned growth and relieve congestion within the project locality. The project is consistent with adopted local plan.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
b) Cause disruption of orderly planned development?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Support large commercial or residential development?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be inconsistent with a Coastal Zone Management Plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project site is located in a highly developed area of Carson. Based on the City of Carson Web site, 11 major businesses are located within a 2.5-mile radius of the project site. Although no major new development within the immediate vicinity of the project site is expected, more car dealership development could be established along 223rd Street west of Wilmington Avenue since the City of Carson has designated 223rd Street, west of the Dominguez Channel, as “Auto Row.” Implementation of the proposed project would facilitate access to the planned “Auto Row” designation along 223rd Street. No other large commercial or residential developments are known to be planned within the vicinity of the project. Therefore, the proposed project does not support any planned large commercial or residential developments, other than the potential expansion of an already-designated land use.

The proposed project area is not located within the Coastal Zone.

11. SOCIAL AND ECONOMIC

Would the project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Affect life-styles, or neighborhood character or stability, or physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Implementation of either of the Build Alternatives would not result in any disconnection or division of any community or neighborhood area because they would improve existing facilities. The

proposed build alternatives would not eliminate any community service facilities currently existing within the neighboring area; therefore, there would be no impact to community cohesion because of the implementation of either project alternative.

The proposed project is not anticipated to affect life styles, neighborhood character or stability since it would improve an existing facility. The proposed project would not physically divide an established community or force the relocation of any residential properties. The project would enhance the existing facility by promoting safer and more efficient traffic circulation with easier access to various communities in the vicinity of the proposed project.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
b) Affect employment, industry or commerce, or require the displacement of businesses or farms?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Construction of Alternative 1 would require a full ROW acquisition of one parcel and partial acquisition of nine parcels; two additional partial ROW acquisitions would be required for Alternative 2. The full ROW acquisition would be required of Parcel #7315-008-902, which is located at the southeast corner of Wilmington Avenue and 223rd Street and is owned by Los Angeles County Flood Control District. However, no relocation of the existing industries or businesses would be required.

During project construction, a temporary closure of one driveway access point for the Chevron Gas Station (APN#: 7315-040-011), located at 22222 Wilmington Avenue, and the Shell Gas Station (APN#: 7315-040-001), located at 22232 Wilmington Avenue, would be required by both Alternatives 1 and 2. At least one driveway access point to both the Shell and Chevron gas stations would be maintained at all times during the construction period. No business closures would be required. No effect to employment either during construction or operation are anticipated.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
c) Affect property values or the local tax base?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed build alternatives would relieve traffic congestion and traffic movement conflicts at the I-405/Wilmington Avenue interchange, which would alleviate the loss of time and inconvenience for local businesses, commuters, and residents within the locality. The proposed build alternatives would not cause any business displacement or residential relocation, although minor ROW from some business properties would be required (see Table 16 for ROW requirements). Proposed Alternatives 1 and 2 would not result in a measurable effect on property tax or sales tax revenues within Carson.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
d) Affect any community facilities (including medical, educational, scientific, recreational, or religious institutions, ceremonial sites or sacred shrines)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Proposed Alternatives 1 and 2 would not result in any impacts to community service facilities, including health care and recreational facilities. No places of worship, childcare, or school facilities would be affected by either build alternative.

Alternatives 1 and 2 would not increase the need for emergency services or adversely affect implementation of performance objectives for police and fire protection. Law enforcement and fire protection emergency response services would likely benefit from improved traffic circulation that would result from project implementation.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
e) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Not applicable. The project setting is in a highly urbanized area in the City of Carson. There are no wildlands within or immediately adjacent to the proposed project site.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
f) Result in substantial impacts associated with construction activities (e.g., noise, dust, temporary drainage, traffic detours and temporary access, etc.)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Construction of the proposed project would take approximately two years to complete, the longest phase of which would be for the work at the bridge of approximately eight months. Construction activities would result in localized disruption to the surrounding communities and commuters. These impacts are typical for roadway improvement projects, and they are commonly experienced in dense urban settings such as the study area. The City of Carson would implement specific measures to minimize construction impacts on community functions and residential/business activities in the project area to a practicable level.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
g) Does the project have environmental effects that are individually limited, but cumulatively considerable?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Current projects in the planning process, including any Caltrans, City of Carsons, or County of Los Angeles projects, will be subject to separate environmental review, and will be required to develop traffic mitigation measures to reduce their respective impacts.

The cumulative impacts of the proposed project are limited to the construction activities (e.g., noise, dust, temporary drainage, and temporary access limitations, etc.) for the roadway improvements. These impacts can be minimized if simultaneous construction schedules can be avoided or minimized. Based on the known proposed schedules of these projects, it is likely that a number of them would be completed before the commencement of construction for the proposed project.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
h) Result in the use of any publicly owned land from a park, recreation area, or wildlife and waterfowl refuge?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project will not require the use of publicly owned land from a park, recreation area, or wildlife and waterfowl refuge. No impact would occur.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
i) Result in adverse affects to minorities, the elderly, the handicapped, transit dependent, or other specific interest groups.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Potential environmental justice impacts are defined as those adverse effects that would be predominantly borne by a minority population and/or low-income population or are greater in magnitude than the adverse effects that would be experienced by non-minority and/or non-low-income population.

Although the study census tracts covering the project area contain predominantly minority populations, they are representative of the larger population of Carson. Based on the census data (U.S. Census 2000), the study area population is not at the poverty level; therefore, it is not considered a low-income population. The environmental impacts that would occur because of Alternatives 1 and 2 would be typical for roadway improvement construction in an urban area, regardless of the demographic or socioeconomic characteristics of the community. Construction impacts to various environmental resources, such as air quality, noise, and public utilities, from

construction activities, would be temporary, and they would be avoided or minimized to the extent possible as mitigation for the proposed project. The proposed project would not disproportionately affect minority or low-income population compared to the larger population within Carson; therefore, the proposed project would not cause environmental justice impacts within the meaning of EO 12898.

The proposed project would require partial ROW acquisitions from five businesses and one full acquisition from the Los Angeles County Flood Control District. The other eight potentially affected properties have not been developed, and only partial acquisition would be required. No ROW acquisitions would be required of any residential units, public/community service facilities, parks, or schools.

The primary purpose of the project is to provide future congestion relief to improve traffic flow on the local transportation system. After project completion, Alternatives 1 and 2 would result in traffic and circulation benefits to all communities (i.e., both low- and high-income, and minority and majority populations) in the vicinity and to commuters from outside of the area.

Elderly, handicapped, transit-dependent, or other specific interest groups would not be adversely affected by the project, except possibly during construction due to increased traffic congestion, noise, dust, etc. These impacts will only be temporary in nature, and thus not considered to be significant. Please see checklist item (#11f) for a discussion of temporary construction related impacts as a result of proposed project.

Pedestrian access at the intersection would be affected temporarily during construction. Pedestrians would not be allowed in construction areas, and thus pedestrian traffic would be re-routed. Wheel chair accessible ramps will be maintained at each affected corner during and after construction of the proposed project. Furthermore, the Caltrans's design is in conformance with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) which require a minimum clearance width of at least 3 feet for an accessible route.

Since the proposed project has, as its purpose, the improvement of traffic flow and reduced conflicts, bus transit would benefit from the reduced congestion and travel times would be reduced.

12. POPULATION AND HOUSING

Would the project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension or roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

c) Affect existing housing, require the acquisition of residential improvements or the displacement of people or create a demand for additional housing?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
--	--------------------------	--------------------------	--------------------------	-------------------------------------

The proposed project aims to enhance roadway capacity, reduce conflicting movements, and alleviate traffic congestion at the local intersections within Carson. The project is located within a highly developed area with a mixed land use of industrial, commercial, and residential. Growth within the project area and vicinity is controlled by the City of Carson General Plan. The proposed improvements to the I-405/Wilmington Avenue interchange would accommodate growth and relieve congestion within the project locality. The project is not considered growth inducing and would not directly or indirectly contribute to population growth.

The proposed project would not require the acquisition or displacement of residents. Thus, the proposed project would not create a demand for additional housing.

13. PUBLIC SERVICES

Would the project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire and emergency protection and services?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Police protection and services?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Other public facilities or services?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Does the project include recreational facilities or require the construction or expansion of recreational facilities that might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Proposed Alternatives 1 and 2 would not result in impacts to community service facilities, including health care and recreational facilities. No places of worship, child care, or school facilities would be affected by either build alternative. A TMP would be developed prior to construction in order to minimize these traffic impacts. The potentially affected agencies, as well as all applicable public safety personnel of the City of Carson, would be notified of the proposed project, and their input would be incorporated into the TMP to avoid any unacceptable response time issues that would endanger the public.

The proposed project does not include new residential, commercial, or industrial development or other such uses. Thus the proposed project would not increase the need for additional fire protection, law enforcement services, public utilities, or result in increases in student enrollment at nearby schools.

The proposed project would not induce a population increase in the area, nor would it include new residential, commercial, or industrial development or uses. Thus, the proposed project would not increase the demand or use of existing parks and other facilities in the area.

14. UTILITIES AND SERVICE SYSTEMS

Would the project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Result in a determination by the wastewater treatment provider that services or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project does not include the construction of any new developments that would generate wastewater, solid waste, or increase the demand for water supplies. The proposed project would not significantly increase impervious surface areas that would generate higher amounts of storm water runoff (Parsons, 2007g). Please see checklist item (#7) for a discussion of hazardous materials and their disposal during project construction.

15. TRANSPORTATION/TRAFFIC

Would the project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity (V/C) ratio on roads, or congestion at intersections)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project is an operational improvement project and as such is not forecast to increase traffic volumes. A traffic study was conducted to study traffic conditions with implementation of the proposed build alternatives. Based on the new lane configurations, the proposed project would increase the capacity of the intersections along Wilmington Avenue and thereby reduce V/C ratios (or associated LOS).

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
d) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

As discussed in checklist item (#13), there could be temporary construction impacts affecting governmental facilities, public services/utilities, fire protection agencies, law enforcement agencies, and emergency services. A TMP would be developed prior to construction in order to minimize these traffic impacts. Implementation of the proposed project would enhance emergency access through the reduction of congestion along Wilmington Avenue and at freeway access points.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
e) Result in alterations to waterborne, rail or air traffic? Result in a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There is a railroad crossing of Wilmington Avenue within the project area. No changes to that crossing are proposed. No changes in safety risks are anticipated.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
f) Result in inadequate parking capacity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Affect or be affected by existing parking facilities or result in demand of new parking?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Land potentially to be acquired from the Shell gasoline station (APN 7315-040-001) on the west side of Wilmington Avenue north of 223rd Street will result in the potential loss of up to four parking stalls. A mini-market with Subway sandwich shop is located on the site. The two existing stalls closest to Wilmington Avenue along the northern edge of the site will potentially be removed. Additionally, two stalls in the southwest corner of the site will potentially be removed. With redesign of the parking layout, the four stalls potentially removed can be recovered. Currently there are five stalls along the north edge of the site and two stalls located in the southwest corner of the site. With redesign four stalls can be located along the north edge of the site and at least three could be located in the southwest corner of the site. This would restore the number of current parking stalls on the site.

No parking facilities, other than at the Shell gasoline station as noted above, are affected by the proposed project. Parking is not currently permitted along Wilmington Avenue within the project limits and this will not be changed by the proposed project. The project is limited to roadway improvements and would therefore not result in any increase in demand for parking.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
h) Have substantial impact on existing transportation systems or alter present patterns of circulation or movement of people and/or goods?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project would improve traffic conditions. It is anticipated that the proposed project would improve circulation of vehicles on roadways within the project limits. Circulation would be altered by the implementation of a ramp from SB Wilmington Avenue to NB I-405. Vehicles will enter the ramp by turning right off of Wilmington Avenue. Currently, SB traffic on Wilmington

Avenue must turn left to access I-405 NB. The proposed project would improve the LOS at the intersection in the project area, and would result in some travel time savings as demonstrated in Answer to Checklist #15 a-c above.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
i) Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

A Class I bikeway along Dominguez Channel is shown in the current Transportation/Circulation Element of the Carson General Plan. The bikeway does not currently exist. The proposed project would potentially widen existing bridges over the channel but, since the bikeway does not currently exist, no impacts are expected as a result of the proposed project.

The only transit service within the proposed project limits is provided by the Carson Circuit Transit System. The current map of shuttle bus Route F shows a major stop at the intersection of Wilmington Avenue and 223rd Street. That stop is located on 223rd Street west of the bridge over the Dominguez Channel. There is another stop on 220th Street west of Wilmington Avenue. No shelter or other fixed transit facility (except for signs designating stop locations which are mounted on signposts primarily for other signs) currently exists within the proposed project limits, so no impacts are expected as a result of the proposed project.

16. NOISE

Would the project:	Potentially significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Exposure of persons to excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Construction Phase

During construction of the project, noise from construction activities may intermittently dominate the noise environment in the immediate surrounding area. Construction noise impacts are addressed in Section 2.10 of this IS/EA document.

Operation Noise

The land use within the project limits is comprised of residences, commercial, and industrial developments. FHWA regulations (23CFR772) and the Traffic Noise Analysis Protocol (TNAP) state that noise abatement is only considered where noise impacts are predicted and only where frequent human use occurs, and where a lowered noise level would be of benefit. Noise impact analysis was conducted and the results are presented in Section 2.10 of this IS/EA document.

Vibration during Implementation

During project operation vibration from traffic operations would occur; however, based on field experience, it is not anticipated to be higher than the current level generated by the I-405 freeway. The new NB I-405 on-ramp would be designed to meet or exceeded Caltrans highway standards for industrial area (not residential area) with the predicted traffic volumes and type of vehicles it carries. Therefore, a significant increase in vibration effect is not anticipated.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project is not located within an airport land use or private air strip. No impact would occur.

17. MANDATORY FINDINGS OF SIGNIFICANCE

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

As discussed in checklist item (#4), the proposed project area is situated in a highly urbanized area in the City of Carson, outside the vicinity of any natural drainages, streams, or creeks. Dominguez Chanel is a manmade flood control channel. The proposed project area was deemed absent of any native vegetation, and absent of any as sensitive, threatened, endangered, and proposed plant and animal species habitat, aquatic or terrestrial. The proposed project would not adversely affect wetlands, wildlife corridors, species diversity, or impede any habitat conservation efforts.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
b) Does the project have environmental effects that are individually limited, but cumulatively considerable? Cumulatively considerable means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects probable future projects. It includes the effects of other projects that interact with this project and, together, are considerable.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

As discussed in checklist item (#11g), current projects in the planning process, including Caltrans, City of Carson, or County of Los Angeles projects, will be subject to their own environmental review, and will be required to develop traffic mitigation measures to reduce their respective impacts.

The cumulative impacts of this proposed project will be limited to the construction activities (e.g., noise, dust, temporary drainage, and temporary access, etc.) for this roadway improvement. These impacts can be minimized if simultaneous construction schedules can be avoided.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

As analyzed and discussed in checklist items (#1-16), the proposed project will not pose significantly adverse effects on human beings either directly or indirectly.

Would the Project:	Potentially Significant Impact	Less Than Significant With Mitigation	Less Than Significant Impact	No Impact
d) Does the project have the potential to achieve short-term, to the disadvantage of long-term, environmental goals? (A short-term impact on the environment is one that occurs in a relatively brief, definitive period of time while long-term impacts will endure well into the future.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The proposed project does not have the potential to achieve short-term, to the disadvantage of long-term, environmental goals. On the contrary, the proposed project will improve traffic movement in the general vicinity, thereby lowering the concentration of pollutants emitted by motor vehicles.

The proposed intersection improvement project is a small, localized project that is intended to improve the existing traffic conditions in and around the project area, which is a long term benefit to the area residents and businesses as well as commuters using Wilmington Avenue and nearby local streets. The project is not anticipated to have the potential to significantly impact the region at large. The proposed project does not call to build anything new, or to physically expand or extend any roadways. Thus the proposed project will not induce or invite growth or development in or around the proposed project area.

Appendix B
Notice of Initiation of Studies (NOIS) and Newspaper
Advertisement for Open House



CITY OF CARSON

NOTICE OF INITIATION OF STUDIES & OPEN HOUSE

City of Carson, Los Angeles County, California

DATE: April 16, 2007

TO: Responsible Agencies, Review Agencies
Trustee Agencies, and Individuals interested
In the Project

FROM: City of Carson
701 East Carson Street
Carson, CA 90745

SUBJECT: Interstate 405 (I-405)/Wilmington Avenue Interchange Improvement in Los Angeles County Notice of Initiation of Studies

This Notice of Initiation of Studies is to inform you that the City of Carson in cooperation with the California Department of Transportation (Caltrans) District 7, proposes the construction of roadway improvements along I-405/Wilmington Avenue interchange in the City of Carson. The limits of this project on Wilmington Avenue extend from the 220th intersection on the northernmost end to the 223rd Street intersection on the southernmost end, and on I-405 from approximately 1,000 feet east of Wilmington Avenue to the area where I-405 intersects the Dominguez Channel on the westernmost end, as depicted in Figure 1.

The proposed project would involve widening of Wilmington Avenue and 223rd Street; adding a new northbound (NB) on-ramp to I-405; and widening the existing southbound (SB) on- and off-ramps of the I-405 at the Wilmington Avenue interchange. These improvements are needed to alleviate traffic congestion that occurs on Wilmington Avenue, on the ramps, and at the Wilmington Avenue/223rd Street intersection. The viable alternatives considered for the proposed improvements include (1) widening the existing on- and off-ramps and modifying Wilmington Avenue and 223rd Street, and (2) similar to Alternative 1, plus addition of a new NB on-ramp to I-405. The proposed improvements under each alternative considered are depicted in Figure 2.

Caltrans is the California Environmental Quality Act (CEQA) lead agency and acts as a liaison on behalf of the Federal Highway Administration (FHWA), the federal lead agency, pursuant to the National Environmental Policy Act (NEPA). A combined Initial Study (IS)/Environmental Assessment (EA) will be prepared for the project, pursuant to CEQA and NEPA, respectively. Your participation as an interested party is requested in the preparation and review of this document.

This notice is to inform you that the environmental document will analyze factors that include, but are not limited to, the following: aesthetics; air quality; biological resources; community impacts, cultural resources; hazardous wastes and materials; hydrology, water quality, and floodplain; land use planning; noise; and transportation/traffic.

We welcome your input on this project. Please provide any comments or suggestions that you may have concerning alternatives to be studied or potential social, economic, or environmental impacts resulting from this project. To provide you with more information and assist your review of this proposed project, the City of Carson and Caltrans will be holding an Open House on May 3, 2007 from 6:00 pm to 8:00 pm at the Carson Community Center Room 132A & B, located at 801 E. Carson Street, Carson, CA 90745.

Submit your comments, questions, and contact information by **May 15, 2007**. Comments may be submitted by mail to Mr. Massoud Ghiam, P. E., Senior Civil Engineer for the City of Carson, or in person at 701 East Carson Street, Carson, CA 90745.

If you have any questions please contact Mr. Massoud Ghiam at (310) 952-1700 Ext. 1812 (e-mail: Mghiam@carson.ca.us).

The City of Carson is looking forward to your ongoing participation on this project.

Sincerely,

M. Victor Rollinger
Development Services General Manager

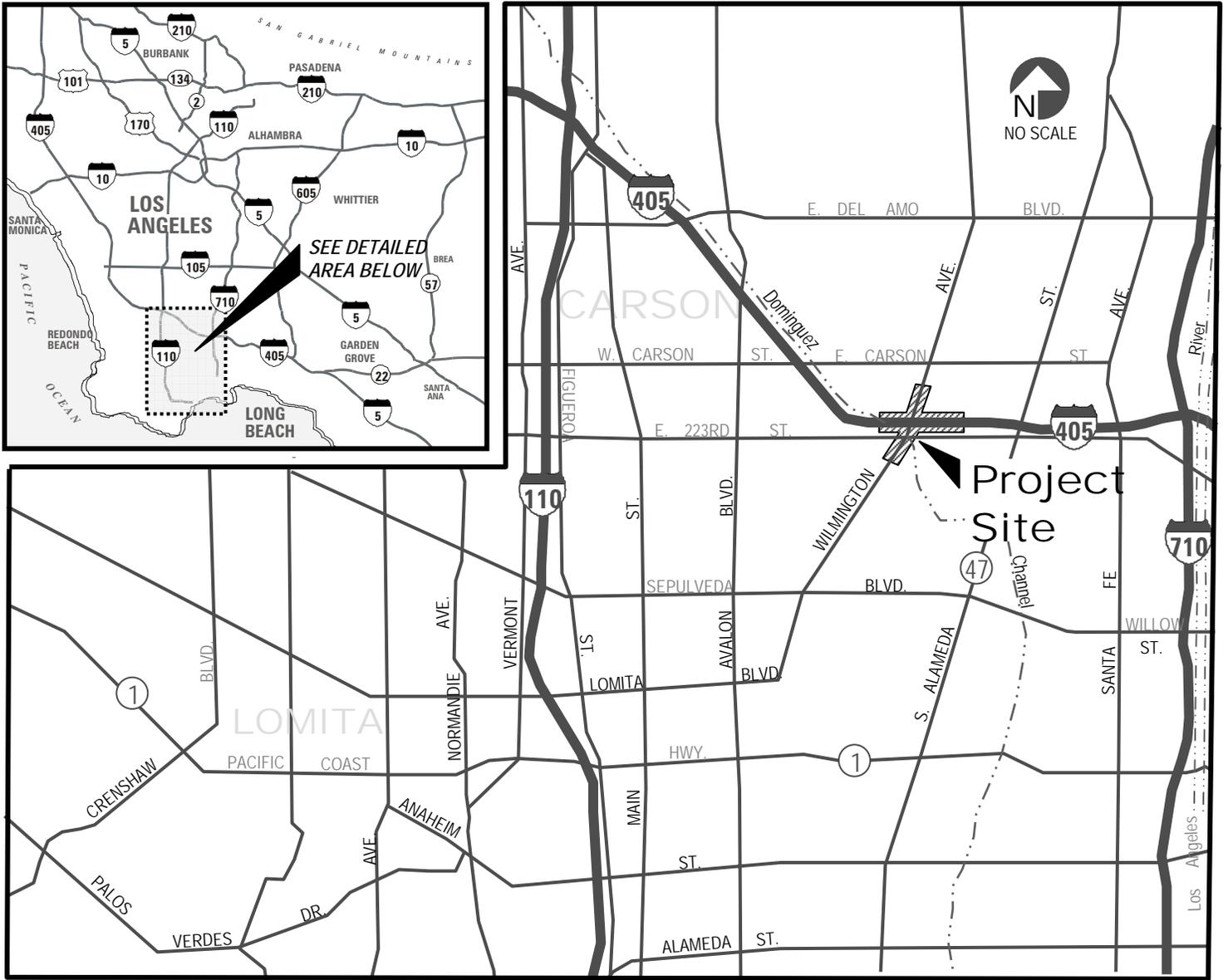
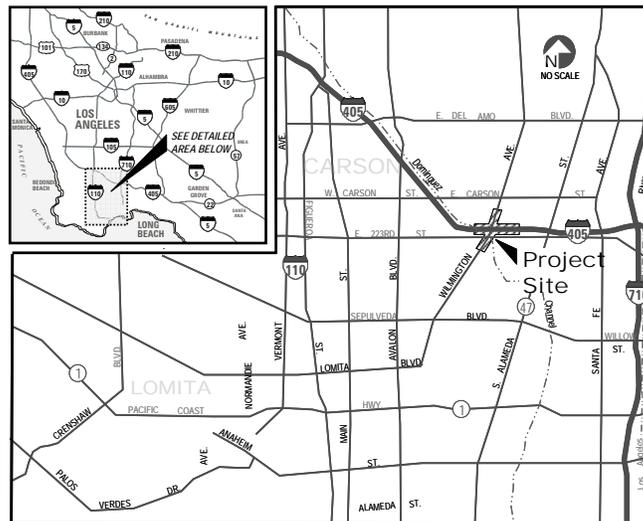


Figure 1 Location and Vicinity Map

PUBLIC NOTICE

Interstate 405 (I-405)/Wilmington Avenue Interchange Improvement Notice of Scoping Meeting/Open House



WHAT'S BEING PLANNED?

The City of Carson in cooperation with the California Department of Transportation (Caltrans) District 7, proposes the construction of roadway improvements along I-405/Wilmington Avenue interchange in the City of Carson. The proposed project would involve widening of Wilmington Avenue and 223rd Street; adding a new northbound on-ramp to I-405; and widening the existing southbound on- and off-ramps of the I-405 at the Wilmington Avenue interchange. These improvements are needed to alleviate traffic congestion that occurs on Wilmington Avenue, on the ramps, and at the Wilmington Avenue/223rd Street intersection. The viable alternatives considered for the proposed improvements include (1) widening the existing on- and off-ramps and modifying Wilmington Avenue and 223rd Street, and (2) similar to Alternative 1, plus addition of a new northbound on-ramp to I-405.

WHY THIS NOTICE?

The City of Carson and Caltrans are currently studying the effect these proposed alternatives may have on the environment culminating in preparation for the Initial Study/Environmental Assessment report. This Public Meeting/Open House will provide the opportunity to make comments, provide information and express concerns regarding the proposed environmental study.

WHAT'S AVAILABLE?

Preliminary site plans of the proposed improvement alternatives, project schedule, and other information will be available at this public meeting. The staff of City of Carson, Caltrans, and consultants will be available to answer your questions.

WHERE YOU COME IN?

If you would like to comment on the project, you may attend this meeting and/or submit written comment to Eduardo Aguilar, Senior Environmental Planner, Caltrans District 7, 100 Main Street, Los Angeles, CA 90012; or to Massoud Ghiam, P. E., Senior Civil Engineer, City of Carson, 701 East Carson Street, Carson, CA 90749.

WHEN AND WHERE?

The public hearing/Open House will be held on May 3, 2007 from 6:00 p.m. to 8:00 p.m. at the Carson Community Center Room 132A & B, located at 801 E. Carson Street, Carson, CA 90745. A brief, formal presentation will be made at 7:00 p.m.

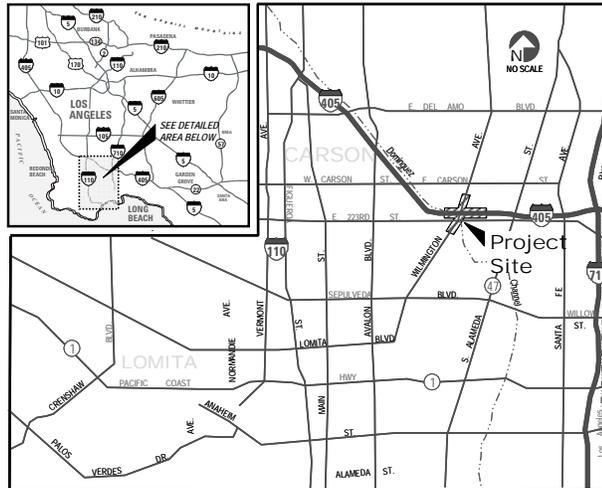
CONTACT:

For more information about this study or any other transportation matter, contact Mr. Massoud Ghiam, P.E., Senior Civil Engineer, City of Carson at (310) 952-1700 Ext. 1812 (e-mail: Mghiam@carson.ca.us).

AVISO DE AUDIENCIA PÚBLICA

Mejoras en el cruce de la Interestatal 405 (I-405)/Avenida Wilmington

Aviso de reunión de determinación de alcance /reunión abierta



¿CUÁL ES EL PLAN?

La Municipalidad de Carson, en cooperación con el Distrito 7 del Departamento de Transporte Público de California (Caltrans), propone la construcción de mejoras viales en el cruce de I-405/Avenida Wilmington, en la ciudad de Carson. El proyecto presentado comprendería el ensanche de la avenida Wilmington y de la calle 223ra, el agregado de una nueva rampa de entrada a la I-405 hacia el Norte; y el ensanche de las rampas de entrada y salida a la I-405 ya existentes hacia el Sur en el cruce con la Avenida Wilmington. Estas mejoras son necesarias para aliviar la congestión de tránsito que se produce en la avenida Wilmington, en las rampas y en el cruce de la avenida Wilmington y la calle 223ra. Las alternativas viables consideradas para las mejoras propuestas incluyen (1) ensanche de las rampas de entrada y salida ya existentes y la modificación de la avenida Wilmington y de la calle 223ra., y (2) similar a la alternativa 1, con el agregado de una nueva rampa de entrada a la I-405 en dirección al Norte.

¿CUÁL ES EL MOTIVO DE ESTE AVISO?

En la actualidad, la Municipalidad de Carson y Caltrans están estudiando el efecto que estas alternativas propuestas podrían tener sobre el medio ambiente para el Estudio Inicial/Informe de Evaluación Medioambiental. Esta audiencia pública/reunión abierta brindará la oportunidad de hacer comentarios, proporcionar información y expresar inquietudes en relación con el estudio ambiental propuesto.

¿DE QUÉ DISPONEMOS?

En esta reunión se pondrán a disposición del público los planos preliminares de las alternativas de mejoras propuestas, el calendario del proyecto e información adicional. También se encontrará presente el personal de la Municipalidad de Carson y de Caltrans, y consultores para responder a sus preguntas.

¿CÓMO PUEDE PARTICIPAR?

Si usted quisiera hacer comentarios sobre el proyecto, puede asistir a esta reunión y/o presentar sus comentarios por escrito a Eduardo Aguilar, Senior Environmental Planner (Planificador Ambiental en Jefe), Caltrans Distrito 7, 100 Main Street, Los Angeles, CA 90012; ó a Massoud Ghiam, I. P. (ingeniero profesional), Senior Civil Engineer (Ingeniero Civil en Jefe), Municipalidad de Carson, 701 East Carson Street, Carson, CA 90749.

¿CUÁNDO Y DÓNDE?

La audiencia pública/reunión abierta se llevará a cabo el 3 de mayo de 2007 de 6:00 p.m. a 8:00 p.m. en el Centro Comunitario de Carson, salas 132 A y B, ubicado en 801 E. Carson Street, Carson, CA 90745. A las 7:00 p.m. se realizará una breve presentación formal.

CONTACTO:

Para mayor información sobre este estudio o cualquier otro asunto relacionado con el transporte público, comuníquese con el Sr. Massoud Ghiam, I. P. (ingeniero profesional), Ingeniero Civil en Jefe, Municipalidad de Carson, al (310) 952-1700, interno 1812 (correo electrónico: Mghiam@carson.ca.us).

Appendix C
Open House Meeting Notes and Comments Received

**I-405/WILMINGTON INTERCHANGE IMPROVEMENT PROJECT
PUBLIC MEETING/OPEN HOUSE
THURSDAY, MAY 3, 2007, 6PM TO 8PM
CARSON COMMUNITY CENTER ROOM 132A&B
MEETING MINUTES**

OPEN HOUSE

An Open House was conducted from 6 p.m. to 7 p.m. During this time, members of the public were free to observe the poster boards describing facets of the project and to ask project members (both Parsons and City employees) questions concerning the project.

PUBLIC MEETING

During the Public Meeting, Massoud Ghiam, Senior Civil Engineer for the City of Carson, gave a brief introduction describing the purpose of the meeting, and background and overview of the project. He then introduced key members of the Parsons team and turned over the meeting to Carlos Cadena, Parsons Project Manager. Carlos spoke briefly about the project description, the proposed build alternatives, and the potential project impacts on the community. Carlos then introduced Anne Kochaon, Environmental Task Manager for the project. Anne briefly described the status of the environmental review process, and many of the technical studies that will be performed to determine the potential environmental impacts of the project. The floor was then open for questions and comments from meeting attendees.

DISCUSSION TOPICS

The following concerns and comments were raised and discussed during the question and answer session:

Public Comment	Team Response
Hours of construction – currently there is another Caltrans project in the area, which is creating a lot of noise in the middle of the night (2 a.m. until morning).	Hamid Toossi of Caltrans provided his contact information at the meeting and offered to inquire about the status of construction and to provide an update to anyone contacting him.
Concern was raised about traffic noise associated with the high volume of traffic on the third lane on Wilmington Avenue if the new on-ramp alternative were selected.	Noise studies are being conducted and a Noise Study Report will be prepared with recommendations required for mitigation.
There was a concern with property being taken to construct the soundwalls. As long as the soundwalls do not take any of their property, the residents do not have a concern with the soundwalls.	The soundwalls would be constructed within the State right-of-way and no right-of-way acquisition is required for the purpose of accommodating any soundwalls for this project.
There was a question concerning where the traffic will be re-routed to during construction. Some of the residents along nearby streets have had difficulty gaining access to the main roads because of traffic re-routing.	Roads will be open to traffic with some lane closures required for short periods of time. Traffic Handling Plans showing alternate routes during construction will be prepared for the final design phase of the project.

Public Comment	Team Response
A suggestion was made to have a “hotline” phone number for residents or concerned citizens to call and leave messages with their concerns while the project is under construction.	A “hotline” phone number would be provided during construction and this recommendation will be included in the Traffic Management Plan (TMP) to be prepared at a later date.
A number of residents working on a rotating schedule, and they would be disturbed by the construction noise. The residents asked if they would be provided with any special accommodations so they can get sleep while construction is going on.	The contractor will be required to meet City Noise ordinances. It is not anticipated sleeping accommodations would be provided during construction of the project.
A concern was raised about the sidewalk on the I-405 that had just been installed under the freeway on Wilmington Avenue, and now those same sidewalks would be removed to accommodate this project. The local residents don’t want to see this happen.	The sidewalk was constructed under the current Caltrans ramp improvement project. Replacement of the sidewalk is not expected to occur for at least another three years and is required to accommodate the widening on Wilmington Avenue.
A concern was raised about the engineering aspects of construction of the proposed northbound onramp and whether or not the ramp would be designed to minimize the vibration caused by heavy weight truck traffic.	The ramp structural section will be engineered using Caltrans' most rigorous standards. These standards are based on extensive engineering research and field experience including observation of performance throughout the state and the nation. As such damage to facilities due to vibration is not anticipated.
A concern was raised about the soundwalls being high enough to mitigate the heavy-duty truck traffic noise and exhaust.	Soundwalls would be constructed to the height required to intercept the line of sight from exhaust stack of trucks.
A concern was raised about air pollution associated with the perceived anticipated increase in traffic and traffic congestion.	This project is expected to provide congestion relief and consequently, a decrease in air pollution is normally experienced with the reduction of idling vehicles.
A suggestion was given by the resident living on along Wilmington Avenue near the I-405 NB off-ramp to extend the existing wall along the west side of Wilmington Avenue to help reduce noise and air pollution in the homes along Wilmington Avenue and to help protect those homes against traffic accidents involving traffic exiting I-405 at Wilmington Avenue.	Noise studies are being conducted to evaluate Project’s impact. Typically such evaluation is not performed on the arterial system. A Noise Study Report will be prepared with recommendations addressing required mitigation. Additionally, the proposed new N/B on-ramp will eliminate the conflicting left-turn movements from the S/B Wilmington Avenue to the N/B on-ramp. This, and other proposed operational improvements are expected to enhance the operational characteristics of the interchange and hence, improve overall safety.
A concern was raised about the open storm drain along the back of the properties along I-405 where the NB on-ramp construction is proposed. One of the residents suggested the storm drain be covered to prevent rodents and mosquito since the area will be enclosed by the existing property wall and the	Modifications to the existing open storm drain may be required to accommodate the proposed northbound on-ramp. Modifications will be considered during the final design phase of the project.

Public Comment	Team Response
new soundwall.	
A question was raised about whether or not an option of moving the on/off ramps to 220 th Street was considered.	This option was considered during the Project Study Report and it was eliminated from further consideration due to right-of-way and traffic circulation impacts.
A comment was raised about the noticed mailed to the residents that it looks like a mass-mailing material and did not catch the recipient's eyes.	In the future, the City's stationery will be used.

SUMMARY OF ATTENDEES

The Public Meeting/Open House was attended by 21 residents, four children, one Council Member, City Manager, two City of Carson employees, 1 Caltrans employee, and 5 Parsons employees. A sign-in sheet is attached for the record (not everyone present was signed in).



Sign-In Sheet



Interstate 405/Wilmington Avenue Interchange Improvement Project

Public Meeting / Open House

Thursday, May 3, 2007

Carson Community Center Room 132A & B

Name

Address

Telephone

Email

AGUCIA YOUNG RE: 22351 S. WILMINGTON (562) 345-9234 ayoung@amb.com
AMB PROPERTIES 21777 CENTER COURT DR #100
HAROLA NEUMANN CERRO, CA 90703

MARTIN NEUMANN 1601 E BACH ST

Thomas M-Castell 1618 E Bach St 310 599-1091

Redon & Margot Alcantara 1537 E. Bach St (310) 549-7666 DC2UDBASE@ADL.COM

Sonji Long & Pat Long 1721 E Bach St 310 5184330

Richard & Thelma Washington 1715 E. Bach St (310) 603-8953

STEVEN BARNHALL 2200 S. WILMINGTON 310.952.6434 STEVENBARNHALL@WATSONLANDCOMPANY.COM

BRISLINGTON BRANST 1726 E. ARLF ST CARSON CA (310) 877-7750

Honey & Alberta Roy 1636 Arli St. Carson, CA 90745

Al & Dorothy Wapner 1703 Arli St Carson, C.A. 90745

COMMENT CARD

Scoping Meeting

Notice of Initiation of Studies (NOIS)

Interstate 405/Wilmington Avenue Interchange
Improvement Project

May 3, 2007

Name: Al & Dorothy Wagner

Affiliation: Homeowner

Address: 1703 Abri St
Carson, CA 90745

Comments: we are fine with what
you are planning but we may
not live long enough to see it
completed. The way we see
it, congestion would improve
at 223rd & Wilmington by

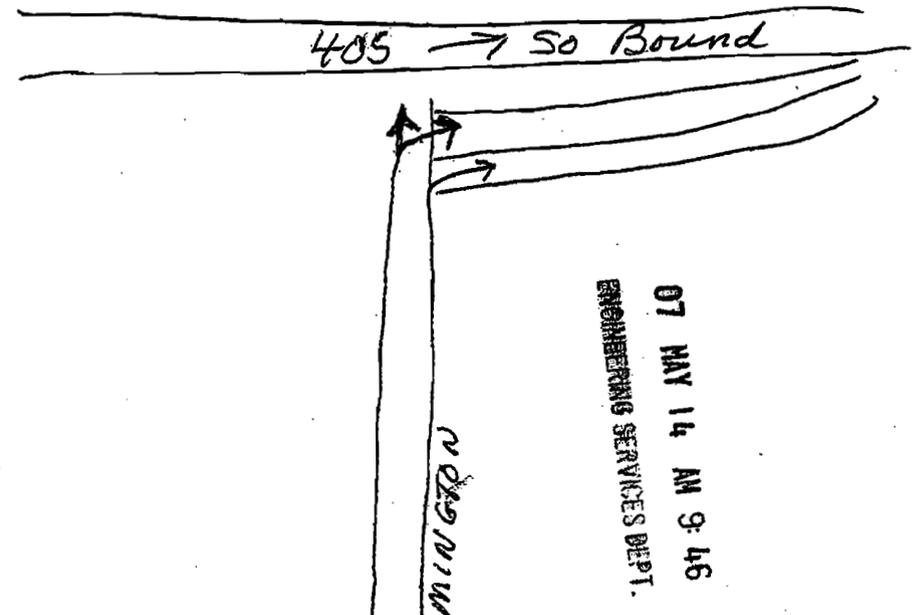
Written comments must be received no later than May 15, 2007 at the following address:

City of Carson
701 East Carson Street
Carson, CA 90749

Attn: Massoud Ghiam, P. E., Senior Civil Engineer
Telephone: (310) 952-1700 Ext. 1812

Simply making two lanes to
turn onto the 405 So. Bound
from N. bound Wilmington. The
big holdup are cars in the
middle lane trying to squeeze
into the right turn lane causing
the middle lane to bog down.

Just a suggestion!!



COMMENT CARD
Scoping Meeting
Notice of Initiation of Studies (NOIS)
Interstate 405/Wilmington Avenue Interchange
Improvement Project
May 3, 2007

Name: Harold Neumann

Affiliation: 1600 E BACH ST

Address: Carson Ca

1 90745-2523

Comments: THERE WAS A MEETING WITH THE
CITY OF CARSON COUNCIL MEMBER, CITY ENGINEERS AND
CAL TRANS WITH THE SUGGESTION OF A ALT
LOCATION, AT OR ABOUT WESTWARD + 220 TH ST
THIS IS VACANT UNUSED LAND. CALL FOR INFO

MY PHONE NUMBER IS 310-835-5198

Written comments must be received no later than May 15, 2007 at the following address:

City of Carson
701 East Carson Street
Carson, CA 90749
Attn: Massoud Ghiam, P. E., Senior Civil Engineer
Telephone: (310) 952-1700 Ext. 1812

COMMENT CARD
Scoping Meeting
Notice of Initiation of Studies (NOIS)
Interstate 405/Wilmington Avenue Interchange
Improvement Project
May 3, 2007

Name: Harold Neumann

Affiliation: Home Owner

Address: 1600 E BACH ST

2 Carson Ca 90745

Comments: How CLOSE will THE RETAINING
WALL AND SOUND WALL BE TO THE HOME
OWNERS PROPERTY LINE?

Written comments must be received no later than May 15, 2007 at the following address:

City of Carson
701 East Carson Street
Carson, CA 90749
Attn: Massoud Ghiam, P. E., Senior Civil Engineer
Telephone: (310) 952-1700 Ext. 1812

COMMENT CARD
Scoping Meeting
Notice of Initiation of Studies (NOIS)
Interstate 405/Wilmington Avenue Interchange
Improvement Project
May 3, 2007

Name: Harold Neumann

Affiliation: 1600 E BACH ST

Address: Carson Ca

3 90745-2523

Comments: IN THE YEAR TO COME "10-2007"

WHO WILL REPAIR THE DAMAGE HOMES CAUSED

BY THE VIBRATION? WHO WILL REPLACE OR

REPAIR THE BLOCK WALL FENCES?

Written comments must be received no later than May 15, 2007 at the following address:

City of Carson
701 East Carson Street
Carson, CA 90749
Attn: Massoud Ghiam, P. E., Senior Civil Engineer
Telephone: (310) 952-1700 Ext. 1812

COMMENT CARD
Scoping Meeting
Notice of Initiation of Studies (NOIS)
Interstate 405/Wilmington Avenue Interchange
Improvement Project
May 3, 2007

Name: Harold Neumann

Affiliation: 1600 E BACH ST

Address: Carson Ca

4 90745-2523

Comments: WHAT WILL BE DONE TO THE

FLOOD CONTROL WATERWAY TO KEEP THE WATER

FROM STANDING AT THE WEST END OF THE

WATERWAY FROM WILMINGTON AVE TO THE

DOMINGUEZ CHANNEL. WHO WILL SPRAY AND

MAINTAIN THE MISQUITTOS & ROAENTS & VAR MITS

Written comments must be received no later than May 15, 2007 at the following address:

City of Carson
701 East Carson Street
Carson, CA 90749
Attn: Massoud Ghiam, P. E., Senior Civil Engineer
Telephone: (310) 952-1700 Ext. 1812

COMMENT CARD
Scoping Meeting
Notice of Initiation of Studies (NOIS)
Interstate 405/Wilmington Avenue Interchange
Improvement Project
May 3, 2007

Name: Harold Neumann
Affiliation: Home Owner
Address: 1600 E. BACH ST
5 Carson Ca 90745
Comments: WILL THERE BE A SOUND WALL
ON THE NORTH BOUND RAMP.
WILL THERE BE A SOUND WALL ON THE
NORTH BOUND 405, FROM WILMINGTON AVE
TO START WHERE AND END WHERE?

Written comments must be received no later than May 15, 2007 at the following
address:
City of Carson
701 East Carson Street
Carson, CA 90749
Attn: Massoud Ghiam, P. E., Senior Civil Engineer
Telephone: (310) 952-1700 Ext. 1812

COMMENT CARD
Scoping Meeting
Notice of Initiation of Studies (NOIS)
Interstate 405/Wilmington Avenue Interchange
Improvement Project
May 3, 2007

Name: Harold Neumann
Affiliation: 1600 E BACH ST
Address: Carson Ca
6 90745-2523
Comments: HOW TALL "FEET" WILL THE
RETAINING WALL BE? WHERE IS THE
WALL TO START AND END "FROM EAST TO WEST"
ON THE NEW NORTH BOUND RAMP

Written comments must be received no later than May 15, 2007 at the following
address:
City of Carson
701 East Carson Street
Carson, CA 90749
Attn: Massoud Ghiam, P. E., Senior Civil Engineer
Telephone: (310) 952-1700 Ext. 1812

**I-405/WILMINGTON INTERCHANGE IMPROVEMENT PROJECT
RESPONSE TO WRITTEN COMMENT ON SCOPING/OPEN HOUSE MEETING**

Comment Party	Public Comment	Team Response
<p>Al & Dorothy Wagner 1703 Abri Street, Carson Comment Received May 14, 2007</p>	<p>We are fine with what you are planning but we mat not live long enough to see it completed. The way we see it, congestion would improve at 223 rd Street & Wilmington by simply making two lanes to turn onto the 405 Southbound from northbound Wilmington. The big holdup are cars in the middle lane trying to squeeze into the right turn lane causing the middle lane to lock down. Just a suggestion!!</p>	<p>The project is anticipated to be under construction by spring 2009 and would be completed in 2010.</p> <p>The project proposes two left turn lanes from southbound Wilmington Avenue to southbound I-405 as suggested in the comment.</p>
<p>Harold Neumann 1600 E. Bach Street, Carson</p>	<p>1. There was a meeting with the City of Carson Council Member, City Engineers and Caltrans with the suggestions of an alt. location, at or about Westward and 220th Street. This is vacant unused land. Call for info, my phone number is: 310-835-5198.</p>	<p>This option was considered during the Project Study Report and it was eliminated from further consideration due to right-of-way and traffic circulation impacts.</p>
	<p>2. How close will the retaining wall and sound wall be to the home owners' property line?</p>	<p>The minimum distance from the face of the wall to the property line is 28.3 feet.</p>
	<p>3. In the years to come "10-20 etc" who will repair the damaged homes caused by vibrations? Who will rplace or repair the block wall fences?</p>	<p>The ramp structural section will be engineered using Caltrans' most rigorous standards. These standards are based on extensive engineering research and field experience including observation of performance throughout the state and the nation. As such damage to facilities due to vibration is not anticipated.</p>
	<p>4. What will be done to the flood control waterway to keep the water from standing at the west end of the waterway from Wilmington Avenue to the Dominguez channel? Who will spray and maintain the mosquitoes and rodents and varmits?</p>	<p>Modifications to the existing open storm drain may be required to accommodate the proposed northbound on-ramp. Modifications will be considered during the final design phase of the project.</p>
	<p>5. Will there be a sound wall on the north bound ramp? Will there be a sound wall on the northbound</p>	<p>It is proposed to construct soundwalls on retaining walls along right edge of shoulder of the northbound I-405 and</p>

Comment Party	Public Comment	Team Response
	405, from Wilmington Ave to start where and end where?	the new northbound on-ramp. The wall along the freeway will start at about 140 feet west of the centerline of Wilmington Avenue. The end will be determined by our noise study.
	6. How tall "feet" will the retaining wall be? Where is the wall to start and end "from east to west" on the new northbound ramp?	The retaining wall along the new northbound on-ramp will be about 2 to 18 feet above the original ground. It starts at about 100 feet west of the centerline of Wilmington Avenue and ends at about 140 feet west of the northbound I-405 bridge over Dominguez Channel.
	7. What will the hours and days or nights be for the NB ramp construction. Starting what month and year to be completed by what date.	Some night work may be required for the widening of the northbound freeway bridge over Dominguez Channel to accommodate the new ramp. Construction of the ramp is anticipated to start by spring 2009 and would be completed by end of 2009.

Appendix D
Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
1120 N STREET
P. O. BOX 942873
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY (916) 653-4086



*Flex your power!
Be energy efficient!*

January 14, 2005

TITLE VI POLICY STATEMENT

The California Department of Transportation under Title VI of the Civil Rights Act of 1964 and related statutes, ensures that no person in the State of California shall, on the grounds of race, color, national origin, sex, disability, and age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity it administers.

A handwritten signature in black ink that reads "Will Kempton".

WILL KEMPTON
Director

Appendix E
Minimization and Mitigation Summary

Summary of Mitigation Measures

Environmental Category	Impact	Mitigation Measure
Community Impacts (including traffic and pedestrian use)	Construction impacts on businesses and the local community	<ul style="list-style-type: none"> • Develop a construction staging plan and TMP that identifies alternate detour routes, safe pedestrian routes, and residential and commercial access routes to be used during construction. • Notify area residents, businesses, and any service/utility providers about the project construction schedule. • Compensate property owners for the loss of land through the Caltrans ROW appraisal process. • Coordinate with UPRR
Visual and Aesthetics	Soundwall construction	<ul style="list-style-type: none"> • Maximize the use of landscape areas while following Caltrans standards. Reinforce a unified design theme compatible with the adjacent community.
Cultural Resources	Grading and excavation	<ul style="list-style-type: none"> • If buried cultural materials are encountered during construction, work in that area must halt until a qualified archaeologist can evaluate the significance of the find.
Hydrology/Water Quality/Stormwater	Construction in and over Dominguez Channel and potential for dewatering of contaminated groundwater	<ul style="list-style-type: none"> • The contractor shall develop a Storm Water Pollution Prevention Plan (SWPPP) and conform to the requirements of the Caltrans Standard Specifications to reduce impacts to water quality. The plan shall be approved by Caltrans prior to project construction and implementation. • Install a groundwater monitoring well to test soils and groundwater quality.
Geology and Soils	Potential seismic hazard	<ul style="list-style-type: none"> • Adhere to all applicable Caltrans seismic requirements.
Paleontology	Ground disturbance may impact nonrenewable paleontological resources	<ul style="list-style-type: none"> • Excavation into previously undisturbed older subsurface sediments should be monitored by a qualified paleontological monitor.
Hazardous Materials/Waste	Potential for encountering soil contamination, ADL in soil, or LBP coatings	<ul style="list-style-type: none"> • All contaminated soils shall be treated in conformance with the California DTSC regulations • Specifications for the removal of asbestos, suspected meals coated with lead-based paint, and other hazardous substances, if encountered during construction, shall be included in the project. • All litter and solid waste will be taken to an approved disposal facility.

Summary of Mitigation Measures

Environmental Category	Impact	Mitigation Measure
Air Quality	Particulate emissions from construction activities	<ul style="list-style-type: none"> • The project will be required to comply with regional SCAQMD rules, which would assist in reducing short-term air pollutant emissions. • Construction equipment shall be properly tuned and maintained in accordance with manufacturer's specifications. • During construction, trucks and vehicles in loading and unloading queues must be kept with their engines off when not in use to reduce vehicle emissions. • Construction emissions shall be phased and scheduled to avoid emissions peaks, where feasible, and discontinued during second-stage smog alerts
Noise	Elevated noise during construction and traffic noise during operation	<ul style="list-style-type: none"> • The City of Carson will notify the area businesses and residents of the construction schedule at least two weeks in advance of the construction and provide a telephone hotline for any complaints. • The construction schedule will be arranged so that the soundwalls would be completed before the NB on-ramp construction to minimize construction noise impacts to the residences north of I-405 from ramp construction. • All equipment shall have sound-control devices no less effective than those provided on the original equipment. No equipment shall have an unmuffled exhaust. • As directed by the Caltrans resident engineer, the contractor shall implement appropriate additional noise abatement measures.
Biological Resources	Tree removal impacts	<ul style="list-style-type: none"> • When trees are removed, they will be replaced with trees of comparable size and canopy quality to attract nesting birds. Ground preparation and removal of any or all those trees should occur between September 1st and February 1st to minimize the chance of disturbing nesting birds protected by the Migratory Bird Treaty Act of 1918. • If storm water BMPs are implemented at the interior of the NB loop-ramp area, the existing Cottonwood trees would be removed and replaced within the loop in commensurate numbers. Caltrans shall coordinate with the City of Carson to determine specific locations of replacement trees.

Appendix F
Acronyms and Abbreviations

ACRONYMS AND ABBREVIATIONS

AB	Assembly Bill
ARB	Air Resources Board
ADAAG	Americans with Disabilities Act Accessible Guidelines
AADT	average annual daily traffic
ADL	Aerially deposited Lead
ADT	average daily traffic
APCD	Air Pollution Control District
APE	area of potential effects
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
BMPs	Best Management Practices
BP	British Petroleum
bgs	below ground surface
CAA	Clean Air Act
CAAAAs	Clean Air Act Amendments
CAAQS	California ambient air quality standards
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	<i>Code of Federal Regulations</i>
CIA	Community Impact Assessment
CMP	Corrugated Metal Pipe
CNDDB	California Department of Fish and Game Natural Diversity Database
CO	carbon monoxide
CWA	Clean Water Act
CWC	Clean Water Code
dB	Decibel
dBA	A-weighted decibel
DDT	Dichloro-diphenyl-trichloroethane
DPM	Diesel Particulate Matter
DTSC	Department of Toxic Substances Control
EB	Eastbound
EIR	Environmental Impact Report
EIS	Environmental Impact Statement

EO	Executive Order
EPA	United States Environmental Protection Agency
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FONSI	Findings of No Significant Impact
FY	Fiscal Year
GHG	Greenhouse Gas
HAP	Hazardous Air Pollutant
HCM	Highway Capacity Manual
HOV	Heavily Occupancy Lane
HHS	Department of Health and Human Services
Hz	Hertz
I-405	Interstate 405
I-5	Interstate 5
IL	Insertion Loss
IPCC	Intergovernmental Panel of Climatic Change
ISA	Initial Site Assessment
IS/EA	Initial Study/Environmental Assessment
LACDPW	Los Angeles County Department of Public Works
LACFD	Los Angeles County Fire Department
LARWQCB	Los Angeles Regional Water Quality Control Board
LBP	Lead Based Paint
L_{eq}	equivalent sound level
L_{max}	maximum sound level
LOS	level of service
L_p	sound pressure level
LUST	Leading underground storage tank
L_x	percentile-exceeded sound level
M	Richter magnitude
mg/L	milligrams per liter
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
$\mu\text{N}/\text{m}^2$	Micro-Newton per square meter
MLD	Most Likely Descendant
MND	Mitigated Negative Declaration
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
msl	mean sea level
MTA	Metropolitan Transportation Authority
MW	Maximum moment magnitude
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criterion
NAHC	Native American Heritage Commission
NB	Northbound

NBSSR	Noise Barrier Scope Summary Report
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NOIS	Notice of Initiation of Studies
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
O ₃	ozone
OSHA	Office of Safety and Health Administration
PA	Programmatic Agreement
PAH	Polycyclic Aromatic Hydrocarbons
Pb	Lead
PM _{2.5}	particulate matter of less than 2.5 microns in diameter
PM ₁₀	particulate matter of less than 10 microns in diameter
ppm	parts per million
POAQC	Project of Air Quality Concern
PRC	Public Resources Code
RCP	Reinforced concrete pipe
ROW	right-of-way
RTIP (or TIP)	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SB	Southbound
SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SI	Site Investigation
SIP	State Implementation Plan
SFR	Single Family Residence
SO ₂	Sulfur dioxide
SR	State Route
SRA	Source Receptor Area
STIP	State Transportation Improvement Program
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Permit
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TASAS	Traffic Accident Surveillance and Analysis System
TCM	Transportation Control Measures
TeNS	<i>Technical Noise Supplement</i>
TMP	Traffic Management Plan
TNAP	Traffic Noise Analysis Protocol
TNM	Traffic Noise Model

TPH	Total Petroleum Hydrocarbon
TSAR	TASAS Selective Accident Retrieval
TTLIC	Total Threshold Limit Concentration
UPRR	Union Pacific Railroad
USACOE	United States Army Corps of Engineers
U.S.C.	United States Code
USGS	United States Geological Survey
UST	underground storage tank
V/C	volume to capacity ratio
Vhp/lane	Vehicle per hour per lane
VMT	vehicle miles traveled
VOC	Volatile organic compound