CHAPTER 5

CUMULATIVE IMPACTS

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5.0 CUMULATIVE IMPACTS

5.1 INTRODUCTION

CEQA Guidelines §15130(a) requires an EIR to discuss cumulative impacts of a project when the project's incremental effect is cumulatively considerable, as defined in §15065(a)(3). There are a number of projects proposed for development in the vicinity of the Refinery, which may contribute cumulative impacts to those generated by the proposed Safety, Compliance and Optimization Project. These include other refinery and industrial projects, the Alameda Corridor Transportation Authority projects, as well as projects planned in the City of Carson. Figure 5-1 shows the locations of the cumulative projects. The discussion below lists projects which are reasonably expected to proceed in the foreseeable future, i.e., project information has been submitted to a public agency. Cumulative construction impacts were evaluated herein if the major portion of construction is expected to occur during the same construction period as the BP Carson Refinery Safety, Compliance and Optimization Project.

Public agencies were contacted to obtain information on projects within the Carson area. Figure 5-1 identifies by number the location of each of the projects discussed below. The numbers are used to identify the related projects throughout the discussion of cumulative impacts. Local impacts were assumed to include projects which would occur within the same timeframe as the BP Carson Refinery Safety, Compliance and Optimization Project and which are within a one and one half-mile radius of the Refinery. These projects generally include other refinery projects, Alameda Corridor projects, and projects in near-by cities.

Some of the resources affected by the proposed BP Refinery project would primarily occur during the construction phase, e.g., traffic. Other impacts would primarily occur during the operational phase, e.g., hazards. Still other impacts would occur during both phases, e.g., air quality and noise.

5.2 RELATED PROJECTS

Other proposed projects within the general Wilmington/Carson/Long Beach area are described below.

5.2.1 BP CARSON REFINERY COMPLIANCE AND SAFETY PROJECT (#1)

BP is currently constructing a previously approved compliance and safety project that includes modifications to four components at its Carson Refinery. The purposes of the previously approved project are to: (1) eliminate releases of hydrogen sulfide and ammonia from a sour water surge tank, known as Tank 710 in the sour water treatment system (to comply with an order for abatement); (2) reduce excessive maintenance and outages associated with the Refinery's Vacuum distillation Unit; (3) prevent uncontrolled, direct atmospheric releases of pollutants during equipment overpressure

from the Refinery's No. 1 Crude Unit; and (4) prevent uncontrolled, direct atmospheric releases of pollutants during equipment overpressure from the Refinery's Butane Tank Car Loading Rack. Construction for this project began in 2005 and is expected to be complete by second quarter 2006, so construction activities will not overlap with the proposed project (SCAQMD, 2005). However, the construction schedule for 51 Vacuum Tower may slip into November 2006 and may overlap with the early construction phases of the proposed project. Therefore, the potential construction overlap of the BP Compliance and Safety Project with the proposed project will be evaluated as a potential cumulative impact. Operational impacts will overlap with the proposed BP project and, therefore, will be included in the cumulative impact analysis.

5.2.2 BP NEW ADMINISTRATION BUILDING (#2)

BP is proposing a new office building at 2350 E. 223rd Street. BP is proposing a 122,000 square-foot administration building, 2,000 square foot coffee shop, and 1,500 square foot credit union on a 15-acre site. This facility would replace the existing administration building so no increase in operational emissions or traffic impacts are expected. However, construction activities could overlap with the proposed BP Safety, Compliance and Optimization project and will be included in the cumulative impact analysis.

5.2.3 SCAQMD RULE 1105.1 COMPLIANCE PROJECTS (#3)

Refineries (other than Shell and BP) are expected to comply with modified SCAQMD Rule 1105.1 – Reduction of PM10 and Ammonia Emissions from FCC Units by one or more of the following: (1) additional feed hydrotreating to remove sulfur and metals in the feed to the FCCU that would reduce the formation of particulates; (2) new or improved dry ESPs; (3) flue gas conditioning (ammonia injection); (4) additional catalytic NOx control; (5) SOx reducing additives; (6) wet gas scrubbers; (7) and baghouses (SCAQMD, 2003b). It is expected that construction activities to install new equipment will be required at five of the six refineries in southern California to comply with SCAQMD Rule 1105.1 and could overlap with the BP proposed project. The Shell operators have proposed a specific project, which is described in Section 5.2.4. However, specific projects for the other refineries are not yet available. Therefore, the cumulative impacts analysis will include the analysis completed by the SCAQMD in the 2003 Final Environmental Assessment (EA) for Proposed Rule 1105.1 – Reduction of PM10 and Ammonia Emissions from Fluid Catalytic Cracking Units (SCAQMD No. 012403BAR, September 2003).

The construction air quality analysis in the 2003 Final EA (pages 4-3 through 4-10) evaluated two compliance scenarios that could occur at any one of the five affected refineries. Compliance scenario #I consisted of the following two phases that could occur at any one of the five affected refineries: Phase Ia - Demolition (of existing ESP), and Phase IIa - Construct New ESP. Compliance scenario #II consisted of the following two phases that could occur at any one of the five affected refineries: Phase Ib – Plate Cleaning (activity that occurs prior to rebuilding an ESP), and Phase IIb - Rebuild Existing ESP. These scenarios do not make any assumptions regarding where (i.e.,

which refineries) the scenarios may occur, only that two scenarios could occur concurrently. Construction emissions were calculated for each construction phase of both scenarios. It was assumed in the 2003 Final EA that under both compliance scenarios, the first phase construction activities and the second phase construction activities could overlap. It was further assumed that, at any given time, construction activities from each construction phase for both compliance scenarios could overlap. The cumulative analysis herein will use the construction calculations completed in the 2003 Final EA, although this is expected to provide a conservative analysis of the construction impacts associated with Rule 1105.1 compliance because construction emissions from BP have been included as part of the proposed project and the construction emissions from Shell have been included as a separate cumulative project. Therefore, the cumulative analysis assumes that construction activities will occur simultaneously at four refineries (BP and Shell, plus two others assumed in the 2003 Final EA analysis). The cumulative analysis will also use only the estimated emission reductions from all refineries as reported in the 2003 Final EA so that double counting of emission reductions is avoided.

5.2.4 SHELL RULE 1105.1 COMPLIANCE PROJECT (#4)

In 2003, the SCAQMD adopted Rule 1105.1 – Reduction of PM10 and Ammonia Emissions from FCC Units. This rule establishes reduced PM10 and ammonia limits for FCCU regenerators located at refineries. Shell operates a series of cyclones followed by three dry ESPs to control particulates from the FCCU. The ESPs were installed over 30 years ago. Because of their age, the existing ESPs are no longer as efficient in capturing particulates as the new models currently available. Shell operators have decided to remove the three existing ESPs and install three new ESPs as control equipment for the FCCU to comply with SCAQMD Rule 1105.1. A Negative Declaration (SCH No. 2006031004) was prepared for the Shell Rule 1105.1 Compliance Project and certified by the SCAQMD on April 27, 2006. Construction of the Shell Rule 1105.1 Compliance project is scheduled to begin in May 2006 and to be complete by June 2007. The construction phase of the Shell project will overlap with portions of the BP Safety, Compliance and Optimization Project (SCAQMD, 2006).

5.2.5 SCAQMD RULE 1118 COMPLIANCE PROJECTS (#5)

In 2005, the SCAQMD approved revisions to SCAQMD Rule 1118 – Control of Emissions from Refinery Flares. The revised rule will: (1) prohibit the flaring of vent gases except during emergencies, shutdown/startups, turnarounds, and essential operational needs; (2) require affected facilities to analyze the specific cause of major flaring events (3) require refineries that exceed the performance targets to develop and implement flare management plans to minimize emissions; and (4) require affected facilities to meet emission performance levels by certain dates. Compliance with this rule is expected to require modifications to flare gas recovery/treatment systems at several facilities (SCAQMD, 2005c) and could overlap with the BP proposed project.

The cumulative analysis will use the assumptions in the Final Environmental Assessment for Proposed Amended Rule 1118 – Control of Emissions from Refinery Flares

(SCAQMD No. 102605MK, October 2005) to estimate construction activities at other refineries. This analysis is expected to provide a conservative analysis of construction impacts associated with Rule 1118 compliance because construction emissions from BP have been included as part of the proposed project. The cumulative analysis will also use only the estimated emission reductions from all refineries as reported in the 2005 Final EA (SCAQMD, 2005c) so that double counting of emission reductions is avoided.

5.2.6 ULTRAMAR INC. – VALERO WILMINGTON REFINERY; ALKYLATION IMPROVEMENT PROJECT (#6)

On February 12, 2003, the Ultramar Inc. - Valero Wilmington Refinery and the South Coast Air Quality Management District (SCAQMD) entered into a Memorandum of Understanding (the MOU) providing for termination of the storage and use of concentrated hydrofluoric acid at the Valero refinery.

As part of the MOU, the Valero refinery agreed to adopt a modified alkylation process, which eliminates the use of concentrated HF catalyst by substituting the proprietary Reduced Volatility Alkylation Process (ReVAP). ReVAP incorporates a suppressant in the HF, which reduces HF volatility in the event of an accidental release with a concurrent reduction in safety risks in the surrounding area. Use of this modified process meets the SCAQMD's objectives with respect to elimination of concentrated HF. Incorporation of ReVAP requires substantial improvements to the Alkylation Unit and related units and systems of the Valero refinery (SCAQMD, 2004b).

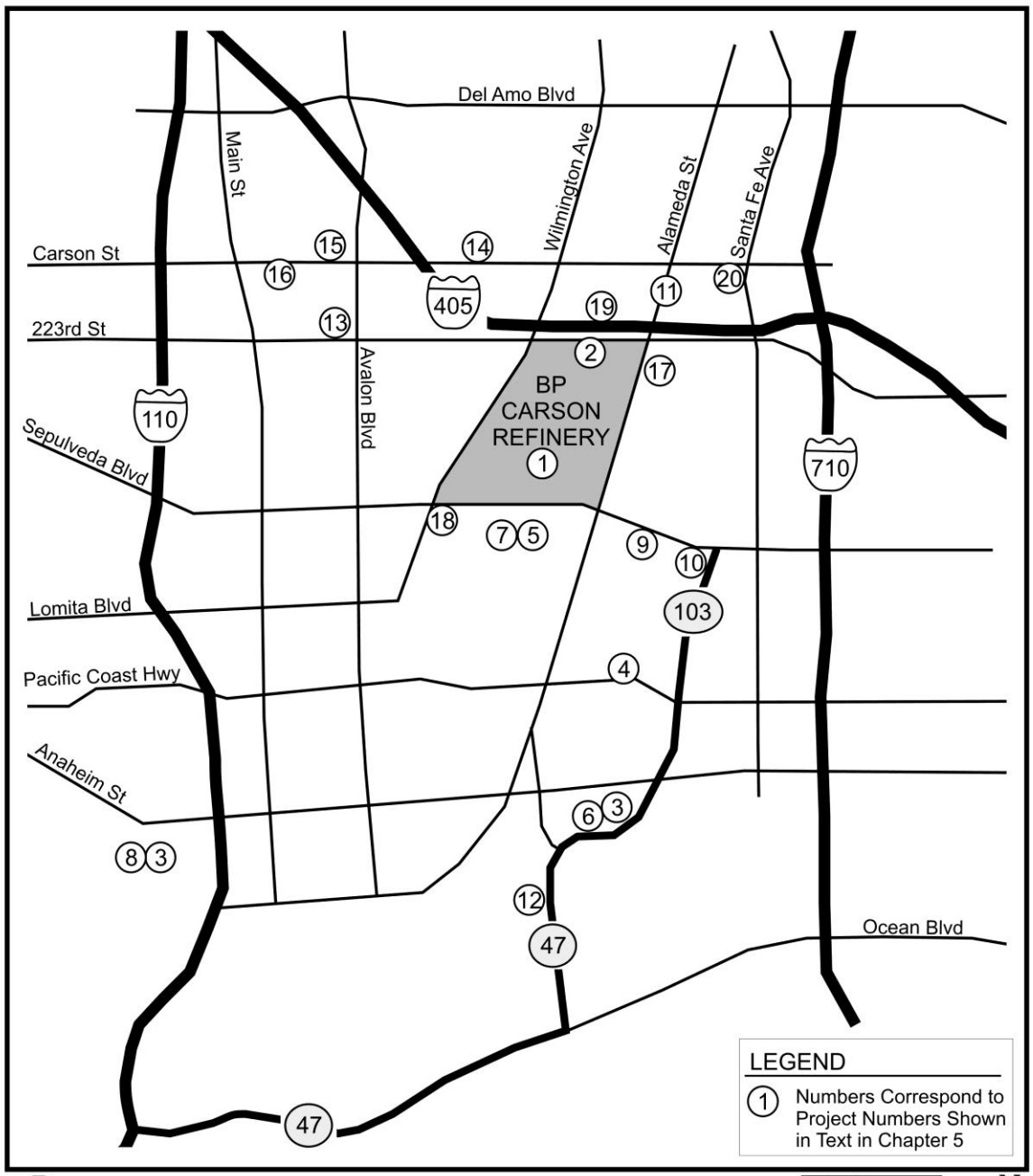
The Valero project consists of the following principal components:

- Modify the existing Alkylation Unit to incorporate the ReVAP process, and enhance the alkylate production capacity to 20,000 barrels per day (BPD).

- Increase the existing Butamer Unit capacity to 17,000 BPD to provide sufficient feed for the enhanced Alkylation Unit with the ReVAP process. Modifications to the Merox Treating Unit, Light Ends Units, and Naphtha Hydrotreater Unit, and installation of a new fuel gas treating system are also required.

- Upgrade refinery utility systems to support the improvements, including a new steam boiler with a selective catalytic reduction (SCR) unit, a new hot oil heater with a SCR unit, modifications to an existing hot oil heater, a new cooling tower, as well as modifications to an existing cooling tower, a new butane storage sphere, a new propane storage bullet, a new hydrocarbon flare, a new aqueous ammonia storage tank, and relocation of storage tanks.

Construction of the alkylation improvement project is expected to be completed in the fourth quarter of 2006, therefore, construction activities are not expected to overlap with the proposed project at the BP Refinery. Operational impacts will overlap with the proposed BP project and, therefore, will be included in the cumulative impacts analysis.



CUMULATIVE PROJECTS
LOCATION MAP

Project No. 2393 Figure 5-1

N:\2393\Surrounding Area Map (rev.4).cdr

5.2.7 CONOCOPHILLIPS LOS ANGELES REFINERY (CARSON PLANT) SCR PROJECT (#7)

The ConocoPhillips Los Angeles Refinery is proposing to install an SCR unit and new aqueous ammonia tank at its Los Angeles Refinery Carson Plant to reduce emissions of NOx from an existing boiler. Project construction consists of adding a new SCR unit, installation of a storage tank, and the installation of new piping.

The ConocoPhillips Refinery Carson Plant currently operates Boiler 10, which is used to supply steam to refinery process units. ConocoPhillips is proposing to install an SCR Unit on Boiler 10 to reduce emissions of NOx from the Boiler. SCR Units are considered to be best available retrofit control technology (BARCT) for the control of NOx from existing combustion sources. NOx emissions are controlled by injecting aqueous ammonia into the exhaust gas stream upstream of a catalyst. The aqueous ammonia to be used in the SCR Unit will consist of 19 percent ammonia. The NOx concentration downstream from the SCR Unit is expected to be approximately nine parts per million (SCAQMD, 2004).

The project also includes the installation of a 10,000 gallon pressurized ammonia storage tank to store aqueous ammonia. Aqueous ammonia will be supplied from a local vendor in the Los Angeles area, delivered to the Carson Plant for storage and use (SCAQMD, 2004).

Construction activities for this ConocoPhillips project are expected to be completed prior to the start of the construction of the BP proposed project so no overlap in construction activities is expected. Operational impacts will overlap with the proposed BP project and, therefore, will be included in the cumulative impacts analysis.

5.2.8 CONOCOPHILLIPS LOS ANGELES REFINERY (WILMINGTON PLANT) ULTRA LOW SULFUR DIESEL PROJECT (#8)

The ConocoPhillips Ultra Low Sulfur Diesel (ULSD) project was developed to comply with the federal, state and SCAQMD regulations that limit the sulfur content of diesel fuels. The ULSD Project has two major components: (1) revamp the Mid-barrel Hydrotreater Unit 90 to decrease the hydrotreating reaction space velocity to meet the required diesel sulfur level; and (2) modify the mid-barrel handling and logistics to segregate diesel from higher sulfur jet fuel. The ULSD Project will also improve hydrogen distribution at the Wilmington Plant; and improve control of the Crude Unit heavy gas oil distillation cutpoint at the Carson Plant. The ULSD proposed project will not increase diesel production, affect the refinery's existing ability to produce CARB diesel at the Wilmington Plant Gas Oil Hydrotreater or increase crude throughput. The following refinery units and processes have already been or will be affected by the ULSD project (SCAQMD, 2005b):

- Mid-Barrel Hydrotreater U-90
- Mid-Barrel Handling and Shipping Modifications
- Hydrogen System
- Tank 331
- Crude Unit DU-5 at the Carson Plant
- Replacement of charge heater B-201
- Installation of a new SCR unit

Construction activities for this ConocoPhillips project are expected to be completed prior to the start of the construction of the BP proposed project so no overlap in construction activities is expected. Operational impacts will overlap with the proposed BP project and, therefore, will be included in the cumulative impacts analysis.

5.2.9 KINDER MORGAN CARSON TERMINAL EXPANSION (#9)

The Kinder Morgan Carson Terminal is located at 2000 East Sepulveda Boulevard, Carson, California, adjacent to the southeast intersection of Alameda Street and Sepulveda Boulevard. The site lies within an industrialized area bounded by existing refineries and petroleum storage tanks on the north and east, and Alameda Street on the west. The project involves the construction of eighteen new 80,000 – barrel product storage tanks and one new 30,000 – barrel transmix storage tank with related piping, pumps, and control systems on the southwestern portion of the existing Carson Terminal facility. The proposed project would increase the petroleum storage capacity of the facility by up to 25 percent over a three to ten year period, depending on the market demand for petroleum product storage. The facility is operated by Kinder Morgan Energy Partners, L.P. (KMEP).

The 80,000-barrel tanks would be used to store refined petroleum products such as regular unleaded gasoline, premium unleaded gasoline diesel fuel, jet fuel, alkylates, reformates, and blend stocks. The 30,000-barrel transmix tank would be used to store small volumes of product that are commingled within the pipeline system during product transfers (City of Carson, 2005).

The new tanks would be connected to existing gasoline, diesel, and jet fuel pipelines. A new shipping and receiving manifold with pumps and interconnecting piping would be installed to integrate the new tanks within the existing facility. The manifold would be designed to have a 15,000-barrel per hour throughput capacity with the potential to be upgraded to a maximum 20,000-barrel per hour throughput capacity. This compares to the existing manifold and piping system, which has a 10,000-barrel per hour throughput capacity (City of Carson, 2005).

Construction activities for the KMEP project are expected to occur over a 10 year period and may occur during the same timeframe as the BP proposed project. Operational impacts will overlap with the proposed BP project and, therefore, will be included in the cumulative impacts analysis.

5.2.10 CHEMOIL TERMINALS CORPORATION (#10)

The Chemoil Terminals Corporation is located at 2365 E. Sepulveda, Carson. The Chemoil facility is an organic liquid storage facility and its operators are proposing to expand the existing terminal by the addition of five 50,000-barrel tanks, and two 20,000-barrel tanks for the storage of organic liquids such as ethanol, crude oil, gasoline, naphtha, cycle oils, marine and non-marine diesel oils, and residual fuel oils. The City of Carson is in the process of preparing a CEQA document for this development; however, no CEQA document is currently available for this project (personal communication, John Signo, City of Carson). Therefore, some of the environmental impacts associated with this project are unknown.

The Chemoil project, if approved, is likely to be constructed during the same time period as the BP project and will be included in the cumulative impacts analysis, to the extent that impacts can be estimated based on limited information.

5.2.11 ALAMEDA CORRIDOR TRANSIT AUTHORITY

The Alameda Corridor is located in southern Los Angeles County, California, running from the ports of Long Beach and Los Angeles 20 miles north to downtown Los Angeles, primarily along and adjacent to Alameda Street. The project extends through or borders the cities of Vernon, Huntington Park, South Gate, Lynwood, Compton, Carson, Los Angeles, and the County of Los Angeles.

The Alameda Corridor is a 20-mile-long rail cargo expressway linking the ports of Long Beach and Los Angeles to the transcontinental rail network near downtown Los Angeles. It is a series of bridges, underpasses, overpasses and street improvements that separate freight trains from street traffic and passenger trains, facilitating a more efficient transportation network. The project's centerpiece is the Mid-Corridor Trench, which carries freight trains in an open trench that is 10 miles long, 33 feet deep and 50 feet wide between State Route 91 in Carson and 25th Street in Los Angeles. Construction of the Alameda Corridor began in April 1997 and operations began in April 2002.

The Alameda Corridor project was built by the Alameda Corridor Transportation Authority (ACTA), a joint powers authority formed by the cities and Ports of Long Beach and Los Angeles. ACTA's seven-member Governing Board includes two representatives from each port; a member of each city council, and a representative of the Los Angeles County Metropolitan Transportation Authority. Therefore, the major portions of the ACTA project (i.e., railroad improvements and grade separations along Alameda Street) have been completed and are part of the existing environmental setting. However, several additional projects being developed by ACTA are described below (ACTA, 2006).

Shuttle Train Pilot Program (#11)

ACTA recently adopted an Expanded Mission to address cargo growth at the ports and to optimize use of the existing rail and highway network while larger scale projects are planned and funded. As part of its expanded mission, ACTA identified initiation of a Shuttle Train Pilot Program as a priority goods movement project (ACTA, 2006).

The shuttle train pilot program addresses the need to develop a short-haul rail alternative to trucking cargo from the ports to inland distribution centers and storage facilities (ACTA, 2006). If successful, this pilot program will lead to a large scale shuttle train service that will alleviate truck traffic along the I-710 and I-110 and major east-west freeways, by transporting containerized cargo via rail from the port complex to a rail facility in the Inland Empire. From the rail facility, cargo will be trucked a short distance to warehouse and distribution centers. The pilot shuttle train, as well as the future permanent service, would use the existing Alameda Corridor and the existing railroad mainlines (ACTA, 2006).

This project is currently being discussed by ACTA but has not received funding or necessary approvals. No CEQA document has been prepared for this project at this time and no estimate of when or if the project will be constructed is currently available (personal communication, Connie Rivera, ACTA).

SR-47 Port Access Expressway (#12)

Improvements to State Route 47 (SR-47), in the vicinity of the ports, will enhance local goods movement. Along with Caltrans, ACTA is proposing to develop a four-lane expressway that includes the replacement of the seismically deficient Schuyler Heim Bridge (ACTA, 2006).

The 2.2 mile-long SR-47 Port Access Expressway will create a more direct route to local warehouses and other transportation corridors, and will reduce congestion as well as improve public safety and regional air quality. This expressway will bypass congestion-producing traffic signals and five at-grade rail crossings. This project will reduce congestion on the I-710, I-110 Freeways and surrounding bridges (ACTA, 2006).

The EIR process is under way for this project. ACTA is expecting the Draft EIR review back from CalTrans, and expects to release the document for public review by July, 2006. Detailed information to evaluate the impacts of the SR-47 project is not currently available (Personal communication with Connie Rivera with ACTA, 2006).

5.2.12 OTHER PROJECTS IN THE CITY OF CARSON

There are other projects in the City of Carson that are in the planning phase and which could add to cumulative impacts. After reviewing the Development Status Report on the City of Carson website, and sharing correspondence with the City's planning department, seven such projects have been identified. The relevant information pertaining to these projects is presented in Table 5-1. Limited information is available on most of these projects as CEQA documents were not prepared for most of the City of Carson projects (personal communication, Steve Newberg and John Signo, City of Carson). The projects with available information to provide a project description are discussed below. For some projects, the only information available is the information on the project size (i.e., those referred to in Table 5-1 as 13, 15, 16, 17, and 19). Cumulative impacts for these projects will be evaluated to the extent feasible using default assumptions.

TABLE 5-1

Related Projects in the City of Carson(1)

Map No.	Address/Location	Size in units	Project Description	Distance from Proposed Project
13	643 E. 223rd Street	40 attached units on 2.76 acres	Residential Units	< 1 ½ miles
14	1243 – 1249 E. Carson Street	25,000 square feet	Church and Community Hall	< 1 ½ miles
15	616 E. Carson Street	90 units	Residential	< 1 ½ miles
16	NW corner of Carson St./Grace Ave.	98 units	Residential	< 1 ½ miles
17	Off dock USA Container Terminal Project, 22700 South Alameda Street	13.5 acre container storage facility	Industrial	< 1 ½ miles
18	BP Integrated Supply and Trading 1150 E. Sepulveda Blvd.	2 new storage tanks	Industrial	< 1 ½ miles
19	2250 220th Street	102,000 square feet	Industrial	< 1 ½ miles

(1) Source: City of Carson Development Status Report, e-mail correspondence with Steve Newberg, and personal communication John Signo, City of Carson.

Details of project development were available for the Samoan Missionary Church (No. 14 in Table 5-1), located at 1249 E. Carson Street, midway between Avalon Boulevard and S. Wilmington Avenue. The proposed project is to build a new 25,000 square-foot church on vacant land totaling 1.55 acres. The church building will include a sanctuary, community hall, lobby, museum, and office space. The area around the church is

designated as high density residential land use which is zoned RM-25. The site lies within a residential area bounded by single-family residences to the north, single-family residences and commercial uses to the east, single-family residences to the south and multifamily residences to the west.

Two new storage tanks are being proposed by the BP Integrated Supply and Trading (IST) Division, south of Sepulveda Boulevard and east of Wilmington. The City of Carson will be the lead agency for this project and has only received preliminary information regarding this project. The City of Carson has indicated that a CEQA document will be required, but sufficient data regarding the project are not currently available. Preliminary information indicates that the two new storage tanks will be about 260 feet in diameter with a storage capacity of about 250,000 barrels each for a total storage capacity of 500,000 barrels. The storage tanks will be used to store crude oil. It will be assumed that the construction of the storage tanks occurs during the construction phase of the proposed project, since the construction phase of the proposed project spans from the end of 2006 through the first quarter of 2009.

5.2.13 SOUTH REGION HIGH SCHOOL NO. 4 (#20)

The Los Angeles Unified School District is proposing to construct a new high school to educate 1,809 students in grades 9 through 12 at the corner of Santa Fe Avenue and Carson Street in the City of Long Beach. The school is intended to relieve overcrowding at Carson and Banning high schools. The school would be approximately 182,000 square feet in size and facilities would include 67 classrooms, a library/media center, a performing arts center, two gymnasiums, a multi-purpose facility, a career center, a health center, set-aside classrooms, a student store, centralized administrative offices, and a police/security facility. The remainder of the site would be developed with recreational and athletic facilities. Subterranean faculty/staff parking would be provided at the northern end of the site. Construction is proposed to start in the first quarter of 2007 and take approximately 30 months to complete, with opening planned for fall 2010. Construction and operation of the school will overlap with the proposed BP projects and the cumulative impacts will be analyzed. The LAUSD has prepared a draft EIR for the proposed project (SCH No. 2005041116).

5.3 AIR QUALITY

5.3.1 CONSTRUCTION IMPACTS

Currently, the South Coast Air Basin is non-attainment for ozone, CO and PM10. Construction activities for some of the projects described in Section 5.2 have the potential to overlap with the proposed BP project and result in a short-term significant impact on air quality (see Table 5-2). The proposed BP project could result in significant construction emissions for CO, VOC, and NOx during the construction period (see Table 4-7). Therefore, the air quality impacts associated with construction activities are considered significant.

TABLE 5-2

Cumulative Construction Air Quality Impacts (pounds per day)

No.	Project	Type of Project	Estimated Emissions				
			CO	VOC	NOx	SOx	PM10
	Proposed BP Carson Refinery Safety, Compliance, and Optimization Project[1]	Refinery	891	219	1,053	101	138
2	BP Carson Refinery Office Project[2]	Office Building	144	33	135	0	19
3	SCAQMD Rule 1105.1 Compliance Projects[3]	Refineries	578	122	893	73	50
4	Shell Rule 1105.1 Compliance Project[4]	Refinery	299	63	416	45	36
5	SCAQMD Rule 1118.1 Compliance Projects[5]	Refineries	18	7	43	3	5
9	Kinder Morgan[6]	Industrial	242	52	477	7	273
10	Chemoil Project [7]	Industrial	121	26	239	4	137
13-16	Related Projects in the City of Carson[8]	Residential, Office Space, Church and Community Hall	480	120	447	0	20
17	USA Container Terminal Project[2]	Warehouse	642	148	604	<1	93
18	BP Integrated Supply and Trading Division Storage Tanks[9]	Industrial	92	19	130	7	19
19	2250 220th Street[2]	Industrial	144	30	136	<1	7
20	South Region High School No. 4[2]	High School	234	36	187	0	9
		Total Emissions	3,885	875	4,760	242	806
		SCAQMD Thresholds	550	75	100	150	150
		Significant	**Yes**	**Yes**	**Yes**	**Yes**	**Yes**

(1) See Table 4-7; (2) Emission estimates were estimated using the URBEMIS 2002 model; (3) SCAQMD, 2003b; (4) SCAQMD, 2006; (5) SCAQMD, 2005c; (6) City of Carson, 2005; (7) Assumes construction emissions are about 50 percent of the Kinder Morgan Terminal Expansion Project, because of the similar but smaller nature of the Chem Oil project; (8) Includes all projects identified in Table 5-1. Emission estimates were estimated using the URBEMIS 2002 model; and (9) Preliminary project information, Personal Communication, Mike Bradford, Jacobs Engineering.

The projects identified in Table 5-2 have the potential for construction activities that overlap with the construction activities for the proposed BP project. Table 5-2 summarizes the available construction emissions data for the related projects. On a

cumulative basis, construction emissions would exceed the thresholds established by the SCAQMD assuming they occur at the same time. Therefore, the cumulative air quality construction impacts are considered significant. Mitigation measures to reduce air emissions associated with construction activities are necessary primarily to control emissions from heavy construction equipment and worker travel.

There will be construction emissions associated with other projects in the area including the Alameda Corridor projects (e.g., modifications to SR-47 Port Access Expressway), but these emissions were not estimated and sufficient information does not exist to estimate these emissions. Therefore, additional unquantifiable adverse air quality impacts may occur due to construction activities from these other projects.

The BP Carson Refinery is currently under construction with the BP Compliance and Safety Project. The Mitigated Negative Declaration completed for the project indicated that it would be finished with construction activities in October 2006. There have been several delays in construction activities that may push the construction schedule into November/December 2006 (SCAQMD, 2005). Table 5-3 has been prepared to show the projects with the potential for construction activities to overlap during the November/December 2006 timeframe.

The projects identified in Table 5-3 have the potential for construction activities that overlap with the construction activities for the proposed BP project during November/December 2006. On a cumulative basis, construction emissions during this timeframe would exceed the thresholds for CO, VOC, NOx, and PM10 established by the SCAQMD assuming they occur at the same time. Therefore, the cumulative air quality construction impacts are considered significant. Mitigation measures to reduce air emissions associated with construction activities are necessary primarily to control emissions from heavy construction equipment and worker travel.

5.3.2 OPERATIONAL EMISSION IMPACTS

During operation, some of the projects are expected to reduce overall air pollutant emissions, specifically the SCAQMD Rule 1105.1 and 1118 compliance projects. However, there are localized increases for certain air pollutants (see Table 5-4). Direct stationary emission sources are generally subject to regulation. The emissions associated with the proposed BP project modifications, are shown in Chapter 4, Table 4-4. The operation of the BP Safety, Compliance, and Optimization Project will not exceed the SCAQMD thresholds, so no significant air quality impacts are expected from the proposed project.

Air quality impacts associated with cumulative projects are expected to be less than the SCAQMD mass emissions thresholds for CO, NOx, SOx and PM10. On a cumulative basis, only the emissions of VOCs are expected to exceed the SCAQMD mass emission thresholds. Therefore, the cumulative air quality impacts for CO, NOx, SOx, and PM10 are expected to be less than significant. The cumulative air quality impacts of VOCs are expected to be significant.

TABLE 5-3

Cumulative Construction Air Quality Impacts During Fourth Quarter 2006 (pounds per day)

No.	Project	Type of Project	Estimated Emissions				
			CO	VOC	NOx	SOx	PM10
	Proposed BP Carson Refinery Safety, Compliance, and Optimization Project[1]	Refinery	334	62	554	46	120
1	BP Refinery Compliance and Safety Project[2]	Refinery	78	39	60	7	11
2	BP Carson Refinery Office Project[3]	Office Building	144	33	135	0	19
4	Shell Rule 1105.1 Compliance Project[4]	Refinery	299	63	416	45	36
9	Kinder Morgan[5]	Industrial	242	52	477	7	273
13-16	Related Projects in the City of Carson[6]	Residential, Office Space, Church and Community Hall	480	120	447	0	20
17	USA Container Terminal Project[3]	Warehouse	642	148	604	<1	93
19	2250 220th Street[3]	Industrial	144	30	136	<1	7
		Total Emissions	2,363	547	2,829	107	579
		SCAQMD Thresholds	550	75	100	150	150
		Significant	**Yes**	**Yes**	**Yes**	**No**	**Yes**

(1) Based on estimates for November/December construction activities; (2) SCAQMD, 2005; (3) Emission estimates were estimated using the URBEMIS 2002 model; (4) SCAQMD, 2006; (5) City of Carson, 2005; and (6) Includes all projects identified in Table 5-1. Emission estimates were estimated using the URBEMIS 2002 model.

There will be emissions associated with other projects in the area including the Chemoil Project, BP IST storage tank project, and Alameda Corridor projects (e.g., modifications to SR-47 Port Access Expressway), but these emissions were not estimated and sufficient information does not exist to estimate these emissions. The ACTA Corridor and related transportation improvement projects are expected to reduce port-related transportation emissions by improving transportation efficiency, reducing congestion, and the related air emissions. Therefore, additional air quality benefits may occur due to the transportation related projects.

TABLE 5-4

Cumulative Operational Air Quality Impacts (pounds per day)

No.	Project	Type of Project	Estimated Emissions				
			CO	VOC	NOx	SOx	PM10
	Proposed BP Carson Refinery Safety, Compliance, and Optimization Project[1]	Refinery	13	~~36~~ *52*	20	<1	15
1	BP Refinery Compliance Project[2]	Refinery	0	0	0	0	0
3	SCAQMD Rule 1105.1 Compliance Projects[3]	Refineries	5	6	1	<1	-5,099
4	Shell Rule 1105.1 Compliance Project[4]	Refinery	1	<1	2	0	<1
5	SCAQMD Rule 1118[5] Compliance Projects	Refineries	-1,200	-220	-240	-2,020	-60
6	Valero Wilmington Refinery; Alkylation Improvement Project[6]	Industrial	483	275	202	190	269
7	ConocoPhillips Carson Plant SCR Project[7]	Industrial	3	<1	-178	<1	2
8	ConocoPhillips Ultra Low Sulfur Diesel Project[8]	Industrial	7	17	-6 to -21	<1	<1
9	Kinder Morgan Carson Terminal Expansion[9]	Industrial	0	-97	0	0	0
13-16	Related Projects in the City of Carson[10]	Residential, Office Space, Church, Community Hall	346	50	36	<1	32
17	USA Container Terminal Project	Warehouse	249	27	25	<1	25
19	2250 220th Street[2]	Industrial	48	6	5	<1	4
20	South Region High School No. 4[2]	High School	201	41	21	<1	23
		Total Emissions	156	~~142~~ *159*	-112 to -127	-1,827.5	-4,787
		SCAQMD Thresholds	550	75	100	150	150
		Significant	**No**	**Yes**	**No**	**No**	**No**

(1) See Table 4-4; (2) SCAQMD, 2005; (3) SCAQMD, 2003b; (4) SCAQMD, 2006; (5) SCAQMD, 2005c; (6) SCAQMD, 2004b; (7) SCAQMD, 2004; (8) SCAQMD, 2005b; (9) City of Carson, 2005; (10) Includes all projects in Table 5-1. Emissions estimated using URBEMIS 2002 model and default assumptions; (11) Emissions estimated using URBEMIS 2002 model and default assumptions.

Emission estimates are not available for all projects. CEQA documents are not yet available for the Chemoil and BP IST storage tank projects, which will both result in

additional storage tanks in the area. The construction of new storage tanks will be required to comply with SCAQMD Rule 1178 – Further Reductions of VOC Emissions From Storage Tanks at Petroleum Facilities as well as BACT, which would minimize VOC emissions to the extent feasible, so that emission increases from new storage tanks are expected to be minor.

5.3.3 TOXIC AIR CONTAMINANTS

The proposed project impacts on health effects associated with exposure to toxic air contaminants is expected to be below the CEQA significance thresholds and, therefore, less than significant. The proposed project impacts on cancer risk to the MEIR and MEIW were estimated to be ~~0.21~~ *0.31* per million and ~~0.24~~ *0.46* per million, respectively, which is well below the significance threshold of 10 per million. The acute and chronic health indices were estimated to be ~~0.009~~ *0.0012* and ~~0.012~~ *0.0077,* respectively, which is well below the significance threshold of one (1.0). Therefore, the proposed project impacts are not expected to contribute to cumulative impacts and are not considered to be cumulatively considerable.

The impacts from toxic air contaminants are localized impacts. A number of the proposed projects in the Carson area are expected to result in overall emission decreases, including decreases in toxic air contaminants, e.g, Rule 1105.1 compliance projects, Rule 1118 Compliance Projects, the ConocoPhillips SCR and Ultra Low Sulfur Diesel Projects and the ACTA projects. Most of the cumulative projects that may result in emission increases are located over one mile from the BP Refinery and toxic air contaminant emissions are not expected to overlap due to distance from the Refinery and dispersion from the sources which dilutes emission impacts. Cumulative impacts of toxic air contaminants on health are expected to be less than significant.

5.3.4 MITIGATION MEASURES

For the construction period, the mitigation measures developed as part of the proposed BP project (see Section 4.2.3) will be imposed on other related projects, if the SCAQMD is the lead agency. The mitigation measures to minimize emissions associated with operation of the related projects include the use of BACT for all new emission sources and modifications to existing sources. The use of BACT would control localized emissions. A BACT review will be completed during the SCAQMD permit approval process for all new/modified sources.

It should be noted that the ports are working on measures to minimize port-related emissions that could provide emission reductions or minimize future emissions. Examples of these measures include: (1) the use of electric container cranes; (2) the use of electric motors to drive conveyors and rail gantry cranes and loading/unloading equipment for trains, trucks, and ships; (3) the use of dock equipment powered by propane or natural gas; (4) most of the tugboats in the port plug into electrical power while they wait for their next calls instead of idling their engines; (5) new clean diesel technologies are also being tested and installed on some tugboats and heavy work boats;

(6) the use of ultra-low emission diesel engines are being tested to reduce NOx emissions from tugboats by 80 percent; (7) the development of a Clean Engines and Fuels Program to incorporate alternative fuel vehicles into fleets; and (8) investigating the feasibility of using electricity to replace marine engines while at port (Port of Los Angeles, 2003c).

Further, the ACTA Corridor and related transportation improvement projects are expected to reduce port-related transportation emissions by improving transportation efficiency, reducing congestion, and the related air emissions.

5.3.5 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The cumulative adverse air quality impacts due to construction activities are expected to exceed the SCAQMD significance thresholds and are considered to be cumulatively considerable. The cumulative air quality impacts due to operational activities are expected to exceed the SCAQMD significance thresholds for VOC emissions only and are considered to be cumulatively considerable. The cumulative air quality impacts due to operational activities are expected to be less than significant for CO, NOx, SOx, and PM10. The project-specific toxic air pollutant health impacts would not be significant, and are not considered to be cumulatively considerable.

5.4 HAZARDS AND HAZARDOUS MATERIALS

5.4.1 CONSTRUCTION/OPERATIONAL IMPACTS

Although other refineries and industrial facilities exist in the general vicinity of the Refinery, the cumulative impacts from and between the onsite operation of the other industrial projects are not expected to be significant because it is extremely unlikely that upset conditions would occur at more than one facility at a time due to the distance between facilities. It also is extremely unlikely that an upset condition at one facility would create an upset at another nearby refinery because of the distance between facilities. Refinery operations at the ConcoPhillips Carson Plant, which is located south of Sepulveda Boulevard, are the closest refinery operations to the BP Refinery operations. The distance between the facilities associated with the proposed BP project and ConocoPhillips refinery units is approximately 1,100 feet, and the refineries are separated by a six lane major thoroughfare (Sepulveda Blvd.). The new project-related explosion or fire hazard impacts associated with the proposed project are expected to travel less than 1,000 feet, or stay within the confines of the existing Refinery. Therefore, explosion or fire hazards are not expected to reach or overlap with hazard impacts from other local refineries or industrial projects, so hazard impacts are not expected to be cumulatively considerable.

Hazardous materials may be shipped by containers through the ports, which may become involved in an accident or otherwise be released thereby posing a hazard to the public. It is estimated that five to 10 percent of containers transported into/out of the ports hold hazardous materials (USACE, 2003). The storage, separation, and handling of hazardous

materials in containers is governed by 49 CFR part 176. Hazardous materials can be shipped, transported, handled and stored as long as they are in full compliance with all local, state and federal regulations (USACE, 2003). The BP Carson Refinery is located more than two miles from the ports preventing overlap with hazards at the ports.

Containers with hazardous materials can become involved in accidents including fires, explosions, and releases of flammable and/or toxic gases. Some minor accidents have occurred at the Port of Los Angeles during transportation, handling and storage, but none have been considered serious or affected members of the public. Because of governing regulations, a fire or explosion would only be expected to cause local hazard impacts and not adversely affect members of the public due to exposure to flash fire, explosion, over pressure, thermal radiation or significant hydrogen sulfide or sulfur dioxide contaminants. A release of a toxic material could impact a larger area depending on the material released, however, packaging constraints would still limit the potential adverse impacts to a relatively small area (USACE, 2003).

5.4.2 MITIGATION MEASURES

The proposed project impacts on hazards are considered to be significant. A number of existing rules and regulations apply to the Refinery and other industrial facilities that handle, transport or store hazardous materials. Compliance with these rules and regulations is expected to minimize industry-related hazards. Compliance with these rules and regulations should also minimize the hazards at other refineries and industrial facilities. Site-specific mitigation measures for hazards may be required for other projects.

5.4.3 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The impacts of the various projects on hazards are not expected to be cumulatively considerable as hazards at or within one project area are not expected to impact or lead to hazards at other facilities.

5.5 NOISE

5.5.1 CONSTRUCTION IMPACTS

Construction phases of each of the related projects are expected to generate localized, short-term noise impacts, some of which may be significant during construction. Construction activities associated with various refinery projects and rule compliance projects are located in industrial areas where limited sensitive receptors are located. The use of muffling devices, restriction of most construction work hours to daytime hours, etc., are expected to mitigate the increase in noise at most of the construction sites.

The cumulative construction impacts associated with the related refinery projects and industrial projects are not expected to be significant or exceed noise ordinances. The

Refinery and other industrial projects are generally a sufficient distance apart that the noise levels are not expected to overlap. The construction of the new BP administration building and the proposed BP project are also expected to be a sufficient distance to avoid cumulative noise impacts. Further, the BP administration building is located on the east side of the BP Refinery in an area surrounded with commercial and industrial uses. Residential areas are located adjacent to the southwest corner of the BP Refinery property which is several miles away from the administration building so that cumulative noise impacts would not be expected on the closest residential areas to the Refinery.

Construction related to the BP IST storage tanks at the corner of Wilmington Avenue and Sepulveda Boulevard will require construction equipment and generate additional noise. The construction noise at this location will be located near a residential area on the southwest corner of Wilmington Avenue/Sepulveda Boulevard and increased construction noise may be noticeable to this residential area. Compliance with City of Carson noise ordinances would prevent significant impacts as construction activities would be limited to daytime hours. The location of the new storage tanks is over 4,000 feet (0.8 mile) from construction activities related to the BP Safety, Compliance and Optimization Project which is sufficient distance to prevent cumulative noise impacts.

Construction of the ACTA Shuttle Train Pilot Project is not expected to create significant noise impacts during construction as it will use existing rail lines. Improvements to SR-47 are expected to require construction activities, most of which would be in industrial areas near the ports. However, portions of SR-47 run adjacent to residential areas of Long Beach. Construction of some of the ACTA projects is expected to generate noise levels as high as 90 dBA at a distance of 50 feet during excavation phases and may result in significant noise impacts in residential areas. Construction activities are expected to be limited to daytime hours, which reduces the potential for impacts on residential areas; however, some construction activities may occur at night to avoid traffic conflicts. Therefore, the noise impacts from some of the SR-47 construction activities may result in significant adverse noise impacts. However, those noise impacts are not expected to be cumulative with noise from the BP Project as the noise levels from construction of the BP proposed project are low and less than significant. Further, the SR-47 project is located several miles from the BP Carson Refinery, so there is sufficient distance to reduce the potential for cumulative noise impacts.

5.5.2 OPERATIONAL IMPACTS

The operational noise impacts of the related refinery and industrial projects are not expected to be significant. Most of the Carson/Wilmington area near the BP Refinery is industrialized and the cumulative increase in noise is not expected to adversely impact residential areas since they are near the southwestern boundary of the BP Refinery, about one-half mile away from the operating portions of the Refinery. Also, about one mile separates the units associated with the BP Carson Refinery proposed project from other refinery and industrial properties, thus, it is unlikely that noise impacts will overlap. The new BP administration building is not expected to be a noise source, once construction is

complete, because it will replace an existing administration building and no new traffic is expected to be created.

Existing noise levels from traffic in the vicinity are already considered unacceptable for certain residential areas. Operation of the Alameda Corridor concentrates train and truck noise along the corridor while reducing overall noise on other highways and railways. The upgrades to SR-47 will concentrate truck traffic along SR-47, resulting in an increase in traffic and traffic noise along SR-47. Noise in the areas adjacent to SR-47 would be expected to increase. Therefore, the cumulative traffic noise impacts from ACTA projects may be significant.

The noise impacts from the proposed project are not expected to be cumulatively considerable because other projects are located sufficient distance (about 0.5 mile) from the BP Refinery project areas so that noise impacts do not overlap and residential areas are located about one-half mile from the operating portions of the Refinery.

5.5.3 MITIGATION MEASURES

Since noise impacts from the Refinery proposed project are not considered to be cumulatively considerable, they do not contribute to significant adverse cumulative worse impacts. As a result, no mitigation measures are required. Noise mitigation measures, e.g., sound barrier walls, may be required for some of the ACTA projects.

5.5.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The noise impacts on construction and operation remain significant for the construction of the ACTA project modifications. The noise impacts associated with the related refinery and industrial projects are not expected to be significant or contribute to significant adverse cumulative noise impacts during construction or operation.

5.6 TRANSPORTATION/TRAFFIC

5.6.1 CONSTRUCTION IMPACTS

Traffic impacts associated with the construction of the BP proposed project is expected to be mitigated to less than significant by altering the work schedules of construction workers to avoid peak hour traffic. Therefore, it is not expected that the proposed project will have cumulative traffic impacts with other projects in the area. The proposed project's contribution to cumulative impacts on traffic during the construction phase would not be considered cumulatively considerable.

There could be cumulative construction traffic impacts associated with other industrial construction projects in the area that do not avoid peak traffic hours.

Construction of the ACTA projects would require improvements to State Route 47 which could result in disruption to the local traffic circulatory system, creating detours and

affecting accessibility to businesses. Cumulative construction impacts on traffic from these projects are considered significant.

5.6.2 OPERATIONAL IMPACTS

Table 5-5 shows the projected LOS analysis and volume to capacity ratios due to general growth in the area (see Appendix E for details). Traffic studies completed by the City of Carson show that traffic has grown at the rate of 0.25 percent per year (City of Carson, 2004). Therefore, the cumulative traffic impacts were calculated assuming an ambient traffic growth rate of 0.25 percent per year from year 2005 to year 2020 and no changes in existing intersection geometrics. Cumulative impacts are not expected to result in a change in LOS at the following intersections:

- Wilmington Avenue/I-405 NB on/off ramps
- Wilmington Avenue/I-405 SB n/off ramps
- Wilmington Ave./Watson Center
- Alameda Street/I-405 NB ramp
- Alameda Street/223rd Street (Wardlow Access)
- I-405 SB on/off ramps/223rd Street (Wardlow Access)
- BP Refinery Gate 16/223rd St.
- BP Refinery Gate 60/223rd St.

The change in LOS at the following intersections is considered to be significant adverse cumulative impacts since traffic flow would be adversely impacted:

- Wilmington Avenue/223rd Street (greater than two percent increase in traffic)
- Wilmington Avenue/Sepulveda Boulevard (greater than two percent increase in traffic)
- Alameda Street/Sepulveda Boulevard (greater than two percent increase in traffic)
- 223rd Street/Alameda Street (Wardlow Access) (greater than two percent increase in traffic)

5.6.3 MITIGATION MEASURES

The BP Proposed Project construction traffic is expected to be mitigated to less than significant by avoiding starting or ending the work shifts during the peak traffic hours of 7:00 AM to 8:00 AM and 4:30 PM to 5:30 PM. This will avoid workers traveling during the peak traffic hours and eliminate potentially significant traffic impacts. The proposed project's impact on traffic during the project operational phase is less than significant.

TABLE 5-5

BP Carson Refinery Cumulative Traffic Impacts
Level of Services Analysis and Volume-to-Capacity Ratios

INTERSECTION	BASELINE (1)		CUMULATIVE IMPACTS		
	PM LOS	Peak Hour V/C	PM LOS	Peak Hour V/C	Change in V/C
Wilmington Ave. & I-405 NB on/off ramps	C	0.703	C	0.720	0.017
Wilmington Ave. & I-405 SB on/off ramps	B	0.609	B	0.624	0.015
Wilmington Ave. & 223rd St.	D	0.841	D	0.863	0.022(2)
Wilmington Ave. & Watson Center	B	0.668	B	0.685	0.017
Wilmington Ave. & Sepulveda Blvd.	E	0.902	E	0.926	0.024(2)
Alameda Street & I-405 NB ramp	A	0.538	A	0.551	0.013
Alameda St. & 223rd St./Wardlow Access	A	0.409	A	0.418	0.009
Alameda St. & Sepulveda Blvd.	D	0.846	D	0.868	0.022(2)
I-405 SB on/off ramps & 223rd St./Wardlow	A	0.510	A	0.523	0.013
223rd St. & Alameda St./Wardlow Access	D	0.845	D	0.867	0.022(2)
BP Refinery Gate 16 & 223rd St.	C	0.751	C	0.770	0.019
BP Refinery Gate 60 & 223rd St.	B	0.651	B	0.667	0.016

Notes: (1) = based on projected year 2008 traffic data, which assumed 0.25 percent growth per year.
(2) = potentially significant impact
V/C = Volume to capacity ratio (capacity utilization ratio)
LOS = Level of Service

On a cumulative basis, general growth in the area may result in significant traffic impacts at the intersections of Wilmington Avenue/223rd Street, Wilmington Avenue/Sepulveda Boulevard, Alameda Street/Sepulveda Boulevard, and 223rd Street/Alameda Street. The increase in traffic is unrelated to the proposed project but is related to general population growth in the area so mitigation measures will need to be developed as new projects that generate traffic are proposed and as part of the City of Carson's General Plan process.

5.6.4 LEVEL OF SIGNIFICANCE AFTER MITIGATION

The proposed project is not expected to result in significant traffic impacts. The cumulative adverse impacts of population growth on traffic are expected to be significant at four intersections.

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